

Withdrawal/Redaction Sheet

Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. schedule	Schedule for Hillary Rodham Clinton (partial) (3 pages)	03/05/1998	P6/b(6), b(7)(E)
002. note	Note re: phone numbers (1 page)	n.d.	P6/b(6)

COLLECTION:

Clinton Presidential Records
Domestic Policy Council
Eric Morse (Events)
OA/Box Number: 21192

FOLDER TITLE:

NASA Announcement 3/5

2011-0619-S

rc303

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.
PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).
RR. Document will be reviewed upon request.

Withdrawal/Redaction Marker

Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. schedule	Schedule for Hillary Rodham Clinton (partial) (3 pages)	03/05/1998	P6/b(6), b(7)(E)

COLLECTION:

Clinton Presidential Records
Domestic Policy Council
Eric Morse (Events)
OA/Box Number: 21192

FOLDER TITLE:

NASA Announcement 3/5

2011-0619-S

rc303

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

Freedom of Information Act - [5 U.S.C. 552(b)]

P1 National Security Classified Information [(a)(1) of the PRA]
P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P3 Release would violate a Federal statute [(a)(3) of the PRA]
P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

b(1) National security classified information [(b)(1) of the FOIA]
b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).

RR. Document will be reviewed upon request.

SCHEDULE FOR HILLARY RODHAM CLINTON

THURSDAY, MARCH 5, 1998

FINAL*

WASHINGTON, D.C.

DUNBAR HIGH SCHOOL

LEAD ADVANCE:

IAN ALBERG

202/514-5310

PHONE

P6/(b)(6)

HOME

P6/(b)(6)

PAGER

P6/(b)(6)

[001]

SITE ADVANCE:

JONATHAN ADASHEK

202/456-2702

PHONE

PRESS ADVANCE:

JOHN SOLOMAN

P6/(b)(6)

HOME

SCHEDULER:

JULIE HUFFMAN

202/456-5315

PHONE

202/456-5340

FAX

P6/(b)(6)

HOME

WHCA PAGER

#4762

PREV RON

The White House

9:00am

P6/(b)(6)

10:30am-

PHOTO-OP w/Stephen Hawking [w/POTUS]

10:40am

Diplomatic Reception Room

OFFICIAL PHOTO ONLY

PARTICIPANTS:

-The President

-The First Lady

-Stephen Hawking

Contact: Ellen Lovell

P6/(b)(6)

10:45am-

EVENT BRIEFING [w/POTUS]

11:05am

Oval Office

CLOSED PRESS/WH PHOTO ONLY

SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 2

PARTICIPANTS:

- The President
- The First Lady
- Jack Gibbons
- Dan Goldin
- Audrey Haines
- Mike McCurry
- June Shih
- Neera Tanden
- Melanne Verveer

Contact: Melanne Verveer
456-7264

11:05am-
11:10am

MEET AND GREET [w/POTUS]

Oval Office

CLOSED PRESS/OFFICIAL PHOTOS ONLY

PARTICIPANTS:

- The President
- The First Lady
- Lt. Colonel Eileen Collins
- Pat Youngs, Jr., Colonel Collins' husband
- Mary Kay Morin, Colonel Collins' cousin
- Dan Goldin, Administrator, NASA

Contact: Katy Button
456-7264

11:10am-
11:40am

ANNOUNCEMENT OF FIRST WOMAN NASA SHUTTLE COMMANDER

Roosevelt Room

POOL PRESS/WH PHOTO

FORMAT:

- The First Lady makes welcoming remarks, then introduces Dan Goldin, NASA Administrator.
- Mr. Goldin makes remarks, then introduces Lt. Colonel Eileen Collins.
- Colonel Collins makes brief remarks, then introduces The President.
- The President makes brief remarks.

SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 3

- Upon conclusion of The Presidents remarks,
The President, The First Lady, Mr. Goldin
and Colonel Collins depart.

PARTICIPANTS: Approx. 35 guests to attend.
See briefing book for complete guest list.

Contact: Katy Button
456-7264

12:00pm-
12:15pm

PRIVATE MEETING w/Melinda Bates
Map Room
CLOSED PRESS/NO WH PHOTO

PARTICIPANTS:
-The First Lady
-Melinda Bates
-Capricia Marshall

Contact: Melinda Bates
456-2324

12:15pm-
2:10pm

DOWN TIME

2:10pm-
2:15pm

PRIVATE MEETING w/Craig Smith
Diplomatic Reception Room
CLOSED PRESS/NO WH PHOTO

PARTICIPANTS:
-The First Lady
-Craig Smith

Contact: Craig Smith/Chris Lavery
456-7713

2:15pm-
2:30pm

PRIVATE MEETING w/Blanche Lambert Lincoln
Map Room
CLOSED PRESS/NO WH PHOTO

PARTICIPANTS:
-The First Lady
-Blanche Lambert Lincoln
-Heather White

SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 4

Contact: Heather White

P6/(b)(6)

2:35pm

DEPART South Portico
EN ROUTE Dunbar Senior High School
[drive time: 15 minutes]

(b)(7)(e)

NOTE: Tom Hanks will arrive separately.

NOTE: Ian Alberg will greet The First Lady curbside.

2:50pm

ARRIVE Dunbar Senior High School

Greeter:

-Judith Richardson, Principal, Dunbar Senior High School

2:50pm

PROCEED to Choir Room

2:50pm-

MEET AND GREET

3:00pm

Choir Room
Dunbar Senior High School
CLOSED PRESS/WH PHOTO ONLY

PARTICIPANTS: Approx. 18 guests to attend.
See briefing book for complete guest list.

3:00pm-

REMARKS to Dunbar High School Assembly

4:00pm

Dunbar Senior High School
1301 New Jersey Avenue, NW
HRC Hold: Music Lab
Phone: N/A
Fax: N/A
Staff Hold: Music Lab
OPEN PRESS/WH PHOTO

SCHEDULE FOR HILLARY RODHAM CLINTON

THURSDAY, MARCH 5, 1998

PAGE 5

FORMAT:

- The First Lady, accompanied by Tom Hanks, Colonel Collins and Judith Richardson, proceed to the stage. Ms. Richardson proceeds directly to the podium while The First Lady, Tom Hanks, and Colonel Collins take their seats.
- Presentation of Colors by the Dunbar Senior High School ROTC.
- Upon the Presentation of Colors, Judith Richardson, Principal of Dunbar Senior High School, makes welcoming remarks, then introduces Colonel Eileen Collins.
- Colonel Collins proceeds to the podium and makes brief remarks, then introduces Tom Hanks.
- Tom Hanks proceeds to the podium and makes brief remarks, then introduces The First Lady.
- The First Lady proceeds to the podium and makes brief remarks.
- Upon the conclusion of The First Lady's remarks, she takes her seat and Judith Richardson returns to the podium to moderate the Q&A session.

NOTE: The First Lady, Tom Hanks and Colonel Collins will have hand-held microphones for the Q&A. The students will be lined up at standing microphones in the aisles.

- Judith Richardson will call for the last question.
- Upon conclusion of the last question, The First Lady, accompanied by Tom Hanks and Colonel Collins, walks a ropeline, then departs.

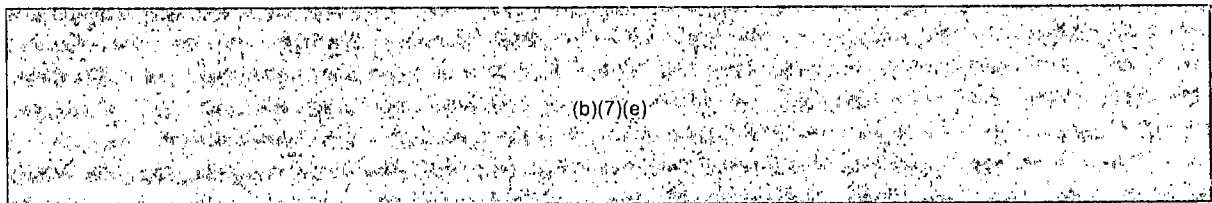
SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 6

PARTICIPANTS: Approx. 600 students, faculty and invited guests to attend.

Contact: Neera Tanden
456-6275

NOTE: Tom Hanks and Colonel Collins will depart in separate vehicles.

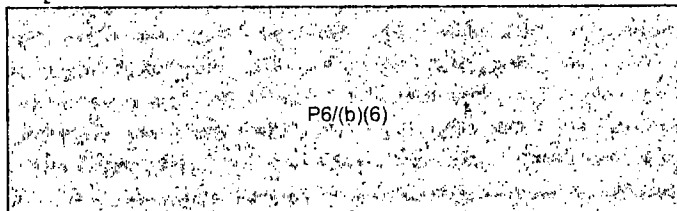
4:05pm **DEPART** Dunbar Senior High School
EN ROUTE The White House
[drive time: 15 minutes]



4:20pm **ARRIVE** South Portico

NOTE: A&E will film The First Lady departing the motorcade and entering the Diplomatic Reception Room w/Bill Kurtis.

4:30pm-
4:45pm



4:45pm- **A&E INTERVIEW**
5:15pm Diplomatic Reception Room
A&E CAMERA ONLY/WH PHOTO

PARTICIPANTS:
-The First Lady
-David Axelrod
-Bill Kurtis, A&E interviewer

Contact: Marsha Berry
456-2960

5:15pm- **DOWN TIME**
7:00pm

SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 7

7:00pm- **BRIEFING [w/POTUS]**
7:15pm Red Room
CLOSED PRESS/WH PHOTO ONLY

PARTICIPANTS: See briefing book for list of attendees.

Contact: Laura Schwartz
456-5655

7:15pm- **MEET AND GREET w/Stage Participants [w/POTUS]**
7:30pm Blue Room
CLOSED PRESS/WH PHOTO

PARTICIPANTS: See briefing book for list of attendees.

Contact: Laura Schwartz
456-5655

7:30pm- **SCREENING of *From the Earth to the Moon***
9:30pm East Room/State Dining Room
POOL PRESS/WH PHOTO

FORMAT:

- The President and The First Lady, accompanied by The Vice President, Tom Hanks, John F. Kennedy, Jr., and Jeff Bewkes, are announced into the East Room.
- The First Lady makes brief remarks, then introduces The Vice President.
- The Vice President makes brief remarks, then introduces Jeff Bewkes, Chairman, HBO.
- Jeff Bewkes makes brief remarks, then introduces Tom Hanks.
- Tom Hanks makes brief remarks and introduces both a montage of the first 12 episodes and the 1968 episode of *Earth to the Moon*.
- The films are shown.

SCHEDULE FOR HILLARY RODHAM CLINTON
THURSDAY, MARCH 5, 1998
PAGE 8

- Upon conclusion of the screening, John F. Kennedy, Jr. makes brief remarks, then introduces The President.
- The President makes remarks and invites guests to the State Dining Room for a reception.

NOTE: The President and The First Lady have the option to mingle with guests in the State Dining Room or depart the State Floor.

PARTICIPANTS: Approx. 195 guests to attend.

Contact: Laura Schwartz
456-5655

RON

The White House

WEATHER FORECAST FOR WASHINGTON, D.C.:

Partly cloudy. Winds variable at 4-8 knots. Low 34. High 49.

WASHINGTON, D.C. EVENTS:

THE KENNEDY CENTER

- National Symphony Orchestra
- The Washington Opera
- Tribute to the Solo
- Shear Madness

FORD'S THEATER

- Kudzu: The Southern Muscial

WARNER THEATER

- Rob Becker's "Defending the Caveman"

ARENA STAGE

- Lovers and Executioners
- Dimly Perceived Threats to the System

Biography of Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age, when she would watch planes land and takeoff at the local airport in her hometown of Elmira, NY. Collins came from a modest background and flying lessons weren't cheap. While most teenagers take a job for extra spending money or a car, Collins was seeking odd jobs to save money for flying lessons.

When she was nineteen, Collins had finally saved enough to begin taking lessons to be a pilot. While she began logging time as a pilot, she studied math and science at Corning Community College. After two years at the local community college, Collins was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, which was the first year the Air Force accepted women pilots.

Upon graduation in 1978 she was assigned to Vance Air Force Base in Oklahoma where she became a T-38 instructor pilot after she completed Air Force Pilot Training. This was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 is the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983 when she was assigned to be a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989 Collins received an opportunity to mentor and support the next generation of pilots, especially female pilots at the Air Force Academy in Colorado. She was a T-41 instructor and assistant professor of mathematics at the Academy. Collins distinguished herself when she was the second woman pilot to graduate from the Air Force Test Pilot School in 1990. While testing the next generation of aircraft, Eileen received word that she was selected to be a member of the next astronaut class.

NASA chose Collins to be the pilot on the first U.S.-Russian Shuttle/Mir rendezvous. The mission was a test of precision and cooperation between the American and Russian space agencies before the docking of the Space Shuttle and the Mir Space Station. Collins was the first female to pilot a Shuttle ever on that mission. Subsequently Collins was assigned to be the pilot on the sixth U.S./Russia Shuttle-Mir docking mission.

Lt. Col. Collins was recently chosen to be the first ever woman to command a Shuttle mission. Collins has been selected to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. She has logged over 4,700 hours in 30 different types of aircraft. She has logged over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

She was born November 19, 1956 in Elmira, New York to James and Rose Collins. She is married to Pat Youngs, originally from San Antonio, Texas. Her husband is a pilot for Delta airlines. His parents are Pat and Jackie Youngs of San Antonio, Texas.

**MAKING HISTORY FOR WOMEN:
THE PRESIDENT AND FIRST LADY ANNOUNCE THE FIRST WOMAN SHUTTLE COMMANDER**

March 5, 1998

Today, the President and First Lady will announce the first woman to command a Space Shuttle flight -- Lieutenant Colonel Eileen Collins. This announcement is one of several science events taking place at the White House this week and kicks off the White House's celebration of Women's History Month. As we mark these observances, it is especially appropriate to recognize those living examples of women's history -- like Eileen Collins -- who inspire us all.

Lt. Col. Collins will command the Space Transportation System 93 (STS- 93) which is scheduled for launch in December of 1998. This mission will launch the largest X-ray ever flown which will help us examine some of the most distant and powerful objects in our universe. A former math and engineering professor and a veteran of two space flights, Colonel Collins served as the first female shuttle pilot and has logged over 400 hours in space. As the Commander of STS-93, Lt. Col. Collins will be responsible for all other astronauts on the mission, the deployment of the X-ray system, the safety of the flight and the overall success of the entire mission.

This Announcement Builds on the Clinton Administration's Support of Space Exploration:

The International Space Station: Beginning this year, in 1998, men and women from sixteen countries will build a foothold in the heavens -- the international space station. By the end of 1997, 200,000 pounds of flight-quality hardware had been built. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.

Mars Pathfinder: Last July 4, NASA's Pathfinder spacecraft landed on Mars, the first landing on the Red Planet since the Viking missions in 1976. The spacecraft's small rover wheeled around the terrain of Mars, transmitting breathtaking views of the landscape to Earth. During its 30-day mission, the Pathfinder returned a wealth of new information on the planet, including data on the atmosphere, weather and geology of Mars. In all, Pathfinder returned 1.2 billion bits of data and almost 10,000 pictures of the Martian landscape.

This Announcement also Highlights the Importance of Science and Math to our Future:

Raise Standards and Measure Student Performance with a Voluntary National Test in Mathematics at 8th Grade: The President is leading a national campaign for a voluntary national test in mathematics to let parents and teachers know how individual students and schools can improve in relation to rigorous national and international standards and to determine whether students are adequately prepared to take demanding high school mathematics and science.

A Strong Foundation in the Middle Grades: The President's FY 99 budget requests approximately \$60 million to improve mathematics achievement in the middle grades. This funding will support a joint initiative by the U.S. Department of Education and the National Science Foundation to support local efforts to put in place the rigorous courses and challenging standards. It will also promote improved mathematics teaching of elementary and middle school teachers by supporting effective teacher training through updating their content knowledge while still ensuring mastery of the basics of computation.

FIRST LADY HILLARY RODHAM CLINTON
REMARKS FOR ANNOUNCEMENT OF FIRST WOMAN COMMANDER
THE ROOSEVELT ROOM
MARCH 5, 1998

Welcome to the White House and the Roosevelt Room. The President and I are honored to be joined today by so many people who have made this historic announcement possible. I want to especially thank NASA Administrator Dan Goldin, our guest of honor, Eileen Collins and her husband Pat Youngs, ...

In December, 1998, when the Shuttle Columbia takes off, Lt Colonel Eileen Collins will take one step forward for women -- and one giant leap for humanity. She will become the first woman ever to command a space shuttle. Her mission will launch the largest x-ray ever flown so we can examine some of the most distant and powerful objects in our universe. I can think of no better way to kick-off both Women's History Month and Science Week at the White House.

Tonight, we will be premiering an HBO series which looks back at our journey to the Moon and shows how it inspired us as individuals and united us as a nation. When I was 14, I dreamed of becoming an astronaut. I even wrote NASA to find out what I needed to do to see the stars up close. Unfortunately, I got one of those thin envelopes back -- which is never a good sign -- thanking me for my interest, but saying that women weren't being considered for the job. Well, times have certainly changed. The dreams that many of us had as girls have now orbited the universe with women from Sally Ride to Eileen Collins.

I first met Eileen three years ago at another Women's History Month event. She had just become the first woman pilot of a space shuttle -- and she gave me a red shirt she'd worn on that mission. What I saw in that shirt was not only her remarkable accomplishment, but also the courageous road she'd traveled to reach her every goal. As a small child, Colonel Collins would go to the airport with her father and her siblings, lie on the hood of the car and watch the planes take off. She would look up at the sky and imagine traveling into space. And now she is going there -- for many of the same reasons that women have always made history.

She made history because of her skill and determination -- to be **not** the best woman for the job -- but simply the best. She's made it because of parents who always told her she could do anything she put her mind to. She made it because she ignored those who said it wasn't cool or feminine to study math or science -- and demanded a first-class education in both. She made it because of the doors of opportunity NASA has increasingly opened to women and minorities.

And she made history because of the countless other women upon whose shoulders all of us stand. I think of Amelia Earhardt, disguising herself to reach her dream. I think of Mae Jemison, the first African American woman to fly in space. I think of Shannon Lucid, who just last year, broke the record for the longest time spent in space by an American. And I think back to 1978, when Shannon Lucid, Sally Ride, Rhea Seddon, Kathryn Sullivan, Judy Resnick and Anna Fisher became the first women to join the astronaut corps.

That was the same year Eileen Collins graduated from college and entered Air Force Pilot Training. Her first week there, the six women astronauts came to do a parachute training. She looked at them and thought, "Wow, this is what I'm going to do." This afternoon, when Astronaut Collins, Tom Hanks and I go to Dunbar High School to talk about the importance of studying math and science, students will be able to look at her and say the same thing, "This is what I'm going to do." And when her mission launches next December, the next generation of girls -- and boys -- will be able to look to the heavens and think, "There's nothing I can't do."

Children have always gazed at the sky with wonder. And so has our nation. Especially in the aftermath of Sputnik, we have looked to space as the next frontier in our never-ending journey of discovery...and our advancements there have brought us closer together as a country...and, more and more, as a world. In the last year alone, we were riveted by the Mars Pathfinder landing. We received stunning photographs and information from other planets courtesy of the Hubble Space Telescope. And, as Stephen Hawking will point out in his lecture tomorrow night, we can look forward to vast new scientific discoveries in the next Millennium.

None of these achievements would have been possible without our continuing investments in science, space, and technology. And none of it would have been possible without the leadership of our next speaker. NASA Administrator Dan Goldin is truly bringing our space program into the next century. By making it "faster, better, and cheaper." And by ensuring that NASA's workforce looks like America and its work reaches all of America. It is my great honor to introduce Administrator Dan Goldin.

PRESIDENT WILLIAM J. CLINTON
ANNOUNCEMENT OF THE FIRST WOMAN SPACE MISSION COMMANDER
THE WHITE HOUSE
MARCH 5, 1998

Forty years ago, Life Magazine introduced America's first astronauts to the world. The magazine noted that the seven Mercury astronauts were picked from "the same general mold." They were all military pilots. They were all in their 30's. They all had crew cuts. They were all men.

Well, times have changed. Today, another barrier falls away in America's great quest to conquer the frontiers of space. I am proud to congratulate Col. Eileen Collins on becoming the first woman to command a space shuttle mission. While she doesn't fit the mold of forty years ago, she embodies the essential qualities of all our astronauts -- the bold, restless, pioneering spirit that made our nation great. And as we have heard, the story of Eileen Collins' life is the story of challenges set and challenges met.

That is also the story of our space program. When it comes to exploring space and the unknown, the word "impossible" is not in our vocabulary. We have always recognized the limitless possibilities of seemingly impossible challenges. A generation ago, President Kennedy said that within a decade, we would send an American to the moon and bring him safely back to Earth. By 1969, Neil Armstrong and Buzz Aldrin had left their footprints on the moon. We said we would visit the planets of the solar system. Last Fourth of July, all Americans -- with the help of a robot called Sojourner -- got a chance to rove the surface of Mars and meet red rocks named Scooby Doo and Barnacle Bill. Thirty-six years after John Glenn made his history-making space flight in a capsule size of a VW bug, we are poised to launch an international space station the size of a football field.

America has indeed become "the world's leading space-faring nation." [JFK] It's a distinction we must keep in the 21st century. Col. Collins will lead us in this effort, commanding a mission to launch a telescope that will allow us to peer into the deepest reaches of outer space. My balanced budget for 1999 will support 28 new space missions, missions that will help us decipher more of the mysteries of black holes, of ancient stars and of Earth itself. The knowledge we gain from these missions could help us conquer diseases from osteoporosis to ovarian cancer, make our farms more productive, and uncover the very origins of life.

All Americans -- especially our young people -- have important roles to play in making these plans a reality by taking their studies in math and science seriously. Last week, we learned that the leading space-faring nation trailed the world in high school math and science. This is unacceptable. Today, as we prepare for an Information Age that will require every student to master not just the basics of reading and math, but also algebra, geometry, physics and computer science. I call on every parent, every school and every teacher to set high expectations for our children. I call on every student to take the most challenging courses so that we can all be prepared for the known and still-unknown challenges of the future.

And I especially call on young girls all across America to take inspiration from Col. Collins' achievements. For the greatest mark Col. Collins will make won't just be written in the stars, but here on Earth -- in the mind of every girl with a knack for numbers, a gift for science and a fearless, pioneering spirit. Let us work to make sure that for every girl and every boy's dreams and ambitions, the sky need not be the limit.

**MAKING HISTORY FOR WOMEN:
THE PRESIDENT AND FIRST LADY ANNOUNCE THE FIRST WOMAN SHUTTLE COMMANDER
*March 5, 1998***

Today, President Clinton and First Lady Hillary Rodham Clinton will announce the first woman to command a Space Shuttle flight --Lieutenant Colonel Eileen Collins. This announcement is one of several science events taking place at the White House this week and kicks off the White House's celebration of Women's History Month. As we mark these observances, it is especially appropriate to recognize those living examples of women's history --like Eileen Collins --who inspire us all.

Lt. Col. Collins will command the Columbia Space Shuttle (Space Transportation System 93) which is scheduled for launch in December of 1998. This mission will launch the largest X-ray ever flown which will help us examine some of the most distant and powerful objects in our universe. A former math and engineering professor and a veteran of two space flights, Lt. Col. Collins served as the first female shuttle pilot and has logged over 400 hours in space. As the Commander of STS-93, Lt. Col. Collins will be responsible for all other astronauts on the mission, the deployment of the X-ray system, the safety of the flight and the overall success of the entire mission.

This Announcement Builds on the Clinton Administration's Support of Space Exploration:

The International Space Station: Beginning this year, men and women from sixteen countries will build a foothold in the heavens --the international space station. By the end of 1997, 200,000 pounds of flight-quality hardware had been built, ready to go into space. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.

Mars Pathfinder: On July 4, 1997, NASA's Pathfinder spacecraft landed on Mars, the first landing on the Red Planet since the Viking missions in 1976. The spacecraft's small rover wheeled around the terrain of Mars, transmitting breathtaking views of the landscape to Earth. During its 30-day mission, the Pathfinder returned a wealth of new information from the planet, including data on the atmosphere, weather and geology of Mars. In all, Pathfinder returned 1.2 billion bits of data and almost 10,000 pictures of the Martian landscape.

This Announcement also Highlights the Importance of Science and Math to our Future:

Raise Standards and Measure Student Performance with a Voluntary National Test in Mathematics in 8th Grade: The President is leading a national campaign for a voluntary national test in mathematics to let parents and teachers know how individual students and schools can improve in relation to rigorous national and international standards and to determine whether students are adequately prepared to take demanding high school mathematics and science.

A Strong Foundation in the Middle Grades: The President's FY99 budget requests approximately \$60 million to improve mathematic achievement in the middle grades. This funding will support a joint initiative by the U.S. Department of Education and the National Science Foundation to support local efforts to put in place rigorous courses and challenging standards. It will also promote improved mathematics teaching by elementary and middle school teachers by supporting effective teacher training through updating content knowledge while still ensuring mastery of the basics of computation.

Biography of Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age, when she would watch planes land and takeoff at the local airport in her hometown of Elmira, NY. Collins came from a modest background and flying lessons weren't cheap. While most teenagers take a job for extra spending money or a car, Collins was seeking odd jobs to save money for flying lessons.

When she was nineteen, Collins had finally saved enough to begin taking lessons to be a pilot. While she began logging time as a pilot, she studied math and science at Corning Community College. After two years at the local community college, Collins was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, which was the first year the Air Force accepted women pilots.

Upon graduation in 1978 she was assigned to Vance Air Force Base in Oklahoma where she became a T-38 instructor pilot after she completed Air Force Pilot Training. This was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 is the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983 when she was assigned to be a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989 Collins received an opportunity to mentor and support the next generation of pilots, especially female pilots at the Air Force Academy in Colorado. She was a T-41 instructor and assistant professor of mathematics at the Academy. Collins distinguished herself when she was the second woman pilot to graduate from the Air Force Test Pilot School in 1990. While testing the next generation of aircraft, Eileen received word that she was selected to be a member of the next astronaut class.

NASA chose Collins to be the pilot on the first U.S.-Russian Shuttle/Mir rendezvous. The mission was a test of precision and cooperation between the American and Russian space agencies before the docking of the Space Shuttle and the Mir Space Station. Collins was the first female to pilot a Shuttle ever on that mission. Subsequently Collins was assigned to be the pilot on the sixth U.S./Russia Shuttle-Mir docking mission.

Lt. Col. Collins was recently chosen to be the first ever woman to command a Shuttle mission. Collins has been selected to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. She has logged over 4,700 hours in 30 different types of aircraft. She has logged over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

She was born November 19, 1956 in Elmira, New York to James and Rose Collins. She is married to Pat Youngs, originally from San Antonio, Texas. Her husband is a pilot for Delta airlines. His parents are Pat and Jackie Youngs of San Antonio, Texas.

Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age, when she watched planes land and takeoff at the local airport in her hometown of Elmira, NY. Lt. Col. Collins came from a modest background and flying lessons weren't cheap. While most teenagers take a job for extra spending money or a car, Lt. Col. Collins sought odd jobs to save money for flying lessons.

When she was nineteen, Lt. Col. Collins had finally saved enough to begin taking lessons to be a pilot. While she logged time as a pilot, she studied math and science at Corning Community College. After two years at the local community college, she was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, the first year the Air Force accepted women pilots.

Upon graduation in 1978, she was assigned to Vance Air Force Base in Oklahoma, where she became a T-38 instructor pilot after she completed Air Force Pilot Training. This was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 is the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983, when she was assigned as a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989, Collins received the opportunity to mentor and support the next generation of pilots, especially female pilots, at the Air Force Academy in Colorado. She was a T-41 instructor and an assistant professor of mathematics at the Academy. Lt. Col. Collins distinguished herself as the second woman pilot to graduate from the Air Force Test Pilot School in 1990. While testing the next generation of aircraft, she received word that she had been selected as a member of the next astronaut class.

NASA chose Lt. Col. Collins to be the pilot on the first U.S.-Russian Shuttle/Mir rendezvous in 1995. The mission was a test of precision and cooperation between the American and Russian space agencies before the docking of the Space Shuttle and the Mir Space Station. Lt. Col. Collins was the first female ever to pilot a Shuttle on that mission. Subsequently, she was assigned to be the pilot on the sixth U.S./Russia Shuttle-Mir docking mission.

Lt. Col. Collins was recently chosen to be the first woman ever to command a Shuttle mission. She has been selected to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. She has logged over 4,700 hours in 30 different types of aircraft, over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

Lt. Col. Collins was born November 19, 1956 in Elmira, New York, to James and Rose Collins. She is married to Pat Youngs, a pilot for Delat Airlines, originally from San Antonio, Texas. His parents are Pat and Jackie Youngs.

DRAFT

~~CONFIDENTIAL~~

DRAFT

DRAFT

COLLINS NAMED FIRST FEMALE SHUTTLE COMMANDER

Astronaut Eileen Collins (Lt. Col., USAF) will become the first woman to command a Space Shuttle when Columbia launches on the STS-93 mission in December, 1998.

Collins will be joined on the flight deck by Pilot Jeffrey S. Ashby (Cmdr., USN) and Mission Specialists Steven A. Hawley, Ph.D. and Catherine G. "Cady" Coleman, Ph.D., (Major, USAF). CNES Astronaut Michel Tognini (Col., French Air Force), was named to crew on November 12.

Selected as an astronaut in 1990, Collins has served as a pilot on her two previous space flights. Her first space flight was STS-63 in February 1995 as Discovery approached to within 10 meters of Mir, in a dress rehearsal for the first Shuttle/Mir docking. In May 1997 she visited the Mir space station as pilot on board Atlantis for the sixth Shuttle/Mir docking mission, delivering Astronaut Mike Foale and returning Jerry Linenger to Earth.

STS-93 will be the first flight for Ashby. Hawley will be making his fifth space flight during STS-93, having flown previously on STS-41D in 1984, STS-61C in 1986, STS-31 in 1994 and STS-82 in 1997. Coleman has one previous space flight to her credit, having flown on STS-73, the second United States Microgravity Laboratory mission in October/November 1995. Tognini, who spent 14 days on the Mir space station in 1992, will be making his first Shuttle flight with STS-93.

During the five-day mission, the crew will deploy the Advanced X-ray Astrophysics Facility Imaging System (AXAF) which will conduct comprehensive studies of the universe. AXAF consists of three major elements; a spacecraft with an inertial upper stage rocket motor; a telescope; and a science instrument module. It's principle objectives are studying x-ray emissions of stars and planets, and resolving images of extended supernova remnants.

For additional information on the STS-93 crew, or any astronaut, see the NASA Internet biography home page at URL: <http://www.jsc.nasa.gov/Bios/>

THE WHITE HOUSE
WASHINGTON

March 4, 1998

**ANNOUNCEMENT OF EILEEN COLLINS AS FIRST WOMAN COMMANDER
OF A SPACE SHUTTLE MISSION**

DATE: March 5, 1998
LOCATION: The Roosevelt Room
TIME: 10:40 - 11:40 a.m.
FROM: Melanne Verveer

I. PURPOSE

To announce Eileen Collins as the first woman commander of a space shuttle mission and to highlight the Administration's commitment to space exploration, science education and furthering opportunities for women.

II. BACKGROUND

Today, you and First Lady will announce the first woman to command a Space Shuttle flight -- Lieutenant Colonel Eileen Collins. This announcement is one of several science events taking place at the White House this week and kicks off Women's History Month.

Lt. Col. Collins will command the Space Transportation System 93 (STS- 93) which is scheduled for launch in December of 1998. This mission will launch the largest X-ray ever flown which will help us examine some of the most distant and powerful objects in our universe. A veteran of two space flights, Colonel Collins served as the first female shuttle pilot and has logged over 400 hours in space. Now as the Commander of STS-93, her next mission, Lt. Col. Collins will be responsible for all other astronauts on the mission, the deployment of the X-ray system, the safety of the flight and the overall success of the entire mission.

Collins, a Lieutenant Colonel in the United States Air Force, has a distinguished career as a pilot, professor of mathematics and astronaut. She learned to fly at the age of nineteen while studying math and science in Corning Community College and Syracuse University. Through ROTC, she joined to Air Force in 1976 (the first year the Air Force accepted women pilots). After serving as an pilot instructor and assistant professor of mathematics at the Air Force Academy in Colorado, she graduated from the Air Force Test Pilot School in 1990 and was selected to become an astronaut. Collins has since piloted two space shuttle missions, including the crucial U.S.- Russian Shuttle/Mir rendezvous. She has logged over 400 hours in space, traveled over 6.5

million miles and orbited the earth 274 times.

The International Space Station: Beginning this year, in 1998, men and women from sixteen countries will build a foothold in the heavens -- the international space station. By the end of 1997, 200,000 pounds of flight-quality hardware had been built. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.

Mars Pathfinder: Last July 4, NASA's Pathfinder spacecraft landed on Mars, the first landing on the Red Planet since the Viking missions in 1976. The spacecraft's small rover wheeled around the terrain of Mars, transmitting breathtaking views of the landscape to Earth. During its 30-day mission, the Pathfinder returned a wealth of new information on the planet, including data on the atmosphere, weather and geology of Mars. In all, Pathfinder returned 1.2 billion bits of data and almost 10,000 pictures of the Martian landscape.

This event also provides an opportunity to highlight the Administration's campaign for a voluntary national test in mathematics to let parents and teachers know how individual students and schools can improve in relation to rigorous national and international standards and to determine whether students are adequately prepared to take demanding high school mathematics and science classes. Your budget also requests approximately \$60 million to improve mathematics achievement in the middle grades. This funding will support a joint initiative by the U.S. Department of Education and the National Science Foundation to support local efforts to put in place the rigorous courses and challenging standards. It will also promote improved mathematics teaching of elementary and middle school teachers by supporting effective teacher training through updating their content knowledge while still ensuring mastery of the basics of computation.

III. PARTICIPANTS

Briefing Participants:

The President
The First Lady
Administrator Daniel Goldin, NASA
Melanne Verveer
June Shih
Dr. Jack Gibbons
Neera Tanden

Photo Op Participants

Lt. Col. Eileen Collins
Pat Young (spouse)
Mary Kay Morin (cousin)

Event Participants:

The President
The First Lady
Dan Goldin
Lt. Col. Eileen Collins

MEMBERS OF CONGRESS CONFIRMED TO ATTEND:

Rep. Amo Houghton (D-NY)
Rep. Sheila Jackson Lee (D-TX)
Rep. Eddie Bernice Johnson (D-TX)
Rep. Ellen Tauscher (D-CA)

* Audience guest list attached

VI. PRESS PLAN

Open Press.

V. SEQUENCE OF EVENTS

- YOU and the First Lady proceed to the Oval Office for briefing.
- YOU and the First Lady greet Lt. Col. Collins and her family
- YOU proceed to the Roosevelt Room with the First Lady, Lt. Col. Collins and Administrator Goldin
- The First Lady makes remarks and introduces Administrator Goldin
- Administrator Goldin makes remarks and introduces Lt. Col. Collins
- Lt. Col. Collins makes remarks and introduces YOU.
- YOU make remarks and depart with the First Lady, Administrator Goldin and Lt. Col. Collins.

VI. ATTACHMENTS

Guest List
Bio of Lt. Col. Collins
Fact Sheet on Administration Initiatives in Science and Space Exploration

**ANNOUNCEMENT OF COL. EILEEN COLLINS, THE FIRST WOMAN
COMMANDER OF A US SPACE MISSION**

Thursday, March 5, 1998
11AM in the Roosevelt Room

Baty, Margaret President, Women in Aviation International, Morningstar Airport
Beres, Kathleen Anne Manager Civil Space Programs (Teacher in Space finalist)
Byrant, Anne National School Board Association
Campbell, Nancy Duff President National Women's Law Center
Coble-Mullen, Anna Chair, Network of Minority Women in Science
Daie, Jaleh Women in Science and Technology Alliance
Ericsson-Jackson, Aprille J. Aerospace Engineer, NASA Goddard
Girordot, Dean International Association of Mechanics and Aerospace Workers
Harris, Jennifer Commander of Mars Pathfinder
Hines, Pamela American Association of Advancement of Science
Hudkins, Teresa Acting Director Public Services Division NASA
Johnson, Karen NOW Public Policy Director

Leighton, Carolyn Executive Director, Women in Technology, International
MacArthur, Diana Chair and CEO Dynamac Corporation
Osterman, Elaine Society of Women Engineers
O'Farrell, M. Brigid Women's Research and Education Institute
Phelan, James Husband of Jean Phelan
Phelan, Jean 13th female helicopter pilot in world, founded Whirly Girls
Rich, Doris Author of Amelia Earhart book
Rich, Stanley Doris Rich's husband
Ride, Dr. Sally Former Astronaut, First US Female Astronaut Director, California Space Institute, UCSD
Russo, Carolyn Joan National Air and Space Museum
Smeal, Ellie Fund for the Feminist Majority, Inc.
Smith, Paul President USA Alliance (Business consortium of aerospace companies and space shuttle programs for NASA)
Vaught, Brigadier General Wilma President, Women in Military Service for American Memorial Foundation, Inc.
Shorenstein, Janice Weinman Executive Director AAUW

Wurff, Mildred
Director of Public Policy
Girls, Inc.

FROM THE EARTH TO THE MOON

TOM HANKS

Tom Hanks is one of today's most admired and respected actors. The first actor in 50 years to be awarded back-to-back Best Actor Academy Awards,[®] he received the 1994 Oscar[®] for his outstanding performance in "Forrest Gump," which has become the fourth largest grossing movie in history. In 1993, he was rewarded for his compelling performance as the AIDS-stricken lawyer Andrew Beckett in "Philadelphia." He also won Golden Globe Awards for both of those performances. Through the success of "Forrest Gump," Hanks has been honored with the Golden Globe Award, the People's Choice Award, the Screen Actors Guild Award, the Chicago Film Critics Award, the National Association of Theater Owners "Male Star of the Year" award and the Hollywood Women's Press Club award.

For his performance as astronaut Jim Lovell in Ron Howard's "Apollo 13," Hanks was named "Man of the Year" by Harvard's Hasty Pudding Theatricals, the nation's oldest undergraduate dramatic group.

In 1996, Hanks successfully made his feature film writing and directing debut with "That Thing You Do!" for Twentieth Century Fox. "That Thing You Do!" follows the meteoric rise to fame of a local rock band named The Wonders from Erie, PA. In the summer of 1964, the film's signature song, "That Thing You Do!," not only reached the Top 10 in many contemporary music charts, but was nominated for an Academy Award[®] for Best Achievement in Music (Original Song). In addition to his other responsibilities, Hanks also appeared in the film.

Born and raised in Oakland, CA, Hanks first became interested in acting during high school. He attended California State University in Sacramento, where he appeared in a production of "The Cherry Orchard," and met director Vincent Dowling, who was also the resident director of the Great Lakes Shakespeare Festival in Cleveland. Dowling invited Hanks to intern with the company, where he made his professional debut, portraying Grumio in "The Taming of the Shrew." Hanks appeared in other Great Lakes productions, including "Two Gentlemen of Verona," for which he received the Cleveland Critics Award for Best Actor. From Cleveland, Hanks went on to New York, where he appeared in his first feature film, "He Knows You're Alone," and onstage in "The Taming of the Shrew."

After moving to Los Angeles, where he performed in a production of "The Dollmaker," Hanks got his first big break when he was cast as the lead in the ABC television comedy series "Bosom Buddies."

This led to starring roles in "Bachelor Party" and Ron Howard's "Splash" -- a box office hit that started

(more)

TOM HANKS -- 2

him on his path to becoming one of Hollywood's busiest and most sought-after actors. Hanks' many other film credits include "Volunteers," "Nothing In Common" and "A League of Their Own." In 1988, with his box office success established, Hanks found himself a critical success with his highly acclaimed work in "Punchline" and "Big" -- the latter of which earned him his first Academy Award® nomination and his first Golden Globe Award. That same year, the Los Angeles Film Critics recognized the two performances by bestowing on him their coveted Best Actor Award. In 1993, he received a Golden Globe nomination for his work in "Sleepless in Seattle," starring opposite Meg Ryan.

Constantly challenging himself, Hanks is currently in production on HBO's "From the Earth to the Moon" -- an ambitious 12-hour dramatic film anthology that will explore America's Apollo space program. Not only did Hanks personally help make this show a reality, he is serving as executive producer and will direct the first film and write the final hour.

Hanks is currently in production on the Steven Spielberg feature film "Saving Private Ryan" for Paramount and DreamWorks SKG, which is shooting in Europe. Hanks plays a soldier who must go deep behind enemy lines to save a trapped private during the Allied invasion.

Hanks resides in Los Angeles with his wife, actress Rita Wilson, and their family.

Biography of Daniel Saul Goldin

Daniel S. Goldin became the ninth NASA Administrator in April 1992 and immediately began to earn his reputation as an agent of change in bringing reform and revitalization to America's space agency.

Goldin's first initiative was to bring NASA's budget process under control. He created a series of management teams to find ways to operate programs faster, better and cheaper without compromising safety.

As the budgetary reforms evolved, NASA was able to remove a major financial impediment from its path. By the time President Clinton's Fiscal Year 1994 budget was submitted to the Congress in April 1993, NASA's five-year spending plan was reduced by \$15 billion, the equivalent of an entire year's funding. Since that time, NASA has reduced its long-range spending plans by almost \$30 billion.

"It simply was not feasible for us to continue spending at the rate we were going," Goldin said at the time. He described his budget streamlining efforts as "a fiscal declaration of independence from the old ways of doing business."

The budgetary reforms streamlined major programs, while some of the savings were reinvested in improvements to NASA's science and planetary exploration missions. Under Goldin, the Discovery Program, an entirely new class of planetary probes, was inaugurated. The goal of the program is to reduce development time to less than three years, and mission costs to less than \$150 million.

During the same period, Goldin launched a series of procurement and management reforms to make the Agency more businesslike. He simplified and expedited procedures for awarding contracts, instituted a "yellow light" system that triggers stringent internal reviews even at the threat of cost overruns, expanded contracting opportunities for small and disadvantaged businesses, and set up independent panels to insure that cost and schedule estimates are as accurate as possible.

Under the leadership of President Clinton and Vice President Gore, Goldin also moved boldly to promote significant new cooperative endeavors with the Russian Space Agency. He speaks movingly of one of his first meetings with his Russian counterpart, Yuri Koptev, the head of the Russian Space Agency. "Both of us spent many years working on high-tech devices that were used in the Cold War," he said. "There we sat, two former Cold Warriors, and we agreed that times had changed, and that a new era of peace and cooperation between our two countries was possible on the space frontier. It was an unforgettable moment."

Today, Russia is a full partner in the International Space Station program, a move that enable the project to be completed sooner and at less cost to the American taxpayer. "For 30 years, we aimed missiles at each other," Goldin has said. "Now we are working together on the final frontier for the good of all our peoples."

Another major challenge for Goldin was the redesign of the Space Station program at the direction of President Clinton. The challenge was to significantly cut costs without sacrificing meaningful science or technology development capability for the orbital laboratory. Goldin formed a redesign team in 1993 which worked intensively to identify a series of less expensive options for the Clinton Administration to consider. The President chose a derivative of the old Space Station Freedom design in June 1993 and restated his strong support for the project. Overall, Goldin's team cut the life cycle costs of the space station by \$15 billion.

In 1993, with Space Station redesign issues still being resolved, the program was approved by a one-vote margin in the House of Representatives. In the summer of 1994, with the improved design and the addition of Russia as a full partner, the project passed by a 123-vote margin in the House, one of the most remarkable political turnarounds in recent memory.

Goldin's reforms weren't limited to the Agency's space agenda. Early in his administration, he identified the environmental monitoring to be done through NASA's Earth Science as one of the Agency's most important programs.

He also spearheaded President Clinton's revitalization of NASA's aeronautics program as one of his top priorities. A critical industry for America, aeronautics is responsible for almost a million high-tech jobs. To help the industry regain its competitive manufacturing edge, Goldin has worked intensively to form a consensus for a national aeronautics agenda.

The President's plan proposes to increase investments and technical progress in general aviation, subsonic transports, supersonic and hypersonic flight technology, and to revitalize aging research facilities such as wind tunnels.

Goldin also put in place a series of internal review teams to exhaustively prepare for the Space Shuttle mission in December 1993 to repair the Hubble Space Telescope. The repair work was a brilliant success, and only a few months later in the Spring of 1994, the telescope provided the most convincing evidence yet of the existence of black holes and the formation of planets around distant stars.

Before coming to NASA, Goldin was Vice President and General Manager of the TRW Space & Technology Group in Redondo Beach, California. During a 25-year career at TRW, he successfully managed the development and production of advanced spacecraft, technologies and space science instruments.

Under Goldin's leadership, the Space & Technology Group won the 1990 Goddard Award for Quality and Productivity, and was a finalist in 1991 for NASA's highest quality award, the George M. Low Trophy. In 1992, working with NASA, the group received the National Space Club's Nelson P. Jackson Aerospace Award for work on the Compton Gamma Ray Observatory.

While at TRW, and later as the NASA Administrator, Goldin

received the Meritorious Award from the National Association of Small and Disadvantaged Businesses for his work in reaching out to minorities. Goldin was the first repeat winner of this award.

He is a Fellow in the American Institute of Aeronautics and Astronautics and a Fellow in the Institute for the Advancement of Engineering. In 1993 he received the John F. Kennedy Astronautics Award from the American Astronautical Society and the Space Pioneer Award from the National Space Society.

Goldin began his career as a research scientist at NASA's Lewis Research Center in Cleveland in 1962, and worked on electric propulsion systems for human interplanetary travel.

He was born in New York City on July 23, 1940. He received a Bachelor of Science degree in mechanical engineering in 1962 from the City College of New York. He is married to the former Judith Linda Kramer of New York City. They have two daughters, Ariel and Laura, who reside in California.

October 1994

###

[\[Frequently Asked Questions\]](#) [\[Hot Topics\]](#) [\[Multimedia Gallery\]](#) [\[NASA Home\]](#)
[\[NASA Television\]](#) [\[Site Map\]](#) [\[Today@NASA\]](#)

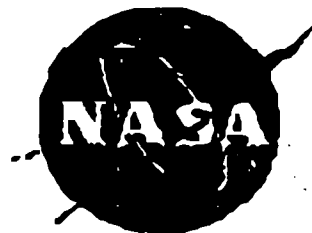
Author: Brian Dunbar
Curator: Boeing Information Services
[Comments and Questions](#)
Last Updated: Oct 1, 1997

TABLE>

NASA Facts

National Aeronautics and
Space Administration

NASA Headquarters
Public Affairs Office
Code P
300 E Street SW
Washington DC 20546



FS-1997-01-001-HQ

An Overview of NASA

The guiding principles for U.S. exploration of air and space have remained remarkably consistent for more than 80 years. In 1915, when aviation was still in its infancy, Congress created an organization that would "supervise and direct the scientific study of the problems of flight, with a view to their practical solutions." That organization, the National Advisory Committee for Aeronautics, evolved into NASA four decades later when Congress formed a civilian agency to lead "the expansion of human knowledge of phenomena in the atmosphere and space."

The journey begun in 1915 has taken American aviators, astronauts, and robotic spacecraft from the dunes of Kitty Hawk to the edge of the atmosphere and to the surface of the Moon. American spacecraft have explored more than 60 worlds in our Solar System, while methodically peering back in space and time to reveal many of the secrets of the universe.

Benefits

Expanding the realm of human knowledge through a systematic program of exploration and discovery, NASA's work continues to benefit the nation:

- Virtually every aircraft in use today utilizes technology pioneered by NASA. Aeronautics is one of the nation's strongest industries, employing almost 1 million Americans.

- The U.S. aerospace industry generates more than \$40 billion in annual exports and almost \$30 billion in positive balance of trade each year.

- New industries have been built on the technology that made space exploration possible, including personal computers, advanced medical equipment, communications satellites, weather forecasting, and natural resource mapping.

- NASA's high-technology research and development provide a return on investment by generating jobs, the demand for goods and services, and new opportunities as advanced technologies spin off into the private sector.
-

The Agency at a Glance

- NASA employs 20,000 civil servants and generates thousands of high-tech jobs in the private sector.
- The Agency operates nine Field Centers, the contractor-operated Jet Propulsion Laboratory, and the Wallops Flight Facility nationwide.
- The Fiscal Year 1997 NASA budget is \$13.8 billion.

Recent Scientific and Technical Accomplishments

- NASA announced the discovery of a Martian meteorite that appears to contain fossilized evidence of organic molecules that existed on the Red Planet billions of years ago.
- NASA launched the Mars Global Surveyor and Mars Pathfinder missions, due to explore Mars and return new data that will help scientists learn more about the planet's past and present.
- The International Space Station program moved from concept to reality. By the end of 1996, about 128,000 pounds of flight-quality hardware had been built, and about 70,000 pounds more will be built by the end of 1997. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.
- NASA increased cooperation with Russia on the International Space Station program through joint missions aboard the Russian space station Mir. Astronaut Shannon Lucid set a new American record for continuous living in space aboard Mir, spending 181 days conducting scientific research while orbiting the Earth.
- Six Space Shuttle flights in 1996 continued NASA's human exploration and development of space.
- In the quest for faster, better, cheaper access to space in the 21st century, NASA selected Lockheed Martin to build the X-33 technology demonstration vehicle, a prototype of an unpowered vehicle that will launch vertically like a rocket and land horizontally like an airplane. Ultimately, the vehicle could become the prototype for piloted spacecraft that would replace the Space Shuttle.
- A jointly sponsored research agreement was established between NASA and the general aviation industry for cockpit systems, design and manufacturing, revolutionary propulsion systems, and icing protection.
- NASA cooperated in programs to improve commercial aviation safety and increase the capacity of the nation's airspace. A new air traffic management controller aid helps manage the flow of aircraft into airports. A new airport surface traffic management system was successfully tested at Atlanta during the Olympics. Ultimately, such systems could help save airlines billions of dollars and travelers hundreds of hours by reducing delays and saving fuel.
- NASA successfully concluded the Supersonic Laminar Flow Control program. The program achieved laminar, or smooth, air flow over the wings of an aircraft at

supersonic speed. This capability may be used on future high-speed civil aircraft to lower drag and increase fuel economy at supersonic speed.

- A NASA test pilot successfully landed an MD-11 transport aircraft using only engine power for control to demonstrate NASA-developed software that can be used in the event an aircraft loses its hydraulic flight control capability.
- NASA and industry teamed up to develop and market a device that will help improve the airworthiness of the nation's aging airplanes. The "Crack Finder" is a handheld instrument designed for rapid scanning of metal surfaces to detect surface-breaking cracks.
- Continental Airlines became the first commercial carrier to use the NASA-developed and FAA-certified, predictive wind-shear detection system aboard their aircraft.
- NASA and Ford Motor Company signed an agreement for the transfer of NASA-developed technology that will improve the design and engineering of Ford vehicles.
- The Galileo spacecraft deployed its probe into Jupiter's violent atmosphere, leading to new discoveries about our Solar System's largest planet. Galileo then flew by Jupiter's moons, revealing the possibility of "warm ice" or even water on Europa, among other exciting discoveries.
- The Hubble Space Telescope awed researchers with images of colliding galaxies, the surface of Pluto, the birth of stars and phenomena surrounding dying stars, among others. Hubble continues to provide the world's astronomers with outstanding new discoveries.
- A recent scientific paper based on the NASA Total Ozone Mapping Spectrometer data found that solar ultraviolet radiation reaching the Earth's surface has increased over large regions of the planet during the past 15 years, as the amount of total ozone in the atmosphere has decreased. Meanwhile, the average size of the Antarctic ozone hole during 1996 was almost as large as in the peak year of 1993, although ozone values were higher than the record lows seen in September 1994.
- NASA's Mission to Planet Earth is pioneering the new interdisciplinary field of research called Earth System Science, born of the recognition that Earth's land surface, oceans, atmosphere, ice sheets, and life are both dynamic and highly interactive. Earth System Science may yield new knowledge and tools for improved weather forecasting, agriculture, urban and land-use planning, and many other related areas of both economic and environmental importance.
- Mission to Planet Earth continues to use NASA's unique capabilities from the vantage points of space, aircraft, and in situ platforms for scientific research. Studies of the Earth's oceans, atmosphere, and ozone continue to provide researchers with vital data about the health of our planet.

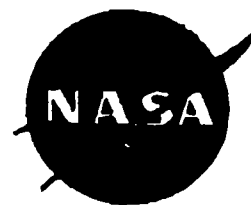
NASA On-Line Services

NASA provides a variety of on-line services via the Internet. Photographs, scientific and technical information, news releases, and organizational data are accessible through a number of outlets, including World Wide Web sites. The following Universal Resource Locator (URL) addresses provide key starting points for exploring NASA on the "net."

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1600



For Release

NASA Highlights in 1997

From the surface of Mars to a possible newly discovered ocean beneath the ices of Europa, here are the top 10 NASA stories of 1997:

Mars Pathfinder

One of the most watched events of the year occurred 141 million miles from Earth, as hundreds of millions of people followed the July 4 landing of NASA's Pathfinder spacecraft on Mars, the first landing on the Red Planet since the Viking missions in 1976 and the first ever to use air bags to cushion impact on the surface. Shortly after Pathfinder's landing, the Sojourner rover began its own exploration of nearby rocks and other features. The images from both craft were posted to the Internet, where more than 500 million "hits" were recorded by the end of July.

Hubble Servicing Mission -- "New" Telescope for the New Millennium

During five days of spacewalks, astronauts flawlessly performed major maintenance and upgrades to the orbiting Hubble Space Telescope, replacing older hardware with two dramatically improved instruments that are helping astronomers probe the universe in greater detail than ever before. Also this year, Hubble uncovered over 1,000 bright, young star clusters bursting to life in a brief, intense, brilliant "fireworks show" at the heart of a nearby pair of colliding galaxies. The Hubble image of the galactic collision was printed on the front pages of newspapers around the world as well as on the cover of Newsweek magazine.

Shuttle-Mir Goes Forward

In 1997, three U.S. astronauts -- Jerry Linenger, Michael Foale and David Wolf -- added to NASA's long duration record aboard Mir and to the Agency's ability to gain experience and knowledge unavailable elsewhere. Andy Thomas is currently on Mir. Despite problems on Mir, NASA Administrator Daniel S. Goldin concluded that Shuttle-Mir has a thorough review process which warrants continued American participation in the program.

NASA Satellites Provide Best View Yet of El Nino Weather Phenomena

Pacific Ocean sea-surface height measurements and atmospheric water vapor information taken from independent Earth-orbiting satellites, the Upper Atmosphere Research Satellite, the NASA Scatterometer, TOPEX/POSEIDON, and SeaWiFS have convinced scientists of what they had earlier postulated -- a full-blown El Nino condition is established in the Pacific.

Cassini Launches to Saturn

The international Cassini mission left Earth bound for Saturn on Oct. 15 atop an Air Force Titan IV-B/Centaur rocket in a picture-perfect launch above Cape Canaveral, FL. With the European Space Agency's Huygens probe and a high-gain antenna provided by the Italian Space Agency, Cassini will arrive at Saturn July 1, 2004.

X-33 and X-34 Flight Technology Demonstrators Achieve Major Milestones

In 1997, the Agency's quest to reduce launch costs and increase access to space through its Reusable Launch Vehicle Program took a major leap forward. The X-33 technology demonstrator, scheduled to begin flights in mid-1999, successfully passed its critical design review, and the X-34, the smaller and earlier flight demonstrator being developed in parallel with the X-33, successfully passed a design freeze in mid-year.

Galileo Discovers Icebergs on Europa

Images captured during Galileo's closest flyby of Europa on Feb. 20 showed features of the Jovian moon, lending credence to the possibility of hidden, subsurface oceans. The findings generated new questions about the possibility of life on Europa.

Uplifting Year for Aeronautics

To ensure that NASA's work in science and technology sustains U.S. leadership in civil aeronautics and space and improves air transportation system safety, the Agency established technology goals, called the Three Pillars, that will stretch the boundaries of the knowledge and capabilities needed to keep the United States as the global leader in aeronautics and space.

SOHO Sheds New Light on Active Sun

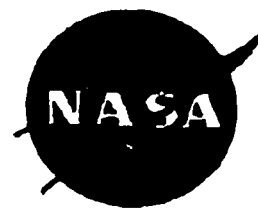
Scientists using the joint European Space Agency/NASA Solar and Heliospheric Observatory (SOHO) spacecraft have discovered "jet streams" or "rivers" of hot, electrically charged plasma flowing beneath the surface of the Sun. These new findings will help scientists understand the famous 11-year sunspot cycle and associated increases in solar activity that can disrupt the Earth's power and communications systems.

March 1998

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1600



For Release March 5, 1998

NASA Milestones

- Founding of agency: October 1, 1958
- Pioneer I: First NASA launch, October 11, 1958
- Vanguard II: First photos of Earth from space, launched February 17, 1959
- Pioneer 4: First successful flyby of moon, March 4, 1959
- Tiros I: First weather satellite, launched April 1, 1960
- Echo 1: First communications satellite, launched August 12, 1960
- Freedom 7: First U.S. human space flight (Alan Shepherd), May 5, 1961
- Friendship 7: First American in orbit (John Glenn), February 20, 1962
- Telstar 1: NASA launch of first privately built satellite (for communications), July 10, 1962; first telephone and television signals carried via satellite
- Mariner 2: First successful planetary flyby (Venus), December 14, 1962
- X-15: Experimental aircraft X-15 sets altitude record of 354,200 feet (67 miles); August 22, 1963
- Gemini III: First Gemini flight ("Gus" Grissom and John Young), launched and landed March 23, 1965
- Gemini IV: First U.S. spacewalk (Ed White), launched June 3, landed June 7, 1965
- Mariner 4: First flyby of Mars, July 14, 1965
- Gemini VI-A: First orbital rendezvous (Wally Schirra and Tom Stafford), launched December 15, landed December 16, 1965
- Gemini VIII: First orbital docking (Neil Armstrong and David Scott), launched March 16, landed March 17, 1966
- X-15: Experimental aircraft sets speed record at 4,520 mph, October 3, 1967
- Apollo 7: First Apollo mission (Wally Schirra, Donn Eisele and Walter Cunningham), launched October 11, landed October 22, 1968

- Apollo 8: First human flight to the moon (Frank Borman, James Lovell, William Anders), launched December 21, landed December 27, 1968
- Apollo 11: First human lunar landing (Neil Armstrong and "Buzz" Aldrin; Michael Collins, command module pilot), launched July 16, landed July 24, 1969
- Apollo 13: Third planned lunar landing (James Lovell, Fred Haise; Jack Swigert, command module pilot); mission aborted after loss of oxygen pressure; crew used lunar module as lifeboat to return to Earth; launched April 11, landed April 17, 1970
- Apollo 15: Fourth lunar landing (David Scott, Alfred Worden, James Irvin); first use of Lunar Rover, launched July 26, landed August 4, 1971
- Mariner 9: First mission to orbit another planet (Mars), arrived November 13, 1971
- Earth Resources Technology Satellite-A: Later Landsat 1, first demonstration of global remote-sensing of Earth's surface, launched July 23, 1972
- Apollo 17: Last lunar landing (Eugene Cernan, Ronald Evans, Jack Schmitt), launched December 7, landed December 19, 1972
- Skylab: Unmanned space station launched May 14, 1973
- Skylab 2: First U.S. space station mission (Pete Conrad, Joe Kerwin, Paul Wertz); launched May 25, landed June 22, 1973
- Pioneer 10: first flyby of Jupiter, arrived December 3, 1973
- SMS-A: first geosynchronous weather satellite, launched May 17, 1974
- Pioneer 11: first flyby of Saturn, arrived September 1, 1974
- Apollo-Soyuz Test Project: First joint U.S.-Soviet human flight (Tom Stafford, Vance Brand, "Deke" Slayton; Alexei Leonov, Valeri Kubasov); U.S. crew launched July 15, landed July 24, 1975
- Viking 1 and 2: first U.S. landing on another planet (Mars), arrived July 20, 1976 (Viking 1) and September 3, 1976 (Viking 2)
- SEASAT: first satellite to make global observations of the Earth's oceans, launched June 26, 1978
- Nimbus 7: environmental research satellite with multiple instruments, one of which provided the global evidence of Antarctic ozone depletion in the 1980s, launched October 24, 1978
- Solar Maximum Mission: first mission to study the sun in detail, over the course of heavy sunspot activity, launched February 14, 1980
- STS-1: First test flight of the Space Shuttle Columbia (John Young, Bob Crippen), launched April 12, landed April 14, 1981
- STS-5: First operational flight of the Space Shuttle Columbia (Vance Brand, Robert Overmeyer, Joe Allen, Bill Lenoir); deployed two satellites, SBS-C and Telesat-C, launched November 11, landed November 16, 1982

- STS-6: First flight of Space Shuttle Challenger, launched April 4, landed April 9, 1983
- STS-7: Sally K. Ride becomes the first American female astronaut, launched June 18, landed June 24, 1983
- STS-8: Guy Bluford becomes the first African-American astronaut, launched August 30, landed September 5, 1983
- STS-9: First flight of European Spacelab module in Space Shuttle payload bay, launched November 28, landed December 8, 1983
- STS-41C: First on-orbit satellite repair mission (Solar Maximum Mission, aboard Space Shuttle Challenger; (Bob Crippen, Dick Scobee, Terry Hart, George Nelson, James Von Hoften), launched April 6, landed April 14, 1984
- STS-41D: First flight of Space Shuttle Discovery, launched August 30, landed September 5, 1984
- STS-51J: First flight of Space Shuttle Atlantis, launched August 27, landed September 3, 1985
- Voyager 2: First encounters with Uranus, January 24, 1986, and Neptune, August 25, 1989
- STS-26: First Space Shuttle mission after Challenger explosion, launched September 29, landed October 3, 1988
- Magellan: Radar mapping of Venus's surface, 1989-1993
- STS-31: Deployment of Hubble Space Telescope, launched April 24, landed April 29, 1990
- STS-49: First flight of Space Shuttle Endeavour, including the first three-person spacewalk, capturing a private satellite for repair and reboost, launched May 2, landed May 16, 1992
- STS-61: First servicing mission to Hubble Space Telescope, repairing defective optics and replacing other parts, launched December 2, landed December 13, 1993
- STS-63: Vladimir Titov becomes the first Russian to be launched aboard a U.S. spacecraft, launched February 3, landed February 11, 1995
- Mir 18: American Norm Thagard becomes the first U.S. astronaut to fly aboard a Russian launch vehicle and then live and work aboard the Mir space station, early 1995
- STS-71: First docking mission to Russian space station Mir; Norm Thagard and a Russian crewmate return to Earth on the Shuttle, launched June 27, landed July 7, 1995
- Galileo: released probe into Jupiter's atmosphere, December 7, 1995
- STS-79: Shannon Lucid returns from Mir on September 26, 1996, have set a U.S. record for continuous stay in space and beginning a more than two-year continuous U.S. presence in space
- Mars Pathfinder: July - December 1997

Science and Space Exploration

*"We must continue to push the limits of science and technology,
and to continue to explore the universe."*

President Clinton

Announcement of the White House Millennium

Program, Aug. 15, 1997

ENSURING U.S. LEADERSHIP IN SCIENCE AND SPACE EXPLORATION

Investing in Science and Technology -- Under President Clinton, investments in science and technology have increased for five years in a row, while continuing to bringing down the deficit. The President maintains his commitment in his most recent budget. The National Science Foundation (NSF), which supports much of the research that trains the next generation of America's scientists and engineers, increases by 10% (\$344 million) to \$3.8 billion in FY99. The increase is the largest ever for NSF, and includes more than a 16% boost for computer science research. In addition, a new partnership between the Education Department and the National Science Foundation receives \$75 million per year for research aimed at raising student achievement through learning technologies.

Supporting Space Exploration -- Issued in 1996, the President's National Space Policy commits the nation to a strong, stable, and balanced space program. The FY99 budget submission of \$13.5 billion achieves this goal, enabling NASA to pursue the Administration's priorities in human space flight, earth sciences, advanced space transportation, aviation safety and space science. Through the 21st Century Research Fund for America, the President adds \$700 million over five years to NASA's space science program.

Providing New Scientific Insights and Making New Discoveries -- In 1997 alone, NASA made historic strides in space exploration. NASA landed the Pathfinder spacecraft on Mars -- the first landing on the Red Planet since 1976 -- and Pathfinder delivered the Sojourner rover to explore the surface of Mars. NASA launched the Cassini mission which will arrive at Saturn in 2004. In addition, the Galileo mission at Jupiter discovered potential evidence of subsurface water on Jupiter's Europa. In 1998, the U.S. and its partners will begin construction of the International Space Station to establish our permanent human presence in space and before the end of the millennium, NASA will launch an additional seven missions into deep space.

Protecting the Environment and Providing Better Information on Weather Phenomena -- The Clinton Administration is applying science to local, regional, and global environmental challenges. The Administration is building new monitoring systems to provide better information for natural resource management and reduction of the impacts of natural disasters. For instance, NASA satellites provided the best view of the El Niño weather phenomena.

Strengthening International Scientific Ties -- The Administration has helped blaze the trail in international science and technology cooperation. The agreement to join with scientists from 45 countries to build the Large Hadron Collider for high energy physics research in Europe is a key milestone for international partnerships in science and technology--one which will become a standard for our domestic science programs in the future.

Achieving Greater Diversity in our Scientific Workforce -- The Clinton Administration has expanded opportunities for women, minorities and people with disabilities to pursue scientific and technical careers through programs like the Alliance for Minority Participation at the National Science Foundation and a new Presidential mentoring award.

**TALKING IT OVER
BY HILLARY RODHAM CLINTON
FOR IMMEDIATE RELEASE**

When I was 14, I dreamed of becoming an astronaut. Inspired by Alan Shepard's pioneering 15-minute trip into space, I wrote NASA to find out what I needed to do to see the stars up close. The space agency thanked me for my interest but said that women were not being considered for the job.

I doubt that I was the only girl to receive a disappointing letter from NASA. And I know that this past spring and summer, I wasn't the only woman who found her old dreams of space travel orbiting Earth with Shannon Lucid in a 136-ton space station.

For six months, I was among millions of men and women who silently -- and sometimes loudly -- cheered each time we heard that Dr. Lucid had broken another space record or when we read reports of her good-humor, stamina and quiet strength during her stay on the Russian space station Mir.

We chuckled as she described how she and her two Russian colleagues looked forward to Jell-O for dessert on Sundays. Our admiration grew as she gamely took the news that her return to Earth would be delayed by six weeks. And it was refreshing for all of us to see an American display so much grace and civility in the close quarters of a space station when those attributes sometimes seem to be in short supply on Earth.

I wish I could have been at Kennedy Space Center last week to see Dr. Lucid as she defied expectations and walked off the space shuttle Atlantis on her own two feet. (Scientists had thought that after 188 days in the weightlessness of space, she would have been too weak to stand, much less walk.) I wish I could have seen her face when she opened the large box of M&Ms, the candy she had missed so much on Mir, that the President had sent her as a welcome-home present. And I wish I could have been with Bill the next day in Houston when he paid tribute to Dr. Lucid for setting the record for the longest flight by any American -- and any woman -- in space.

Like many Americans of my generation, the space program captured my imagination when I was still very young. After the Soviet Union launched Sputnik and became the first country to travel into space, I remember President Eisenhower urging all of us schoolchildren to study more math and science. A successful space program, he said, would require many talented and visionary scientists, engineers and mathematicians. I took his and later President Kennedy's words to heart, feeling that I could play a part in preparing our country for space exploration and the future.

Collins' talk Preliminary

Thank yous.....

I'm very excited about this opportunity to command a space shuttle flight. Since I was a child, I've admired pilots, astronauts, and explorers of all kinds. It was only a dream that I would someday have the same opportunities myself. And throughout my life, I've studied this universe we live in and have always wanted to learn more, but again, it was only a dream that I'd be a part of such an important astronomy mission. I've been given countless jobs and challenges throughout my career with the US military and NASA. I now accept this mission assignment with the same high level of motivation, determination, and diligence that I've had with all the other challenges I've faced.

I think it's important I point out that I did not get here alone. Many women, throughout this century, have taken to the sky. The first barnstormers, the Women Airforce Service Pilots of WWII, the Mercury women who endured early spaceflight medical testing, the first women military pilots, and the first women astronauts. These women, many of whom are friends of mine, have been my role models and inspiration. My assignment on this mission is a next step in an ongoing process of opening up the skies and the universe to more people.

Additionally, I'd like to thank my friends and family, in particular my parents, who have been my most important teachers and mentors throughout my life. I'd also like to recognize my husband, Pat Youngs, who is with me today, and thank him for his total and unfailing support.

Now, it's time for me to focus on this mission. On STS-93, our crew will deploy the Advanced X-Ray Astrophysics Facility, or AXAF. As an amateur astronomer, I'm personally excited about the information this telescope will send back to us. We'll learn more about the characteristics of individual stars, binary stars, galaxies, clusters of galaxies, and quasars. Since high energy X-Rays can penetrate gas and dust, we'll be capable of accurately measuring the characteristics of these objects, and detect objects 100 times fainter than the current X-Ray observatory. AXAF will teach us about the beginning, evolution, current structure, and possibly even the fate of this universe we live in. Our crew is very excited to be part of this challenging mission.

But there is still much work to be done between now and next December: training, testing, traveling, simulators, flying, and constant practice. Today we are just getting started. Our crew will focus on this mission 100% and make it one of NASA's greatest successes.

HOME BOX OFFICE
1100 Avenue of the Americas
New York, NY 10036

HBO CORPORATE COMMUNICATIONS

FAX TRANSMISSION

DATE: MARCH 4, 1998

TOTAL PAGES: 3
(Includes cover)

TO: JULIE HUFFMAN
C/O THE FIRST LADY'S OFFICE

FROM: ASHERA EDGHELL

PHONE: 212-512-7331

FAX: 202-456-2878

FAX: 212-512-1166

MESSAGE:

JULIE,

ATTACHED IS THE AGENDA FOR THE MARCH 5TH EVENT.
IF YOU HAVE ANY QUESTIONS, FEEL FREE TO CONTACT
ME AT 212-512-7331.

BEST REGARDS,

Ashera Edghill

SCHEDULE FOR MARCH 5th WASHINGTON, DC

12:00: Noon: LUNCHEON/PRESS CONFERENCE at:
The National Press Club
14th & F Streets, N.W.

12:30 pm: REMARKS
-HBO Chairman & CEO Jeff Bewkes
welcomes, delivers comments;
introduces Tom Hanks
-Tom Hanks delivers remarks;
introduces the film

12:35 pm: SCREENING of Compilation/"1968"

**1:35 pm: PRESS CONFERENCE-Q & A: Tom Hanks
and Dave Scott with Press**

2:35 pm: PRESS CONFERENCE ENDS
(time approx.)

**2:40 pm: Tom Hanks Accompanies Mrs. Clinton
to Dunbar High School
1301 New Jersey Ave., N.W.**

**2:45 pm: HIGH-SCHOOL VISIT-Mrs. Clinton, Tom
Hanks and Eileen Collins, whose
appointment as the first woman
commander of a Shuttle Mission will be
announced Thursday morning at
the White House. (Mr. Hanks will be
asked to speak for a few minutes about
his interest in science, and particularly,
his passion for the space program, as
demonstrated in several of his film
projects; this will be followed by a
brief Q&A from the students.)**

**3:50 pm: Dunbar High School visit ends
(Tom Hanks returns to the Carlton Hotel)**

THE WHITE HOUSE EVENT

6:30 pm: RECEPTION-East Wing

7:00 pm: REMARKS-East Room:

- Mrs. Clinton welcomes, delivers remarks; introduces HBO Chairman & CEO Jeff Bewkes
- Jeff Bewkes delivers remarks; introduces John F. Kennedy Jr.
- John F. Kennedy, Jr. delivers remarks;
- Jeff Bewkes returns to podium and introduces Tom Hanks
- Tom Hanks delivers remarks and introduces the Film

7:20 pm: SCREENING-Compilation/"1968"
(time approx.) East Room

8:20 pm: REMARKS by President Clinton,
(time approx.) followed by DINNER in the State Room

A Salute To the Final Frontier

The moon and stars collide at the White House tonight as President Clinton—helped by Hollywood astronaut Tom Hanks—salutes the Apollo space program.

Nearly 200 guests, including real-life space travelers Jim Lovell, Buzz Aldrin, Sally Ride and Sen. John Glenn (D-Ohio), are to preview an episode of HBO's 12-part, \$70 million miniseries, "From the Earth to the Moon."

John F. Kennedy Jr. will be there with wife Carolyn Bessette Kennedy to recall his father's commitment to the space program. Other guests include Eileen Collins, who will be named today the first female space shuttle commander; Barbara Morgan, NASA's next teacher in space; "Apollo 13" director Ron Howard; actress Rita Wilson, who is Hanks's wife and appears in a series episode; and Walter Cronkite, whose broadcasts brimmed with



BY DON BATZDORFF — COPYRIGHT 1995 UNIVERSAL CITY STUDIOS

Making a case for space: Hanks in "Apollo 13."

unabashed enthusiasm for the space program.

This afternoon, Hillary Rodham Clinton is to spread a little stardust at the District's Dunbar High School, where she, Collins and Hanks will address a student assembly.

THE RELIABLE SOURCE

By Ann Gerhart and Annie Groe

The Washington Post

THURSDAY, MARCH 5, 1998

NASA to Name Veteran Pilot First Female Shuttle Chief

Reuters

Air Force Lt. Col. Eileen Collins, the first woman to pilot a U.S. space shuttle, will soon be the first woman to command a shuttle mission, a U.S. government source said yesterday.

Officials expect Collins, a 41-year-old veteran of two shuttle flights, to be named the first female shuttle commander today by first lady Hillary Rodham Clinton.

Collins is one of only 27 women who have flown in the history of the U.S. space shuttle program, out of a total of 229 people, according to the National Aeronautics and Space Administration.

She would command a December shuttle Columbia mission during which the \$1.4 billion Advanced X-ray Astrophysics Facility, a massive X-ray telescope that is a counterpart to the orbiting Hubble Space Telescope, will be launched.

Collins became the first woman to pilot a space shuttle when she flew aboard a mission in February 1995 that was the first flight of the new joint Russian-American Space Program, according to NASA. Her second shuttle flight in May 1997 was the

sixth mission to rendezvous and dock with the Russian space station Mir. She has logged more than 419 hours in space.

A career military pilot, Collins trained at Vance Air Force Base in Oklahoma and was an instructor pilot there until 1982. From 1983 to 1985, she was an aircraft commander and instructor pilot at Travis Air Force Base in California and spent the following year as a student with the Air Force Institute of Technology.

She was an assistant professor of mathematics at the Air Force Academy in Colorado from 1986 to 1989 and also was an instructor pilot there. Collins was selected for the astronaut program while attending the elite Air Force Test Pilot School at Edwards Air Force Base in California, from which she graduated in 1990.

Born Nov. 19, 1956, in Elmira, N.Y., Collins now is based in Houston. She is married and has one child.

The U.S. space program was an exclusively male preserve until 1978, when the first group of six female astronauts joined the corps.



Air Force Lt. Col. Eileen Collins is to command a December shuttle Columbia mission that launches a telescope.

The Washington Post

THURSDAY, MARCH 5, 1998

Bound for the Moon, Without the Stressful Cargo

Continued From First Arts Page

miere on April 5, cost HBO \$68 million to make and about \$10 million to promote. It is not only one of the most ambitious television productions ever undertaken; it is also, by the admission of Mr. Hanks and others involved, an ambitious rewrite of contemporary American history, an attempt, in effect, to save the 1960's for Mr. Hanks's generation.

In no segment is that perspective clearer than "1968," which is to be screened tonight at the White House with President Clinton in attendance.

This is not the first indication of a popular desire to see the space program as a redeeming symbol of American resilience. The great success of "Apollo 13" was also a sign, somewhat to the surprise of some of those involved in creating the movie.

"I never dreamed it would do that well," said Brian Grazer, the producer of "Apollo 13," and a producer now of "From the Earth to the Moon." "That's what made me start to think about this project."

But the paradox, Mr. Hanks and Mr. Grazer said, was that no matter how thrilling the space program seemed at certain moments, it felt at the time almost like a footnote in the face of the great social and political events of the era. That seems to be true for many baby boomers.

For instance, the weighty 1987 book on the era, "The 60's: Years of Hope, Days of Rage" (Bantam), by the sociologist Todd Gitlin, includes not a single entry in its index on the space program.

"The world that I was writing

about was either oblivious to or scornful of the space program," said Mr. Gitlin, a professor at New York University. "You could say that America was divided between those who thought putting an American on the moon would help us reinvent ourselves and those who thought that the essence of those times was a napalm bomb exploding."

"The kind of revision you're seeing today is an attempt to recapture a sense of America, what we want it to be, the people's wisdom, that sort of thing," he added. "It's as if to say there was a happy story there after all. We're sorry we had all these bad images, but we can change that."

Activists Who Saw Space as Escapism

Tom Hayden, a leader of the demonstrations in Chicago in 1968 (he is shown briefly in some historical clips in the series), and now a California state senator, shared that view.

"Those who were really engaged with the struggle against ancient injustices and war didn't have a lot of time to think about space, and probably had a jaundiced view of this as a kind of escapism," he said. "I felt it had some merit to it but that it was a public works program."

Mr. Hanks, too, conceded that at the time, he was less impressed by the space program than he was by the general sense of chaos that characterized parts of the late 1960's and early 70's.

"I remember those as some of the worst years of my life," Mr. Hanks

said. "It was hell, and I wanted to get some of that across in '1968.'"

He added: "But I think the sheen we were trying to place on the Apollo program is that it was altruistic. This is part of a slow-moving wheel and absolutely it is about restoring trust in Government."

Mr. Grazer, 46, seconded that view. "The space program for me at the time, I wasn't even aware of it," he said. "I really couldn't relate to the space program and what it meant in the great scheme of things."

That has been reversed in the mini-series. "We're trying to use the space program to say there was something good at that time," Mr. Grazer said. "Subconsciously, I admit it, we were mythologizing the space program. We were very excited about that idea."

At the least, the excitement led to a production of enormous scale, involving some 500 speaking parts and filming at more than 100 locations. NASA provided extensive cooperation with the mini-series, which presents the Government agency in a generally positive light.

The segments go beyond the traditional clichés of the space program, however. While the series includes plenty of impressive shots of rockets blasting off, astronauts enjoying weightlessness and gawky capsules hurtling through space, it also explores less familiar sides of the space program.

"The Original Wives Club," a segment directed by Sally Fields, focuses on the strains the wives of the astronauts endured while being told they had to present a happy face to

the world for the sake of the mission. In "We Interrupt This Program," the Apollo 13 disaster is viewed through the eyes of the journalists covering it. Nevertheless, the overall tone is one of triumph, of skill and hard work overcoming adversity.

Mr. Hanks said he had several motivations for making the mini-series. One was to reclaim space and space exploration from the huge entertainment conglomerates that have transformed this frontier into a science-fiction wonderland filled with aliens and fanciful space ships. It was also an opportunity to show the United States winning, he said.

Not Denying NASA Politics

"This is a story about a bunch of white guys with short hair," said Mr. Hanks. "It's unavoidable. Many of these people were politically motivated." But "there were many heroes and heroic things done."

Even Mr. Hayden said that despite his political preoccupations in that era, the program did express a kind of poetry that transcended the times.

"That was an extraordinary moment for earthlings, to see the planet and the niche of humanity in that humbling context," said Mr. Hayden. "I think it was a powerful spiritual moment. Those pictures of the Earth they took from the Moon, they will have a lasting affect on human consciousness."

The New York Times

THURSDAY, MARCH 5, 1998

Bound Once More for the Moon, Without the Stressful 60's Cargo

Mini-Series Casts the Mission as the Defining Spirit of a Decade

By JAMES STERNOLD

LOS ANGELES, March 4 — Tom Hanks was just 12 years old in the crucial, difficult year of 1968, but at least one portion of his memories of those times is crystal clear. "Our world was very, very polarized," Mr. Hanks said in a recent interview. "If you had long hair, you were a good guy; if you had short hair, you were a bad guy. We mistrusted just about anything that had to do with the Government."

Thirty years later, something interesting has happened in the way Mr. Hanks has chosen to depict those memories in "From the Earth to the Moon," a 12-part television mini-series about the Apollo space program for which Mr. Hanks was the executive producer and guiding force.

In a telling shift in perspective, the guys with the brush cuts — the astronauts, all military men and NASA specialists — have become the heroes in what is characterized as a defining event for the era: the moon mission. The long-hairs and social activists who usually play a central role in documentary portraits have receded into distant, blurred

Astronauts with brush cuts eclipse the war protesters.

images on the fringes of a period here imagined largely as a golden moment when the space program was a beacon of clarity and hope in a world losing its bearings.

One powerful segment of the series, which was produced for HBO by some of the same people who made "Apollo 13," the 1995 movie starring Mr. Hanks, brings this transformation into particularly sharp focus. Called "1968," the episode recalls the assassinations of the Rev. Dr. Martin Luther King Jr. and Robert F. Kennedy, the Vietnam War protests, Tet Offensive and the riots at the Democratic convention in Chicago, to the rhythms of the Allman Brothers Band playing heavy blues.

But the space program and the heroic race to beat the Russians to the moon are presented as more central to the spirit of the times. Indeed, the feeling is captured



Erik Heinila/HBO

poetically in the closing moments of the episode. It is Christmas, and the astronauts of Apollo 8 — American military men — have just become the first humans to witness the wonder of the earth rising from behind the stark landscape of the moon. It is portrayed as not just a moment of achievement but also of redemption, evident when mission control reads the astronauts a telegram from an ordinary citizen named Valerie Pringle.

"You saved 1968," she wrote.

The series, which will have its pre-

Continued on Page 14

"Our world was very, very polarized," says Tom Hanks, executive producer of "From the Earth to the Moon," a 12-part mini-series about the Apollo program that is to begin on April 5 on HBO. The former star of "Apollo 13" describes the space race as an altruistic effort that redeems the 60's, "some of the worst years of my life."

The New York Times

THURSDAY, MARCH 5, 1998

Woman tapped to lead space mission

REUTERS NEWS AGENCY

Eileen Collins, who as a child would watch planes take off from the airport and dream of going into space, was named yesterday the first woman to command a space shuttle mission.

The 41-year-old Air Force lieutenant colonel and veteran of two shuttle flights will lead the mission of the shuttle Columbia in December to launch into orbit a massive X-ray telescope that will peer deep into space.

"It's my hope that all children, boys and girls, will see this mission and be inspired to reach for their dreams, too, because dreams do come true," she said.

Her appointment was announced at the White House by first lady Hillary Rodham Clinton, who told of how NASA spurned her dream of being an astronaut when she wrote the agency a letter at age 14.

"Unfortunately I got one of those really thin envelopes back, which is never a good sign. NASA thanked me for my interest but said that women weren't being considered for the job. Well, times have certainly changed," she said.

Looking on were President Clinton, NASA Administrator Dan Goldin and Col. Collins, who was dressed like an astronaut in blue coveralls patched with the U.S. flag and the NASA insignia. America's first woman in space, Sally K. Ride, watched from a front-row seat in the Roosevelt Room.

Col. Collins had a yearning for the stars from an early age growing up in Elmira, N.Y.

"As a small child, Col. Collins would go to the airport with her father and siblings, sit on the hood of her car and watch the planes take off. She would look up at the sky and imagine traveling into



Photo by Roger Richards/The Washington Times

Lt. Col. Eileen Collins shows her satisfaction at being named the first woman to head a space mission yesterday at a White House ceremony.

space, and now she's doing just that," Mrs. Clinton said.

She was the pilot on the first U.S.-Russian rendezvous between the space shuttle and the Mir space station in 1995, the first woman to pilot a shuttle. She has logged more than 4,700 hours in 30 different types of aircraft, more than 400 hours in space.

Mr. Clinton, who won re-election in 1996 on the strength of overwhelming support from women voters and who retains strong public approval despite sex scandal allegations, said Col. Collins may not fit the mold of the original U.S. astronauts 40 years ago but that "heroes come in every size and shape and gender."

He expressed the hope that Col. Collins' selection would inspire boys and girls to concentrate harder on math and science stud-

ies, bemoaning some bad news released last week about test scores in those areas among high school students.

A career military pilot, Col. Collins trained at Vance Air Force Base in Oklahoma and was an instructor pilot there until 1982. From 1983 to 1985 she was an aircraft commander and instructor pilot at Travis Air Force Base in California and spent the following year as a student with the Air Force Institute of Technology.

She was an assistant professor of mathematics at the Air Force Academy in Colorado from 1986 to 1989 and also was an instructor pilot there. She was selected for the astronaut program while attending the elite Air Force Test Pilot School at Edwards Air Force Base in California from which she graduated in 1990.

The Washington Times

FRIDAY, MARCH 6, 1998

Hanks brings sky-high dreams down to Earth



By Jamal A. Wilson, Agence France-Presse

Hanks: He spreads his fascination with space Thursday in Washington, D.C.

By Karen Thomas
USA TODAY

WASHINGTON — Tom Hanks was 12 years old again Thursday as he milled about the National Press Club joking with some of the astronauts from NASA's Apollo program.

The actor was on the dais with Dave Scott, who flew on three missions and is one of 12 men who have walked on the moon. They called it the Tom & Dave show, but everyone chimed in, from Buzz Aldrin to author Andrew Chaikin, whose book *A Man on the Moon* was Hanks' inspiration for his upcoming 12-hour miniseries, *From the Earth to the Moon*. Scott served as the technical consultant for the series.

Hanks' hope is to inspire a new generation of space travelers. "Now, we all want to be rock stars and video directors," he said seriously, and he wants to

day's kids to see that flying to the moon "isn't as easy as 'Beam me up, Scotty.'"

Earth to the Moon is just the needed boost for NASA's stodgy image, said Scott, who joked that "NASA should pay half the bill" for the \$65 million series, HBO's most ambitious original programming to date.

The show, which starts next month with one-hour segments on Sunday nights, is Hanks' two-year project born of a lifelong love. A space addict as a kid who "ran home from school" to watch the latest developments ("It blew my 12-year-old mind!"), Hanks told the lunch crowd that his research for *Apollo 13* showed him "we could sneak a few hours of prime storytelling out of it ... with great stories yet to be told about going to the moon." They're human stories, he said, that make for great entertainment.

Production included "everything

from the most technologically advanced computers to bungee cords and duct tape," Hanks joked, adding that "huge helium balloons" were attached to actors to simulate zero gravity, "instead of the usual slow-motion filming."

And while Hanks said he'd leap at the chance to travel in space, "I don't think there's a real reason for me to go other than to make jokes on *David Letterman* afterwards."

Not so, interrupted Scott quickly. "NASA would do good to send you up," he said. "We're technicians and astronauts (who) can't convey" what it's like in space. "We need a poet or an artist up there to give their impressions."

"No, there must be an M.D. or a man or woman of letters who would really be able to" describe the complexities of space travel, said the actor, who added that there might be a role for him in space: He'd improve the camera angles!

USA TODAY • FRIDAY, MARCH 6, 1998

Even the mysteries of physics may be apparent to all. "If, as I hope, basic science becomes part of general awareness," he says in his prepared text, "what now appear as the paradoxes of quantum theory will seem as just common sense to our children's children."

Logistics of speech daunting

The genesis of the White House invitation to Hawking came during a casual conversation last November when Hillary Clinton visited Belfast. John McCaffrey, who runs Cambridge University's New York office, had helped plan her visit.

"Who are the big names at Cambridge?" she asked him on the trip. He replied, "Stephen Hawking is our big guy." She exclaimed, "I just love him!" Later at a planning meeting, she said she'd like Hawking to be the lecture series' second speaker. The first lecture, on the country's history and values, was delivered last month by Harvard historian Bernard Bailyn.

The logistics of the Hawking speech have been daunting. The East Room stage, customarily set up along the east wall, was moved to the south wall to create more manageable turns for Hawking's wheelchair as he enters with the Clintons to *Ruffles and Flourishes*, the music that announces the president's arrival. Hawking's voice synthesizer will be plugged directly into the sound system for the room and broadcast.

He'll answer questions from the Internet and the audience of Nobel laureates, Cabinet members and college students. Ellen Lovell, director of the White House Millennium Council, will ask others to comment while he's composing his answers.

At a run-through Wednesday, Lovell nervously asked McCaffrey and Hawking aide Tom Auld how long the speech would last. White House staffers already had urged him to trim his 45-minute speech to free more time for questions.

"Around half an hour," Auld said guardedly.

"What does 'around' mean?" Lovell persisted.

"It's 34 minutes with the video clip," McCaffrey finally said. But Auld cautioned that it would run a bit longer because, "He'll pause for laughs."

Scientist with popular appeal

The idea that the speaker would need to "pause for laughs" during an address on millennium science — on the fundamental rules that govern the universe and on the universe's beginning and ending — is at the heart of Hawking's popular appeal. With informal language and concrete metaphors, he makes reasonably understandable such difficult and fundamental questions as the relationship of time and space.

That he considers those cosmic questions from the confines of his wheelchair, his thin body folded like a bird's, the only movement his right thumb and his lopsided grin, seems impossibly meaningful, perhaps the most concrete metaphor of all.

He is a puckish man, full of wry asides.

Asked if he gets nervous before public appearances, he refers to his pre-programmed computer-synthesized speech. "I have the advantage that I can't forget what I'm going to say,"

he says. When a photographer asks him to move across his hotel room to pose for a portrait, he calls out to his nurse, "Legs left, bottom right, please." That's the position his body needs to be in for him to operate his wheelchair.

As the picture is being taken, his wife, Elaine, worries that he's being "too stiff." She makes faces, throws kisses and waves her arms until he breaks into a wide smile.

He seems to simply refuse to acknowledge any limitations because of his disability. He and his wife dropped by the National Gallery of Art on Thursday afternoon for an impromptu tour, for instance, before returning to their downtown hotel for a room service lunch. A man leaving the hotel holds open the door for his wheelchair. "Thanks," the synthesized voice says as Hawking sails through.

Still, he is accompanied by a small entourage of nurses and aides, and the autograph he put on the copy of *A Brief History of Time* that he presented to Clinton on Thursday was made by his right thumbprint.

The president and first lady greeted the Hawkings briefly in the Oval Office on Thursday morning. Clinton marveled at the computer screen and sat down for a demonstration of how it worked.

"The president and I both went to University College, Oxford," Hawking said when asked what he had said to Clinton. "It was founded by King Alfred, who is mainly remembered for burning the cakes." The 9th-century king, pursued by the Danes, is said to have forgotten to flip the cakes, or bread, that his peasant protectors had left baking on the hearth. "I asked the president if the college food was still bad in his day."

COVER STORY

Hawking brings vision of future to White House

By Susan Page
USA TODAY

AI

WASHINGTON — Click, click, click.

Stephen Hawking is answering a question about his own goals for the millennium. To achieve the long-sought unified theory of the universe, or something more personal? The process of answering is arduous: His right thumb presses a switch, which starts and stops a cursor moving along a computerized list of words and phrases.

Minutes pass. Then the synthesized voice with which Hawking communicates speaks the words he has pulled together.

"I think a complete unified theory is still about 20 years away," he says. "When it comes, it will be as the result of the work of a large number of people, not just one or two individuals. I have personal goals for the millennium. Most of these

are private, but for me to reach the millennium is a goal in itself. When I was diagnosed with ALS, Lou Gehrig's disease, in 1963, I never thought I would see the year 2000."

Hawking is the most famous living scientist in the world: Born on the 300th anniversary of Galileo's death, holder of the Cambridge University chair in mathematics once held by Sir Isaac Newton, seen by many as the successor to Albert Einstein. He is the author of *A Brief History of Time*, a best-seller (9 million copies in 33 languages) that addresses the biggest possible issues. Was there a beginning of time? Will there be an end? Is the universe infinite or does it have boundaries? Or could it be both finite and without boundaries?

At the White House tonight, the theoretical

Please see COVER STORY next page ►

Continued from 1A

physicist will discuss the future of science at a "Millennium Evening," a lecture series hosted by President Clinton and Hillary Rodham Clinton that's designed to explore major issues of the past and future. Appropriately enough, Hawking's address at 7:30 ET will be Internet-linked, broadcast by satellite and carried live on C-SPAN and the BBC.

For Hawking, unable to speak since his vocal cords were removed in 1985 to help him breathe, even the simplest exchange requires a marriage of patience and high technology. At 56, he has had a progressive, incurable disease called amyotrophic lateral sclerosis (ALS), or "Lou Gehrig's Disease," for 35 years. It has gradually cost him control of his body.

But the speech is ready to go, written and stored in the computer that is mounted on his motorized wheelchair. It will be introduced by a video that includes clips from TV's *Star Trek*.

But *Star Trek* — Hawking is a fan, once making a guest appearance as himself on *Star Trek: The Next Generation* — is

COVER STORY

an example of the common assumption that at some point in the future, all scientific knowledge will be completed. That's not likely, Hawking says.

"The *Star Trek* picture of an advanced but constant science and technology is unrealistic," he said in an interview that included some questions submitted in advance to which he had prepared answers. "Things will never stand still."

Even if the basic laws governing the universe are discovered — the "complete unified theory" he is seeking — "there is no limit to the complexity of the applications we can make of these laws," he says in a written synopsis of his speech. "I foresee biological complexity increasing with genetic engineering and the development of self-designing computers with artificial intelligence. The future certainly won't be static."

USA TODAY • FRIDAY, MARCH 6, 1998

1/2

Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age, when she would watch planes land and takeoff at the local airport in her hometown of Elmira, NY. Collins came from a modest background and flying lessons weren't cheap. While most teenagers take a job for extra spending money or a car, Collins was seeking odd jobs to save money for flying lessons.

When she was nineteen, Collins had finally saved enough to begin taking lessons to be a pilot. While she began logging time as a pilot, she studied math and science at Corning Community College. After two years at the local community college, Collins was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, which was the first year the Air Force accepted women pilots.

Upon graduation in 1978 she was assigned to Vance Air Force Base in Oklahoma where she became a T-38 instructor pilot after she completed Air Force Pilot Training. This was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 is the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983 when she was assigned to be a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989 Collins received an opportunity to mentor and support the next generation of pilots, especially female pilots at the Air Force Academy in Colorado. She was a T-41 instructor and assistant professor of mathematics at the Academy. Collins distinguished herself when she was the second woman pilot to graduate from the Air Force Test Pilot School in 1990. While testing the next generation of aircraft, Eileen received word that she was selected to be a member of the next astronaut class. She was one of two woman pilots in her class(*checking*

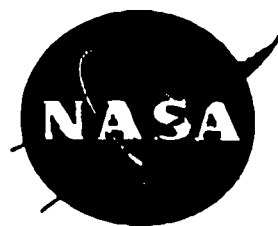
this fact

NASA chose Collins to be the pilot on the first U.S.-Russian Shuttle/Mir rendezvous. The mission was a test of precision and cooperation between the American and Russian space agencies before the docking of the Space Shuttle and the Mir Space Station. Collins was the first female to pilot a Shuttle ever on that mission. Subsequently Collins was assigned to be the pilot on the sixth U.S./Russia Shuttle-Mir docking mission.

Lt. Col. Collins was recently chosen to be the first ever woman to command a Shuttle mission. Collins has been selected to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. She has logged over 4,700 hours in 30 different types of aircraft. She has logged over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

She was born November 19, 1956 in Elmira, New York to James and Rose Collins. She is married to Pat Youngs, originally from San Antonio, Texas. Her husband is a pilot for Delta airlines. His parents are Pat and Jackie Youngs of San Antonio, Texas.

Biographical Data



National Aeronautics and
Space Administration

Washington, DC 20548
(202) 358-1800

NAME: Eileen Marie Collins (Lieutenant Colonel, USAF)
NASA

PERSONAL DATA:

Born November 19, 1956 in Elmira, New York. Her parents are James and Rose Collins from Elmira, New York. Married to Pat Youngs, originally from San Antonio, Texas. His parents are Pat and Jackie Youngs of San Antonio, Texas. Hobbies and interests include running, golf, hiking, camping, reading, photography and astronomy.

EDUCATION:

Graduated from Elmira Free Academy in Elmira, New York, in 1974; received an associate in science degree in mathematics/science from Corning Community College in 1976; a bachelor of arts degree in mathematics and economics from Syracuse University in 1978; a master of science degree in operations research from Stanford University in 1986; and a master of arts degree in space systems management from Webster University in 1989.

ORGANIZATIONS:

Member of the Air Force Association, Order of Daedalians, Women Military Aviators, U.S. Space Foundation, the American Institute of Aeronautics and Astronautics, and the Ninety-Nines.

SPECIAL HONORS:

Awarded the Defense Superior Service Medal, the Air Force Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the Armed Forces Expeditionary Medal for service in Grenada (Operation Urgent Fury--October 1983), and the NASA Space Flight Medal.

EXPERIENCE:

Collins graduated in 1979 from the Air Force Undergraduate Pilot Training at Vance AFB in Oklahoma, where she was a T-38 instructor pilot until 1982. From 1983 to 1985, she was a C-141 aircraft commander and instructor pilot at Travis AFB in California. She spent the following year as a student with the Air Force Institute of Technology. From 1986 to 1989, she was assigned to the U.S. Air Force Academy in Colorado, where she was an assistant professor in mathematics and a T-41 instructor pilot. She was selected for the astronaut program while attending the Air Force Test Pilot School at Edwards AFB in California, where she graduated from in 1990. She has logged over 4,700 hours in 30 different types of aircraft.

NASA EXPERIENCE:

Selected by NASA in January 1990, Collins became an astronaut in July 1991. Initially assigned to Orbiter engineering support, she also served on the astronaut support team responsible for Orbiter prelaunch checkout, final launch configuration, crew ingress/egress, and landing/recovery. From April 1995 to October 1996, she worked in Mission Control as a spacecraft communicator (CAPCOM). A veteran of two space flights, Collins served as the first female shuttle pilot on STS-63 (February 2-11, 1995) and STS-84 (May 15-24, 1997), and has logged over 419 hours in space. She currently serves as the Astronaut Office Spacecraft Systems Branch Chief.

Collins has been chosen to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. With this mission Collins will become the first female to command a shuttle crew.

SPACE FLIGHT EXPERIENCE:

STS-63 (February 2-11, 1995) was the first flight of the new Russian-American joint Space Program. Mission highlights included the rendezvous with the Russian Space Station Mir, operation of Spacehab, the deployment and retrieval of an astronomy satellite, and a space walk. Collin's first mission was accomplished in 129 orbits, traveling over 2.9 miles in 198 hours and 29 minutes. She was the first woman pilot of a Space Shuttle.

STS-84 (May 15-24, 1997) was NASA's sixth Shuttle to rendezvous and dock with the Russian Space Station Mir. During the flight, the crew conducted a number of secondary experiments and transferred nearly 4 tons of supplies and experiment equipment between Atlantis and the Mir station. In completing this 9 day mission, she traveled 3.8 million miles in 145 orbits of the Earth logging a total of 221 hours and 20 minutes in space.

Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age. She was inspired to flight by watching the planes land and takeoff at the local airport just minutes away from her home in Elmira, NY. When she was six years old she dreamed about her first flying lesson. Collins came from a modest background and flying lessons weren't cheap. When most teenagers take on a job for extra spending money or a car, Collins was seeking odd jobs to save money for flying lessons. Whatever time she had left after school and work was spent reading about famous pilots, which were mostly men at the time.

When she was nineteen, Collins had finally saved enough to begin taking lessons to be a pilot. While she began logging time in the skies, she studied math and science at Corning Community College. Collins perseverance paid off when she was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, which incidentally was the first year the Air Force accepted women pilots.

While Eileen soared through her classes, she continued to literally fly. Upon graduation she was assigned to Vance Air Force Base in Oklahoma where she became a T-38 instructor pilot after she completed Air Force Pilot Training. Again fate would play a role since 1978 was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 job was a sign for the future as it happens to be the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983 when she was assigned to be a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989 Collins received an opportunity to mentor and support the next generation of pilots, especially female pilots at the Air Force Academy in Colorado. She was a T-41 instructor and assistant professor of mathematics at the Academy. Collins distinguished herself once again when she was the second woman to graduate from the Air Force Test Pilot School in 1990. While there she became the envy of her classmates when she was selected to become an astronaut.

NASA chose Collins to be the pilot on the crucial U.S.-Russian Shuttle/Mir rendezvous. The mission was an essential test of precision and cooperation between the American and Russian space agencies necessary before the docking of the Space Shuttle and the Mir Space Station. Collins was the first female to pilot a Shuttle ever on that mission. Subsequently Collins was assigned to be the pilot on the Sixth U.S./Russia Shuttle-Mir docking mission. Lt. Col. Collins was recently chosen to be the first ever woman to command a Shuttle mission. Collins has been chosen to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. With this mission Collins will become the first female to command a shuttle crew. She has logged over 4,700 hours in 30 different types of aircraft. She has logged over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

She has been awarded the Defense Superior Service Medal, the Air Force Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the Armed Forces Expeditionary Medal for service in Grenada (Operation Urgent Fury--October 1983), and the NASA Space Flight Medal.

She was born November 19, 1956 in Elmira, New York to James and Rose Collins. She is married to Pat Youngs, originally from San Antonio, Texas. Her husband is a pilot for Delta airlines. His parents are Pat and Jackie Youngs of San Antonio, Texas.

NASA Facts

National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, CA 91109



Mars Pathfinder

NASA's Mars Pathfinder spacecraft -- a novel mission to send an inexpensive lander and roving prospector to the surface of Mars -- has concluded its primary mission, fulfilling all of its objectives and returning a wealth of new information about the red planet.

The robotic lander, which continues to explore an ancient outflow channel in Mars' northern hemisphere, completed its milestone 30-day mission

August 3, 1997, capturing far more data on the atmosphere, weather and geology of Mars than scientists expected. In all, Pathfinder returned 1.2 gigabits (1.2 billion bits) of data and 9,669 tantalizing pictures of the Martian landscape.

"The data returned by the Sagan Memorial Station and Sojourner has been nothing short of spectacular, and it will help provide a scientific basis for future Mars missions, including a sample return, for years to



come," said Dr. Wesley Huntress, NASA associate administrator for space science. "The Pathfinder team's 'can do' attitude not only was critical to overcoming several complex technical challenges during development and cruise, but has carried through the uncharted territory of operating a solar-powered lander and mobile rover on the surface of a planet millions of miles from Earth."

"This mission demonstrated a reliable and low-cost system for placing science payloads on the surface of Mars," said Brian Muirhead, Mars Pathfinder project manager at NASA's Jet Propulsion Laboratory. "We've validated NASA's commitment to low-cost planetary exploration, shown the usefulness of sending microrovers to explore Mars, and obtained significant science data to help understand the structure and meteorology of the Martian atmosphere, and to understand the composition of the Martian rocks and soil."

A new portrait of the Martian environment has begun to emerge in the 30 days since Pathfinder and its small, 10.5-kilogram (23-pound) rover began to record weather patterns, atmospheric opacity and the chemical composition of rocks washed down into the Ares Vallis flood plain. The rover's alpha proton X-ray spectrometer, led by Principal Investigator Dr. Rudolph Rieder, was responsible for making the first in-situ measurements of rocks near the landing site.

"We are seeing much more differentiation of volcanics than we expected to see," said Dr. Matthew Golombek, Mars Pathfinder project scientist at JPL. "The high silica content of one of the rocks we've measured suggests that there was more crustal activity -- heating and recycling of materials -- early in Mars' history than we thought."

Similarly, atmospheric-surface interactions, measured by a meteorology package onboard the lander, are confirming some conditions observed by the Viking landers 21 years ago, while raising questions about other aspects of the planet's global system of transporting volatiles such as water vapor, clouds and dust, said Science Team Leader Dr. Timothy Schofield. The meteorology mast on the lander has observed a rapid drop-off in temperatures just a few feet above the surface, and one detailed 24-hour measurement set revealed temperature fluctuations of 30-40 degrees Fahrenheit in a matter of minutes.

In addition, sweeping, color panoramas of the Martian landscape, created by the Imager for Mars Pathfinder (IMP) team and Principal Investigator Peter Smith, are revealing clear evidence that the surface of Mars has been altered by winds and flowing water.

Sojourner, a robust rover capable of semi-autonomous "behaviors," captured the imagination of the public, which followed the mission with great interest via the World Wide Web. Twenty Pathfinder mirror sites, constructed by JPL web engineer Kirk Goodall and managed by Pathfinder webmaster David Dubov, recorded 565,902,373 hits worldwide during the period of July 1-August 4, 1997. The highest volume of hits in one day occurred on July 8, when a record 47 million hits were logged, which is more than twice the volume of hits received on any one day during the 1996 Olympic Games in Atlanta.

The rover's performance has easily surpassed its designers' minimum expectations. Engineers designed the roving vehicle's electronics, battery power and hazard avoidance features to see it through at least a week of safe roving, not knowing beforehand what conditions it might encounter on Mars. After 30 days, the rover is still healthy and has clocked 52 meters (171 feet) distance, circumnavigated the lander and taken 384 spectacular views of rocks and the lander.

"Sojourner's capabilities to detect hazards and then act on its own to overcome those hazards has been remarkable," said Dr. Jacob Matijevic, Sojourner project manager. "The technology experiments we have been able to perform with the rover's wheels have given us more information about the composition of the Martian soil, as well as rocks around the landing site. Sojourner's durability in this frigid, hostile environment is also showing us that we are on the right track to building smarter, even more durable rovers for future missions."

Pathfinder's primary objective was to demonstrate a low-cost way of delivering an instrumented lander and free-ranging rover to the surface of the red planet. Landers and rovers of the future will share the heritage of spacecraft designs and technologies tested in this "pathfinding" mission.

Part of NASA's Discovery program of low-cost planetary missions with highly focused science goals, the spacecraft used an innovative method of directly

entering the Martian atmosphere. Assisted by an 11-meter (36-foot) diameter parachute, the spacecraft descended to the surface of Mars and landed, using airbags to cushion the impact.

This novel method of diving into the Martian atmosphere worked like a charm. "Every event during the entry, descent and landing (EDL) went almost perfectly," said Richard Cook, Pathfinder mission manager. "The sequences were executed right on time and well within our margins."

Pathfinder landed right on the money, within 20 kilometers (13 miles) of the targeted landing site. The landing site coordinates in Ares Vallis were later identified as 19.33 degrees north latitude, 33.55 degrees west longitude.

The spacecraft's terminal velocity as it parachuted to the ground was higher than expected, said Rob Manning, Pathfinder flight system chief engineer. "Interestingly, we estimated our descent on the parachute at about 60 meters per second (134 miles per hour). Software controlling the retro rockets recorded Pathfinder's speed at about 61.5 meters per second (140 miles per hour) at the time the RAD (rocket-assisted deceleration) rockets fired."

Pathfinder's performance in the Martian atmosphere will be of great value to Mars Global Surveyor, which will aerobrake through the Martian atmosphere to circularize its orbit when it reaches Mars on Sept. 11. The Pathfinder navigation team, led by Pieter Kallemyn of JPL, estimated horizontal wind velocities in the upper atmosphere, which accelerated the spacecraft's descent velocity by about 13 meters per second (20 to 25 miles per hour).

After being suspended from a 20-meter (65-foot) bridle and firing its retro rockets, a 5.8-meter (19-foot) diameter cluster of airbags softened Pathfinder's landing, marking the first time this airbag technique has been used. The spacecraft hit the ground at a speed of about 18 meters per second (40 miles per hour) and bounced about 16 times across the landscape before coming to a halt. The airbag seems to have performed perfectly and sustained little or no damage. To top it off, the spacecraft even landed on its base petal, consequently allowing its thumb-sized antenna to communicate the successful landing to a jubilant team on Earth only three minutes after touch down.

Science data from the surface of Mars will continue to be collected and transmitted to Earth, then analyzed by scientists, as Pathfinder enters its extended mission. The lander was placed in a two-day hibernation period to recharge its battery after the conclusion of the primary mission, and the flight team will begin to power the lander battery off each Martian night now to conserve energy. The rover's batteries remain in good condition, but are not rechargeable.

The Mars Pathfinder mission is managed by the Jet Propulsion Laboratory for NASA's Office of Space Science, Washington, D.C. JPL is a division of the California Institute of Technology, Pasadena, CA.

8-97 DEA

TO: *Nellie Tandon*
From: *Terri Hudkins*

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



"There's Space in My Life..." For Release
Women's Outreach Initiative
National Aeronautics and Space Administration

Goal. NASA's Women's Outreach Initiative seeks to make the wealth of NASA's information more accessible to women, men, and their families in an effort to help increase the public's understanding of science and technology, demonstrate how America's aeronautics and space programs improve their lives everyday, and identify ways to share the excitement of exploration.

"There's Space in My Life..." initiative presents information in a non-technical, straight-forward way, centered around topics of particular interest to women and their families:

- *health*
- *family and education*
- *safety*
- *home & garden*
- *travel and leisure*
- *mysteries of Earth and the universe*

A NASA Priority. NASA Administrator Daniel S. Goldin has made the communication of NASA's knowledge and the benefits of aeronautics and space research a personal priority. "NASA's discoveries rewrite science textbooks everyday, and our missions bear results in many ways, including the most unexpected," he said. "Technology used in the Hubble Space Telescope to image distant stars is improving the diagnosis and treatment of breast cancer. Technology used to monitor the health of astronauts in space is used in ambulances to familiarize waiting doctors with a patient's condition. The know-how used in the study of air flow around aircraft is used to study the movement of blood in our bodies."

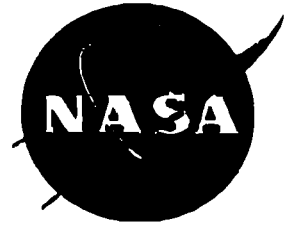
In addition to exploring space and developing aeronautics, NASA is charged with applying its technology to improve the quality of life on Earth. NASA research has led to more than 30,000 commercial products, with 10,000 of those in health. "With a budget of less than one percent of the federal total, NASA research goes a long way—touching our lives everyday," Administrator Goldin continued.

Website. www.nasa.gov/family/index.html

Publications. A booklet on NASA research and its applications for women's health is available via the website. Future publications are underway on the six topics.

Events. The outreach team will create opportunities to discuss NASA research, discoveries and benefits. Several events to-date include: an educational and media event during Breast Cancer Awareness month to highlight eight aerospace research projects and technologies that are helping doctors battle breast cancer -- the leading cause of death among American women ages 35 to 50. In February, during American Heart Month, NASA released information on 16 ways the Agency is helping understand, diagnose and treat heart disease -- the leading cause of death of men and women in the U.S. Additional media events are planned throughout the year.
March 1998

Biographical Data



National Aeronautics and
Space Administration

Washington, DC 20546
(202) 358-1800

NAME: Eileen Marie Collins (Lieutenant Colonel, USAF)
NASA

PERSONAL DATA:

Born November 19, 1956 in Elmira, New York. Her parents are James and Rose Collins from Elmira, New York. Married to Pat Youngs, originally from San Antonio, Texas. His parents are Pat and Jackie Youngs of San Antonio, Texas. Hobbies and interests include running, golf, hiking, camping, reading, photography and astronomy.

EDUCATION:

Graduated from Elmira Free Academy in Elmira, New York, in 1974; received an associate in science degree in mathematics/science from Corning Community College in 1976; a bachelor of arts degree in mathematics and economics from Syracuse University in 1978; a master of science degree in operations research from Stanford University in 1986; and a master of arts degree in space systems management from Webster University in 1989.

ORGANIZATIONS:

Member of the Air Force Association, Order of Daedalians, Women Military Aviators, U.S. Space Foundation, the American Institute of Aeronautics and Astronautics, and the Ninety-Nines.

SPECIAL HONORS:

Awarded the Defense Superior Service Medal, the Air Force Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the Armed Forces Expeditionary Medal for service in Grenada (Operation Urgent Fury--October 1983), and the NASA Space Flight Medal.

EXPERIENCE:

Collins graduated in 1979 from the Air Force Undergraduate Pilot Training at Vance AFB in Oklahoma, where she was a T-38 instructor pilot until 1982. From 1983 to 1985, she was a C-141 aircraft commander and instructor pilot at Travis AFB in California. She spent the following year as a student with the Air Force Institute of Technology. From 1986 to 1989, she was assigned to the U.S. Air Force Academy in Colorado, where she was an assistant professor in mathematics and a T-41 instructor pilot. She was selected for the astronaut program while attending the Air Force Test Pilot School at Edwards AFB in California, where she graduated from in 1990. She has logged over 4,700 hours in 30 different types of aircraft.

NASA EXPERIENCE:

Selected by NASA in January 1990, Collins became an astronaut in July 1991. Initially assigned to Orbiter engineering support, she also served on the astronaut support team responsible for Orbiter prelaunch checkout, final launch configuration, crew ingress/egress, and landing/recovery. From April 1995 to October 1996, she worked in Mission Control as a spacecraft communicator (CAPCOM). A veteran of two space flights, Collins served as the first female shuttle pilot on STS-63 (February 2-11, 1995) and STS-84 (May 15-24, 1997), and has logged over 419 hours in space. She currently serves as the Astronaut Office Spacecraft Systems Branch Chief.

Collins has been chosen to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. With this mission Collins will become the first female to command a shuttle crew.

SPACE FLIGHT EXPERIENCE:

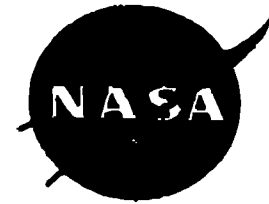
STS-63 (February 2-11, 1995) was the first flight of the new Russian-American joint Space Program. Mission highlights included the rendezvous with the Russian Space Station Mir, operation of Spacehab, the deployment and retrieval of an astronomy satellite, and a space walk. Collin's first mission was accomplished in 129 orbits, traveling over 2.9 miles in 198 hours and 29 minutes. She was the first woman pilot of a Space Shuttle.

STS-84 (May 15-24, 1997) was NASA's sixth Shuttle to rendezvous and dock with the Russian Space Station Mir. During the flight, the crew conducted a number of secondary experiments and transferred nearly 4 tons of supplies and experiment equipment between Atlantis and the Mir station. In completing this 9 day mission, she traveled 3.8 million miles in 145 orbits of the Earth logging a total of 221 hours and 20 minutes in space.

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



For Release March 5, 1998

NASA Milestones

- Founding of agency: October 1, 1958
- Pioneer I: First NASA launch, October 11, 1958
- Vanguard II: First photos of Earth from space, launched February 17, 1959
- Pioneer 4: First successful flyby of moon, March 4, 1959
- Tiros I: First weather satellite, launched April 1, 1960
- Echo 1: First communications satellite, launched August 12, 1960
- Freedom 7: First U.S. human space flight (Alan Shepherd), May 5, 1961
- Friendship 7: First American in orbit (John Glenn), February 20, 1962
- Telstar 1: NASA launch of first privately built satellite (for communications), July 10, 1962; first telephone and television signals carried via satellite
- Mariner 2: First successful planetary flyby (Venus), December 14, 1962
- X-15: Experimental aircraft X-15 sets altitude record of 354,200 feet (67 miles); August 22, 1963
- Gemini III: First Gemini flight ("Gus" Grissom and John Young), launched and landed March 23, 1965
- Gemini IV: First U.S. spacewalk (Ed White), launched June 3, landed June 7, 1965
- Mariner 4: First flyby of Mars, July 14, 1965
- Gemini VI-A: First orbital rendezvous (Wally Schirra and Tom Stafford), launched December 15, landed December 16, 1965
- Gemini VIII: First orbital docking (Neil Armstrong and David Scott), launched March 16, landed March 17, 1966
- X-15: Experimental aircraft sets speed record at 4,520 mph, October 3, 1967
- Apollo 7: First Apollo mission (Wally Schirra, Donn Eisele and Walter Cunningham), launched October 11, landed October 22, 1968

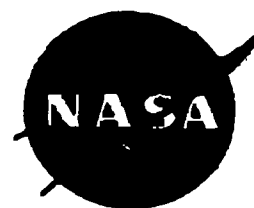
- Apollo 8: First human flight to the moon (Frank Borman, James Lovell, William Anders), launched December 21, landed December 27, 1968
- Apollo 11: First human lunar landing (Neil Armstrong and "Buzz" Aldrin; Michael Collins, command module pilot), launched July 16, landed July 24, 1969
- Apollo 13: Third planned lunar landing (James Lovell, Fred Haise; Jack Swigert, command module pilot); mission aborted after loss of oxygen pressure; crew used lunar module as lifeboat to return to Earth; launched April 11, landed April 17, 1970
- Apollo 15: Fourth lunar landing (David Scott, Alfred Worden, James Irvin); first use of Lunar Rover, launched July 26, landed August 4, 1971
- Mariner 9: First mission to orbit another planet (Mars), arrived November 13, 1971
- Earth Resources Technology Satellite-A: Later Landsat 1, first demonstration of global remote-sensing of Earth's surface, launched July 23, 1972
- Apollo 17: Last lunar landing (Eugene Cernan, Ronald Evans, Jack Schmitt), launched December 7, landed December 19, 1972
- Skylab: Unmanned space station launched May 14, 1973
- Skylab 2: First U.S. space station mission (Pete Conrad, Joe Kerwin, Paul Weitz); launched May 25, landed June 22, 1973
- Pioneer 10: first flyby of Jupiter, arrived December 3, 1973
- SMS-A: first geosynchronous weather satellite, launched May 17, 1974
- Pioneer 11: first flyby of Saturn, arrived September 1, 1974
- Apollo-Soyuz Test Project: First joint U.S.-Soviet human flight (Tom Stafford, Vance Brand, "Deke" Slayton; Alexei Leonov, Valeri Kubasov); U.S. crew launched July 15, landed July 24, 1975
- Viking 1 and 2: first U.S. landing on another planet (Mars), arrived July 20, 1976 (Viking 1) and September 3, 1976 (Viking 2)
- SEASAT: first satellite to make global observations of the Earth's oceans, launched June 26, 1978
- Nimbus 7: environmental research satellite with multiple instruments, one of which provided the global evidence of Antarctic ozone depletion in the 1980s, launched October 24, 1978
- Solar Maximum Mission: first mission to study the sun in detail, over the course of heavy sunspot activity, launched February 14, 1980
- STS-1: First test flight of the Space Shuttle Columbia (John Young, Bob Crippen), launched April 12, landed April 14, 1981
- STS-5: First operational flight of the Space Shuttle Columbia (Vance Brand, Robert Overmeyer, Joe Allen, Bill Lenoir); deployed two satellites, SBS-C and Telesat-C, launched November 11, landed November 16, 1982

- STS-6: First flight of Space Shuttle Challenger, launched April 4, landed April 9, 1983
- STS-7: Sally K. Ride becomes the first American female astronaut, launched June 18, landed June 24, 1983
- STS-8: Guy Bluford becomes the first African-American astronaut, launched August 30, landed September 5, 1983
- STS-9: First flight of European Spacelab module in Space Shuttle payload bay, launched November 28, landed December 8, 1983
- STS-41C: First on-orbit satellite repair mission (Solar Maximum Mission, aboard Space Shuttle Challenger; (Bob Crippen, Dick Scobee, Terry Hart, George Nelson, James Von Hoften), launched April 6, landed April 14, 1984
- STS-41D: First flight of Space Shuttle Discovery, launched August 30, landed September 5, 1984
- STS-51J: First flight of Space Shuttle Atlantis, launched August 27, landed September 3, 1985
- Voyager 2: First encounters with Uranus, January 24, 1986, and Neptune, August 25, 1989
- STS-26: First Space Shuttle mission after Challenger explosion, launched September 29, landed October 3, 1988
- Magellan: Radar mapping of Venus's surface, 1989-1993
- STS-31: Deployment of Hubble Space Telescope, launched April 24, landed April 29, 1990
- STS-49: First flight of Space Shuttle Endeavour, including the first three-person spacewalk, capturing a private satellite for repair and reboost, launched May 2, landed May 16, 1992
- STS-61: First servicing mission to Hubble Space Telescope, repairing defective optics and replacing other parts, launched December 2, landed December 13, 1993
- STS-63: Vladimir Titov becomes the first Russian to be launched aboard a U.S. spacecraft, launched February 3, landed February 11, 1995
- Mir 18: American Norm Thagard becomes the first U.S. astronaut to fly aboard a Russian launch vehicle and then live and work aboard the Mir space station, early 1995
- STS-71: First docking mission to Russian space station Mir; Norm Thagard and a Russian crewmate return to Earth on the Shuttle, launched June 27, landed July 7, 1995
- Galileo: released probe into Jupiter's atmosphere, December 7, 1995
- STS-79: Shannon Lucid returns from Mir on September 26, 1996, have set a U.S. record for continuous stay in space and beginning a more than two-year continuous U.S. presence in space
- Mars Pathfinder: July - December 1997

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



For Release

WOMEN IN NASA Historical Milestones

The contribution of women to the mission of the National Aeronautics and Space Administration dates back to NASA's predecessor, the National Advisory Committee for Aeronautics (NACA). When NASA was chartered in 1958, women had already made their mark, not just in support roles, but, as pioneer engineers, mathematicians and technicians.

- In 1940, physicist **Pearl Young**, became NACA's first female professional paving the way for women to work in laboratories making her one of the first prominent women in the Agency. She also pioneered a process for aeronautical engineers to communicate their ideas and technical information to disseminate to industry, academia, and other government labs.
- In 1942, **Virginia Tucker** headed the Computing Section (women who helped flight engineers with math calculations) at NASA's Langley Research Center.
- In 1960, aviator **Geraldine Cobb** became one of the female candidates for NASA's astronaut program and passed the same grueling physiological and psychological tests as the seven Mercury astronauts.
- In 1965, **Marjorie R. Townsend**, became the first woman to manage the launch of a U.S. spacecraft.
- In January 1978, women joined the astronaut corps: **Rhea Seddon, Kathryn D. Sullivan, Judith A. Resnick, Sally K. Ride, Anna L. Fisher and Shannon W. Lucid.**
- June 18, 1983, **Sally Ride, Ph.D.**, became the first American woman to fly in space.
- In 1981, **June Gibbs Brown**, became NASA's first female Inspector General.
- October 1984, **Kathy Sullivan** became first American woman to walk in space.
- In 1986, **Murlei Ross, Ph.D.**, became the founder and senior scientist of the Biocomputation Center at NASA Ames Research Center. Her computer-based research has allowed surgeons to plan complex surgical procedures and visualize the results of reconstructive surgery in a virtual environment simulator.
- In May 1992, **Mae Jemison, M.D.**, became the first African-American woman in space.
- In May 1992, **Kathy Thornton, Ph.D.**, became second American woman to walk in space and holds the record for longest space walk conducted by a woman. In December 1993, she performed two space walks during the first Hubble Space Telescope servicing missions.
- In April 1993, **Ellen Ochoa, Ph.D.**, became the first Hispanic female to fly in space.
- In September 1993, **Frances Anne Cordova, Ph.D.**, was named first female Chief Scientist.

- In January 1994, **Carolyn Huntoon, Ph.D.**, was appointed the first female Center Director, leading the NASA Johnson Space Center.
- In 1994, **Chiaki Mukai, M.D., Ph.D.**, became the first Japanese female to fly in space.
- In 1995, **Lt. Col. Eileen Collins (USAF)**, was the first female pilot astronaut selected and the first female Shuttle pilot to fly in space serving as pilot of NASA's first Shuttle flight to rendezvous with the Russian *Mir* space station.
- In 1996, **Shannon Lucid, Ph.D.**, broke the record for the longest time spent in space by an American.
- **Marta Bohn-Meyer**, became the first female crewmember to fly in the SR-71 high speed flight research program at NASA Dryden Flight Research Center. She is the second woman to fly in triple-sonic aircraft.
- In 1997, **Donna Shirley**, manages the Mars Exploration Program at the NASA Jet Propulsion Laboratory leading numerous successful space exploration projects, including the highly successful 1997 Mars Pathfinder landing and robotic exploration of the red planet.

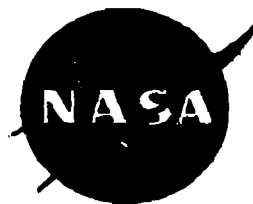
As NASA ventures further in space exploration and aeronautics research, women are making remarkable contributions while paving the way for others. The role of women in NASA will continue to grow as people of both genders participate in NASA's mission: *As explorers, pioneers, and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth.*

March 1997

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



For Release

NASA Highlights in 1997

From the surface of Mars to a possible newly discovered ocean beneath the ices of Europa, here are the top 10 NASA stories of 1997:

Mars Pathfinder

One of the most watched events of the year occurred 141 million miles from Earth, as hundreds of millions of people followed the July 4 landing of NASA's Pathfinder spacecraft on Mars, the first landing on the Red Planet since the Viking missions in 1976 and the first ever to use air bags to cushion impact on the surface. Shortly after Pathfinder's landing, the Sojourner rover began its own exploration of nearby rocks and other features. The images from both craft were posted to the Internet, where more than 500 million "hits" were recorded by the end of July.

Hubble Servicing Mission -- "New" Telescope for the New Millennium

During five days of spacewalks, astronauts flawlessly performed major maintenance and upgrades to the orbiting Hubble Space Telescope, replacing older hardware with two dramatically improved instruments that are helping astronomers probe the universe in greater detail than ever before. Also this year, Hubble uncovered over 1,000 bright, young star clusters bursting to life in a brief, intense, brilliant "fireworks show" at the heart of a nearby pair of colliding galaxies. The Hubble image of the galactic collision was printed on the front pages of newspapers around the world as well as on the cover of Newsweek magazine.

Shuttle-Mir Goes Forward

In 1997, three U.S. astronauts -- Jerry Linenger, Michael Foale and David Wolf -- added to NASA's long duration record aboard Mir and to the Agency's ability to gain experience and knowledge unavailable elsewhere. Andy Thomas is currently on Mir. Despite problems on Mir, NASA Administrator Daniel S. Goldin concluded that Shuttle-Mir has a thorough review process which warrants continued American participation in the program.

NASA Satellites Provide Best View Yet of El Nino Weather Phenomena

Pacific Ocean sea-surface height measurements and atmospheric water vapor information taken from independent Earth-orbiting satellites, the Upper Atmosphere Research Satellite, the NASA Scatterometer, TOPEX/POSEIDON, and SeaWiFS have convinced scientists of what they had earlier postulated -- a full-blown El Niño condition is established in the Pacific.

Cassini Launches to Saturn

The international Cassini mission left Earth bound for Saturn on Oct. 15 atop an Air Force Titan IV-B/Centaur rocket in a picture-perfect launch above Cape Canaveral, FL. With the European Space Agency's Huygens probe and a high-gain antenna provided by the Italian Space Agency, Cassini will arrive at Saturn July 1, 2004.

X-33 and X-34 Flight Technology Demonstrators Achieve Major Milestones

In 1997, the Agency's quest to reduce launch costs and increase access to space through its Reusable Launch Vehicle Program took a major leap forward. The X-33 technology demonstrator, scheduled to begin flights in mid-1999, successfully passed its critical design review, and the X-34, the smaller and earlier flight demonstrator being developed in parallel with the X-33, successfully passed a design freeze in mid-year.

Galileo Discovers Icebergs on Europa

Images captured during Galileo's closest flyby of Europa on Feb. 20 showed features of the Jovian moon, lending credence to the possibility of hidden, subsurface oceans. The findings generated new questions about the possibility of life on Europa.

Uplifting Year for Aeronautics

To ensure that NASA's work in science and technology sustains U.S. leadership in civil aeronautics and space and improves air transportation system safety, the Agency established technology goals, called the Three Pillars, that will stretch the boundaries of the knowledge and capabilities needed to keep the United States as the global leader in aeronautics and space.

SOHO Sheds New Light on Active Sun

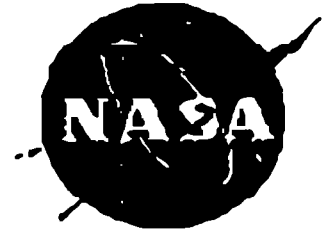
Scientists using the joint European Space Agency/NASA Solar and Heliospheric Observatory (SOHO) spacecraft have discovered "jet streams" or "rivers" of hot, electrically charged plasma flowing beneath the surface of the Sun. These new findings will help scientists understand the famous 11-year sunspot cycle and associated increases in solar activity that can disrupt the Earth's power and communications systems.

March 1998

NASA Facts

National Aeronautics and
Space Administration

NASA Headquarters
Public Affairs Office
Code P
300 E Street SW
Washington DC 20546



FS-1997-01-004-HQ

International Space Station *Creating a World-Class Orbiting Laboratory*

The International Space Station, the largest international scientific and technological endeavor ever undertaken, is taking shape in factories and laboratories of 15 nations around the world. With the Space Station, a permanent laboratory will be established in a realm where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits that are impossible in ground-based laboratories. The Space Station will be a testbed for the technologies of the future and a laboratory for research on new, advanced industrial materials, communications technology, and medical research.

Program

The International Space Station will be a permanent orbiting laboratory in space capable of performing long-duration research in the unique environment of Earth's orbit. The Space Station will:

- maintain U.S. leadership in space and in global competitiveness
- serve as a driving force for emerging technologies
- forge new partnerships with the other spacefaring nations of the world
- inspire our children
- foster the next generation of scientists, engineers, and entrepreneurs
- satisfy humanity's need to explore

Aboard the international orbiting laboratory, science crews will:

- conduct medical research in space

- develop new materials and processes to benefit industries on Earth
- accelerate breakthroughs in technology and engineering that will have immediate, practical applications for life on Earth and will create jobs and economic opportunities today and in the decades to come.

Assembly of the Space Station will begin in November 1997 and will be completed in June 2002. In orbit 220 statute miles above the Earth, the Space Station will circle the globe at an inclination of 51.6 degrees to the equator. This orbit has two advantages:

- It can be reached by the launch vehicles of all the international partners, providing a robust capability for sending crews and supplies to the Station.
- The orbit provides excellent Earth observation with coverage of 85 percent of the globe and overflight of 95 percent of the planet's population.

When completed, the Space Station will be 356 feet across and 290 feet long. It will weigh about 950,000 pounds. Up to seven people will live on the Space Station.

Phase One: The Shuttle-Mir Program

In preparation for the 1997 assembly and operations of the International Space Station, NASA and the Russian Space Agency are cooperatively using the U.S. Space Shuttle and the Russian Space Station Mir to provide technology demonstrations, risk mitigation, operational experience, and early science opportunities. Accomplish-ments include:

- The flight of a Russian cosmonaut on the Shuttle in February 1995, during which Russian and American space ground crews operated the Shuttle jointly for the first time in two decades.
- The March 1995, launch to Mir of Dr. Norm Thagard on a Russian Soyuz and his 110-day Mir stay permitted collection of the first long-duration medical data on an American astronaut since Skylab in the 1970's.
- The Russian Spektr Module, carrying 750 kilograms of U.S. life sciences hardware, was launched to Mir in May 1995. Experiments on Spektr identified a new technique that may allow as many as 10,000-20,000 protein crystal samples to be grown in a single experiment, more than a thirty-fold improvement.
- The Space Shuttle Atlantis, in late June 1995, made the historic first rendezvous and docking with Mir.
- In November 1995, the Space Shuttle Atlantis returned to Mir. The crews aboard the Shuttle and Mir represented four of the five International Space Station partners—USA, Russia, Canada, and Europe.
- The March 1996 flight of Atlantis carried NASA astronaut Shannon Lucid to Mir for her record-breaking 6-month space flight. Shannon's flight to Mir also began a period of continuous U.S. astronaut presence on the Russian space station that will last over 2 years. The Atlantis mission also marked the first time U.S. astronauts had performed an Extravehicular Activity (EVA) outside of a space station since Skylab.
- In September 1996, Shannon Lucid returned to Earth aboard the Shuttle Atlantis, while STS-79 mission specialist John Blaha replaced her aboard the Russian space

Handwritten: Collins Mission

station as a member of the Mir crew for a stay of about 4 1/2 months. Blaha was relieved by astronaut Jerry Linenger on STS-81.

Phase Two: The Development, Assembly, and Operations of the International Space Station

The next phases of the International Space Station program are rapidly becoming a reality. The program has evolved to dealing with a myriad of details—qualification and development testing on a major scale, the completion of flight components, the base lining of software releases, and the reality of bringing all these activities together to ensure the timely delivery of components and modules to the Kennedy Space Center for processing, testing, and integration with the Space Shuttle.

- NASA and Boeing finished negotiations and signed a contract for design and development of the Station, culminating the consolidation of multiple contractors into a single Prime Contract. A contract with an Italian company, Alenia, will provide the logistics carrier, to be used to resupply the Station's needed consumables.
- The first element to be launched is the Functional Cargo Block, a 20-ton, 43-foot-long module that contains propulsion, command and control systems, and habitable space. Being built for NASA by the Russian corporation Khrunichev, it is on schedule for a Proton launch in November 1997.
- As of October 1996, about 132,000 pounds of flight-quality hardware had been built.
- The first U.S. pressurized module (Node 1) of the Space Station is being outfitted for its December 1997 flight, less than 12 months away. In addition, the U.S. Laboratory, the U.S. Habitation Module, and an additional node have completed manufacturing.

Future Activities: Science Operations

- The Space Station will provide scientists the electric power and lab space on orbit to perform research on such things as the growth of protein crystals, which aid in determining the structure and function of proteins. Such information will greatly enhance drug design and research in the treatment of diseases. Crystals already grown on the Space Shuttle are superior to anything grown on Earth for research into cancer, diabetes, emphysema, parasitic infections, and immune system disorders.
- The almost complete absence of gravity on the Space Station will allow new insights into human health and disease prevention and treatment, including heart, lung, and kidney function, cardiovascular disease, osteoporosis (bone loss), hormonal disorders, and brain function.
- Onboard, crew members will study materials that could not exist and processes that could not take place on Earth because of the overwhelming influence of gravity. Materials to be investigated include polymers (used on Earth for everything from paint to contact lenses), semiconductors for high-speed super computers and electronics, and high-temperature superconductors that will make electrical devices operate more efficiently.

- The Space Station will inspire a new generation of Americans to explore and achieve, pioneering new methods of education to teach and motivate the next generation of scientists, engineers, entrepreneurs, and explorers.

Budget

- The Space Station's annual cost has been fixed at \$2.1 billion—about one-seventh of 1 percent of the Federal budget and about 15 percent of the total NASA budget.
- The international partners have endorsed the design of the Space Station and have committed to spending almost \$10 billion of their own funds on the program.

Partnerships

As the world redefines itself in the wake of the Cold War, the Space Station is a catalyst for international cooperation and a powerful symbol of U.S. leadership in a changing world. Development of the Space Station will:

- demonstrate how nations can work together on peaceful initiatives
- serve as a test case for building mutual trust and shared goals
- provide international commercial opportunities for U.S. companies

Canada, Japan, the European Space Agency, and Russia will contribute the following elements to the Space Station:

- Canada is providing a 55-foot-long robotic arm to be used for assembly and maintenance tasks on the Space Station.
- The European Space Agency is building a pressurized laboratory.
- Japan is building a laboratory with an attached exposed facility.
- Russia is providing research modules, a service module with its own life support and habitation systems, a Science Power Platform that supplies about 20 kilowatts of electrical power, logistics transport vehicles, and Soyuz spacecraft for crew return and transfer.

Responsible NASA Official: Elsie Weigel - eweigel@pao.hq.nasa.gov
Web Page Curator: Woody Smith - woody.smith@hq.nasa.gov
Web Designer: Pamela Sams

Revised: February 14, 1997

FIRST LADY HILLARY RODHAM CLINTON
REMARKS FOR ANNOUNCEMENT OF FIRST WOMAN COMMANDER
THE ROOSEVELT ROOM
MARCH 5, 1998

Welcome to the White House and the Roosevelt Room. The President and I are honored to be joined today by so many people who have made this historic announcement possible. I want to especially thank NASA Administrator Dan Goldin, our guest of honor, Lt. Colonel Eileen Collins and her husband Pat Youngs [more tbd]

In December, 1998, when the Shuttle Columbia takes off, Lt Colonel Eileen Collins will take one step forward for women -- and one giant leap for humanity. She will become the first woman ever to command a space shuttle. Her mission will launch the largest x-ray ever flown so we can examine some of the most distant and powerful objects in our universe. I can think of no better way to celebrate Women's History Month.

Tonight, we will be premiering an HBO series which looks back at our journey to the Moon and shows how our exploration of space has always inspired us as individuals and united us as a nation. When I was 14, I dreamed of becoming an astronaut. I even wrote NASA to find out what I needed to do to see the stars up close. Unfortunately, I got one of those thin envelopes back -- which is never a good sign -- thanking me for my interest, but saying that women weren't being considered for the job. Well, times have certainly changed. The dreams that many of us had as girls have now orbited the universe with women from Sally Ride to Eileen Collins.

I first met Eileen three years ago at another Women's History Month event. She had just become the first woman pilot of a space shuttle -- and she gave me a red shirt she'd worn on that mission. What I saw in that shirt was not only her remarkable accomplishment, but also the courageous road she'd traveled to reach her every goal. As a small child, Colonel Collins would go to the airport with her father and her siblings, lie on the hood of the car and watch the planes take off. She would look up at the sky and imagine traveling into space. And now she is doing just that -- for many of the same reasons that women have always made history.

She made history because of her skill and determination -- to be **not** the best woman for the job -- but simply the best. She's made it because of parents who always told her she could do anything she put her mind to. She made it because she ignored those who said it wasn't cool or feminine to study math or science -- and demanded a first-class education in both. She made it because of the doors of opportunity that NASA has increasingly opened to women and minorities.

And she made history because of the countless other women upon whose shoulders all of us stand. I think of Amelia Earhart, disguising herself to reach her dream. I think of Mae Jemison, the first African American woman to fly in space. I think of Shannon Lucid, who just last year, broke the record for the longest time spent in space by an American. And I think back to 1978, when Shannon Lucid, Sally Ride, Rhea Seddon, Kathryn Sullivan, Judy Resnick and Anna Fisher became the first women to join the astronaut corps.

That was the same year Eileen Collins graduated from college and entered Air Force Pilot Training. Her first week there, the six women astronauts came to do a parachute training. She looked at them and thought, "Wow, this is what I'm going to do." This afternoon, when Astronaut Collins and I go to Dunbar High School to talk about the importance of studying math and science, students will be able to look at her and say the same thing, "This is what I'm going to do." And when her mission launches next December, the next generation of girls -- and boys -- will be able to look to the heavens and think, "There's nothing I can't do."

Children have always gazed at the sky with wonder. And so has our nation. Especially in the aftermath of Sputnik, we have looked to space as the next frontier in our never-ending journey of discovery...and our advancements there have brought us closer together as a country...and, more and more, as a world. In the last year alone, we were riveted by the Mars Pathfinder landing. We received stunning photographs and information from other planets courtesy of the Hubble Space Telescope. And, as Stephen Hawking will point out in his lecture tomorrow night, we can look forward to new scientific discoveries and greater human understanding in the next Millennium.

None of these achievements would have been possible without our continuing investments in science, space, and technology. And none of it would have been possible without the leadership of our next speaker. NASA Administrator Dan Goldin is truly bringing our space program into the next century. By making it "faster, better, and cheaper." And by ensuring that NASA's workforce looks like America and its work reaches all of America. It is my great honor to introduce Administrator Dan Goldin.

THE WHITE HOUSE

WASHINGTON

March 4, 1998

**ANNOUNCEMENT OF EILEEN COLLINS AS FIRST WOMAN COMMANDER
OF A SPACE SHUTTLE MISSION**

DATE: March 5, 1998
LOCATION: The Roosevelt Room
TIME: 10:40 - 11:40 a.m.
FROM: Melanne Verveer

I. PURPOSE

To announce Eileen Collins as the first woman commander of a space shuttle mission and to highlight the Administration's commitment to space exploration, science education and furthering opportunities for women.

II. BACKGROUND

Today, you and First Lady will announce the first woman to command a Space Shuttle flight -- Lieutenant Colonel Eileen Collins. This announcement is one of several science events taking place at the White House this week and kicks off Women's History Month.

Lt. Col. Collins will command the Space Transportation System 93 (STS- 93) which is scheduled for launch in December of 1998. This mission will launch the largest X-ray ever flown which will help us examine some of the most distant and powerful objects in our universe. A veteran of two space flights, Colonel Collins served as the first female shuttle pilot and has logged over 400 hours in space. Now as the Commander of STS-93, her next mission, Lt. Col. Collins will be responsible for all other astronauts on the mission, the deployment of the X-ray system, the safety of the flight and the overall success of the entire mission.

Collins, a Lieutenant Colonel in the United States Air Force, has a distinguished career as a pilot, professor of mathematics and astronaut. She learned to fly at the age of nineteen while studying math and science in Corning Community College and Syracuse University. Through ROTC, she joined to Air Force in 1976 (the first year the Air Force accepted women pilots). After serving as an pilot instructor and assistant professor of mathematics at the Air Force Academy in Colorado, she graduated from the Air Force Test Pilot School in 1990 and was selected to become an astronaut. Collins has since piloted two space shuttle missions, including the crucial U.S.- Russian Shuttle/Mir rendezvous. She has logged over 400 hours in space, traveled over 6.5

million miles and orbited the earth 274 times.

The International Space Station: Beginning this year, in 1998, men and women from sixteen countries will build a foothold in the heavens -- the international space station. By the end of 1997, 200,000 pounds of flight-quality hardware had been built. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.

Mars Pathfinder: Last July 4, NASA's Pathfinder spacecraft landed on Mars, the first landing on the Red Planet since the Viking missions in 1976. The spacecraft's small rover wheeled around the terrain of Mars, transmitting breathtaking views of the landscape to Earth. During its 30-day mission, the Pathfinder returned a wealth of new information on the planet, including data on the atmosphere, weather and geology of Mars. In all, Pathfinder returned 1.2 billion bits of data and almost 10,000 pictures of the Martian landscape.

This event also provides an opportunity to highlight the Administration's campaign for a voluntary national test in mathematics to let parents and teachers know how individual students and schools can improve in relation to rigorous national and international standards and to determine whether students are adequately prepared to take demanding high school mathematics and science classes. Your budget also requests approximately \$60 million to improve mathematics achievement in the middle grades. This funding will support a joint initiative by the U.S. Department of Education and the National Science Foundation to support local efforts to put in place the rigorous courses and challenging standards. It will also promote improved mathematics teaching of elementary and middle school teachers by supporting effective teacher training through updating their content knowledge while still ensuring mastery of the basics of computation.

III. PARTICIPANTS

Briefing Participants:

The President
The First Lady
Administrator Daniel Goldin, NASA
Melanne Verveer
June Shih
Dr. Jack Gibbons
Neera Tanden

Photo Op Participants

Lt. Col. Eileen Collins
Pat Young (spouse)
Mary Kay Morin (cousin)

Event Participants:

The President
The First Lady
Dan Goldin
Lt. Col. Eileen Collins

MEMBERS OF CONGRESS CONFIRMED TO ATTEND:

Rep. Amo Houghton (D-NY)
Rep. Sheila Jackson Lee (D-TX)
Rep. Eddie Bernice Johnson (D-TX)
Rep. Ellen Tauscher (D-CA)

* Audience guest list attached

VI. PRESS PLAN

Open Press.

V. SEQUENCE OF EVENTS

- YOU and the First Lady proceed to the Oval Office for briefing.
- ~~YOU and the First Lady greet Lt. Col. Collins and her family.~~
- YOU proceed to the Roosevelt Room with the First Lady, Lt. Col. Collins and Administrator Goldin
- The First Lady makes remarks and introduces Administrator Goldin
- Administrator Goldin makes remarks and introduces Lt. Col. Collins
- Lt. Col. Collins makes remarks and introduces YOU.
- YOU make remarks and depart with the First Lady, Administrator Goldin and Lt. Col. Collins.

VI. ATTACHMENTS

Guest List
Bio of Lt. Col. Collins
Fact Sheet on Administration Initiatives in Science and Space Exploration

**ANNOUNCEMENT OF COL. EILEEN COLLINS, THE FIRST WOMAN
COMMANDER OF A US SPACE MISSION**

Thursday, March 5, 1998
11AM in the Roosevelt Room

Baty, Margaret President, Women in Aviation International, Morningstar Airport
Beres, Kathleen Anne Manager Civil Space Programs (Teacher in Space finalist)
Byrant, Anne National School Board Association
Campbell, Nancy Duff President National Women's Law Center
Coble-Mullen, Anna Chair, Network of Minority Women in Science
Daie, Jaleh Women in Science and Technology Alliance
Ericsson-Jackson, Aprille J. Aerospace Engineer, NASA Goddard
Girordot, Dean International Association of Mechanics and Aerospace Workers
Harris, Jennifer Commander of Mars Pathfinder
Hines, Pamela American Association of Advancement of Science
Hudkins, Teresa Acting Director Public Services Division NASA
Johnson, Karen NOW Public Policy Director

Leighton, Carolyn Executive Director, Women in Technology, International
MacArthur, Diana Chair and CEO Dynamac Corporation
Osterman, Elaine Society of Women Engineers
O'Farrell, M. Brigid Women's Research and Education Institute
Phelan, James Husband of Jean Phelan
Phelan, Jean 13th female helicopter pilot in world, founded Whirly Girls
Rich, Doris Author of Amelia Earhart book
Rich, Stanley Doris Rich's husband
Ride, Dr. Sally Former Astronaut, First US Female Astronaut Director, California Space Institute, UCSD
Russo, Carolyn Joan National Air and Space Museum
Smeal, Ellie Fund for the Feminist Majority, Inc.
Smith, Paul President USA Alliance (Business consortium of aerospace companies and space shuttle programs for NASA)
Vaught, Brigadier General Wilma President, Women in Military Service for American Memorial Foundation, Inc.
Shorenstein, Janice Weinman Executive Director AAUW

Wurff, Mildred
Director of Public Policy
Girls, Inc.

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058

Biographical Data

NAME: Eileen Marie Collins (Lieutenant Colonel, USAF)
NASA Astronaut

PERSONAL DATA:

Born November 19, 1956, in Elmira, New York. Married to Pat Youngs, originally from San Antonio, Texas. They have one child. She enjoys running, golf, hiking, camping, reading, photography, astronomy. Her parents are James and Rose Marie Collins, from Elmira, New York. His parents are Pat and Jackie Youngs, from San Antonio, Texas.

EDUCATION:

Graduated from Elmira Free Academy, Elmira, New York, in 1974; received an associate in science degree in mathematics/science from Corning Community College in 1976; a bachelor of arts degree in mathematics and economics from Syracuse University in 1978; a master of science degree in operations research from Stanford University in 1986; and a master of arts degree in space systems management from Webster University in 1989.

ORGANIZATIONS:

Member of the Air Force Association, Order of Daedalians, Women Military Aviators, U.S. Space Foundation, the American Institute of Aeronautics and Astronautics, and the Ninety-Nines.

SPECIAL HONORS:

Awarded the Defense Superior Service Medal, the Air Force Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the Armed Forces Expeditionary Medal for service in Grenada (Operation Urgent Fury, October 1983), and the NASA Space Flight Medal.

EXPERIENCE:

Collins graduated in 1979 from Air Force Undergraduate Pilot Training at Vance AFB, Oklahoma, where she was a T-38 instructor pilot until 1982. From 1983 to 1985, she was a C-141 aircraft commander and instructor pilot at Travis AFB, California. She spent the following year as a student with the Air Force Institute of Technology. From 1986 to 1989, she was assigned to the U.S. Air Force Academy in Colorado, where she was an assistant professor in mathematics and a T-41 instructor pilot. She was selected for the astronaut program while attending the Air Force Test Pilot School at Edwards AFB, California, from which she graduated in 1990.

She has logged over 4,700 hours in 30 different types of aircraft.

NASA EXPERIENCE:

Selected by NASA in January 1990, Collins became an astronaut in July 1991. Initially assigned to Orbiter engineering support, she also served on the astronaut support team responsible for Orbiter prelaunch checkout, final launch configuration, crew ingress/egress, and landing/recovery. From April 1995 to October 1996, she worked in Mission Control as a spacecraft communicator (CAPCOM). A veteran of two space flights, Collins served as pilot on STS-63 (February 2-11, 1995) and STS-84 (May 15-24, 1997), and has logged over 419 hours in space. She currently serves as the Astronaut Office Spacecraft Systems Branch Chief.

SPACE FLIGHT EXPERIENCE:

STS-63 (February 2-11, 1995) was the first flight of the new joint Russian-American Space Program. Mission highlights included the rendezvous with the Russian Space Station Mir, operation of Spacehab, the deployment and retrieval of an astronomy satellite, and a space walk. Collins' first mission was accomplished in 129 orbits, traveling over 2.9 million miles in 198 hours, 29 minutes. She was the first woman pilot of a Space Shuttle.

STS-84 (May 15-24, 1997) was NASA's sixth Shuttle mission to rendezvous and dock with the Russian Space Station Mir. During the flight, the crew conducted a number of secondary experiments and transferred nearly 4 tons of supplies and experiment equipment between Atlantis and the Mir station. In completing this 9-day mission, she traveled 3.8 million miles in 145 orbits of the Earth logging a total of 221 hours and 20 minutes in space.

NOVEMBER 1997

FROM THE EARTH TO THE MOON

TOM HANKS

Tom Hanks is one of today's most admired and respected actors. The first actor in 50 years to be awarded back-to-back Best Actor Academy Awards,[®] he received the 1994 Oscar[®] for his outstanding performance in "Forrest Gump," which has become the fourth largest grossing movie in history. In 1993, he was rewarded for his compelling performance as the AIDS-stricken lawyer Andrew Beckett in "Philadelphia." He also won Golden Globe Awards for both of those performances. Through the success of "Forrest Gump," Hanks has been honored with the Golden Globe Award, the People's Choice Award, the Screen Actors Guild Award, the Chicago Film Critics Award, the National Association of Theater Owners "Male Star of the Year" award and the Hollywood Women's Press Club award.

For his performance as astronaut Jim Lovell in Ron Howard's "Apollo 13," Hanks was named "Man of the Year" by Harvard's Hasty Pudding Theatricals, the nation's oldest undergraduate dramatic group.

In 1996, Hanks successfully made his feature film writing and directing debut with "That Thing You Do!" for Twentieth Century Fox. "That Thing You Do!" follows the meteoric rise to fame of a local rock band named The Wonders from Erie, PA. in the summer of 1964. The film's signature song, "That Thing You Do!," not only reached the Top 10 in many contemporary music charts, but was nominated for an Academy Award[®] for Best Achievement in Music (Original Song). In addition to his other responsibilities, Hanks also appeared in the film.

Born and raised in Oakland, CA, Hanks first became interested in acting during high school. He attended California State University in Sacramento, where he appeared in a production of "The Cherry Orchard," and met director Vincent Dowling, who was also the resident director of the Great Lakes Shakespeare Festival in Cleveland. Dowling invited Hanks to intern with the company, where he made his professional debut, portraying Grumio in "The Taming of the Shrew." Hanks appeared in other Great Lakes productions, including "Two Gentlemen of Verona," for which he received the Cleveland Critics Award for Best Actor. From Cleveland, Hanks went on to New York, where he appeared in his first feature film, "He Knows You're Alone," and onstage in "The Taming of the Shrew."

After moving to Los Angeles, where he performed in a production of "The Dollmaker," Hanks got his first big break when he was cast as the lead in the ABC television comedy series "Bosom Buddies."

This led to starring roles in "Bachelor Party" and Ron Howard's "Splash" -- a box office hit that started

(more)

TOM HANKS -- 2

him on his path to becoming one of Hollywood's busiest and most sought-after actors. Hanks' many other film credits include "Volunteers," "Nothing In Common" and "A League of Their Own." In 1988, with his box office success established, Hanks found himself a critical success with his highly acclaimed work in "Punchline" and "Big" -- the latter of which earned him his first Academy Award® nomination and his first Golden Globe Award. That same year, the Los Angeles Film Critics recognized the two performances by bestowing on him their coveted Best Actor Award. In 1993, he received a Golden Globe nomination for his work in "Sleepless in Seattle," starring opposite Meg Ryan.

Constantly challenging himself, Hanks is currently in production on HBO's "From the Earth to the Moon" -- an ambitious 12-hour dramatic film anthology that will explore America's Apollo space program. Not only did Hanks personally help make this show a reality, he is serving as executive producer and will direct the first film and write the final hour.

Hanks is currently in production on the Steven Spielberg feature film "Saving Private Ryan" for Paramount and DreamWorks SKG, which is shooting in Europe. Hanks plays a soldier who must go deep behind enemy lines to save a trapped private during the Allied invasion.

Hanks resides in Los Angeles with his wife, actress Rita Wilson, and their family.

Biography of Daniel Saul Goldin

Daniel S. Goldin became the ninth NASA Administrator in April 1992 and immediately began to earn his reputation as an agent of change in bringing reform and revitalization to America's space agency.

Goldin's first initiative was to bring NASA's budget process under control. He created a series of management teams to find ways to operate programs faster, better and cheaper without compromising safety.

As the budgetary reforms evolved, NASA was able to remove a major financial impediment from its path. By the time President Clinton's Fiscal Year 1994 budget was submitted to the Congress in April 1993, NASA's five-year spending plan was reduced by \$15 billion, the equivalent of an entire year's funding. Since that time, NASA has reduced its long-range spending plans by almost \$30 billion.

"It simply was not feasible for us to continue spending at the rate we were going," Goldin said at the time. He described his budget streamlining efforts as "a fiscal declaration of independence from the old ways of doing business."

The budgetary reforms streamlined major programs, while some of the savings were reinvested in improvements to NASA's science and planetary exploration missions. Under Goldin, the Discovery Program, an entirely new class of planetary probes, was inaugurated. The goal of the program is to reduce development time to less than three years, and mission costs to less than \$150 million.

During the same period, Goldin launched a series of procurement and management reforms to make the Agency more businesslike. He simplified and expedited procedures for awarding contracts, instituted a "yellow light" system that triggers stringent internal reviews even at the threat of cost overruns, expanded contracting opportunities for small and disadvantaged businesses, and set up independent panels to insure that cost and schedule estimates are as accurate as possible.

Under the leadership of President Clinton and Vice President Gore, Goldin also moved boldly to promote significant new cooperative endeavors with the Russian Space Agency. He speaks movingly of one of his first meetings with his Russian counterpart, Yuri Koptev, the head of the Russian Space Agency. "Both of us spent many years working on high-tech devices that were used in the Cold War," he said. "There we sat, two former Cold Warriors, and we agreed that times had changed, and that a new era of peace and cooperation between our two countries was possible on the space frontier. It was an unforgettable moment."

Today, Russia is a full partner in the International Space Station program, a move that enable the project to be completed sooner and at less cost to the American taxpayer. "For 30 years, we aimed missiles at each other," Goldin has said. "Now we are working together on the final frontier for the good of all our peoples."

Another major challenge for Goldin was the redesign of the Space Station program at the direction of President Clinton. The challenge was to significantly cut costs without sacrificing meaningful science or technology development capability for the orbital laboratory. Goldin formed a redesign team in 1993 which worked intensively to identify a series of less expensive options for the Clinton Administration to consider. The President chose a derivative of the old Space Station Freedom design in June 1993 and restated his strong support for the project. Overall, Goldin's team cut the life cycle costs of the space station by \$15 billion.

In 1993, with Space Station redesign issues still being resolved, the program was approved by a one-vote margin in the House of Representatives. In the summer of 1994, with the improved design and the addition of Russia as a full partner, the project passed by a 123-vote margin in the House, one of the most remarkable political turnarounds in recent memory.

Goldin's reforms weren't limited to the Agency's space agenda. Early in his administration, he identified the environmental monitoring to be done through NASA's Earth Science as one of the Agency's most important programs.

He also spearheaded President Clinton's revitalization of NASA's aeronautics program as one of his top priorities. A critical industry for America, aeronautics is responsible for almost a million high-tech jobs. To help the industry regain its competitive manufacturing edge, Goldin has worked intensively to form a consensus for a national aeronautics agenda.

The President's plan proposes to increase investments and technical progress in general aviation, subsonic transports, supersonic and hypersonic flight technology, and to revitalize aging research facilities such as wind tunnels.

Goldin also put in place a series of internal review teams to exhaustively prepare for the Space Shuttle mission in December 1993 to repair the Hubble Space Telescope. The repair work was a brilliant success, and only a few months later in the Spring of 1994, the telescope provided the most convincing evidence yet of the existence of black holes and the formation of planets around distant stars.

Before coming to NASA, Goldin was Vice President and General Manager of the TRW Space & Technology Group in Redondo Beach, California. During a 25-year career at TRW, he successfully managed the development and production of advanced spacecraft, technologies and space science instruments.

Under Goldin's leadership, the Space & Technology Group won the 1990 Goddard Award for Quality and Productivity, and was a finalist in 1991 for NASA's highest quality award, the George M. Low Trophy. In 1992, working with NASA, the group received the National Space Club's Nelson P. Jackson Aerospace Award for work on the Compton Gamma Ray Observatory.

While at TRW, and later as the NASA Administrator, Goldin

received the Meritorious Award from the National Association of Small and Disadvantaged Businesses for his work in reaching out to minorities. Goldin was the first repeat winner of this award.

He is a Fellow in the American Institute of Aeronautics and Astronautics and a Fellow in the Institute for the Advancement of Engineering. In 1993 he received the John F. Kennedy Astronautics Award from the American Astronautical Society and the Space Pioneer Award from the National Space Society.

Goldin began his career as a research scientist at NASA's Lewis Research Center in Cleveland in 1962, and worked on electric propulsion systems for human interplanetary travel.

He was born in New York City on July 23, 1940. He received a Bachelor of Science degree in mechanical engineering in 1962 from the City College of New York. He is married to the former Judith Linda Kramer of New York City. They have two daughters, Ariel and Laura, who reside in California.

October 1994

###

[\[Frequently Asked Questions\]](#) [\[Hot Topics\]](#) [\[Multimedia Gallery\]](#) [\[NASA Home\]](#)
[\[NASA Television\]](#) [\[Site Map\]](#) [\[Today@NASA\]](#)

Author: Brian Dunbar
Curator: [Boeing Information Services](#)
[Comments and Questions](#)
Last Updated: Oct 1, 1997

TABLE>

Science and Space Exploration

*"We must continue to push the limits of science and technology,
and to continue to explore the universe."*

President Clinton

Announcement of the White House Millennium

Program, Aug. 15, 1997

ENSURING U.S. LEADERSHIP IN SCIENCE AND SPACE EXPLORATION

Investing in Science and Technology -- Under President Clinton, investments in science and technology have increased for five years in a row, while continuing to bringing down the deficit. The President maintains his commitment in his most recent budget. The National Science Foundation (NSF), which supports much of the research that trains the next generation of America's scientists and engineers, increases by 10% (\$344 million) to \$3.8 billion in FY99. The increase is the largest ever for NSF, and includes more than a 16% boost for computer science research. In addition, a new partnership between the Education Department and the National Science Foundation receives \$75 million per year for research aimed at raising student achievement through learning technologies.

Supporting Space Exploration -- Issued in 1996, the President's National Space Policy commits the nation to a strong, stable, and balanced space program. The FY99 budget submission of \$13.5 billion achieves this goal, enabling NASA to pursue the Administration's priorities in human space flight, earth sciences, advanced space transportation, aviation safety and space science. Through the 21st Century Research Fund for America, the President adds \$700 million over five years to NASA's space science program.

Providing New Scientific Insights and Making New Discoveries -- In 1997 alone, NASA made historic strides in space exploration. NASA landed the Pathfinder spacecraft on Mars -- the first landing on the Red Planet since 1976 -- and then Pathfinder's small rover, the Sojourner, explored the surface of Mars. NASA launched the Cassini mission which will arrive at Saturn in 2004. In addition, the Galileo mission discovered potential evidence of subsurface water on Jupiter's Europa. In 1998, the U.S. and its partners will begin construction of the International Space Station to establish our permanent human presence in space. Before the end of the millennium, NASA will launch an additional seven missions into deep space.

Protecting the Environment and Providing Better Information on Weather Phenomena -- The Clinton Administration is applying science to local, regional, and global environmental challenges. The Administration is building new monitoring systems to provide better information for natural resource management and reduction of the impacts of natural disasters. For instance, NASA satellites have provided the best views of the El Niño weather phenomena.

Strengthening International Scientific Ties -- The Administration has helped blaze the trail in international science and technology cooperation. The agreement to join with scientists from 45 countries to build the Large Hadron Collider for high energy physics research in Europe is a key milestone for international partnerships in science and technology--one which will become a standard for our domestic science programs in the future.

Achieving Greater Diversity in our Scientific Workforce -- The Clinton Administration has expanded opportunities for women, minorities and people with disabilities to pursue scientific and technical careers through programs like the Alliance for Minority Participation at the National Science Foundation and a new Presidential mentoring award.

HISTORICAL MILESTONES OF THE WOMEN IN NASA

The contribution of women to the mission of the National Aeronautics and Space Administration dates back to NASA's predecessor, the National Advisory Committee for Aeronautics (NACA). When NASA was chartered in 1958, women had already made their mark, not just in support roles, but, as pioneer engineers, mathematicians and technicians.

In 1940, physicist **Pearl Young**, became NACA's first female professional paving the way for women to work in laboratories making her one of the first prominent women in the Agency. She also pioneered a process for aeronautical engineers to communicate their ideas and technical information to disseminate to industry, academia, and other government labs.

In 1942, **Virginia Tucker** headed the Computing Section (women who helped flight engineers with math calculations) at NASA's Langley Research Center.

In 1960, aviator **Geraldine Cobb** became one of the female candidates for NASA's astronaut program and passed the same grueling physiological and psychological tests as the seven Mercury astronauts.

In 1965, **Marjorie R. Townsend**, became the first woman to manage the launch of a U.S. spacecraft.

In January 1978, women joined the astronaut corps: **Rhea Seddon, Kathryn D. Sullivan, Judith A. Resnick, Sally K. Ride, Anna L. Fisher and Shannon W. Lucid**.

June 18, 1983, **Sally Ride, Ph.D.**, became the first American woman to fly in space.

In 1981, **June Gibbs Brown**, became NASA's first female Inspector General.

October 1984, **Kathy Sullivan** became first American woman to walk in space.

In 1986, **Muriel Ross, Ph.D.**, became the founder and senior scientist of the Biocomputation Center at NASA Ames Research Center. Her computer-based research has allowed surgeons to plan complex surgical procedures and visualize the results of reconstructive surgery in a virtual environment simulator.

In May 1992, **Mae Jemison, M.D.**, became the first African-American woman in space.

In May 1992, **Kathy Thornton, Ph.D.**, became second American woman to walk in space and holds the record for longest space walk conducted by a woman. In December 1993, she performed two space walks during the first Hubble Space Telescope servicing missions.

In April 1993, **Ellen Ochoa, Ph.D.**, became the first Hispanic female to fly in space.

In September 1993, **Frances Anne Cordova, Ph.D.**, was named first female Chief Scientist.

In January 1994, **Carolyn Huntoon, Ph.D.**, was appointed the first female Center Director, leading the NASA Johnson Space Center.

In 1994, **Chiaki Mukai, M.D., Ph.D.**, became the first Japanese female to fly in space.

In 1995, **Lt. Col. Eileen Collins** (USAF), was the first female pilot astronaut selected and the first female Shuttle pilot to fly in space serving as pilot of NASA's first Shuttle flight to rendezvous with the Russian Mir space station.

In 1996, **Shannon Lucid, Ph.D.**, broke the record for the longest time spent in space by an American.

Marta Bohn-Meyer, became the first female crewmember to fly in the SR-71 high speed flight research program at NASA Dryden Flight Research Center. She is the second woman to fly in triple-sonic aircraft.

In 1997, **Donna Shirley**, manages the Mars Exploration Program at the NASA Jet Propulsion Laboratory leading numerous successful space exploration projects, including the highly successful 1997 Mars Pathfinder landing and robotic exploration of the red planet.

As NASA ventures further in space exploration and aeronautics research, women are making remarkable contributions while paving the way for others. The role of women in NASA will continue to grow as people of both genders participate in NASA's mission: As explorers, pioneers, and innovators; we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth.

NASA Facts

National Aeronautics and
Space Administration

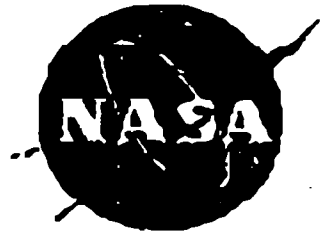
NASA Headquarters

Public Affairs Office

Code P

300 E Street SW

Washington DC 20546



FS-1997-01-001-HQ

An Overview of NASA

The guiding principles for U.S. exploration of air and space have remained remarkably consistent for more than 80 years. In 1915, when aviation was still in its infancy, Congress created an organization that would "supervise and direct the scientific study of the problems of flight, with a view to their practical solutions." That organization, the National Advisory Committee for Aeronautics, evolved into NASA four decades later when Congress formed a civilian agency to lead "the expansion of human knowledge of phenomena in the atmosphere and space."

The journey begun in 1915 has taken American aviators, astronauts, and robotic spacecraft from the dunes of Kitty Hawk to the edge of the atmosphere and to the surface of the Moon. American spacecraft have explored more than 60 worlds in our Solar System, while methodically peering back in space and time to reveal many of the secrets of the universe.

Benefits

Expanding the realm of human knowledge through a systematic program of exploration and discovery, NASA's work continues to benefit the nation:

- Virtually every aircraft in use today utilizes technology pioneered by NASA. Aeronautics is one of the nation's strongest industries, employing almost 1 million Americans.
- The U.S. aerospace industry generates more than \$40 billion in annual exports and almost \$30 billion in positive balance of trade each year.

✱ New industries have been built on the technology that made space exploration possible, including personal computers, advanced medical equipment, communications satellites, weather forecasting, and natural resource mapping.

✱ NASA's high-technology research and development provide a return on investment by generating jobs, the demand for goods and services, and new opportunities as advanced technologies spin off into the private sector.

The Agency at a Glance

- NASA employs 20,000 civil servants and generates thousands of high-tech jobs in the private sector.
- The Agency operates nine Field Centers, the contractor-operated Jet Propulsion Laboratory, and the Wallops Flight Facility nationwide.
- The Fiscal Year 1997 NASA budget is \$13.8 billion.

Recent Scientific and Technical Accomplishments

- NASA announced the discovery of a Martian meteorite that appears to contain fossilized evidence of organic molecules that existed on the Red Planet billions of years ago.
- NASA launched the Mars Global Surveyor and Mars Pathfinder missions, due to explore Mars and return new data that will help scientists learn more about the planet's past and present.
- The International Space Station program moved from concept to reality. By the end of 1996, about 128,000 pounds of flight-quality hardware had been built, and about 70,000 pounds more will be built by the end of 1997. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.
- NASA increased cooperation with Russia on the International Space Station program through joint missions aboard the Russian space station Mir. Astronaut Shannon Lucid set a new American record for continuous living in space aboard Mir, spending 181 days conducting scientific research while orbiting the Earth.
- Six Space Shuttle flights in 1996 continued NASA's human exploration and development of space.
- In the quest for faster, better, cheaper access to space in the 21st century, NASA selected Lockheed Martin to build the X-33 technology demonstration vehicle, a prototype of an unpowered vehicle that will launch vertically like a rocket and land horizontally like an airplane. Ultimately, the vehicle could become the prototype for piloted spacecraft that would replace the Space Shuttle.
- A jointly sponsored research agreement was established between NASA and the general aviation industry for cockpit systems, design and manufacturing, revolutionary propulsion systems, and icing protection.
- NASA cooperated in programs to improve commercial aviation safety and increase the capacity of the nation's airspace. A new air traffic management controller aid helps manage the flow of aircraft into airports. A new airport surface traffic management system was successfully tested at Atlanta during the Olympics. Ultimately, such systems could help save airlines billions of dollars and travelers hundreds of hours by reducing delays and saving fuel.
- NASA successfully concluded the Supersonic Laminar Flow Control program. The program achieved laminar, or smooth, air flow over the wings of an aircraft at

supersonic speed. This capability may be used on future high-speed civil aircraft to lower drag and increase fuel economy at supersonic speed.

- A NASA test pilot successfully landed an MD-11 transport aircraft using only engine power for control to demonstrate NASA-developed software that can be used in the event an aircraft loses its hydraulic flight control capability.
- NASA and industry teamed up to develop and market a device that will help improve the airworthiness of the nation's aging airplanes. The "Crack Finder" is a handheld instrument designed for rapid scanning of metal surfaces to detect surface-breaking cracks.
- Continental Airlines became the first commercial carrier to use the NASA-developed and FAA-certified, predictive wind-shear detection system aboard their aircraft.
- NASA and Ford Motor Company signed an agreement for the transfer of NASA-developed technology that will improve the design and engineering of Ford vehicles.
- The Galileo spacecraft deployed its probe into Jupiter's violent atmosphere, leading to new discoveries about our Solar System's largest planet. Galileo then flew by Jupiter's moons, revealing the possibility of "warm ice" or even water on Europa, among other exciting discoveries.
- The Hubble Space Telescope awed researchers with images of colliding galaxies, the surface of Pluto, the birth of stars and phenomena surrounding dying stars, among others. Hubble continues to provide the world's astronomers with outstanding new discoveries.
- A recent scientific paper based on the NASA Total Ozone Mapping Spectrometer data found that solar ultraviolet radiation reaching the Earth's surface has increased over large regions of the planet during the past 15 years, as the amount of total ozone in the atmosphere has decreased. Meanwhile, the average size of the Antarctic ozone hole during 1996 was almost as large as in the peak year of 1993, although ozone values were higher than the record lows seen in September 1994.
- NASA's Mission to Planet Earth is pioneering the new interdisciplinary field of research called Earth System Science, born of the recognition that Earth's land surface, oceans, atmosphere, ice sheets, and life are both dynamic and highly interactive. Earth System Science may yield new knowledge and tools for improved weather forecasting, agriculture, urban and land-use planning, and many other related areas of both economic and environmental importance.
- Mission to Planet Earth continues to use NASA's unique capabilities from the vantage points of space, aircraft, and in situ platforms for scientific research. Studies of the Earth's oceans, atmosphere, and ozone continue to provide researchers with vital data about the health of our planet.

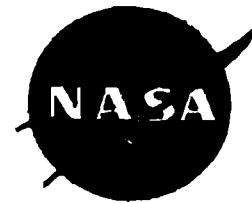
NASA On-Line Services

NASA provides a variety of on-line services via the Internet. Photographs, scientific and technical information, news releases, and organizational data are accessible through a number of outlets, including World Wide Web sites. The following Universal Resource Locator (URL) addresses provide key starting points for exploring NASA on the "net."

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



For Release

NASA Highlights in 1997

From the surface of Mars to a possible newly discovered ocean beneath the ices of Europa, here are the top 10 NASA stories of 1997:

Mars Pathfinder

One of the most watched events of the year occurred 141 million miles from Earth, as hundreds of millions of people followed the July 4 landing of NASA's Pathfinder spacecraft on Mars, the first landing on the Red Planet since the Viking missions in 1976 and the first ever to use air bags to cushion impact on the surface. Shortly after Pathfinder's landing, the Sojourner rover began its own exploration of nearby rocks and other features. The images from both craft were posted to the Internet, where more than 500 million "hits" were recorded by the end of July.

Hubble Servicing Mission -- "New" Telescope for the New Millennium

During five days of spacewalks, astronauts flawlessly performed major maintenance and upgrades to the orbiting Hubble Space Telescope, replacing older hardware with two dramatically improved instruments that are helping astronomers probe the universe in greater detail than ever before. Also this year, Hubble uncovered over 1,000 bright, young star clusters bursting to life in a brief, intense, brilliant "fireworks show" at the heart of a nearby pair of colliding galaxies. The Hubble image of the galactic collision was printed on the front pages of newspapers around the world as well as on the cover of Newsweek magazine.

Shuttle-Mir Goes Forward

In 1997, three U.S. astronauts -- Jerry Linenger, Michael Foale and David Wolf -- added to NASA's long duration record aboard Mir and to the Agency's ability to gain experience and knowledge unavailable elsewhere. Andy Thomas is currently on Mir. Despite problems on Mir, NASA Administrator Daniel S. Goldin concluded that Shuttle-Mir has a thorough review process which warrants continued American participation in the program.

NASA Satellites Provide Best View Yet of El Nino Weather Phenomena

Pacific Ocean sea-surface height measurements and atmospheric water vapor information taken from independent Earth-orbiting satellites, the Upper Atmosphere Research Satellite, the NASA Scatterometer, TOPEX/POSEIDON, and SeaWiFS have convinced scientists of what they had earlier postulated -- a full-blown El Niño condition is established in the Pacific.

Cassini Launches to Saturn

The international Cassini mission left Earth bound for Saturn on Oct. 15 atop an Air Force Titan IV-B/Centaur rocket in a picture-perfect launch above Cape Canaveral, FL. With the European Space Agency's Huygens probe and a high-gain antenna provided by the Italian Space Agency, Cassini will arrive at Saturn July 1, 2004.

X-33 and X-34 Flight Technology Demonstrators Achieve Major Milestones

In 1997, the Agency's quest to reduce launch costs and increase access to space through its Reusable Launch Vehicle Program took a major leap forward. The X-33 technology demonstrator, scheduled to begin flights in mid-1999, successfully passed its critical design review, and the X-34, the smaller and earlier flight demonstrator being developed in parallel with the X-33, successfully passed a design freeze in mid-year.

Galileo Discovers Icebergs on Europa

Images captured during Galileo's closest flyby of Europa on Feb. 20 showed features of the Jovian moon, lending credence to the possibility of hidden, subsurface oceans. The findings generated new questions about the possibility of life on Europa.

Uplifting Year for Aeronautics

To ensure that NASA's work in science and technology sustains U.S. leadership in civil aeronautics and space and improves air transportation system safety, the Agency established technology goals, called the Three Pillars, that will stretch the boundaries of the knowledge and capabilities needed to keep the United States as the global leader in aeronautics and space.

SOHO Sheds New Light on Active Sun

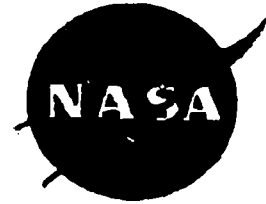
Scientists using the joint European Space Agency/NASA Solar and Heliospheric Observatory (SOHO) spacecraft have discovered "jet streams" or "rivers" of hot, electrically charged plasma flowing beneath the surface of the Sun. These new findings will help scientists understand the famous 11-year sunspot cycle and associated increases in solar activity that can disrupt the Earth's power and communications systems.

March 1998

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1600



For Release March 5, 1998

NASA Milestones

- Founding of agency: October 1, 1958
- Pioneer I: First NASA launch, October 11, 1958
- Vanguard II: First photos of Earth from space, launched February 17, 1959
- Pioneer 4: First successful flyby of moon, March 4, 1959
- Tiros I: First weather satellite, launched April 1, 1960
- Echo 1: First communications satellite, launched August 12, 1960
- Freedom 7: First U.S. human space flight (Alan Shepherd), May 5, 1961
- Friendship 7: First American in orbit (John Glenn), February 20, 1962
- Telstar 1: NASA launch of first privately built satellite (for communications), July 10, 1962; first telephone and television signals carried via satellite
- Mariner 2: First successful planetary flyby (Venus), December 14, 1962
- X-15: Experimental aircraft X-15 sets altitude record of 354,200 feet (67 miles); August 22, 1963
- Gemini III: First Gemini flight ("Gus" Grissom and John Young), launched and landed March 23, 1965
- Gemini IV: First U.S. spacewalk (Ed White), launched June 3, landed June 7, 1965
- Mariner 4: First flyby of Mars, July 14, 1965
- Gemini VI-A: First orbital rendezvous (Wally Schirra and Tom Stafford), launched December 15, landed December 16, 1965
- Gemini VIII: First orbital docking (Neil Armstrong and David Scott), launched March 16, landed March 17, 1966
- X-15: Experimental aircraft sets speed record at 4,520 mph, October 3, 1967
- Apollo 7: First Apollo mission (Wally Schirra, Donn Eisele and Walter Cunningham), launched October 11, landed October 22, 1968

- Apollo 8: First human flight to the moon (Frank Borman, James Lovell, William Anders), launched December 21, landed December 27, 1968
- Apollo 11: First human lunar landing (Neil Armstrong and "Buzz" Aldrin; Michael Collins, command module pilot), launched July 16, landed July 24, 1969
- Apollo 13: Third planned lunar landing (James Lovell, Fred Haise; Jack Swigert, command module pilot); mission aborted after loss of oxygen pressure; crew used lunar module as lifeboat to return to Earth; launched April 11, landed April 17, 1970
- Apollo 15: Fourth lunar landing (David Scott, Alfred Worden, James Irvin); first use of Lunar Rover, launched July 26, landed August 4, 1971
- Mariner 9: First mission to orbit another planet (Mars), arrived November 13, 1971
- Earth Resources Technology Satellite-A: Later Landsat 1, first demonstration of global remote-sensing of Earth's surface, launched July 23, 1972
- Apollo 17: Last lunar landing (Eugene Cernan, Ronald Evans, Jack Schmitt), launched December 7, landed December 19, 1972
- Skylab: Unmanned space station launched May 14, 1973
- Skylab 2: First U.S. space station mission (Pete Conrad, Joe Kerwin, Paul Weitz); launched May 25, landed June 22, 1973
- Pioneer 10: first flyby of Jupiter, arrived December 3, 1973
- SMS-A: first geosynchronous weather satellite, launched May 17, 1974
- Pioneer 11: first flyby of Saturn, arrived September 1, 1974
- Apollo-Soyuz Test Project: First joint U.S.-Soviet human flight (Tom Stafford, Vance Brand, "Deke" Slayton; Alexei Leonov, Valeri Kubasov); U.S. crew launched July 15, landed July 24, 1975
- Viking 1 and 2: first U.S. landing on another planet (Mars), arrived July 20, 1976 (Viking 1) and September 3, 1976 (Viking 2)
- SEASAT: first satellite to make global observations of the Earth's oceans, launched June 26, 1978
- Nimbus 7: environmental research satellite with multiple instruments, one of which provided the global evidence of Antarctic ozone depletion in the 1980s, launched October 24, 1978
- Solar Maximum Mission: first mission to study the sun in detail, over the course of heavy sunspot activity, launched February 14, 1980
- STS-1: First test flight of the Space Shuttle Columbia (John Young, Bob Crippen), launched April 12, landed April 14, 1981
- STS-5: First operational flight of the Space Shuttle Columbia (Vance Brand, Robert Overmeyer, Joe Allen, Bill Lenoir); deployed two satellites, SBS-C and Telesat-C, launched November 11, landed November 16, 1982

- STS-6: First flight of Space Shuttle Challenger, launched April 4, landed April 9, 1983
- STS-7: Sally K. Ride becomes the first American female astronaut, launched June 18, landed June 24, 1983
- STS-8: Guy Bluford becomes the first African-American astronaut, launched August 30, landed September 5, 1983
- STS-9: First flight of European Spacelab module in Space Shuttle payload bay, launched November 28, landed December 8, 1983
- STS-41C: First on-orbit satellite repair mission (Solar Maximum Mission, aboard Space Shuttle Challenger; (Bob Crippen, Dick Scobee, Terry Hart, George Nelson, James Von Hoften), launched April 6, landed April 14, 1984
- STS-41D: First flight of Space Shuttle Discovery, launched August 30, landed September 5, 1984
- STS-51J: First flight of Space Shuttle Atlantis, launched August 27, landed September 3, 1985
- Voyager 2: First encounters with Uranus, January 24, 1986, and Neptune, August 25, 1989
- STS-26: First Space Shuttle mission after Challenger explosion, launched September 29, landed October 3, 1988
- Magellan: Radar mapping of Venus's surface, 1989-1993
- STS-31: Deployment of Hubble Space Telescope, launched April 24, landed April 29, 1990
- STS-49: First flight of Space Shuttle Endeavour, including the first three-person spacewalk, capturing a private satellite for repair and reboost, launched May 2, landed May 16, 1992
- STS-61: First servicing mission to Hubble Space Telescope, repairing defective optics and replacing other parts, launched December 2, landed December 13, 1993
- STS-63: Vladimir Titov becomes the first Russian to be launched aboard a U.S. spacecraft, launched February 3, landed February 11, 1995
- Mir 18: American Norm Thagard becomes the first U.S. astronaut to fly aboard a Russian launch vehicle and then live and work aboard the Mir space station, early 1995
- STS-71: First docking mission to Russian space station Mir; Norm Thagard and a Russian crewmate return to Earth on the Shuttle, launched June 27, landed July 7, 1995
- Galileo: released probe into Jupiter's atmosphere, December 7, 1995
- STS-79: Shannon Lucid returns from Mir on September 26, 1996, have set a U.S. record for continuous stay in space and beginning a more than two-year continuous U.S. presence in space
- Mars Pathfinder: July - December 1997

Science and Space Exploration

*"We must continue to push the limits of science and technology,
and to continue to explore the universe."*

President Clinton
Announcement of the White House Millennium
Program, Aug. 15, 1997

ENSURING U.S. LEADERSHIP IN SCIENCE AND SPACE EXPLORATION

Investing in Science and Technology -- Under President Clinton, investments in science and technology have increased for five years in a row, while continuing to bringing down the deficit. The President maintains his commitment in his most recent budget. The National Science Foundation (NSF), which supports much of the research that trains the next generation of America's scientists and engineers, increases by 10% (\$344 million) to \$3.8 billion in FY99. The increase is the largest ever for NSF, and includes more than a 16% boost for computer science research. In addition, a new partnership between the Education Department and the National Science Foundation receives \$75 million per year for research aimed at raising student achievement through learning technologies.

Supporting Space Exploration -- Issued in 1996, the President's National Space Policy commits the nation to a strong, stable, and balanced space program. The FY99 budget submission of \$13.5 billion achieves this goal, enabling NASA to pursue the Administration's priorities in human space flight, earth sciences, advanced space transportation, aviation safety and space science. Through the 21st Century Research Fund for America, the President adds \$700 million over five years to NASA's space science program.

Providing New Scientific Insights and Making New Discoveries -- In 1997 alone, NASA made historic strides in space exploration. NASA landed the Pathfinder spacecraft on Mars -- the first landing on the Red Planet since 1976 -- and Pathfinder delivered the Sojourner rover to explore the surface of Mars. NASA launched the Cassini mission which will arrive at Saturn in 2004. In addition, the Galileo mission at Jupiter discovered potential evidence of subsurface water on Jupiter's Europa. In 1998, the U.S. and its partners will begin construction of the International Space Station to establish our permanent human presence in space and before the end of the millennium, NASA will launch an additional seven missions into deep space.

Protecting the Environment and Providing Better Information on Weather Phenomena -- The Clinton Administration is applying science to local, regional, and global environmental challenges. The Administration is building new monitoring systems to provide better information for natural resource management and reduction of the impacts of natural disasters. For instance, NASA satellites provided the best view of the El Niño weather phenomena.

Strengthening International Scientific Ties -- The Administration has helped blaze the trail in international science and technology cooperation. The agreement to join with scientists from 45 countries to build the Large Hadron Collider for high energy physics research in Europe is a key milestone for international partnerships in science and technology--one which will become a standard for our domestic science programs in the future.

Achieving Greater Diversity in our Scientific Workforce -- The Clinton Administration has expanded opportunities for women, minorities and people with disabilities to pursue scientific and technical careers through programs like the Alliance for Minority Participation at the National Science Foundation and a new Presidential mentoring award.

**TALKING IT OVER
BY HILLARY RODHAM CLINTON
FOR IMMEDIATE RELEASE**

When I was 14, I dreamed of becoming an astronaut. Inspired by Alan Shepard's pioneering 15-minute trip into space, I wrote NASA to find out what I needed to do to see the stars up close. The space agency thanked me for my interest but said that women were not being considered for the job.

I doubt that I was the only girl to receive a disappointing letter from NASA. And I know that this past spring and summer, I wasn't the only woman who found her old dreams of space travel orbiting Earth with Shannon Lucid in a 136-ton space station.

For six months, I was among millions of men and women who silently -- and sometimes loudly -- cheered each time we heard that Dr. Lucid had broken another space record or when we read reports of her good-humor, stamina and quiet strength during her stay on the Russian space station Mir.

We chuckled as she described how she and her two Russian colleagues looked forward to Jell-O for dessert on Sundays. Our admiration grew as she gamely took the news that her return to Earth would be delayed by six weeks. And it was refreshing for all of us to see an American display so much grace and civility in the close quarters of a space station when those attributes sometimes seem to be in short supply on Earth.

I wish I could have been at Kennedy Space Center last week to see Dr. Lucid as she defied expectations and walked off the space shuttle Atlantis on her own two feet. (Scientists had thought that after 188 days in the weightlessness of space, she would have been too weak to stand, much less walk.) I wish I could have seen her face when she opened the large box of M&Ms, the candy she had missed so much on Mir, that the President had sent her as a welcome-home present. And I wish I could have been with Bill the next day in Houston when he paid tribute to Dr. Lucid for setting the record for the longest flight by any American -- and any woman -- in space.

Like many Americans of my generation, the space program captured my imagination when I was still very young. After the Soviet Union launched Sputnik and became the first country to travel into space, I remember President Eisenhower urging all of us schoolchildren to study more math and science. A successful space program, he said, would require many talented and visionary scientists, engineers and mathematicians. I took his and later President Kennedy's words to heart, feeling that I could play a part in preparing our country for space exploration and the future.

TALKING IT OVER 10/8/96

Page 2

My brothers and I followed the space program closely. We were glued to our black-and-white television set and pored over the morning papers each time the Mercury astronauts blasted into space. And like many Americans, I remember where I was when Neil Armstrong and Buzz Aldrin landed on the moon. (I was washing dishes at a National Park hotel in Alaska.)

As an adult, I continued to share in every triumph, disappointment and milestone in our space program -- from Sally Ride's historic shuttle ride to the Challenger explosion, which reminded all of us of the great risk our astronauts take each time they travel into space, to this summer's announcement that there may have been life on Mars.

Perhaps no recent achievement resonates more with American women and girls than Dr. Lucid's. Here's a woman who refused to let prevailing stereotypes limit her interests and ambitions. When she was 13, she wrote an essay about her dream of becoming a rocket scientist. Her teacher laughed at the idea, saying that if there were such a profession, women would never be part of it. But Dr. Lucid didn't abandon her interest in science -- or space. She learned to pilot an airplane. While raising a family, she got a doctorate in biochemistry.

And, when NASA decided to end its single-sex policy, Dr. Lucid was ready -- and qualified. She joined Sally Ride in the first group of American woman astronauts. Today, Dr. Lucid is a veteran of five shuttle missions and one of America's most experienced astronauts.

While there are still many more frontiers of work and space to explore and conquer, Dr. Lucid is living proof to all of us -- and especially our daughters -- that the sky need not be the limit of our dreams and ambitions.

COPYRIGHT 1996 CREATORS SYNDICATE, INC.

ALL RIGHTS RESERVED

October 8, 1996

**MAKING HISTORY FOR WOMEN:
THE PRESIDENT AND FIRST LADY ANNOUNCE THE FIRST WOMAN SHUTTLE COMMANDER**

March 5, 1998

Today, the President and First Lady will announce the first woman to command a Space Shuttle flight -- Lieutenant Colonel Eileen Collins. This announcement is one of several science events taking place at the White House this week and kicks off the White House's celebration of Women's History Month. As we mark these observances, it is especially appropriate to recognize those living examples of women's history -- like Eileen Collins -- who inspire us all.

Lt. Col. Collins will command the Space Transportation System 93 (STS- 93) which is scheduled for launch in December of 1998. This mission will launch the largest X-ray ever flown which will help us examine some of the most distant and powerful objects in our universe. A former math and engineering professor and a veteran of two space flights, Colonel Collins served as the first female shuttle pilot and has logged over 400 hours in space. As the Commander of STS-93, Lt. Col. Collins will be responsible for all other astronauts on the mission, the deployment of the X-ray system, the safety of the flight and the overall success of the entire mission.

This Announcement Builds on the Clinton Administration's Support of Space Exploration:

The International Space Station: Beginning this year, in 1998, men and women from sixteen countries will build a foothold in the heavens -- the international space station. By the end of 1997, 200,000 pounds of flight-quality hardware had been built. The International Space Station will be a permanent laboratory where gravity, temperature, and pressure can be manipulated in a variety of scientific and engineering pursuits impossible on Earth.

Mars Pathfinder: Last July 4, NASA's Pathfinder spacecraft landed on Mars, the first landing on the Red Planet since the Viking missions in 1976. The spacecraft's small rover wheeled around the terrain of Mars, transmitting breathtaking views of the landscape to Earth. During its 30-day mission, the Pathfinder returned a wealth of new information on the planet, including data on the atmosphere, weather and geology of Mars. In all, Pathfinder returned 1.2 billion bits of data and almost 10,000 pictures of the Martian landscape.

This Announcement also Highlights the Importance of Science and Math to our Future:

Raise Standards and Measure Student Performance with a Voluntary National Test in Mathematics at 8th Grade: The President is leading a national campaign for a voluntary national test in mathematics to let parents and teachers know how individual students and schools can improve in relation to rigorous national and international standards and to determine whether students are adequately prepared to take demanding high school mathematics and science.

A Strong Foundation in the Middle Grades: The President's FY99 budget requests approximately \$60 million to improve mathematics achievement in the middle grades. This funding will support a joint initiative by the U.S. Department of Education and the National Science Foundation to support local efforts to put in place the rigorous courses and challenging standards. It will also promote improved mathematics teaching of elementary and middle school teachers by supporting effective teacher training through updating their content knowledge while still ensuring mastery of the basics of computation.

Eileen Marie Collins (Lieutenant Colonel, USAF)

Lieutenant Colonel Eileen Collins has wanted to fly since an early age, when she watched planes land and takeoff at the local airport in her home town in Elmira, NY. Collins came from a modest background and flying lessons weren't cheap. While most teenagers take on a job for extra spending money or a car, Collins was seeking odd jobs to save money for flying lessons.

When she was nineteen, Collins had finally saved enough to begin taking lessons to be a pilot. While she began logging time as a pilot, she studied math and science at Corning Community College. After two years Collins was given an ROTC scholarship to study math and economics at Syracuse University. Through the ROTC she joined the Air Force in 1976, which was the first year the Air Force accepted women pilots.

Upon graduation in 1978 she was assigned to Vance Air Force Base in Oklahoma where she became a T-38 instructor pilot after she completed Air Force Pilot Training. 1978 was the first year the Air Force accepted females to be trained as pilots. Eileen was one of only 4 women in a class of 504. The T-38 job was a sign for the future as it happens to be the same aircraft used for astronaut pilot training.

She remained an instructor at Vance AFB until 1983 when she was assigned to be a C-141 Transport commander and instructor at Travis AFB in California. From 1986 to 1989 Collins received an opportunity to mentor and support the next generation of pilots, especially female pilots at the Air Force Academy in Colorado. She was a T-41 instructor and assistant professor of mathematics at the Academy. Collins distinguished herself once again when she was the second woman to graduate from the Air Force Test Pilot School in 1990. While there she was selected to become an astronaut.

NASA chose Collins to be the pilot on the first U.S.-Russian Shuttle/Mir rendezvous. The mission was an essential test of precision and cooperation between the American and Russian space agencies necessary before the docking of the Space Shuttle and the Mir Space Station. Collins was the first female to pilot a Shuttle ever on that mission. Subsequently Collins was assigned to be the pilot on the Sixth U.S./Russia Shuttle-Mir docking mission. Lt. Col. Collins was recently chosen to be the first ever woman to command a Shuttle mission. Collins has been chosen to command STS-93 scheduled for launch in December 1998. The mission will deploy the Advanced X-ray Astrophysics Facility Imaging System designed to conduct comprehensive studies of the universe. With this mission Collins will become the first female to command a shuttle crew. She has logged over 4,700 hours in 30 different types of aircraft. She has logged over 400 hours in space, traveled over 6.5 million miles and orbited the earth 274 times.

She was born November 19, 1956 in Elmira, New York to James and Rose Collins. She is married to Pat Youngs, originally from San Antonio, Texas. Her husband is a pilot for Delta airlines. His parents are Pat and Jackie Youngs of San Antonio, Texas.

History of Women in NASA

In the days of Dwight Eisenhower, since the rocket missions were known to involve unpredictable physical and psychological stresses, astronauts were chosen from the ranks of the nation's top military test pilots. No one had to consider whether to include qualified women; there weren't any. 1963 marked the year when NASA loosened its selection criteria to include a handful of fighter pilots who lacked test-pilot credentials but had advanced degrees in engineering or physical sciences.

By the mid-'70s and the birth of the Apollo program, the climate had begun to change. NASA still needed pilots to fly the shuttle, but orbital tasks would be carried out largely by nonpilot astronauts (mission specialists) with varying backgrounds. Furthermore, with the few engineering advances that soon came about, like unisex zero-gravity toilets and modular space suits that could be assembled to fit a greater range of sizes, mission specialists could be men or women. In 1976, under pressure by the federal government, NASA began recruiting minorities and women.

Over 6000 applications pored in, including 1,251 women, in 1978. Included were: Anna Fisher, Shannon Lucid, Judy Resnik, Sally Ride, Rhea Seddon, Dathy Sullivan, all had doctorates and professional experience and a breadth of interests outside their chosen fields.

The Soviets launched the first woman into orbit, Valentina Tereshkova, in 1963. On June 18, 1983, Sally Ride, who became an American icon, was the first American woman to fly in space, sitting in the flight engineer's seat of the shuttle Challenger. She was accompanied in orbit, by Kathy Sullivan, who became the first American woman to walk in space in 1984. In October 1984, Anna Fisher became the first mother in space and in 1985, Shannon Lucid spent a week in orbit. With all of these women's accomplishments, each helped erase the spaceflight's gender line. Unfortunately, in January of 1986, Challenger exploded, killing schoolteacher Christa McAuliffe and others.

Out of the six original female astronauts, only Shannon Lucid is still flying. Last April (1996), she left earth for the fifth time: the shuttle dropped her off at Russia's Mir space station, spending six months in orbit, breaking the nation's space-endurance record (188 days).. Meanwhile, each new batch of astronauts brings more women into the ranks of U.S. space travelers; slightly less than a quarter of the current corps. In fact, Eileen Collins is likely to become the first woman to command a shuttle mission. Cady Coleman, is another female astronaut.

NASA Facts

National Aeronautics and
Space Administration

Washington, D.C. 20546
(202) 358-1800



For Release March 5, 1998

NASA Milestones

- Founding of agency: October 1, 1958
- Pioneer I: First NASA launch, October 11, 1958
- Vanguard II: First photos of Earth from space, launched February 17, 1959
- Pioneer 4: First successful flyby of moon, March 4, 1959
- Tiros I: First weather satellite, launched April 1, 1960
- Echo 1: First communications satellite, launched August 12, 1960
- Freedom 7: First U.S. human space flight (Alan Shepherd), May 5, 1961
- Friendship 7: First American in orbit (John Glenn), February 20, 1962
- Telstar 1: NASA launch of first privately built satellite (for communications), July 10, 1962; first telephone and television signals carried via satellite
- Mariner 2: First successful planetary flyby (Venus), December 14, 1962
- X-15: Experimental aircraft X-15 sets altitude record of 354,200 feet (67 miles); August 22, 1963
- Gemini III: First Gemini flight ("Gus" Grissom and John Young), launched and landed March 23, 1965
- Gemini IV: First U.S. spacewalk (Ed White), launched June 3, landed June 7, 1965
- Mariner 4: First flyby of Mars, July 14, 1965
- Gemini VI-A: First orbital rendezvous (Wally Schirra and Tom Stafford), launched December 15, landed December 16, 1965
- Gemini VIII: First orbital docking (Neil Armstrong and David Scott), launched March 16, landed March 17, 1966
- X-15: Experimental aircraft sets speed record at 4,520 mph, October 3, 1967
- Apollo 7: First Apollo mission (Wally Schirra, Donn Eisele and Walter Cunningham), launched October 11, landed October 22, 1968

- Apollo 8: First human flight to the moon (Frank Borman, James Lovell, William Anders), launched December 21, landed December 27, 1968
- Apollo 11: First human lunar landing (Neil Armstrong and "Buzz" Aldrin; Michael Collins, command module pilot), launched July 16, landed July 24, 1969
- Apollo 13: Third planned lunar landing (James Lovell, Fred Haise; Jack Swigert, command module pilot); mission aborted after loss of oxygen pressure; crew used lunar module as lifeboat to return to Earth; launched April 11, landed April 17, 1970
- Apollo 15: Fourth lunar landing (David Scott, Alfred Worden, James Irvin); first use of Lunar Rover, launched July 26, landed August 4, 1971
- Mariner 9: First mission to orbit another planet (Mars), arrived November 13, 1971
- Earth Resources Technology Satellite-A: Later Landsat 1, first demonstration of global remote-sensing of Earth's surface, launched July 23, 1972
- Apollo 17: Last lunar landing (Eugene Cernan, Ronald Evans, Jack Schmitt), launched December 7, landed December 19, 1972
- Skylab: Unmanned space station launched May 14, 1973
- Skylab 2: First U.S. space station mission (Pete Conrad, Joe Kerwin, Paul Weitz); launched May 25, landed June 22, 1973
- Pioneer 10: first flyby of Jupiter, arrived December 3, 1973
- SMS-A: first geosynchronous weather satellite, launched May 17, 1974
- Pioneer 11: first flyby of Saturn, arrived September 1, 1974
- Apollo-Soyuz Test Project: First joint U.S.-Soviet human flight (Tom Stafford, Vance Brand, "Deke" Slayton; Alexei Leonov, Valeri Kubasov); U.S. crew launched July 15, landed July 24, 1975
- Viking 1 and 2: first U.S. landing on another planet (Mars), arrived July 20, 1976 (Viking 1) and September 3, 1976 (Viking 2)
- SEASAT: first satellite to make global observations of the Earth's oceans, launched June 26, 1978
- Nimbus 7: environmental research satellite with multiple instruments, one of which provided the global evidence of Antarctic ozone depletion in the 1980s, launched October 24, 1978
- Solar Maximum Mission: first mission to study the sun in detail, over the course of heavy sunspot activity, launched February 14, 1980
- STS-1: First test flight of the Space Shuttle Columbia (John Young, Bob Crippen), launched April 12, landed April 14, 1981
- STS-5: First operational flight of the Space Shuttle Columbia (Vance Brand, Robert Overmeyer, Joe Allen, Bill Lenoir); deployed two satellites, SBS-C and Telesat-C, launched November 11, landed November 16, 1982

- STS-6: First flight of Space Shuttle Challenger, launched April 4, landed April 9, 1983
- STS-7: Sally K. Ride becomes the first American female astronaut, launched June 18, landed June 24, 1983
- STS-8: Guy Bluford becomes the first African-American astronaut, launched August 30, landed September 5, 1983
- STS-9: First flight of European Spacelab module in Space Shuttle payload bay, launched November 28, landed December 8, 1983
- STS-41C: First on-orbit satellite repair mission (Solar Maximum Mission, aboard Space Shuttle Challenger; (Bob Crippen, Dick Scobee, Terry Hart, George Nelson, James Von Hoften), launched April 6, landed April 14, 1984
- STS-41D: First flight of Space Shuttle Discovery, launched August 30, landed September 5, 1984
- STS-51J: First flight of Space Shuttle Atlantis, launched August 27, landed September 3, 1985
- Voyager 2: First encounters with Uranus, January 24, 1986, and Neptune, August 25, 1989
- STS-26: First Space Shuttle mission after Challenger explosion, launched September 29, landed October 3, 1988
- Magellan: Radar mapping of Venus's surface, 1989-1993
- STS-31: Deployment of Hubble Space Telescope, launched April 24, landed April 29, 1990
- STS-49: First flight of Space Shuttle Endeavour, including the first three-person spacewalk, capturing a private satellite for repair and reboost, launched May 2, landed May 16, 1992
- STS-61: First servicing mission to Hubble Space Telescope, repairing defective optics and replacing other parts, launched December 2, landed December 13, 1993
- STS-63: Vladimir Titov becomes the first Russian to be launched aboard a U.S. spacecraft, launched February 3, landed February 11, 1995
- Mir 18: American Norm Thagard becomes the first U.S. astronaut to fly aboard a Russian launch vehicle and then live and work aboard the Mir space station, early 1995
- STS-71: First docking mission to Russian space station Mir; Norm Thagard and a Russian crewmate return to Earth on the Shuttle, launched June 27, landed July 7, 1995
- Galileo: released probe into Jupiter's atmosphere, December 7, 1995
- STS-79: Shannon Lucid returns from Mir on September 26, 1996, have set a U.S. record for continuous stay in space and beginning a more than two-year continuous U.S. presence in space
- Mars Pathfinder: July - December 1997

STS-93 QUICK LOOK

Launch Date: No earlier than December 3, 1998

Launch Time: Approximately 2:50 P.M. EST

Launch Window: Approximately 23 minutes

Orbiter: Columbia, (OV-102), 26th flight

Orbit Altitude/Inclination: 150 nautical miles, 28.45 degrees

Mission Duration: Approximately 5 days

Landing Date: December 8, 1998

Landing Time: Approximately 2:05 p.m. EST

Primary Landing Site: Kennedy Space Center, Florida

Crew: Eileen Collins, Commander (CDR), 3rd flight
Jeffrey S. Ashby, Pilot (PLT), 1st flight
Steven A. Hawley, Mission Specialist 1 (MS 1), 5th flight
Catherine "Cady" Coleman, Mission Specialist 2 (MS 2),
2nd flight
Michel Tognini, CNES, Mission Specialist (MS 3),
1st flight

Cargo Bay Payload: Advanced X-ray Astrophysics Facility Imaging System
(AXAF)

Mid Deck Payloads: Shuttle Amateur Radio Experiment, (SAREX)
Southwest Ultraviolet Imaging System, (SWUIS-02)
01 flew on STS-85
EarthKam-02, 01 unit flew on STS-89
Plant Growth Investigations in Microgravity, (PGIM-01)
MicroElectro Mechanical Systems, (MEMS-01)
Biological Research in Canisters, (BRIC-11)
last flew on STS-85
Midcourse Space Experiments, (MSX-10)
Has flown on previous missions
Shuttle Ionospheric Modification with Pulsed Local
Exhaust, (SIMPLEX), 08 Flew on STS-87, -89, etc
Space Tissue Loss, (STL-B-02), 01 flew on STS-70

The Advanced X-ray Astrophysics Facility
by Fred Seward

AXAF, the Advanced X-ray Astrophysics Facility, is the U.S. follow-on to the Einstein Observatory. Originally three instruments and a high-resolution mirror carried in one spacecraft, the project was reworked in 1992 and 1993. The AXAF spacecraft will carry a high resolution mirror, two imaging detectors, and two sets of transmission gratings. Important AXAF features are: an order of magnitude improvement in spatial resolution, good sensitivity from 0.1 to 10 keV, and the capability for high spectral resolution observations over most of this range.

A summary of the telescope mirrors used in various X-ray missions can be found below and a comparison of the effective area of the AXAF imaging detectors with those of other missions in Figure 1.

X-ray Telescope Mirrors						
Mirror Characteristic	Einstein	EXOSAT	ROSAT	BBXRT/ASCA	AXAF-I	XMM
aperture diameter						
58 cm	28 cm	83 cm	40 cm one module	1.2 m	70 cm one module	
mirrors						
4 nested one module	2 nested	4 nested	118 nested one module	4 nested	58 nested	
geometric area						
350	80	1140	1400 two modules	1100	6000 three modules	
grazing angles (arcmin)						
40-70	90-110	83-135	21-45	27-51	18-40	
focal length (m)						
3.45	1.09	2.4	3.8	10	7.5	
mirror coating						
Ni	Au	Au	Au	Ir	Au	
highest energy focused (keV)						
5	2	2	12	10	10	
on axis resolution (arcsec)						
4	18	4	75	0.5	20	

AXAF will be placed in an elliptical high-earth orbit allowing uninterrupted observing intervals of more than 48 hours in length.

The AXAF telescope was designed to have three times the area of the Einstein mirror at low energies and to have considerable collecting area between 6 and 7 keV, the energy of iron lines emitted by many astrophysical sources. Capability of the observatory goes far beyond that of Einstein. There is an order of magnitude better angular resolution and imaging sensitivity is two orders of magnitude higher. Relative increase in spectroscopy capability is even greater.

The mirror consists of four pairs of nested reflecting surfaces, arranged in the usual Wolter type 1 geometry. The high energy response is achieved by use of relatively small reflection angles and by coating the mirrors with iridium. Improvements in mirror technology since Einstein include significant advances in grinding, polishing, alignment, and testing. Mirrors with a resolution of 0.5 arcseconds have been achieved. The combination of high resolution, large collecting area, and sensitivity to higher energy X-rays will make it possible for AXAF to study extremely faint sources, sometimes strongly absorbed, in crowded fields.

There are two focal plane instruments. One is a High Resolution Camera (HRC). Smaller pore size, larger microchannel plate (MCP) dimensions, lower background, charged particle anticoincidence, and possible energy resolution are all advances over the HRI carried by Einstein and ROSAT. It will be used for high resolution imaging, fast timing measurements, and for observations requiring a combination of both.

The second instrument, the AXAF CCD Imaging Spectrometer (ACIS), is an array of charged coupled devices. A two-dimensional array of these small detectors will do simultaneous imaging and spectroscopy. Pictures of extended objects can be obtained along with spectral information from each element of the picture. This was done with the Einstein IPC but in a primitive way compared with this AXAF instrument. The new device combines the spatial resolution of the Einstein HRI with the spectral resolution of the Einstein SSS, an order of magnitude improvement over the IPC in both respects. ASCA carries a similar CCD array but the mirror limits the spatial resolution to ~2 arcminutes.

There are two transmission grating spectrometers, formed by sets of gold gratings placed just behind the mirrors. One set is optimized for low energies (LETG) and the other for high energies (HETG). Spectral resolving powers ($E/\Delta E$) in the range 100-2000 can be achieved with good efficiency. These produce spectra dispersed in space at the focal plane. Either the CCD array or the HRC can be used to record data.

Science

AXAF will be capable of very sensitive observations. AXAF will be able to detect most of the ~300 stars in the Pleiades cluster. Individual O stars and RS CVn stars in the Magellanic Clouds can be detected. High resolution grating spectra can be obtained for hundreds of stars. The goal is to determine the temperature, extent, and density of the coronae, and the dependence of physical parameters on stellar type. More detailed structure of coronae might be derived from spectral

observations of eclipsing binary systems.

Maps can be made of emission from SNR in our galaxy and spectral information will be obtained for all features. Tycho's remnant, for example, can be mapped in the light of X-rays from Si ions, from S ions, and even from Fe ions. Thus, the distribution of different elements within the remnant can be measured. AXAF will be capable of detecting SNR in M31 and extended remnants such as the Cygnus Loop, which, in M31, would be approximately 10" in diameter, will be mapped. In M31 ~200 SNR should be accessible to AXAF.

Since higher energy X-rays are capable of penetrating gas and dust, emission from the center of our Galaxy will be clearly seen. Sources in spiral arms on the other side of the center can also be measured and some of their properties determined. The bright bulge sources in M31 are strong enough so that light curves can be measured and a search for the eclipses which identify binary systems will be possible. AXAF in one pointing will be able to monitor the emission of approximately 50 bulge sources in M31.

Brighter binary sources in galaxies within the Virgo cluster can also be resolved and detected individually, as obviously can sources in intermediate galaxies. Thus, the population of bright X-ray sources in hundreds of galaxies can be determined. Since high-energy X-rays are unaffected by obscuring material, luminosities of sources can be accurately measured and the hypothesis that these sources, or a subset of them, are "standard candles" can be accurately tested. If such "standard candles" are found, distances to nearby galaxies can be accurately determined. These distances are a crucial step in the derivation of the Hubble Constant and the potential of these measurements is truly exciting.

X-rays from distant clusters of galaxies (which are faint and small) can be imaged and spectra measured as a function of position within the cluster. Since the emitting gas is quite hot (108 K), the high energy capability of AXAF gives a great sensitivity gain over that of Einstein and ROSAT. Furthermore, since clusters emit the characteristic iron line, the redshift can be measured directly. The spectral and spatial data combined delineate the gravitational potential. The distribution of all matter, including dark matter, within distant clusters can be determined. Data on the evolution of cluster structure with time will be collected.

AXAF is expected to detect quasars and active galaxies 100 times fainter than Einstein and can thus look to significantly greater distances. This is unknown territory, except that the integrated emission from many unresolved faint sources probably contributes most of the X-ray background. Deep AXAF observations will come close to imaging this background and will provide a sample of distant objects which record the state of the universe at early times.

Once launched, AXAF should enjoy a 5-10 year lifetime. AXAF will operate as a true observatory, available through proposal, as is observing time at ground-based facilities.

Biographical Data

NAME: Eileen Marie Collins (Lieutenant Colonel, USAF)
NASA Astronaut

PERSONAL DATA:

Born November 19, 1956, in Elmira, New York. Married to Pat Youngs, originally from San Antonio, Texas. They have one child. She enjoys running, golf, hiking, camping, reading, photography, astronomy. Her parents are James and Rose Marie Collins, from Elmira, New York. His parents are Pat and Jackie Youngs, from San Antonio, Texas.

EDUCATION:

Graduated from Elmira Free Academy, Elmira, New York, in 1974; received an associate in science degree in mathematics/science from Corning Community College in 1976; a bachelor of arts degree in mathematics and economics from Syracuse University in 1978; a master of science degree in operations research from Stanford University in 1986; and a master of arts degree in space systems management from Webster University in 1989.

ORGANIZATIONS:

Member of the Air Force Association, Order of Daedalians, Women Military Aviators, U.S. Space Foundation, the American Institute of Aeronautics and Astronautics, and the Ninety-Nines.

SPECIAL HONORS:

Awarded the Defense Superior Service Medal, the Air Force Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the Armed Forces Expeditionary Medal for service in Grenada (Operation Urgent Fury, October 1983), and the NASA Space Flight Medal.

EXPERIENCE:

Collins graduated in 1979 from Air Force Undergraduate Pilot Training at Vance AFB, Oklahoma, where she was a T-38 instructor pilot until 1982. From 1983 to 1985, she was a C-141 aircraft commander and instructor pilot at Travis AFB, California. She spent the following year as a student with the Air Force Institute of Technology. From 1986 to 1989, she was assigned to the U.S. Air Force Academy in Colorado, where she was an assistant professor in mathematics and a T-41 instructor pilot. She was selected for the astronaut program while attending the Air Force Test Pilot School at Edwards AFB, California, from which she graduated in 1990.

She has logged over 4,700 hours in 30 different types of aircraft.

NASA EXPERIENCE:

Selected by NASA in January 1990, Collins became an astronaut in July 1991. Initially assigned to Orbiter engineering support, she also served on the astronaut support team responsible for Orbiter prelaunch checkout, final launch configuration, crew ingress/egress, and landing/recovery. From April 1995 to

October 1996, she worked in Mission Control as a spacecraft communicator (CAPCOM). A veteran of two space flights, Collins served as pilot on STS-63 (February 2-11, 1995) and STS-84 (May 15-24, 1997), and has logged over 419 hours in space. She currently serves as the Astronaut Office Spacecraft Systems Branch Chief.

SPACE FLIGHT EXPERIENCE:

STS-63 (February 2-11, 1995) was the first flight of the new joint Russian-American Space Program. Mission highlights included the rendezvous with the Russian Space Station Mir, operation of Spacehab, the deployment and retrieval of an astronomy satellite, and a space walk. Collins' first mission was accomplished in 129 orbits, traveling over 2.9 million miles in 198 hours, 29 minutes. She was the first woman pilot of a Space Shuttle.

STS-84 (May 15-24, 1997) was NASA's sixth Shuttle mission to rendezvous and dock with the Russian Space Station Mir. During the flight, the crew conducted a number of secondary experiments and transferred nearly 4 tons of supplies and experiment equipment between Atlantis and the Mir station. In completing this 9-day mission, she traveled 3.8 million miles in 145 orbits of the Earth logging a total of 221 hours and 20 minutes in space.

NOVEMBER 1997

NAME: Jeffrey S. Ashby (Commander, USN)
NASA Astronaut

PERSONAL DATA:

Born June 16, 1954 in Dallas, Texas. Raised in the Colorado mountains. Not married. Recreational interests include skiing, backpacking, fly fishing.

EDUCATION:

Graduated from Evergreen High School, Evergreen, Colorado in 1972. Bachelor of science degree in mechanical engineering from the University of Idaho, 1976. Master of science degree in aviation systems from the University of Tennessee, 1993.

SPECIAL HONORS:

Distinguished Flying Cross, Meritorious Service Medal, Navy Air Medals (4), Navy Commendation Medals (2), Navy Achievement Medal, and numerous Unit decorations. Navy Attack Aviator of the Year, 1991.

EXPERIENCE:

Ashby has accumulated over 5000 flight hours and 1000 carrier landings. He is a graduate of the Naval Test Pilot School (1988) and the Naval Fighter Weapons School (Top Gun, 1986).

During his 16 year tenure as a fleet Navy pilot, Ashby completed five carrier deployments, flying A-7E and FA-18 aircraft from the USS CONSTELLATION, USS

CORAL SEA, USS MIDWAY, and USS ABRAHAM LINCOLN. He has flown missions in support of Operations Desert Shield, Desert Storm, and Southern Watch in Iraq, and Operation Continue Hope in Somalia. Ashby completed 33 combat missions in the FA-18 during Operation Desert Storm.

As a Navy test pilot, Ashby participated in the early development of the FA-18 aircraft, directing and flying tests of its smart weapons systems and electronic warfare suite. He has flown test flights for over 80 projects including carrier suitability, ordnance release, and flying qualities of the Night attack and reconnaissance versions of the Hornet.

In his final operational Navy tour, Ashby served as the Commanding Officer of Strike Fighter Squadron 94.

NASA EXPERIENCE:

Selected by NASA in December 1994, Ashby reported to the Johnson Space Center in March 1995. He is presently assigned to work technical issues as an assistant to the Director, Flight Crew Operations.

JANUARY 1998

**NAME: Steven A. Hawley (Ph.D.)
NASA Astronaut**

PERSONAL DATA:

Born December 12, 1951, in Ottawa, Kansas, but considers Salina, Kansas, to be his hometown. Married to the former Eileen M. Keegan of Redondo Beach, California. He enjoys basketball, softball, golf, running, playing bridge, and umpiring. His parents, Dr. and Mrs. Bernard Hawley, reside in Surprise, Arizona. Her mother, Mrs. Jo Keegan, resides in Houston, Texas.

EDUCATION:

Graduated from Salina (Central) High School, Salina, Kansas, in 1969; received bachelor of arts degrees in physics and astronomy (graduating with highest distinction) from the University of Kansas in 1973, and a doctor of philosophy in astronomy and astrophysics from the University of California in 1977.

ORGANIZATIONS:

Member of the American Astronomical Society, the Astronomical Society of the Pacific, the American Institute of Aeronautics and Astronautics, Sigma Pi Sigma, and Phi Beta Kappa.

SPECIAL HONORS:

Evans Foundation Scholarship, 1970; University of Kansas Honor Scholarship, 1970; Summerfield Scholarship, 1970-1973; Veta B. Lear Award, 1970; Stranathan Award, 1972; Outstanding Physics Major Award, 1973; University of California Regents Fellowship, 1974; Group Achievement Award for software testing at the Shuttle Avionics Integration Laboratory, 1981; NASA Outstanding Performance Award, 1981; NASA Superior Performance Award, 1981; Group Achievement

Award for Second Orbiter Test and Checkout at Kennedy Space Center, 1982; Quality Increase, 1982; NASA Space Flight Medals, 1984 & 1986; Group Achievement Award for JSC Strategic Planning, 1987; NASA Exceptional Service Medal, 1988; Special Achievement Award, 1988; Exceptional Service Medal for Return to Flight, 1988; NASA Space Flight Medal, 1990; Outstanding Leadership Medal, 1990; Special Achievement Award, 1990; Exceptional Service Medal, 1991; Haley Flight Achievement Award, 1991; Kansan of the Year Award, 1992; Group Achievement Award for ESIG 3000 Integration Project, 1994; Presidential Rank Award, 1994; Group Achievement Award for Space Shuttle Program Functional Workforce Review, 1995; Group Achievement Award for SFOC Contract Acquisition, 1997; NASA Space Flight Medal, 1997; Kansas Aviation Hall of Fame, 1997; Kansas University Distinguished Service Citation, 1998.

EXPERIENCE:

Hawley attended the University of Kansas, majoring in physics and astronomy. He spent three summers employed as a research assistant: 1972 at the U.S. Naval Observatory in Washington, D.C., and 1973 and 1974 at the National Radio Astronomy Observatory in Green Bank, West Virginia. He attended graduate school at Lick Observatory, University of California, Santa Cruz. His research involved spectrophotometry of gaseous nebulae and emission-line galaxies with particular emphasis on chemical abundance determinations for these objects. The results of his research have been published in major astronomical journals. Prior to his selection by NASA in 1978, Hawley was a post-doctoral research associate at Cerro Tololo Inter-American Observatory in La Serena, Chile.

NASA EXPERIENCE:

Dr. Hawley was selected as a NASA astronaut in January 1978. Prior to STS-1, he served as a simulator pilot for software checkout at the Shuttle Avionics Integration Laboratory (SAIL). For STS-2, STS-3, and STS-4, he was a member of the astronaut support crew at Kennedy Space Center, Florida, for Orbiter test and checkout, and also served as prime close-out crewman for STS-3 and STS-4. During 1984-1985, he was Technical Assistant to the Director, Flight Crew Operations. From 1987-1990, Dr. Hawley was Deputy Chief of the Astronaut Office. In June 1990, Dr. Hawley left the Astronaut Office to assume the post of Associate Director of NASA's Ames Research Center in California. In August 1992, Dr. Hawley returned to the Johnson Space Center as Deputy Director of Flight Crew Operations. In February 1996, Dr. Hawley was returned to astronaut flight status and named to the crew of the second Hubble Space Telescope servicing mission. Upon completion of STS-82, Dr. Hawley resumed his position as Deputy Director, Flight Crew Operations.

SPACE FLIGHT EXPERIENCE:

A veteran of four space flights, Dr. Hawley has logged a total of 651 hours and 37 minutes in space. He served as a mission specialist on STS-41D in 1984, STS-61C in 1986, STS-31 in 1990 and STS-82 in 1997. STS-41D launched from the Kennedy Space Center, Florida, on August 30, 1984. Crew members included Hank Hartsfield (spacecraft commander), Mike Coats (pilot), Judy Resnik and Mike Mullane (mission specialists), and Charlie Walker (payload specialist). This was the maiden flight of the Space Shuttle Discovery. During the 7-day mission the crew

successfully activated the OAST-1 solar cell wing experiment, deployed the SBS-D, SYNCOM IV-2, and TELSTAR 3-C satellites, operated the CFES-III experiment, the student crystal growth experiment, as well as photography experiments using the IMAX motion picture camera. STS-41D completed 96 orbits of the Earth in 144 hours and 57 minutes before landing at Edwards Air Force Base, California, on September 5, 1984.

STS-61C launched from the Kennedy Space Center, Florida, on January 12, 1986. Crew members included Robert "Hoot" Gibson (spacecraft commander), Charles Bolden (pilot), Franklin Chang-Díaz and George "Pinky" Nelson (mission specialists), Robert Cenker of RCA, and Congressman Bill Nelson (payload specialists). During the 6-day flight of Columbia the crew deployed the SATCOM KU satellite and conducted experiments in astrophysics and materials processing. Mission duration was 146 hours and 03 minutes. STS-61C made a successful night landing at Edwards Air Force Base, California, on January 18, 1986.

STS-31 launched on April 24, 1990, from the Kennedy Space Center in Florida. The crew aboard Space Shuttle Discovery included Loren Shriver (spacecraft commander), Charlie Bolden (pilot), Bruce McCandless and Kathy Sullivan (mission specialists). During the 5-day mission, crew members deployed the Hubble Space Telescope, and conducted a variety of middeck experiments involving the study of protein crystal growth, polymer membranes processing, and the effects of weightlessness and magnetic fields on an ion arc. They also operated a variety of cameras, including both the IMAX in-cabin and cargo bay cameras, for Earth observations from their record-setting altitude of 380 miles. Following 76 orbits of the earth in 121 hours, Discovery landed at Edwards Air Force Base, California, on April 29, 1990.

STS-82, the second Hubble Space Telescope (HST) maintenance mission, launched at night on February 11 and returned to a night landing at Kennedy Space Center on February 21, 1997. During the flight, Dr. Hawley's primary role was to operate the Shuttle's 50-foot robot arm to retrieve and redeploy the HST following completion of upgrades and repairs. Dr. Hawley also operated the robot arm during five space walks in which two teams installed two new spectrometers and eight replacement instruments. They also replaced insulation patches over three compartments containing key data processing, electronics and scientific instrument telemetry packages. HST was then redeployed and boosted to a higher orbit. The flight was completed in 149 orbits covering 3.8 million miles in 9 days, 23 hours, 37 minutes.

JANUARY 1998

NAME: Catherine G. "Cady" Coleman, Ph.D. (Major, USAF)
NASA Astronaut

PERSONAL DATA:

Born December 14, 1960, in Charleston, South Carolina. Enjoys flying, scuba diving, sports, music. As an undergraduate, she competed in intercollegiate

athletics on MIT's crew team. Her father, James J. Coleman, resides in Vancouver, Washington. Her mother, Ann L. Doty, resides in Westerly, Rhode Island.

EDUCATION:

Graduated from W.T. Woodson High School, Fairfax, Virginia, in 1978; received a bachelor of science degree in chemistry from the Massachusetts Institute of Technology in 1983, and a doctorate in polymer science and engineering from the University of Massachusetts in 1991.

ORGANIZATIONS:

Member of the American Chemical Society, the Society for Photo-Optical Instrumentation Engineers (SPIE), the American Association of University Women, and the International Womens' Air and Space Museum.

EXPERIENCE:

Coleman was commissioned as a 2nd lieutenant in the Air Force in 1983 and began graduate work at the University of Massachusetts. Her research focused on polymer synthesis using the olefin metathesis reaction, and polymer surface modification. In 1988, Coleman entered active duty and was assigned to Wright-Patterson Air Force Base. As a research chemist at the Materials Directorate of the Wright Laboratory, she synthesized model compounds to investigate the use of organic polymers for third-order nonlinear optical applications such as advanced computers and data storage. Coleman also acted as a surface analysis consultant for the Long Duration Exposure Facility (launched from STS 41-C in 1984 and retrieved during STS-32 in 1990). In addition to assigned duties, Coleman was a volunteer test subject for the centrifuge program at the Crew Systems Directorate of the Armstrong Aeromedical Laboratory. She set several endurance and tolerance records during her participation in physiological and new equipment studies.

NASA EXPERIENCE:

Coleman was selected by NASA in March 1992 and reported to the Johnson Space Center in August 1992. Initially assigned to the Astronaut Office Mission Support Branch and detailed to flight software verification in the Shuttle Avionics Integration Laboratory, Coleman subsequently served as the special assistant to the Center Director, Johnson Space Center. She trained as STS-83 backup mission specialist to Dr. Don Thomas when he suffered a broken right ankle following the conclusion of a routine training exercise. Presently, Coleman is assigned to the Astronaut Office Payloads and Habitability Branch. She works with experiment designers to insure that payloads can be operated successfully in the microgravity environment of low earth orbit, and is the lead astronaut for long term space flight habitability issues, such as acoustics and living accommodations aboard the International Space Station.

From October 20 to November 5, 1995, Coleman served as a mission specialist aboard Space Shuttle Columbia on STS-73, the second United States Microgravity Laboratory mission. The mission focused on materials science, biotechnology, combustion science, the physics of fluids, and numerous scientific experiments

housed in the pressurized Spacelab module. In completing her first space flight, Coleman orbited the Earth 256 times, traveled over 6 million miles, and logged a total of 15 days, 21 hours, 52 minutes and 21 seconds in space.

MARCH 1997

NAME: Michel Tognini (Colonel, French Air Force)
CNES Astronaut

PERSONAL DATA:

Born September 30, 1949, in Vincennes, France. Married to the former Elena Vassilievna. Four children. Hobbies include Aeroclub, parachuting and parapenting, tennis, wind-surfing, water-skiing, snow-skiing, cross-country running, wave-surfing, microcomputers. Michel's parents, Jean and Ginette Tognini, reside in Paris, France. Elena's parents reside in Chtchiolkovo III, near Star City, Russia.

EDUCATION:

Tognini was educated at Lycee de Cachan, Paris. Received an advanced mathematics degree in 1970 from Epa Grenoble (military school). He enrolled at Ecole de l'Air, (the French Air Force Academy), Salon de Provence, France, graduating with an engineering degree in 1973. Tognini attended the Empire Test Pilots School, Boscombe Down, United Kingdom, in 1982, and the Institut des Hautes Etudes de Defense Nationale (IHEDN) in 1993-94.

SPECIAL HONORS:

French Aeronautics Medal; Chevalier de Ordre National du Mérite; Officier dans l'Ordre de la Légion d'Honneur; Soviet Order of Friendship between the People; Russian Order of Friendship between the People.

QUALIFICATIONS:

Engineer from the "Ecole de l'Air." Fighter Pilot (all levels). Test Pilot. Airline Pilot. Military Technical Diploma (BTEM). Cosmonaut Diploma from the Soviet Union.

EXPERIENCE:

Following graduation in 1973 from the Ecole de l'Air, Tognini was posted to advanced fighter pilot training at squadron based at Normandie-Neman where he served for one year before obtaining his advanced fighter pilot training. From 1974-1981, he served as an operational fighter pilot in French Air Force (Cambrai Air Base), at the 12th Escadre de Chasse, flying SMB2 and Mirage F1 aircraft. During this tour of duty he served as flight leader in 1976, and flight commander in 1979. In 1982, he was admitted to the Empire Test Pilot School in Boscombe Down, United Kingdom, and later that year was awarded his test pilot diploma. He was awarded his military studies diploma in 1983. Tognini was then posted to the Cazaux Flight Test Center, France, initially as a test pilot and subsequently as chief test pilot. During his time there, he helped test a great deal of French flight hardware. He did the weapon systems testing for the Mirage 2000-C, Mirage 2000-N, Jaguar ATLAS, and FLIR aircraft, and was also responsible for flight safety for pilots, experimenters and flight engineers. In 1985, France opened a recruitment program to expand its

astronaut corps, and Tognini was one of seven finalists selected in September 1985. In July 1986, he was one of four candidates to undergo medical examinations in Moscow. In August 1986, he was assigned as the back-up for the Soyuz TM-7 mission. Although Tognini remained a French Air Force officer, he was placed on detachment to CNES for his space flight activities from September 1986 onwards. In November 1986 he reported to the Yuri Gagarin Cosmonaut Training Center, Star City, Russia, for alternate astronaut training, including EVA, for the Soviet-French ARAGATZ mission. During 1989-1990 he supported the HERMES program in Toulouse, France. In 1991 he returned to Star City, Russia, to start prime crew training for the 3rd Soviet-French ANTARES mission. During his stay in Russia Tognini also gained piloting experience of BURAN simulators (MIG 25, TUPOLEV 154).

Tognini has 4000 flight hours on 80 types of aircraft (mainly fighter aircraft including MIG 25, TUPOLEV 154, LIGHTNING MK 3 and MK 5, METEOR, and F 104). He is fluent in English and Russian.

Tognini made his first space flight on board the Soyuz TM-15, TM-14 (July 27 to August 10, 1992). Together with Anatoly Solovyev and Sergei Avdeiev he linked up with Mir 1 (ANTARES mission) and joined the crew of Alexandre Viktorenko and Alexandre Kaleri already on board. They spent 14 days carrying out a program of joint Soviet-French experiments before returning to Earth.

He returned to France following the mission. During 1993-94, he attended a training cycle of the French Institute for High Studies of National Defense (IHEDN).

PUBLICATIONS:

Use of new systems for future aircraft (classified report, 70p). Boscombe Down Preview on Lightning Mk III (report, 300p). The SOYUZ spacecraft system (CNES report, 150p).

NASA EXPERIENCE:

Tognini attended ASCAN Training at the Johnson Space Center during 1995. He was initially assigned to the Operations Planning Branch of the Astronaut Office working technical issues on the International Space Station. Tognini will fly aboard Space Shuttle Columbia as a member of the STS-93 crew. During the 5-day mission the crew will deploy the Advanced X-ray Astrophysics Facility Imaging System (AXAF) which will conduct comprehensive studies of the universe. Launch is targeted for late 1998.

FEBRUARY 1998

There's Space in My Life

- ... for my health
- ... for my family
- ... for my safety
- ... for my home and garden
- ... for my travel and leisure time
- ... for exploring the mysteries of
Earth and the Universe

NASA Public Affairs

Women's Outreach Initiative

Washington, DC 20546



There's Space in my life for my health

Matters of the Heart & Body

body. This information is used in testing sensitivity to chemotherapy and hormonal therapy which is particularly important to the treatment of breast and ovarian cancer.

Differences in Male and Female Health Factors

NASA researchers looking for ways to protect astronauts from the effects of space radiation found that male and female subjects respond differently to exposure to simulated space radiation. When these findings were published, scientists working on toxic substances in the environment changed their studies so that the effect of toxins on males and females could be assessed separately. Gender-specific research in this field was stimulated by publication of the NASA work. It is leading not only to a better understanding of the specific effect of radiation on women, but is also having an important influence on studies of other environmental factors on women's health.

Aging

Osteoporosis

One of the physical changes experienced by astronauts during space flight is loss of bone density. This is similar to osteoporosis, a brittle bone condition that affects many older people on Earth, particularly women. With the National Institutes of Health, NASA is studying how this condition develops in space and how to counteract this condition in astronauts. Countermeasures used in space will be important in preventing and treating this debilitating condition on

Earth. NASA technology has already led to the development of a fast and inexpensive tool to measure the extent of osteoporosis by analyzing the stiffness of bones. It takes measurements without exposing the patient to radiation.

Balance Disorders

During and after space flight astronauts experience difficulty in keeping their balance as do many people suffering from balance disorders, especially older people. Balance disorders are a frequent cause of falls and broken bones. NASA is working with the National Institutes of Health to find ways to counteract this condition. Space shuttle research on the body's balance system has resulted in new discoveries of sensory pathways and the nervous system's ability to adapt. In addition, NASA technology used to test astronauts after space flight has been used by a commercial company to produce a system to assess the extent of patients' balance problems and then retrain them for better mobility. This is already in use in several medical centers.

From Space to Your Health

NASA Technology has revolutionized the connection between microelectronics and medicine.

Infrared Thermometer

Technology developed to measure the temperature of the distant stars and planets has made taking your own temperature virtually instantaneous. The now-familiar thermometer placed for a moment against your ear takes your temperature in just two seconds through the eardrum. This is an infection-free method of measuring body temperature which is particularly useful for newborns, the critically ill, and incapacitated patients.

The Beat of Your Heart

NASA's bi-directional telemetry technology, first used to communicate with satellites, was the basis for a company's development of a pacemaker that can be programmed from outside the body. NASA requirements for miniature electronics made possible the technology used in another instrument, an implantable defibrillator that detects irregular heartbeats and automatically delivers an electrical shock to get the heart back on track.

Your Blood Pressure

NASA needs to protect the health of astronauts who are a long way from Earth. Technology developed to accomplish this was commercialized and led to the prototype versions of the now-familiar device into which you slip your arm at doctors' offices and pharmacies. This semi-automatic instrument provides a very accurate blood pressure measurement, and the results appear quickly and conveniently on a digital display.

Treating Heart Disease

Laser angioplasty offers heart patients an alternative to surgery in the treatment of clogged arteries. A laser system first used for satellite-based studies of the atmosphere has been reapplied to treat atherosclerosis, the buildup of fatty deposits in the arteries. NASA research led to the development of an excimer laser that is now routinely used to clean arteries without damage to blood vessel walls. This is especially important for women; another non-surgical treatment often chosen by doctors, balloon angioplasty, is sometimes ruled out because female blood vessels are often too small for the treatment.

6 29

Stereotactic Biopsy

From research into the mysteries of the universe in deep space comes a technology to detect one of the diseases most feared by women: breast cancer. A device similar to a digital camera was developed for the Hubble Space Telescope that allows scientists to pick out specific distant stars among a field of many others. Medical researchers have adapted this technology to allow doctors to pick out distinct spots on breast tissue. Today doctors can take biopsies of suspicious lumps without expensive and painful surgery because pinpointing the cancerous area is easier with the space technology. When a small needle is used with a conventional x-ray mammogram, the chances of missing a tumor are high. The new device and greater accuracy of the stereotactic approach makes it possible to stage and extract a sample with a needle rather than by cutting into the tissue.

In addition to reducing time in the doctor's office by as much as half, and lowering cost by as much as 75 percent, the procedure exposes the patient to only half the radiation of the conventional x-ray method. It takes some of the dread out of breast biopsy because it causes no scarring or disfigurement and is less painful.

NASA Bioreactor for Cancer Treatment

NASA and the University of South Florida are funding research focused on the development of three-dimensional tissue models of breast and ovarian cancer. Using the Bioreactor, a special tissue culture chamber designed by NASA, scientists are able to grow cells that form themselves into structures similar to tissues found in the human

Message from the Administrator of NASA . .

As a husband and father of two daughters, and a grandfather, few subjects are as important to me as women's health. That is why I am so proud to present this overview of how NASA technologies, originally developed for our space and aeronautics programs, are contributing to improving the health of women around the world.

In addition to space and aeronautics development and exploration, NASA is charged with transferring its technology to the public for the improvement of life on Earth. Our visionary researchers, scientists, entrepreneurs, and clinicians have made giant leaps in technology application. Who would have dreamed that we could map human tissue by mapping the distant stars?

It is my hope that women, and men, on Earth, will share my pride in the extent to which Space is in all our lives right here, close to home.

Daniel Goldin
Dan Goldin



Dan Goldin and grandson, Zachary

NASA's Role In

Women's Health

The research and technology that makes NASA's programs possible touch our lives every day. Using NASA know-how, American companies have developed many products that directly affect our well-being. In the field of health and medicine, NASA's research is especially welcome because many of the troublesome symptoms experienced by astronauts in space flight are similar to conditions that affect many women on Earth, such as osteoporosis. Researchers also have been able to apply technologies developed for the study of deep space to the study of our bodies.

NASA's research is helping us understand how to live and work in space, and how to improve our lives on Earth, from the workplace to home.

Heart Disease

Cardiovascular disease is the number one killer of women in the United States. But until very recently, it has not been recognized as a major risk for women. Almost all heart disease research has excluded women as subjects. NASA's work in understanding how space flight affects the cardiovascular system in both men and women is going a long way toward making up for this inadequacy in research.

On December 4, 1996 Mars Pathfinder left for Mars in a spectacular night-time launch. After recovering from an initial problem created by debris on the spacecraft's sun sensors, the cruise to Mars was flawless. Five maneuvers were planned, but only four were required to bring the spacecraft onto the surface within a few kilometers of the aiming point selected over a year before, a rocky plain at the outflow of a major flood channel, Ares Vallis.

The entry and landing exceeded expectations. All elements of the entry, descent and landing system (including heat shield, parachute, airbags, sensors, computer and telecommunications) worked perfectly. The spacecraft impacted with a moderate force, well within design limitations. After bouncing for about two minutes the lander came to rest on its base petal, allowing a communication "ping" to be received by mission control at the earliest possible time. This "ping" indicated a successful landing and was quickly followed by a successful downlink of engineering data, and then by successful transmission of images from the surface.

After adjusting one of the lander's petals to further reel in an airbag the rover ramps were deployed and the rover rolled down and put "six wheels on soil" on the second day of surface operations. Currently the rover (Sojourner Truth) has sampled the elemental composition of soil and of three widely different rocks with its alpha-proton-x-ray spectrometer, and has performed all of its planned technology experiments successfully. The lander (now named the Sagan Memorial Station) has also performed very well, with the Imager for Mars Pathfinder successfully providing black and white and full color panoramas of the entire landing site. The imager has also photographed the Sun and the moon Deimos. The Atmospheric Structure Instrument/Meteorology experiment has accumulated atmospheric profile data during entry and has provided daily weather information. The magnetic component of dust is being measured by magnets on the lander.

As of three weeks after landing the Pathfinder mission had accomplished all of its mission objectives and was continuing to collect and transmit science and engineering data.

The Mars Pathfinder Mission Assurance program was the first "tailored" approach at JPL. It featured flexibility, common sense, concurrent engineering, and lower cost. Documentation was cut significantly, MA team members were empowered, a full environmental test program was implemented, selective redundancy was employed, QA was based on processes (not historical points), and the electronic parts program was a mixture of Cassini common buys and Military grades. The MA cost was less than one-third of tradition and the number of Problem/Failure reports was less than one-quarter normal (at one-third the normal closure cost each). There were no significant deviations from the plan created over three years before launch.

MARS PATHFINDER FACT SHEET



Mission Summary

The Mars Pathfinder mission was the second mission launched under the Discovery Program, which is a National Aeronautics and Space Administration initiative for small planetary missions with a maximum three-year development cycle and a cost cap of \$150 million (FY '92) for development. Mars Pathfinder was the first U.S. spacecraft to visit the surface of Mars since the Viking mission in 1976. The Mars Pathfinder Project is managed for NASA by the Jet Propulsion Laboratory, a division of the California Institute of Technology (Caltech) in Pasadena, California.

Conceived as an engineering demonstration of key technologies and concepts for use in future missions to Mars, Pathfinder carried several science instruments that investigated the structure of the Martian atmosphere, its surface meteorology and geology, and the elemental composition of Martian rocks and soil.

Pathfinder was also the first U.S. mission to use a robotic rover on the surface of Mars. This free-ranging rover was named Sojourner after the abolitionist Sojourner Truth; this name was selected as the winning entry in a student contest. Over the course of the mission, the rover conducted technology experiments and carried the Alpha Proton X-Ray Spectrometer (APXS) instrument to ten rocks and six soil sites over an area of hundreds of square meters. These data provide a calibration point or "ground truth" for orbital remote sensing observations. By landing near the mouth of a giant catastrophic outflow channel, Pathfinder was able to investigate a variety of ancient crustal materials, which contain clues that scientists will be able to use to identify the nature of the early environment on Mars and to determine whether conditions could have been conducive to the formation of life on the red planet.

Mission Description

The flight system was launched on December 4, 1996 on a Delta II-7925 launch vehicle, which included a Payload Assist Module (PAM)-D third stage from the Cape Canaveral Air Force Station.

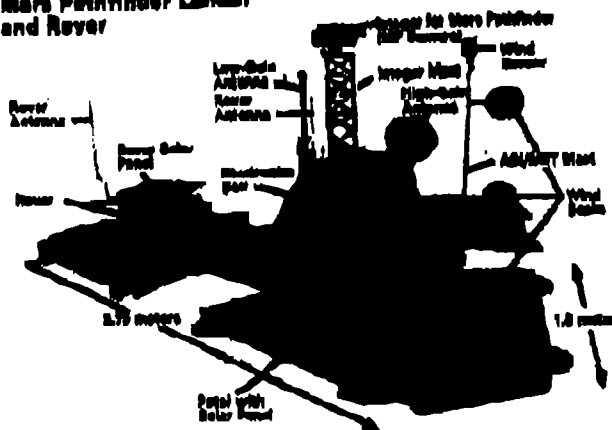
The spacecraft took seven months to reach Mars. During this phase, a series of four Trajectory Correction Maneuvers (TCMs) fine-tuned the flight path. Tracking, telemetry, and command operations with the spacecraft were conducted using the giant dish antennas of the NASA Deep Space Network (DSN). Upon arrival at Mars on July 4, 1997, the spacecraft entered the Martian atmosphere protected by a heat shield, and then deployed a parachute, rocket deceleration system, and 6-meter-diameter air-bag system before bouncing to the surface and rolling to a stop, right side up. The lander then opened its petals and began the data-taking phase of the mission. This phase continued for 83 Martian days, or sols (each 24.6 hours). Sojourner was deployed on July 6, 1997, and also operated through sol 83.

Major Science Results

The following are the most significant new scientific results from the Mars Pathfinder mission:

- Chemical analyses returned by Pathfinder indicate that some rocks may be high in silica, implying the existence of differentiated parent materials.
- Rounded pebbles, cobbles, and a possible conglomerate suggest fluvial processes that imply liquid water in equilibrium with the atmosphere and, thus, a warmer and wetter past.
- Tracking the location of the lander provided a precise measure of its location and the pole of rotation of the planet. Comparison with Viking yielded the precession rate and the moment of inertia of Mars, which indicates a central metallic core of 1300 to 2000 kilometers in radius.
- Airborne dust consists of 1-micron particles that appear sintered and cemented by a highly magnetic mineral called magnetite that could have been leached from crustal materials by an active hydrologic cycle.
- Remote sensing data at a scale of generally greater than ~1 kilometer and an Earth analog correctly predicted a rocky plain safe for landing and roving, with a variety of rocks deposited by catastrophic floods that are relatively dust free.
- Soil compositions are similar to those measured by Viking, although they are thousands of kilometers apart, suggesting that the soil forming process may be global in nature.
- White to blue water ice clouds have been imaged repeatedly very early in the morning and appear to sublimate away by midmorning.
- Dust devils have been measured repeatedly in the afternoon by the lander meteorology instruments.
- Abrupt temperature fluctuations with time and height in morning may be caused by rising convective eddies of air being warmed by the surface.

Mars Pathfinder Lander and Rover



Flight System Characteristics

Design:

- Three spacecraft in one (cruise stage, entry vehicle and lander)
- Aeroshell, parachute, rocket deceleration, and air-bag entry, descent and landing (EDL) system (42 pyrotechnic events)
- Direct from Earth entry at 7.8 kilometers per second; maximum landing velocity: 28 meters per second
- Self-righting, tetrahedral lander

Command and Data Handling: RAD6000 computer with VME bus, 22 million instructions per second (MIPS), 128 Mbytes DRAM mass memory; 8 Mbytes EEPROM. Flight software: 156,000 lines of C code

Attitude Control: 6 Sun sensors and a star scanner

Power: 506-watt (at 1 astronomical unit) gallium arsenide solar powered cruise stage and 180-watt lander array with 50 ampere-hour (beginning of life) silver zinc battery

Command and Telemetry: X-Band, Deep Space transponder and 16-watt solid-state power amplifier

Command Rate: 7.5-500 bits per second

Surface Telemetry Rate: High-gain antenna: 8.2 kilobits per second, maximum; low-gain antenna: 40-300 bits per second to 70-meter DSN antenna

Thermal Control: Liquid-phase-pumped freon loop during cruise, Passive control on Mars surface

Mass:

- Launch: 684 kilograms (includes 94 kilograms propellant)
- Entry: 564 kilograms
- Landed: 370 kilograms

Science Payload Characteristics

Instrument	Mass (kg)	Power (W)
Atmospheric Structure Instrument/Meteorology (ASI/MET) Experiment	2.2	9.2
Imager for Mars Pathfinder (IMP) Camera and Electronics	6.4	10.0
Alpha Proton X-Ray Spectrometer (APXS)	0.74	0.8

Sojourner Rover Characteristics

Mobility System: Six-wheel, rocker-bogie suspension

Autonomous Navigation: On board, using laser striping, articulation sensors and contact sensors for obstacle detection

Mobile Mass: 10.6 kilograms including APXS deployment mechanism and APXS instrument

Lander-Mounted Rover Equipment Mass: 3.8 kilograms including ultra-high frequency (UHF) modem

Command and Telemetry: 2000 bits per second UHF link with lander

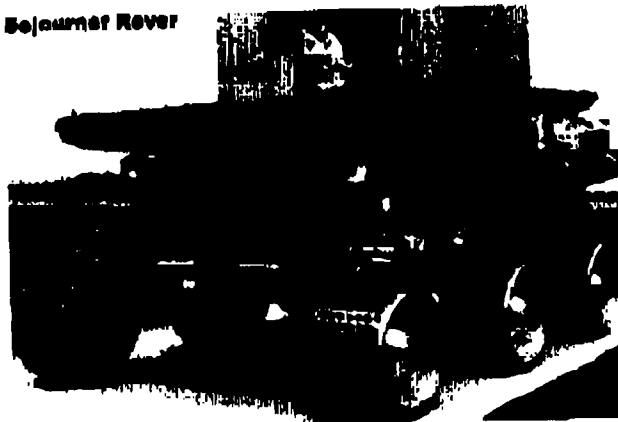
Payload: One rear color camera and two forward black-and-white cameras, APXS, material adherence experiment wheel traction experiment

Power: 0.28-square-meter solar panels; peak power 16 watts; primary battery 50 watt-hours

Thermal Control: Internal computer controlled resistive heaters in combination with high-efficiency thermal enclosure

Computer Characteristics: 80C85, 0.1 MIPS, 0.5 Mbyte RAM mass storage, 3.0 watts (minimum power mode)

Sojourner Rover



Mars Pathfinder Mission Management

NASA Program Manager

NASA Program Scientist

JPL Project Manager

JPL Project Manager Emeritus

JPL Project Scientist

JPL Mission Operations Manager

JPL Science and Instruments Manager

JPL Rover Manager

JPL Ground System Manager

Kenneth W. Ledbetter

Joseph Boyce

Brian K. Muirhead

Anthony J. Spear

Dr. Matthew Golombek

Richard A. Cook

John B. Wellman

Dr. Jacob R. Matijevic

Allen Seals

Additional information about the Mars Pathfinder mission can be found on the Internet at <http://mars.jpl.nasa.gov>



National Aeronautics and Space Administration
Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California
JPL 400-748 888

PUBLIC INFORMATION OFFICE
JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
PASADENA, CALIF. 91109. TELEPHONE (818) 354-5011
<http://www.jpl.nasa.gov>

Contact: Diane Ainsworth

Dec. 1, 1997

EMBARGOED FOR RELEASE AT 4 P.M. EST DECEMBER 4

PATHFINDER RESULTS FEATURED IN THIS WEEK'S SCIENCE MAGAZINE

Based on the first direct measurements ever obtained of Martian rocks and terrain, scientists on NASA's Mars Pathfinder mission report in this week's *Science* magazine that the red planet may have once been much more like Earth, with liquid water streaming through channels and nourishing a much thicker atmosphere.

Among the more significant discoveries of the Mars Pathfinder mission was the identification of possible conglomerate rocks, which suggests the presence of running water to smooth and round the pebbles and cobbles, and deposit them in a sand or clay matrix, says Dr. Matthew Golombek, Mars Pathfinder project scientist at NASA's Jet Propulsion Laboratory, Pasadena, CA. This scenario supports the theory that Mars was once warmer and wetter.

"If you consider all of the evidence we have at Ares Vallis - the rounded pebbles and cobbles and the possible conglomerate, the abundant sand- and dust-sized particles and models for their origins, in addition to the high silica rocks," Golombek says, "it suggests a water-rich planet that may have been more Earth-like than previously recognized, with a warmer and wetter past in which liquid water was stable and the atmosphere was thicker."

A panoramic view of Pathfinder's Ares Vallis landing site, featured on the cover of the Dec. 5 issue of *Science*, reveals traces of this warmer, wetter past, showing a flood plain covered with a variety of rock types, boulders, rounded and semi-rounded cobbles and pebbles. These rocks and pebbles are thought to have been swept down and deposited by floods which occurred early in Mars' evolution in the Ares and Tiu regions near the Pathfinder landing site.

The cover image, which is a 75-frame, color-enhanced mosaic taken by the Imager for Mars Pathfinder, looks to the southwest toward the Rock Garden, a cluster of large, angular rocks tilted in a downstream direction from the floods. The image shows the Pathfinder rover, Sojourner, snuggled against a rock

nicknamed Moe. The south peak of two hills, known as Twin Peaks, can be seen on the horizon, about 1 kilometer (6/10ths of a mile) from the lander. The rocky surface is comprised of materials washed down from the highlands and deposited in this ancient outflow channel by a catastrophic flood.

★ "Before the Pathfinder mission, knowledge of the kinds of rocks present on Mars was based mostly on the Martian meteorites found on Earth, which are all igneous rocks rich in magnesium and iron and relatively low in silica," Golombek and a team of Pathfinder scientists report in a paper entitled, "Overview of the Mars Pathfinder Mission and Assessment of Landing Site Predictions." The paper summarizes the scientific results of the mission, which are also detailed in six other papers in this issue. The scientists report that chemical analyses of more than 16 rocks and studies of different regions of soil — along with spectral imaging of rock colors, textures and structures — have confirmed that these rocks have compositions distinct from those of the Martian meteorites found on Earth. ★

"The rocks that were analyzed by the rover's alpha proton X-ray spectrometer were basaltic or volcanic rocks, with granite-like origins, known as andesitic rocks," Golombek reports. "The high silica or quartz content of some rocks suggests that they were formed as the crust of Mars was being recycled, or cooled and heated up, by the underlying mantle. Analyses of rocks with lower silica content appear to be rich in sulfur, implying that they are covered with dust or weathered. Rover images show that some rocks appear to have small air sacks or cavities, which would indicate that they may be volcanic. In addition, the soils are chemically distinct from the rocks measured at the landing site."

The remarkably successful Mars Pathfinder spacecraft, part of NASA's Discovery program of fast track, low-cost missions with highly focused science objectives, was the first spacecraft to explore Mars in more than 20 years. In all, during its three months of operations, the mission returned about 2.6 gigabits of data, which included more than 16,000 images of the Martian landscape from the lander camera, 550 images from the rover and about 8.5 million temperature, pressure and wind measurements. ★

The rover traveled a total of about 100 meters (328 feet) in 230 commanded maneuvers, performed more than 16 chemical analyses of rocks and soil, carried out soil mechanics and technology experiments, and explored about 250 square meters (820 square feet) of the Martian surface. The flight team lost communication with the lander on Sept. 27, after 83 days of daily commanding and data return. In all, the lander operated nearly three times its design lifetime of 30 days, and the small, 10.5 kilogram (23-pound) rover operated 12 times its design lifetime of seven days.

Now known as the Sagan Memorial Station, the Mars Pathfinder mission was designed primarily to demonstrate a low-cost way of delivering a set of science instruments and a free-ranging rover to the surface of the red planet. Landers and rovers of the future will share the heritage of spacecraft designs and technologies first tested in this "pathfinding" mission.

Golombek points out that the rocky surface and rock types found in Ares Vallis match the characteristics of a flood plain on Earth, created when a catastrophic flood washed rocks and surface materials from another region into the basin. Ares Vallis was formed in the same way that the 40-kilometer-long (25-mile) Ephrata Fan of the Channeled Scabland in Washington state was formed, says Golombek, adding that the Ephrata Fan was deposited when channels of water flowing down the Grand Coules filled the Quincy Basin.

Additional data from the Pathfinder landing site revealed that magnetic dust in the Martian atmosphere has been gradually blanketing most of the magnetic targets on the lander over time. "The dust is bright red, with magnetic properties that are similar to that of composite particles," Golombek states. "A small amount of the mineral maghemite has been deposited almost like a stain or cement. These results could be interpreted to mean that the iron was dissolved out of crustal materials in water, suggesting an active hydrologic cycle on Mars. The maghemite stain could be a freeze-dried precipitate."

Another team of scientists used daily radio Doppler tracking and less frequent two-way radio ranging techniques during communications sessions with the spacecraft to pinpoint the location of the Pathfinder lander in inertial space and the direction of Mars' rotational axis.

In his published paper, Dr. William Folkner, an interdisciplinary scientist at JPL, and co-authors present estimates of the Martian polar moment of inertia, which show that Mars has a dense core surrounded by a lighter mantle. The results imply that the radius of Mars' core is larger than about 1,300 kilometers (807 miles) and less than about 2,400 kilometers (1,490 miles). Mars' core and mantle are probably warmer than Earth's at comparable depths. Eventually, scientists may be able to determine whether Mars' core is presently molten or fluid.

"Variations in Mars' rotation around its own spin axis are thought to be dominated by mass exchange between the polar caps and the atmosphere," Folkner reports. "During winter, part of the atmosphere condenses at the poles. If the southern cap increased symmetrically as the northern cap decreased, then there would not be any change in moment of inertia or rotation rate. However, because of Mars' orbital eccentricity, difference in elevation and difference in albedo, the polar caps are not formed symmetrically.

"The unbalanced waxing and waning of the Martian polar ice caps results in seasonal changes in air pressure at the Pathfinder and Viking landing sites," he says. "These changes in air pressure are correlated with changes in Mars' rotation rate, which have been observed in our radio tracking measurements."

The season and time of arrival of Mars Pathfinder in the late northern summer resulted in some variations in the temperature of the upper atmosphere compared to Viking data, reports Dr. Tim Schofield, JPL team leader of the atmospheric structure and meteorology instrument, and colleagues in their published report.

High in the atmosphere, at altitudes of 80 kilometers (50 miles) above the surface, temperatures were cold enough to make carbon dioxide condense and form carbon dioxide clouds. At altitudes of between 60 kilometers and 120 kilometers (37 miles and 75 miles), the Martian atmosphere was an average of 20 degrees colder than Viking measurements, Schofield reports. Seasonal variations and Pathfinder's entry at 3 a.m. local solar time, compared with Viking's entry at 4 p.m. local solar time, may account for these variations. On the surface, however, daytime temperatures were typically 10 to 12 degrees warmer than Viking surface temperatures.

Mars Pathfinder measured regular pressure fluctuations twice a day, which suggested that a moderate amount of dust is being uniformly mixed in a warm lower atmosphere, as was the case with Viking data. The daily average pressure reached a minimum on the 20th day of the mission (Sol 20), indicating the winter south polar cap had reached its maximum size.

Schofield reports that surface temperatures follow a regular daily cycle, with a maximum of 15 degrees Fahrenheit during the day and a minimum of minus 105 degrees Fahrenheit at night. The science team also observed rapid daytime temperature fluctuations of up to 30 degrees Fahrenheit in as little as 25 to 30 seconds. These observations suggest that cold air was warmed by the surface and convected upward in small eddies.

Pathfinder encountered winds that were light and variable compared to the Viking landers, Schofield reports. The winds blew steadily from the south during the Martian nights, but during the day they rotated in a clockwise direction from south to west to north to east. Whirlwinds or dust devils were detected repeatedly from mid-morning through the late afternoons.

Other scientific findings of the Mars Pathfinder mission, presented in this week's issue of *Science*, are:

- Chemical analyses returned by Mars Pathfinder indicate some rocks appear to be high in silica, suggesting differentiated parent materials. These rocks are distinct from the meteorites found on Earth that are thought to be of Martian origin.
- The identification of rounded pebbles and cobbles on the ground, and sockets and pebbles in some rocks, suggests conglomerates that formed in running water, during a warmer past in which liquid water was stable.
- The measurement of the moment of inertia of Mars by tracking Pathfinder radio data indicates the radius of the central metallic core is greater than 1300 km but less than roughly 2000 km.
- Airborne dust is magnetic with a mean size of about 1 micron. Interpretations suggest the magnetic mineral is maghemite, which may have been freeze-dried on the particles as a stain or cement, and that the iron may have been leached out of crustal materials by an active hydrologic cycle.
- Remote-sensing data at a scale of generally greater than 1 kilometer and an Earth analog correctly predicted a rocky plain safe for landing and roving, with a variety of rocks deposited by catastrophic floods that are relatively dust free.
- Imaging revealed early morning water ice clouds in the lower atmosphere, which sublimate away as the atmosphere warms.
- Abrupt temperature fluctuations with time and height were recorded in the morning, which was consistent with warming of the atmosphere by the surface and convected upwards in small eddies into the atmosphere.
- Dust devils were frequently measured by temperature, wind and pressure sensors, and at least one likely contained dust, suggesting that these gusts are a mechanism for mixing dust into the atmosphere.
- The soil chemistry of Ares Vallis appears to be similar to that of the Viking 1 and 2 landing sites, suggesting that the soil may be a globally deposited unit.
- Some rocks at the landing site appear grooved and fluted, suggesting abrasion by saltating sand-sized particles. Dune-shaped deposits were also found in a trough behind the Rock Garden, indicating the presence of sand.
- The weather was similar to the weather encountered by Viking 1; there were rapid pressure and temperature variations, downslope winds at night and

light winds in general. Temperatures at the surface were about 10 degrees Kelvin warmer than those measured by Viking 1.

- The atmosphere has been a pale pink color due to fine dust mixed in the lower atmosphere, as was seen by Viking. Particle size and shape estimates and the amount of water vapor in the atmosphere are also similar to that measured by Viking.

Additional information, images and rover movies from the Mars Pathfinder mission are available on JPL's Mars news media web site at <http://www.jpl.nasa.gov/marsnews> or on the Mars Pathfinder project's home page at <http://marsweb.jpl.nasa.gov>. Images from Mars Pathfinder and other planetary missions are available at NASA's Planetary Photojournal web site at <http://photojournal.jpl.nasa.gov>.

The Mars Pathfinder mission is managed by the Jet Propulsion Laboratory for NASA's Office of Space Science, Washington, DC. The mission is the second in the Discovery program of fast track, low-cost spacecraft with highly focused science goals. JPL is managed by the California Institute of Technology, Pasadena, CA.

#####

11/18/97 DEA
#97112

As of August 3, 1997, 30 days after landing on July 4, 1997, the Mars Pathfinder mission has met and exceeded all of its mission objectives. The Project has demonstrated a reliable and low cost system for placing science payloads on the surface of Mars, demonstrated NASA's commitment to low cost planetary exploration and validated "faster, better, cheaper" as a development paradigm, demonstrated the mobility and usefulness of a microrover on the surface of Mars and obtained significant science data to help understand the structure of the Martian atmosphere, determine elemental composition of rocks and soil, understand surface geology and mineralogy of rocks and provided meteorology data at the surface.

The Mars Pathfinder Project performance overall has been excellent. The 38 month development was accomplished under the cost cap of \$171M and \$25M for the rover. Greater than 25 technologies for future missions were successfully demonstrated. The JPL team worked closely and effectively with more than 80 companies, universities and the Ames, Lewis and Langley Research Centers to assure the successful operation of the spacecraft and ground systems. The Pathfinder mission engaged the public, worldwide, in a space science mission to unprecedented levels as evidenced by the broad coverage in the national and international media, including the covers of Time and Newsweek, and the greater than 450 million hits on the Internet. *(Now 700 million)*

There were a number of significant firsts for this mission including: direct entry from space, use of solid rockets for descent control, use of airbags for semi-hard terminal landing on rough terrain, use of a commercial-class, high performance computer, RAD-6000, operation of a semi-autonomous, high mobility roving vehicle on the surface of a planet, the near real-time production of mosaics (cylindrical and point-perspective projections) to support science and rover operations including the use of stereo high definition TV and the near-real time dissemination of images to the public via the Internet and to the media in digital form at full resolution.

MIPL Firsts:

- Near real-time production of mosaics (cylindrical and point-perspective projections) to support rover operations. Sequences are automatically mosaiked and made available to science teams and rover team upon receipt--these were, and still are produced within minutes of receipt of last image in mosaic.
- Rapid production of color mosaics in support of press conferences, HQ and media. e.g., 100+ image mosaics within 30 minutes of receipt
- Use of stereo HDTV to support science analysis
- Near-real time image dissemination to the public via the Internet
- Press released images disseminated to the media in digital form at full resolution immediately following the press conferences.

Home PC users interactively "fly over" Martian terrain using Internet technology (VRML)



SUNTUM M @ A1
03/05/98 12:57:00 PM

To
Carol -
f 301-951-0340

Record Type: Record

To: See the distribution list at the bottom of this message

cc:

Subject: 1998-3-5 remarks of President at space station event

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

March 5, 1998

REMARKS BY THE PRESIDENT
AND COLONEL EILEEN COLLINS
AT ANNOUNCEMENT OF
FIRST WOMAN SPACE MISSION COMMANDER

The Roosevelt Room

11:34 A.M. EST

COL. COLLINS: Mr. President, Mrs. Clinton, and Administrator Goldin, I just can't tell you how much of an honor it is for me to be here today. And I'm just so excited about this opportunity that I have to command a space shuttle flight. And I want to tell you that since I was a child I've dreamed about space. I've admired pilots, astronauts, and I've admired explorers of all kinds. And it was only a dream of mine that I would someday be one of them and have these kinds of opportunities.

Throughout my life I've studied the universe that we live in and I've just been fascinated by astronomy and all kinds of science. And again, it was only a dream of mine that someday I'd have the opportunity to be part of such an important astronomy mission as this one, the Advanced X-ray Astrophysics Facility. And throughout my life, and in particular, in my career in the U.S. military and with NASA, I've been given important jobs and responsibilities, and I now accept this responsibility with all the determination and the motivation and the diligence that I've had in

all the other challenges I've faced.

I also think it's important that I point out that I didn't get here alone. There are so many women throughout this century that have gone before me and have taken to the skies. From the first barnstormers through the women military Air Force service pilots from World War II, the Mercury women from back in the early 1960s that went through all the tough medical testing to become the first astronauts, to the first women who entered the Air Force and Navy military pilot training in the mid 1970s, and most important, the first women astronauts -- and I'd like to point out Sally Ride, who is with us here today -- all these women have been my role models and my inspiration and I couldn't be here today without them. And I'd like to say a special thank you to them. (Applause.)

And additionally, while I've got the podium, I'd like to in particular thank my family and my friends, especially my parents, who have been my best teachers and have been my mentors throughout my life. I'd like to recognize my husband, who is here with me today. Without him, without the unfailing support that he has provided to me, I couldn't be here today. (Applause.)

And now it's time for us to focus on this mission. On STS-93, our crew will deploy the Advanced X-ray Astrophysics Facility, or AXAF. As an amateur astronomer, I'm personally excited about the information this telescope will bring back to us. We'll learn more about the characteristics of individual stars, binary stars, galaxies, clusters of galaxies, and quasars.

Since high-energy X-rays can penetrate through gas and dust, and detect objects that are 100 times fainter than the current

X-ray satellite that we have in orbit right now, AXAF will teach us about the beginning, the evolution, the current structure, and possibly even the fate of the universe that we live in. And our crew is very excited about this mission.

But there's still much work left to be done between now and our December flight. There's training, testing, traveling, there will be flying and more simulators and constant practice. Today we're just getting started. Our crew will focus on this mission 100 percent, and we will make it one of NASA's greatest success.

In conclusion, it's my hope that all children, boys and girls, will see this mission and be inspired to reach for their dreams, too, because dreams do come true.

Thank you. (Applause.) And now it is my honor to introduce to you the President of the United States.

Mr. President. (Applause.)

THE PRESIDENT: I'm getting my facts straight.

(Laughter.) First of all, let me say that Hillary and I are delighted to have all of you here. The story Hillary told about her fascination with space is not apocryphal, it is real. I heard it a long time before I ever thought she would be telling it before a microphone. And so this is a thrilling day for us.

I want to thank Dan Goldin and all the people at NASA for doing an absolutely superb job. Thank you, Colonel Collins, for your remarks and your example. To the members of Congress who are here -- Congressman Houghton, and Representatives Jackson Lee, Eddie Bernice Johnson, and Zoe Lofgren -- thank you for your support. I want to thank my Science Advisor, Jack Gibbons, as well as Sally Ride and Jeanne Fallin (phonetic), a pioneer aviator, who are here.

Let me also say that Colonel Collins's husband is also a pilot, and when she introduced him to me, she said, he's not only a pilot, he's a scratch golfer -- he's better than you are. (Laughter.) And after a brief conversation, we actually concluded it was more likely that I would go into space than that I would ever be as good as he is. (Laughter.)

Forty years ago, Life magazine introduced America's first astronauts to the world, noting that the seven Mercury astronauts were picked from -- quote -- "the same general mold." They were all military pilots. They were all in their 30s. They all had crew cuts. (Laughter.) They were all men. And they really were all true American heroes. But heroes come in every size and shape and gender. Today we celebrate the falling away of another barrier in America's quest to conquer the frontiers of space and also to advance the cause of equality.

I'm proud to be here to congratulate Colonel Eileen Collins on becoming the first woman to command a space shuttle mission. She may not fit the exact mold of 40 years ago, but she clearly embodies the essential qualities of all our astronauts, then and now -- the bold, restless, pioneering spirit that has made our nation great. And, as we've already heard, the story of her life is a story of challenges set and challenges met. That is also the story of our space program.

When it comes to exploring space and the unknown, the word "impossible" is not in our vocabulary. We have always recognized the limitless possibilities of seemingly impossible challenges.

A generation ago, President Kennedy said within a decade we would send an American to the Moon and bring him safely back to Earth. By 1969, Neil Armstrong and Buzz Aldrin had left their footprints on the Moon. We said, in our time, that we would visit the planets of the solar system. And last Fourth of July all Americans, with the help of a robot called Sojourner, got a chance to rove the surface of Mars and meet red rocks named Scooby Doo and Barnacle Bill.

Thirty-six years after John Glenn made his history-making space flight in a capsule the size of a compact car, he's not only going back into space, but we are poised to build an international space station the size of a football field. America has indeed become, as President Kennedy hoped, the world's leading space-faring nation, a distinction we must keep in the 21st century.

Colonel Collins will lead us in this effort, commanding a mission to launch a telescope that will allow us to peer into the deepest reaches of outer space. Our balanced budget for 1999 will support, in fact, 28 new space missions -- missions that will help us decipher more of the mysteries of black holes, of ancient stars, and of our Earth itself. Indeed, later today NASA will be making some exciting new announcements on the results of the Lunar Prospector mission, currently orbiting the moon.

The knowledge we gain from our space missions could help us treat diseases here on Earth, from osteoporosis to ovarian cancer. It can make our farms more productive. It could help us meet the challenge of global climate change. And perhaps help us to uncover the very origins of life itself.

All Americans, especially our young people, have important roles to play in making these plans a reality. They have to begin by taking their studies, especially their studies in math and science, seriously.

Last week, we learned that our leading space-faring nation is not faring very well when it comes to achievement of high school seniors in math and science. This is unacceptable. As we prepare for an information age that will require every student to master not just the basics of reading and math, but algebra, geometry, physics, and computer science, I call on every parent, every school, every teacher to set higher expectations for our children. And I call upon all of our students -- and I know that Hillary and Eileen will today -- to take these challenging courses, so that we can all be prepared for the known and still unknown challenges of the future. And I call on all young girls across America and their parents to take inspiration from Colonel Collins' achievement.

Let me remind you of something she was too modest to say. She has a distinguished degree from Syracuse University. She came up through the ROTC program. She began her high school education in community college. I want every child in this country to know that we have opened the doors of college to all Americans, the community college is virtually free for all children now, that everybody can make this start and nobody needs to put blinders on their aspirations for the future. She is proof. (Applause.)

I want to say, especially to the little girls who will hear Eileen Collins and those who will see her and to their parents, let's remember that at a time when very few girls were taking the hardest math and science courses, Colonel Collins was taking them and

mastering them. She did in part because of the unfailing support of her parents who set high expectations and told her she could do anything she set her mind to. She never gave up, and one by one her dreams came true.

I think our country owes a great debt of gratitude to her parents, and I hope that more will follow her direction -- (applause.) And perhaps with her well-justified new fame, notoriety, the greatest mark Colonel Collins will make will not just be written in the stars, but here on Earth -- in the mind of every young girl with a knack for numbers, a gift for science, and a fearless spirit. Let us work to make sure that for every girl and every boy, dreams and ambitions can be realized and even the sky is no longer the limit.

Thank you very much. (Applause.)

END

11:47 A.M. EST

Message Sent To:

Date: 03/04/98 Time: 18:20

bPresident, First Lady to Announce First Woman Shuttle Commander

To: National and Assignment desks

Contact: White House Press Office, 202-456-7150

News Advisory:

First Lady Hillary Rodham Clinton, joined by President Clinton, will announce the first woman NASA Shuttle Commander during a White House ceremony on Thursday, March 5.

What: The President and the First Lady will announce the first woman NASA Shuttle Commander

Where: Roosevelt Room, the White House

When: Thursday, March 5, at 11 a.m. EST

Press: Pool Coverage (audio will be available over the PA and mult in the press briefing room)

Several individuals, including the following, will be available for interviews immediately after the event to speak about the significance of this announcement.

-- Janice Weiman, executive director, American Association of University Women;

-- Nancy Duff Campbell, president, National Women's Law Center

Note: Press interested in interviewing individuals after the event should contact the White House Press Office for clearance at 202-456-7150.

-0-

/U.S. Newswire 202-347-2770/

APNP-03-04-98 1832EST

Withdrawal/Redaction Marker

Clinton Library

DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
002. note	Note re: phone numbers (1 page)	n.d.	P6/b(6)

COLLECTION:

Clinton Presidential Records
Domestic Policy Council
Eric Morse (Events)
OA/Box Number: 21192

FOLDER TITLE:

NASA Announcement 3/5

2011-0619-S

rc303

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

- P1** National Security Classified Information [(a)(1) of the PRA]
- P2** Relating to the appointment to Federal office [(a)(2) of the PRA]
- P3** Release would violate a Federal statute [(a)(3) of the PRA]
- P4** Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
- P5** Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
- P6** Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).

RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

- b(1)** National security classified information [(b)(1) of the FOIA]
- b(2)** Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
- b(3)** Release would violate a Federal statute [(b)(3) of the FOIA]
- b(4)** Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
- b(6)** Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
- b(7)** Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- b(8)** Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- b(9)** Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

Clinton testified that during the conversation with Browning he denied Flowers's story of a 12-year affair and emphasized to Browning that their relationship was not sexual, either. She told him she had loved him for years, he said, and that she needed money as much as Flowers did when she sold her story to a tabloid. Browning suggested her novel would be about a woman's affair with a southern governor who becomes president and that she intended to tell people it was a barely fictionalized account of her relationship with Clinton.

After he returned to Washington, Clinton was still worried about the encounter, so he wrote out two pages of notes longhand about his memory of the confrontation and then asked Scott to read it and write her recollections,

which generally concurred with his. He testified that he then put the notes in a file folder, put that in a briefcase and stored it under his desk.

Browning has a different memory of the event. A Dallas real estate attorney and counsel for a group she formed called Lawyers for Affordable Housing, Browning, 49, said in a telephone interview yesterday that she had heard about Clinton's deposition version of their meeting and was outraged by it. "He is lying and has committed perjury," she said.

Browning said she did not seek out the president at the reunion—he sought her out while she was dancing with a classmate. She said he placed his hand on hers during the dance and, after she pulled away, he followed her.

Browning said that she was angry with the president for his persistence, and that a Secret Service agent was alarmed when she swore at Clinton, but that he waved the agent off and they sat in a corner of the ballroom together and spoke quietly for about 45 minutes. At no time, she said, was Scott listening to the conversation, although a woman with blond hair did interrupt their conversation twice to entreat Clinton to end the conversation, which he did not do.

Browning said she and the president discussed a variety of things, including his relationship with Flowers, which he denied to Browning during the conversation. Browning said she expressed her distress at getting a call from her brother in 1992, warning her that the Clinton campaign would "destroy" her if she spoke to the Star tabloid, which had contacted her, about her relationship with the president. Browning did not grant the Star an interview.

As it turns out, Browning has written an autobiographical novel called "Purposes of the Heart," which her husband published as a vanity book last year and is offered for sale on a Web site.

The novel is about a woman named Kelly who grows up in Mississippi, and much of the it has nothing to do with Clinton. But the book describes a romantic relationship between Kelly and a man named Cameron Coulter who is first governor of Mississippi, then president. The scene at the reunion, in Browning's version, is the prologue.

2/2

The Washington Post

FRIDAY, MARCH 6, 1998



First lady Hillary Rodham Clinton, actor Tom Hanks and Air Force Lt. Col. Eileen Collins talk to students at Dunbar High.

Stars Come to Students

First Lady, Astronaut, Actor Cheer On Pre-Engineering Program

By PATRICE GAINES
Washington Post Staff Writer

At times it was like a down-to-earth, old-fashioned pep rally, but the cheerleaders were big names. First lady Hillary Rodham Clinton, Air Force Lt. Col. Eileen Collins, the first woman to pilot a U.S. space shuttle, and actor Tom Hanks, who starred in "Apollo 13," stopped by Dunbar High School yesterday to cheer the students in that school's pre-engineering program.

"When I was in high school, I never thought I would be an astronaut. We didn't have women astronauts then," Collins, dressed in a blue NASA jumpsuit, told the audience of about 200 students. "Let me tell you, dreams can come true."

On the heels of recent studies that show American students lag internationally in math and science scores, it seemed a fitting pep rally. The three famous achievers encouraged students at the school to dream, have the courage to take risks and to study hard.

A spokesman for the D.C. public schools said, the White House chose to visit Dunbar, at First and N streets in the Shaw section of Northwest Washington, "to tell students how far math and science can take you."

In the audience yesterday, some of the girls were especially excited about seeing Collins, a real-life idol to those who want to enter careers not traditionally thought of as jobs for women.

See STUDENTS, B5, Col. 1

STUDENTS, From B1

Lynna Hang, 16, who wants to be an FBI agent because she enjoys "showing guys I can do whatever they can do," said, "I'm still in shock about her visit."

Finally, Clinton, Collins and Hanks walked out onto the stage, greeted with a steady, rising, thunderous applause.

Clinton told the students the trio had come "to celebrate science." Earlier in the day she had announced that Collins would be the first female shuttle commander on a mission in December. "Eileen will take one big step forward for women and one giant step for humanity," Clinton said.

Hanks kept the students laughing,

telling them, "It is intimidating to stand before pre-engineer students," recalling that the first time he was on stage—in high school—he threw up.

But Hanks said that in high school, he also "got to test my own resolve. Now I'm a big honking movie star," he said, as the students broke into laughter. "I hope each of you become big honking engineers," he said later.

Hanks was in Washington for a White House premiere last night of "From the Earth to the Moon," an HBO miniseries for which he was executive producer.

But Collins was clearly the person the students had come to hear.

"To all you very talented young people, we are here because we care about you. We are here because you are our future," said Collins. She

talked about growing up in a family that wanted her to go to college but didn't have the money to send her.

"To complicate matters, I wanted to fly," she said, recalling how her parents used to take her to the airport to watch the planes. "By age 19, I saved up \$1,000. I took that money to a local airport... and said, 'Teach me how to fly.'"

She went to a community college, then got a two-year scholarship to Syracuse University, where she entered the Air Force ROTC "because the Air Force said they would teach me to fly."

Collins urged the students to take risks with their learning now and not to worry about failing. "The real courage is in trying," she said.

The Washington Post

FRIDAY, MARCH 6, 1998