

Originally Processed With FOIA(s):
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FOIA Number:
2005-0336-F

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US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

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13-14 May 1991 - Moscow
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SESCTA 5215
4/29/91

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

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Copy of Agreements

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- 2. Background on Science Developments
- 3. Organizational Diagrams
- 4. GKNT Priority Programs
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Background Information on USSR

Biographic Data on Selected Soviet Officials

- Joint Statement on ODP
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SESC TA 5215
4/29/91

SECOND JOINT COMMISSION MEETING
MAY 13-14, 1991
MOSCOW, USSR

Monday, May 13

Morning Session

I. Opening

10:00 - 10:15

Welcome Address of the Soviet Co-Chairman
Nikolay P. Laverov and Introduction of the
Soviet delegation

10:15- 11:00

Welcome Address of the US Co-Chairman, Dr.
D. Allan Bromley, and Introduction of the
US delegation

II. Status and Development of Cooperation in the Field of Basic
Scientific Research

10:30 - 11:00

Report of Soviet Co-Chairman Laverov on Basic
Direction of Scientific-Technical Policy
in the USSR

11:00 - 11:30

Report of the US Co-Chairman Bromley on Basic
Direction of the Scientific-Technical Policy
in the US.

11:30 - 11:40

Coffee Break

11:40 - 12:00

Discussion

12:00 - 12:15

Signature of the Joint Statement on ODP

12:15 - 14:00

Lunch

Afternoon Session

14:00 - 17:30

Meetings of Working Groups to Prepare
Joint Reports

18:30

Reception at Spaso House

Tuesday, May 14

0800-0900 Breakfast Delegation with
A.M. 0930-1315 JCM resumes

P.M. 1600

JCM concludes *4/85 nature of Pius Conference*

Evening 1800 GKNT-Hosted *Dinner* reception

10:30 P.M.

Depart Moscow for Novosibirsk via Aeroflot 181 *UNUKOVO*

-- Dr. Bromley, Ratchford, O'Neil, Bernthal,
Sher, Boright, Campbell, ~~Smith~~ (tentative),
Herzfeld, Thomas, Sinnott, and Mrs. Bernthal.

Wednesday, May 15

Meetings in Novosibirsk

Meetings in Moscow

-- Ministry of Geology (Sayre, Frederick, Hearn)
-- Meetings and Site Visits requested for White,
Schriesheim, Wince-Smith, Schambra, Stepanian

Thursday, May 16

Meetings in Moscow

6:00 P.M.

Depart Novosibirsk for Moscow via Aeroflot 176.
Arrive Moscow 8:00 P.M. (Dr. Bromley, Ratchford,
O'Neil, ~~Bernthal~~, Boright, Campbell, ~~Smith~~,
Herzfeld, Thomas, Sinnott, and Mrs. Bernthal).

*181
176
arrive
Domo.
~ 2000*

8:00 P.M.

Depart Novosibirsk for Irkutsk via Aeroflot
3273. Arrive Irkutsk 10:15 P.M. (Sher) *Bernthal
Heather*

Friday, May 17

7:45 A.M.

Depart Moscow for Frankfurt via PA 1073 (White,
Sayre, Frederick, and Wince-Smith).

9:30 A.M.

Depart Moscow for Baikonur (Dr. Bromley,
Ratchford, O'Neil, Bernthal, Boright, Campbell,
Herzfeld, Thomas, Sinnott, and one embassy
officer)

*0800
UNUKOVO 3
See Green*

Depart Moscow for Irkutsk (Hearn)

Saturday, May 18

12:00 P.M.

Depart Moscow for New York via PA 31
(Schriesheim, Schambra, Stepanian)

Evening

Return to Moscow from Baikonur

mid-day

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

AGENDA (TENTATIVE)

- I. Introduction (Co-Chairmen)
- II. Reports of the Heads of Delegation on Basic Directions of Scientific-Technical Policy in Both Countries
 - Discussion of Conversion
 - Signature of Joint Statement on ODP
- III. Reports on Ongoing Cooperation; Status of Development of New Memoranda of Understanding
 - MOU in Basic Scientific Research (NSF and USSR Academy of Sciences)
 - MOU in Geosciences (USSR Ministry of Geology and DOI/USGS)
 - Status of New Initiatives
 - Proposal to Amend Basic Sciences Agreement (OSTP)
 - Proposal to Amend NSF-Academy MOU (NSF)
 - NIST-Academy of Sciences MOU (Academy of Sciences)
 - USGS-CGK (formerly GUGK) MOU (USGS)
 - Discussions between NIH and Academy of Sciences (Academy of Sciences)
 - Cooperation in the Ocean Drilling Program
- IV. Discussion of Organization and Policy Issues (Co-Chairmen)
 - Administration and Logistics
 - Review of Joint Commission Procedures
 - Other Policy Issues
- V. Time and Place for the Third Session of the Joint Commission (Co-Chairmen)
- VI. Summary of Results and Concluding Remarks (Co-Chairmen)
 - Signature of Documents

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

Schedule of Meetings (Tentative)

Sunday, May 12

P.M. Appointments requested for Dr. Bromley with
Academician Yuriy Ryzhov, or RSFSR Prime Minister
Silayev; Dr. Nikolay Malyshev; Academician Yuriy S.
Osipov; or Dr. Vladimir Shorin

P.M. Dinner meeting: Dr. Bromley and Academy of Sciences
President Marchuk

Monday, May 13 -- Joint Commission Meeting

A.M. I. Introduction (Co-Chairmen) -- 20 minutes

A.M. II. Reports of the Heads of Delegation on Basic
Directions of Scientific-Technical Policy in Both
Countries (Co-Chairmen) -- 1 hour

-- Discussion of Conversion
-- Signature of Joint Statement on ODP

P.M. No Formal Session

-- Working Level Meetings to Prepare Joint Reports
-- Meetings for Dr. Bromley and Other Commission
Members to be Arranged

P.M. US-Hosted Reception at Spaso House ¹⁸³⁰ 1 1/2 hrs

Tuesday, May 14

- A.M. III. Reports on Ongoing Cooperation; Status of Development of New MOUs
- MOU in Basic Scientific Research (NSF and USSR Academy of Sciences) -- 30 minutes
 - MOU in Geoscience (Ministry of Geology and Department of Interior) -- 30 minutes
 - Status of New Initiatives:
 - Proposal to Amend the Basic Sciences Agreement (Dr. Bromley) - 15 minutes
 - Proposal to Amend the NSF-Academy of Sciences MOU (Dr. Bernthal) - 15 minutes
 - NIST-Academy of Sciences MOU (Academy of Sciences) - 15 minutes
 - USGS-GUGK MOU (USGS) - 15 minutes
 - Report on Discussions Between NIH and Academy of Sciences (Academy of Sciences) - 15 minutes
 - Report on Cooperation in the Ocean Drilling Program (NSF) - 15 minutes
- P.M. IV. Discussion of Organizational and Policy Issues (Co-Chairmen)
- Administration and Logistics - 15 minutes
 - Review of Procedures for Joint Commission - 15 minutes
 - Other Policy Issues - 30 minutes
- P.M. V. Time and Place for the Third Session of the Commission (Co-Chairmen) - 5 minutes
- P.M. VI. Summary of Results and Concluding Remarks (Co-Chairmen) - 20-40 minutes
- Signature of Documents - 10-15 minutes
- P.M. GKNT-Hosted Reception

SESCTA 5330, 4/19/91

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

AGENDA (TENTATIVE)

- I. Introduction (Co-Chairmen)
- II. Reports of the Heads of Delegation on Basic Directions of Scientific-Technical Policy in Both Countries
 - Discussion of Conversion
 - Signature of Joint Statement on ODP
- III. Reports on Ongoing Cooperation; Status of Development of New Memoranda of Understanding
 - MOU in Basic Scientific Research (NSF and USSR Academy of Sciences)
 - MOU in Geosciences (USSR Ministry of Geology and DOI/USGS)
 - Status of New Initiatives
 - Proposal to Amend Basic Sciences Agreement (OSTP)
 - Proposal to Amend NSF-Academy MOU (NSF)
 - NIST-Academy of Sciences MOU (Academy of Sciences)
 - USGS-CGK (formerly GUGK) MOU (USGS)
 - Discussions between NIH and Academy of Sciences (Academy of Sciences)
 - Cooperation in the Ocean Drilling Program
- IV. Discussion of Organization and Policy Issues (Co-Chairmen)
 - Administration and Logistics
 - Review of Joint Commission Procedures
 - Other Policy Issues
- V. Time and Place for the Third Session of the Joint Commission (Co-Chairmen)
- VI. Summary of Results and Concluding Remarks (Co-Chairmen)
 - Signature of Documents

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

Schedule of Meetings (Tentative)

Sunday, May 12

- P.M. Appointments requested for Dr. Bromley with Academician Yuriy Ryzhov, or RSFSR Prime Minister Silayev; Dr. Nikolay Malyshev; Academician Yuriy S. Osipov; or Dr. Vladimir Shorin
- P.M. Dinner meeting: Dr. Bromley and Academy of Sciences President Marchuk

Monday, May 13 -- Joint Commission Meeting

- A.M. I. Introduction (Co-Chairmen) -- 20 minutes
- A.M. II. Reports of the Heads of Delegation on Basic Directions of Scientific-Technical Policy in Both Countries (Co-Chairmen) -- 1 hour
- Discussion of Conversion
- Signature of Joint Statement on ODP
- P.M. No Formal Session
- Working Level Meetings to Prepare Joint Reports
- Meetings for Dr. Bromley and Other Commission Members to be Arranged
- P.M. US-Hosted Reception at Spaso House ¹⁸³⁰ 1 1/2 hrs

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

SCHEDULE OF SITE VISITS

Thursday, May 9

4:20 P.M. Campbell and O'Neil arrive Moscow via PA 1072
from Frankfurt

Friday, May 10

Working Meeting with GKNT, Campbell, O'Neil and
US Embassy officers

Saturday, May 11

9:35 A.M. PA 30 arrives from New York

Dr. Bromley, Ratchford, Herzfeld, Bernthal, Sher,
Sayre, Frederick, Hearn, Sinnott, Smith, Thomas,
Schriesheim, Wince-Smith, and Stepanian.

3:10 P.M. Dr. Schambra arrives Moscow via Austrian Airlines
601 from Vienna.

Sunday, May 12

4:20 P.M. Dr. White arrives Moscow via PA 1072 from
Frankfurt

P.M. Appointment for Dr. Bromley with Academician
Ryzhov or RSFSR official

P.M. Dinner meeting for Dr. Bromley and Academician
Marchuk

Monday, May 13

A.M. 1000 Opening session of JCM 1000

P.M. Working level meetings
Principals free for appointments

5:15 P.M. Dr. Boright arrives Moscow via PA 1072 from
Frankfurt

Evening US-Hosted reception at Spaso House 1830-2000

Tuesday, May 14

A.M. 0930-1215 JCM resumes

P.M. 1600 JCM concludes *with signature of Press Conference*

Evening 1800 GKNT-Hosted ^{Dinner} reception

10:30 P.M. Depart Moscow for Novosibirsk via Aeroflot 181 *UNUKOVO*

-- Dr. Bromley, Ratchford, O'Neil, Bernthal,
Sher, Boright, Campbell, Smith (tentative),
Herzfeld, Thomas, Sinnott, and Mrs. Bernthal.

Wednesday, May 15

Meetings in Novosibirsk

Meetings in Moscow

-- Ministry of Geology (Sayre, Frederick, Hearn)
-- Meetings and Site Visits requested for White,
Schriesheim, Wince-Smith, Schambra, Stepanian

Thursday, May 16

Meetings in Moscow

6:00 P.M. Depart Novosibirsk for Moscow via Aeroflot 176.
Arrive Moscow 8:00 P.M. (Dr. Bromley, Ratchford,
O'Neil, Bernthal, Boright, Campbell, Smith,
Herzfeld, Thomas, Sinnott, and Mrs. Bernthal).

*181
176
arrival
Domo.
~ 2000*

8:00 P.M. Depart Novosibirsk for Irkutsk via Aeroflot
3273. Arrive Irkutsk 10:15 P.M. (Sher)

Friday, May 17

7:45 A.M. Depart Moscow for Frankfurt via PA 1073 (White,
Sayre, Frederick, and Wince-Smith).

9:30 A.M. Depart Moscow for Baikonur (Dr. Bromley,
Ratchford, O'Neil, Bernthal, Boright, Campbell,
Herzfeld, Thomas, Sinnott, and one embassy
officer)

*0800
UNUKOVO 3*

Depart Moscow for Irkutsk (Hearn)

Saturday, May 18

12:00 P.M. Depart Moscow for New York via PA 31
(Schriesheim, Schambra, Stepanian)

Evening Return to Moscow from Baikonur

mid-day

Sunday, May 19

6:15 A.M. Depart Moscow for Frankfurt via Lufthansa 1061
(Dr. Bromley, Ratchford, Herzfeld, Bernthal,
Boright, Campbell). Connect with PA 61,
departing Frankfurt for Dulles at 1:15 P.M.

6:30 A.M. Arrive Moscow from Irkutsk via Aeroflot 129
(Sher, Hearn?)

Monday, May 20

Visit to Gor'kiy (Sinnott, Thomas)

Tuesday, May 21

7:45 A.M. Depart Moscow for Frankfurt via PA 1073 (Hearn)

3:05 P.M. Depart Moscow for Paris via Air France 2983
(Sinnott)

Tuesday - Saturday, May 21-25

Visits in Moscow area around "conversion" theme
(Thomas, O'Neil?, Smith?)

Saturday, May 25

12:00 P.M. Depart Moscow for New York via PA 31 (Thomas,
O'Neil?)

Friday, June 7

Depart Tallinn for Stockholm via Aeroflot 767

US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

U.S. DELEGATION

Chairman

1 Dr. D. Allan Bromley
Assistant to the President for
Science and Technology, and
Director, Office of Science
and Technology Policy

Commissioners

2 Dr. Frederick Bernthal
Deputy Director
National Science Foundation

Dr. John P. Boright
Deputy Assistant Secretary for
Science and Technology Affairs
Department of State

1 Dr. Charles M. Herzfeld
Director of Defense Research
and Engineering
Department of Defense

1 Dr. J. Thomas Ratchford
Associate Director for
Policy and International Affairs
Office of Science and Technology Policy

1 Mr. John Sayre
Assistant Secretary for Water
and Science
Department of Interior

Dr. Philip Schambra
Director
Fogarty International Center
National Institutes of Health
Department of Health and Human Services

Dr. Alan Schriesheim
Director
Argonne National Laboratory

Dr. Robert White
President
National Academy of Engineering

2 Ms. Deborah Wince-Smith
Assistant Secretary for Technology Policy
Technology Administration
Department of Commerce

Executive Secretary

Ms. Cathleen Campbell
Program Officer
Bureau of Oceans and International
Environmental and Scientific Affairs
Department of State

Advisors

Mr. Doyle Frederick
Associate Director
United States Geological Survey

Dr. Paul Hearn
Chief for Soviet Programs
Office of International Geology
United States Geological Survey

Col. John O'Neil
Senior Policy Analyst
Office of Science and Technology Policy

Dr. Gerson Sher
Program Manager, US-USSR
Cooperative Science Programs
Division of International Programs
National Science Foundation

Dr. George A. Sinnott
Director for International
and Academic Affairs
National Institute of Standards
and Technology

Mr. Sidney Smith
Office of Soviet Union Affairs
Department of State

Ms. Alexandra Stepanian
Program Officer for the USSR
Fogarty International Center
National Institutes of Health
Department of Health and Human Services

Dr. John Thomas
Special Assistant for Science and Technology
Office of the Secretary of Defense
Department of Defense

Mr. Robert Clarke
S&T Counselor
U.S. Embassy Moscow

SESCTA 5268

Apollo-1

USSR Delegation

Chairman

→ Laverov, Nikolay P. USSR Deputy Prime Minister,
Chairman, USSR State Committee
for Science and Technology (SCST)

Deputy Chairmen

Ill Gabrielyants, Grigoriy A. Minister of Geology, USSR

→ Yezhkov, Vladimir V. Deputy Chairman, USSR State Committee
for Science and Technology

Osipyan, Yuriy A. Vice-President, USSR Academy of
Sciences

Members of the Delegation

→ Tychkov, Yuriy I. Deputy USSR Minister of Atomic Power
and Industry

→ Shukshunov, Valentin Ye. Deputy Chairman, USSR State
Committee for National Education

Pokrovskiy, Vladimir A. Chief, Department of Scientific-
Technical Progress, USSR Cabinet
of Ministers

Malayan, Eduard R. Deputy Chief, Administration for
USA and Canada, USSR Ministry of
Foreign Affairs

→ Bykov, Andrey N. Chief, Division of Scientific-
Technical Cooperation with
Capitalist and Developing Countries,
SCST

A. → Gonchar, Andrey A. Member of the Presidium of the USSR
Academy of Sciences, Academician-
Secretary of the Division of
Mathematics, Presidium of the USSR
Academy of Sciences

AC Gramberg, Igor' S.

Director, All-Union Scientific-
Research Institute of Geology and
Mineral Resources of the World
Oceans, USSR Ministry of Geology

Mayorskiy, Boris G.

Chief, Administration for International
Scientific-Technical Cooperation,
USSR Ministry of Foreign Affairs

AC Plate, Nikolay A.

Director, Institute of Petrochemical
Synthesis, USSR Academy of Sciences

AC Spirin, Aleksandr S.

Director, Institute of Protein, USSR
Academy of Sciences

Executive Secretary

Anoshin, Valeriy, Ye.

Chief Specialist, Division of
Scientific-Technical Cooperation
with Capitalist and Developing
Countries, SCST

Experts

Krivtsov, Anatoliy I.

Member of the Collegium, USSR Ministry
of Geology

Koloskov, Aleksandr P.

Leading Specialist, Department of
Scientific-Technical Progress, USSR
Cabinet of Ministers

Kiyenko, Yuri P.

Deputy Chairman, USSR State Committee
for Geodesy

Gratsianskiy,
Yevgeniy V.

Deputy Chief, Department for Protection
of Nature, World Oceans, Space and
the Arctic, USSR SCST

Bogatykov, Oleg A.

Deputy Chief Scientific Secretary,
Presidium of the USSR Academy of
Sciences

Markianov, Sergey S.

Chief, Main Administration for External
Affairs, USSR Academy of Sciences

Administrative Support Group

Buzayev, Nikolay N. Deputy Chief, Department for
 Coordination of International
 Scientific-Technical
 Cooperation, SCST

Tyschenko, Vladimir I. Section Head, Department of Scientific-
 Technical Cooperation with Capitalist
 and Developing Countries, SCST

Shiyan, Yuriy K. Inspector, Main Administration for
 External Affairs, USSR Academy of
 Sciences

OPENING POINTS

- THANK YOU ACADEMICIAN LAVEROV.
- WONDERFUL TO BE IN MOSCOW IN MAY.
- PLEASANT FLIGHT - VERY COMFORTABLE ACCOMMODATIONS
THANK YOU FOR YOUR ASSISTANCE.
- AMERICAN SIDE IS VERY GLAD TO SEE OUR OLD COLLEAGUES ON THE
SOVIET DELEGATION. ESPECIALLY YURI OSIPYAN.

- CONGRATULATIONS TO ACADEMICIAN LAVEROV ON REAPPOINTMENT AS
DEPUTY PRIME MINISTER

YURI OSIPYAN AS REAPPOINTMENT AS PRESIDENTIAL ADVISOR.

- US DELEGATION WAS VERY SADDENED TO HEAR OF THE UNFORTUNATE
DEATH OF ALEXANDER KAMENSKY. I KNOW OF HIS LONG INVOLVEMENT
WITH BASIC SCIENCES AGREEMENT.
WE EXTEND OUR SYMPATHIES TO YOU.

- MANY ON US DELEGATION WERE WITH US LAST YEAR IN WASHINGTON

----INTRODUCE US DELEGATION-----

VERY PLEASED TO INTRODUCE NEW SCIENCE COUNSELLOR BOB CLARKE.

- ONCE AGAIN LET ME EXPRESS EXCITEMENT AT MEETING WITH YOU FOR
THE SECOND JOINT COMMISSION MEETING HERE IN MOSCOW.

Stressed bottoms up
WE HAVE PLANNED AND ANTICIPATED THIS MEETING SINCE OUR MEETING
LAST YEAR.

- I AM SURE OUR JCM WILL BE AS SUCCESSFUL AS OUR COOPERATION IN
BASIC SCIENTIFIC RESEARCH UNDER THIS AGREEMENT.

CLOSING

- VERY SUCCESSFUL MEETING.

- WE HAVE HEARD REPORTS ON FRUITFUL COOPERATION, AND
EXPANDED OUR COOPERATION WITH NEW INSTRUMENTS OF COOPERATION.

- ALSO HEARD REPORT ON OUR NEW AND VERY PROMISING COOPERATION IN
OCEAN DRILLING PROGRAM.

- WE MAY EVEN LOOK FORWARD TO ADDITIONAL MEMORANDA OF
COOPERATION.

- ON BEHALF OF MY AMERICAN COLLEAGUES, I WOULD LIKE TO EXPRESS
OUR SINCEREST THANKS AND APPRECIATION FOR A VERY FRUITFUL AND
ENJOYABLE MEETING.

- YOUR GENEROUS HOSPITALITY IS VERY MUCH APPRECIATED.

- WE LOOK FORWARD TO OUR NEXT JOINT COMMISSION MEETING IN
WASHINGTON.

REMARKS BY DR. FREDERICK M. BERNTHAL
DEPUTY DIRECTOR OF THE NATIONAL SCIENCE FOUNDATION

TO THE SECOND MEETING OF THE
U.S.-U.S.S.R. JOINT COMMISSION ON COOPERATION IN THE FIELD OF
BASIC SCIENTIFIC RESEARCH

MOSCOW, MAY 14, 1991

Academician Laviorov, Dr. Bromley, and friends,

It gives me special pleasure to present this report on the progress of implementation of cooperation under the Memorandum of Understanding between the National Science Foundation and the Academy of Sciences of the U.S.S.R.

My last visit in this country was three years ago, but in a quite different capacity and in a different atmosphere. At that time I was privileged to serve as head of a U.S. government delegation to negotiate a new intergovernmental agreement on cooperation in basic research. We spent a rather frustrating week trying to reach diplomatic agreement on scientific issues on which there is no agreement even among scientists - notably, how to define the term "basic research." There were times I had serious doubts that we were going to end up with any agreement at all. Fortunately, good sense and good will prevailed, and that is one reason why we are here today.

Today I want to give you a brief overview of activities and accomplishments during the past year, since the first Joint Commission Meeting, under the Memorandum on Understanding on Basic Scientific Research between the NSF and the Academy of Sciences of the U.S.S.R. But before doing so, I would like to say how pleased we are at NSF that it has been possible to resume U.S.-Soviet cooperation in another major international

scientific activity, the Ocean Drilling Program. We have already enjoyed this program's hospitality at Spaso House yesterday evening, and we look forward to hearing its report later on this afternoon.

The NSF-Soviet Academy MOU, along with its sister MOU between the U.S. Geological Survey and the Soviet Ministry of Geology, is the first intergovernmental U.S.-Soviet cooperative program to rely on the principle of investigator-initiated, competitively reviewed proposals. The program was, frankly, an experiment. Today, after nearly two years of cooperation, I think I can speak on behalf of both the NSF and the Academy of Sciences of the U.S.S.R. when I say that the experiment has been an unqualified success.

Since the program began the NSF, the Academy, and the USSR State Committee on National Education have jointly approved 43 activities, including 21 workshops and 22 long-term cooperative research projects, in every field of science covered by the intergovernmental Agreement. You have received a separate list of these projects. These activities have all met the most rigorous test of excellence by competing against other proposals in both countries. What is particularly striking about these proposals, from the NSF's standpoint, is that their success rate has been much higher than the norm for NSF proposals. This is a convincing indicator not only of their very high overall quality but also of the strong potential of U.S.-Soviet cooperation to contribute to the advancement of knowledge.

We believe that bilateral programs such as these play an important role in directing the attention of the research community to such opportunities, and in focusing its efforts on carefully designed plans that will

maximize the scientific benefits to both countries. And we believe that the program's unique, underlying reliance on direct scientist-to-scientist interaction is its primary strength and virtue in times when much seems to be in such a state of flux and uncertainty.

I would like to spend just a few minutes in highlighting a few specific projects of special note that we have funded during the past year. Developmental activities such as workshops have played an important role. For example, a workshop in February of this year, coordinated by Academician Sokolov and Assistant Secretary Robert Hoffman of the Smithsonian, focused on plans to develop a common electronic database to track the biodiversity of flora and fauna of the Arctic. Our first workshop in mathematics should be getting underway even as we speak in Leningrad, under the leadership of Academician Gonchar. A major workshop on geophysical, limnological, and ecological research at Lake Baykal - where some of us will be going in a few days - was held last October in Charleston, South Carolina. And an important meeting organized by the two academies on Arctic Social Science Research was held last month in Moscow.

Cooperative research projects have also spanned a wide range of fields. The beginnings of an International Network for Nonlinear Dynamics, a field of great interest where both countries have much talent to offer, have been established and many prominent scientists from both countries - including Academician Osipyan - are serving on its advisory committee. Joint field work in geology will be done in the Caucasus, Yakutia, Kamchatka, and Beringia. With the assistance of the academies, young investigators in cosmology will work together in a special summer program. Exciting projects have also been agreed to in biology, physics, and

engineering. Many more are under review.

Finally, in Science Policy we have worked hard in the area of Science Indicators, where we have held one major workshop and are about to hold a second one in Moscow in just two weeks. We believe that our analysts, U.S. and Soviet, are making real progress toward developing a sound base for quantitative comparisons of R&D funding, personnel, and education issues in both countries. In addition, under this Agreement the U.S. National Academy of Sciences and the Soviet Academy of Sciences are planning to convene a new joint Committee on Science and Technology Policy to facilitate discussion by distinguished representatives of government, academia, and industry.

I have taken this time to describe the breadth of our activities to make a point. The capabilities of the American and Soviet science and engineering communities are enormous. While we have just scratched the surface, we have made a very good beginning. The cooperative framework that we negotiated three years ago is a good model, and it has passed the test. Therefore the U.S. side has proposed to extend the model to essentially all areas of basic research by amending the intergovernmental Agreement to include two new fields - experimental physics and social sciences - and to delete the restrictions in our Memorandum pertaining to specific sub-topics. We will have a chance to discuss these proposals at length later on.

But I want to emphasize that the broadening of the cooperative activities under these agreements should extend not only to topics, but to institutions and individuals. While our Memorandum is with the Academy of Sciences, it must be open to all basic research institutions, including

universities, in both countries. Our colleagues from the Soviet Academy understand the importance we attach to this issue, and we have also had productive discussions with Dr. Shukshunov's State Committee in this regard. The participation of the National Institute of Standards and Technology and the National Institutes of Health in the Basic Sciences Agreement will also complement the NSF's capabilities on the U.S. side and extend the unique approach of the program to other disciplines. Finally, we at NSF place a high premium on participation of scientists from a wide range of regions, states, and republics in both countries, and of young scientists. We do not need to change the texts of our agreements to achieve these goals, but we do all need to approach these problems with flexibility, openness, and imagination.

In closing I would like to thank our Soviet hosts for their very gracious hospitality. I am sure they are as grateful as we that such high-level meetings happen only once a year.

Thank you.

MEMORANDUM OF UNDERSTANDING
ON
COOPERATION IN THE FIELD OF BASIC SCIENTIFIC RESEARCH

BETWEEN

THE NATIONAL SCIENCE FOUNDATION
OF THE UNITED STATES OF AMERICA

AND

THE ACADEMY OF SCIENCES
OF THE UNION OF SOVIET SOCIALIST REPUBLICS

The National Science Foundation of the United States of America and the Academy of Sciences of the Union of Soviet Socialist Republics, hereinafter referred to as "the Parties",

HAVE AGREED as follows:

ARTICLE I. GENERAL PROVISIONS

This Memorandum of Understanding is subject to the general principles defined by both Governments in the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Field of Basic Scientific Research signed January 8, 1989, hereinafter referred to as the "Basic Scientific Research Agreement," and to the internal regulations and procedures of each Party.

ARTICLE II. DEFINITION

Taking into account that fundamental and applied research involve a continuum of scientific activity, for the purposes of this Memorandum of Understanding, "basic scientific research" means theoretical or experimental research having as its objective the acquisition of fuller knowledge or understanding of the elemental principles of phenomena and observable facts; such research extends the knowledge base from which many societal benefits ultimately flow and, in the framework of this Memorandum of Understanding, such research is not designed for the transformation of new discoveries into applied technologies. The foregoing definition does not preclude subsequent application of knowledge and understanding gained from basic scientific research conducted under this Memorandum of Understanding, subject to the extent of rights under Annex II of the Basic Scientific Research Agreement.

8. The National Science Foundation will be responsible for coordinating all American participation under this Memorandum of Understanding, and the Academy of Sciences of the U.S.S.R. will be responsible for coordinating all Soviet participation. Both Parties will use their best efforts to involve the appropriate higher educational institutions, scientific research institutions, and other scientific organizations not under their jurisdiction.

9. Scientific results and information derived from a specific activity under this Memorandum of Understanding shall be made available to the world scientific community through customary channels in accordance with normal scientific procedures. This provision shall be implemented with due regard for intellectual property rights as specified in Annex II of the Basic Scientific Research Agreement and Article V of this Memorandum of Understanding.

10. Individual scientists, specialists, researchers, and scientific institutions of third countries or international organizations may be invited, upon consent of both Parties, to participate in activities being carried out under this Memorandum of Understanding. The cost of such participation shall normally be borne by the third parties unless both sides agree otherwise in writing.

ARTICLE IV. ORGANIZATION AND ADMINISTRATION

Specific conditions for the organization and administration of the implementation of cooperation under this Memorandum of Understanding, including responsibilities, procedures, and financial arrangements, are set forth in Annex I to this Memorandum of Understanding.

ARTICLE V. INTELLECTUAL PROPERTY RIGHTS

1. Inventions. If an invention is made under this Memorandum of Understanding as a result of cooperative activity within the meaning of Annex II, Section III, Paragraph D of the Basic Scientific Research Agreement, the following provisions shall apply:

a. Each Party has the right to obtain all rights and interests in the invention in its own country.

b. If a Party decides not to obtain such rights and interests in its own country, the other Party has the right to do so. However, such rights are subject to a nonexclusive, royalty-free license to the first Party to practice the invention in its own country, with the right to grant sublicenses in that country in accordance with that country's laws and practices.

c. The Party in whose country the invention was made has first option on obtaining rights in third countries.

d. In any country where one Party decides not to obtain such rights and interests, the other Party has the right to do so.

DONE at _____, this _____ day of _____ 1989, in the English
and Russian languages, both texts being equally authentic.

FOR THE NATIONAL SCIENCE FOUNDATION
OF THE UNITED STATES OF AMERICA:

FOR THE ACADEMY OF SCIENCES OF THE
UNION OF SOVIET SOCIALIST REPUBLICS:

SECTION III. TYPES OF ACTIVITY

1. Projects of mutually beneficial cooperative scientific research will be designed jointly by interested scientists and scientific research institutions of both countries in direct consultation with each other. Written proposals, based on understandings reached between cooperating scientists, will be submitted concurrently through appropriate institutional channels by the American scientist to the NSF, and by the Soviet scientist to the ASUSSR, for evaluation and determination. These proposals must include the title, the name of the principal investigator and lead organization in each country, a description of the scientific project, the nature of the cooperative activities to be undertaken including major equipment required, anticipated travel, a list of all participants with biographic and bibliographic data, and the proposed starting date and duration. Proposals for cooperative research projects must be submitted at least nine months in advance of the proposed starting date.
2. Joint workshops and seminars may be held in either country for a period of three to five days, normally with no more than five to ten participants from each country, and may include directly related scientific visits. Written proposals for workshops or seminars, based on understandings reached between the American and Soviet scientists or institutions organizing the activity (hereinafter referred to as "organizers"), must clearly identify the proposed organizers as well as other major participants. Such proposals, based on understandings reached between the organizers, will be submitted concurrently through appropriate institutional channels by the American organizer to the NSF, and by the Soviet organizer to the ASUSSR, for evaluation and determination approximately nine months before the proposed meeting date. Although workshops and seminars will ordinarily be binational, the U.S. and Soviet organizers may, on the basis of mutual agreement, invite highly qualified specialists from other countries to participate at their own expense.
3. Individual Short-Term Scientific Visits, usually not in excess of two weeks, may be made by scientists of one country to the other to consult and share scientific research experiences in order to plan cooperative scientific research activities with their colleagues of the other country. A written proposal outlining the purpose and other details of the intended visit will be prepared by the interested scientist and submitted by the American scientist to the NSF, or by the Soviet scientist to the ASUSSR, for evaluation and determination. These proposals must be submitted by the sending Party to the receiving Party at least four months in advance of the start of the visit.
4. The initial emphasis of cooperation under this Memorandum of Understanding will be upon workshops and seminars in the research areas preselected by the Parties. Subsequently, the emphasis will shift to cooperative research projects.

SECTION V. FINANCIAL CONDITIONS

1. For all activities under this Memorandum of Understanding, each side will support the basic costs of the activity within the territory of its country. This may include, for example, the salaries of its own scientists, technicians, and other support staff, and the cost of domestic travel, materials and supplies, equipment (including time charges for equipment use), and publication costs.
2. When a participant in an approved activity travels to the other country, the receiving side shall additionally provide, or meet the expense of, the following needs of each foreign visitor: lodging, subsistence, domestic transportation directly connected with the approved scientific objectives, and medical and hospital coverage in case of sickness or accident according to normal practices in each country. Lodging to be provided by the receiving side shall be appropriate to the professional level of the visiting scientist and, as far as possible, to the needs of accompanying dependents. The receiving side shall provide subsistence and other allowances at rates established in Annex III to this Memorandum of Understanding.
3. The Parties agree to review, at the request of either Party, the subsistence allowances provided to American and Soviet visiting scientists under this Memorandum of Understanding and to make any necessary adjustments to Annex III. These adjustments will be made by joint agreement through an exchange of correspondence between the Officials of the two Parties.
4. The sending side shall meet the expenses of the salary and international travel of its own participants to destinations agreed by the Parties in the receiving country.

4. GEOSCIENCES

- o Global change
- o Global biogeochemical cycles
- o Regional geology, stratigraphy, and tectonics
- o Paleontology and geochronology
- o Magmatic and metamorphic processes
- o Volcanoes and volcanic processes
- o Paleoclimate and climate change
- o Surficial processes and geomorphology
- o Continental lithospheric seismology, geophysics, and geochemistry
- o Seismic risk and earthquake prediction
- o Continental scientific drilling
- o Physical and chemical properties of the earth's interior
- o Upper mantle studies

5. CHEMISTRY

- o Molecular environmental catalysis
- o Bioelectrochemistry of membranes

6. LIFE SCIENCES

- o Plant biology (flowering research)
- o Cell biology
- o General and cellular physiology
- o Biodiversity
- o Ecology
- o Protein polymorphisms and other molecular-genetic markers in domesticated plants and animals
- o Developmental biology
- o Neurochemistry

7. BASIC RESEARCH IN ENGINEERING SCIENCES

- o Thermal engineering (heat and mass transfer)

8. SCIENCE POLICY

- o Exchange of information on R&D funding, R&D personnel, and R&D policy.

4. The subsistence allowances described in Paragraph 2' above, and the coverage of expenses related to sickness or accident described in Paragraph 3 above, will be available only for accompanying dependent family members who remain, together with the scientists, in the receiving country for a period of three months or more. Accompanying dependent family members of scientists participating in cooperative scientific research projects and who remain in the receiving country for periods of less than three months may visit at their own expense. Normally, however, dependent family members will not accompany scientists participating in project development activities such as workshops, seminars, or individual short-term scientific visits.

ANNEX II

AREAS FOR COOPERATION
IN THE FIELD OF BASIC SCIENTIFIC RESEARCH
BETWEEN

THE NATIONAL SCIENCE FOUNDATION
OF THE UNITED STATES OF AMERICA

AND

THE ACADEMY OF SCIENCES
OF THE UNION OF SOVIET SOCIALIST REPUBLICS

1. MATHEMATICS
2. THEORETICAL AND EXPERIMENTAL PHYSICS
3. SCIENTIFIC PROBLEMS OF THE ARCTIC AND THE NORTH
4. GEOSCIENCES
5. CHEMISTRY
6. LIFE SCIENCES
7. BASIC RESEARCH IN ENGINEERING SCIENCES
8. SCIENCE POLICY
9. SOCIAL SCIENCES

*The U.S. Geological Survey - Soviet Ministry of Geology
Memorandum of Understanding in Geoscience*

The USGS-MINGEO MOU provides for joint research projects in the US and the USSR which contribute to USGS Program objectives in energy and mineral resources, water resources, and global climate change. In 1990 approximately 1300 man days of exchange visits were made by USGS and Soviet scientists. Cooperative projects with the Ministry of Geology made up about 60 percent of this total, the remaining 40 percent of projects being conducted with the Soviet Academy of Sciences. Cooperative projects under this MOU represent between a third and a half of all the cooperative research being conducted with the USSR in 1990. Other major areas of activity were under the Environmental Protection agreement, under which USGS conducts joint research in earthquake prediction and seismology, and the Ocean Studies Agreement. A limited number of research projects are also being conducted under the US-USSR Space Agreement and the US-USSR Academies of Science Agreement.

Highlights of Project Activity

Joint Research in Energy Resources

The USSR is the world's largest oil producer, with total estimated resources approaching 250 billion barrels. It is believed that over 60% of the USSR's hard currency earnings are derived from the sale of oil and natural gas. USGS and MINGEO geologists are presently working on four joint research projects. These include 1) A joint study of the Permian Basin in Texas and the Pripyat-Donetsk Basin the USSR. Following data collection at each site, each side will conduct a resource assessment of the other side's basin. This exercise will provide USGS with a better understanding of Soviet resource assessment methodologies. 2) Compilation of a world petroleum base map. A world base map for potential petroleum deposits currently does not exist. The Soviets will contribute useful data and manpower; USGS will digitize and publish the map. 3) Development of a unified petroleum classification system. This project was felt to be necessary because of the great differences in the western and Soviet approaches. This effort should produce a unified classification which will enable petroleum geologists in both countries to communicate more effectively.

Comparative Study of Ore Deposits in the US and USSR

In the fall of 1990 a group of USGS geologists visited the world-famous nickel-copper-cobalt-platinum district in Norilsk, a city in north central USSR. Norilsk is second only to the Bushveldt Complex in South Africa as a source of platinum and other platinum-group elements (palladium, and iridium, and rhodium). The Norilsk deposits, which were mined for many years by prison labor, have been closed to the outside world until recently; the USGS team were the first Western geologists to study the district in any detail. It is hoped that the study of the Norilsk deposits will allow US geologists to identify areas within the United States where similar deposits might be found. As the next stage of this exchange, a group of Soviet geologists will visit deposits at Duluth, Minnesota and Stillwater, Montana.

A similar exchange is underway to study gold deposits in the US and the USSR. The USSR is the number-two gold producer in the world (behind South Africa), with estimated reserves of

200 million troy ounces. US reserves are estimated to be 136 troy ounces. During the summer of 1990 USGS hosted a delegation of Soviet gold specialists, and with the assistance of U.S. mining companies, visited several major gold deposits in South Dakota, Utah, Nevada, and California. In the fall of 1991 a USGS group will visit several gold deposits in central Asia, including the Muruntau district, which is believed to contain the largest gold deposits in the entire USSR.

Deep Continental Drilling

The Soviet Ministry of Geology conducts the largest program of deep scientific drilling in the world. The deep well on the Kola peninsula reached a depth of 12 km (7 miles) in July 1990, and is projected to continue to a depth of 14 kilometers. In summer 1990 USGS geologists visited drilling sites at Kola and at Krivoy Rog (in the Ukraine), and obtained core samples from these and two other super-deep wells. This work is providing USGS geologists with samples and logging records from depths previously inaccessible, and will make significant contributions to our understanding of deep-crustal processes.

Cooperative Studies in Water Resources

Scientific exchanges in the field of water resources were begun with the visit of several USGS hydrologists to the USSR in summer 1990. The group visited Ministry of Geology institutes in Moscow and were shown MINGEO's network of water wells in the Caucasus area of Soviet Georgia. This well network is using water-level changes as an indicator of strain to predict earthquakes; recent data from this network showed distinct patterns corresponding with the timing and epicenter of the disastrous earthquake in Spitak in December 1988.

In February 1991, Soviet hydrologists visited the USGS experimental facility on the San Andreas fault near Parkfield, California. Other ongoing areas of joint research include studies of agricultural pollution in groundwater, fluid flow and pollutant transport in limestone aquifers, and mathematical modelling of groundwater flow.

Global Change Research on Lake Baikal

Located just north of Mongolian border in southeastern Siberia, Lake Baikal is the largest (23,000 cubic km), deepest (1600 m) and oldest lake in the world. Located in a major continental rift area, the Baikal basin has accumulated some 5 km of sediment as the rift has widened over the past 25 million years. Because of its high latitude location (increased sensitivity to global temperature changes), and the fact that it has not been glaciated, Baikal contains an unparalleled record of climate change in its sediments. USGS is currently conducting a joint program of research with the Soviet Academy of Sciences, Ministry of Geology, and several U.S. universities to reconstruct a paleoclimate record for the last 1-2 million years.

Work being done in 1991 will include a joint cruise to collect high-resolution seismic profiles and 10 meter piston cores of lake sediment. In early 1992, in a joint project involving the University of South Carolina, USGS, and the Soviet Ministry of Geology will, the first test well will be drilled in an effort to recover longer (up to 100 meters) cores from a platform deployed

on the ice during the winter freeze. US and Soviet scientists will analyze diatoms, pollen, and the chemical and isotopic composition of Baikal's sediments and pore waters to construct a record of past water temperature, productivity, and vegetation around the lake. This information will contribute significantly to efforts to understand natural variations in the earth's climate as a background for changes brought about by man.

U.S. Geological Survey - USSR Ministry of Geology
Memorandum of Understanding in Geoscience

MOU Coordinators:

Prof. A.I. Krivtsov, Soviet Ministry of Geology
Dr. Paul P. Hearn, Jr., U.S. Geological Survey

Joint Projects between USGS, the Soviet Ministry of Geology
and the Soviet Academy of Sciences

Lead US and USSR Cooperators indicated in parentheses after project title:

USGS: OMR - Office of Mineral Resources
 OEVE - Office of Earthquakes, Volcanoes, and Engineering
 ORG - Office of Regional Geology
 OEMG - Office of Energy and Marine Geology

MINGEO - Ministry of Geology of the USSR
ASUSSR - Academy of Sciences of the USSR

* ongoing projects
0 projects planned but not yet underway

Topic 1: Regional Geology, Stratigraphy and Tectonics

- * 1.1 Ophiolitic terranes of the USSR Far East and Alaska (OMR/ASUSSR)

Topic 2: Paleontology and Geochronology

- * 2.1 Joint study of applications of Ar/Ar laser-probe and Ar/Ar thermochronology (ORG/ASUSSR/MINGEO)
- * 2.2 Geochronology and geochemistry of samples from the USSR Far East and Alaska (ORG/OMR/ASUSSR)
- * 2.3 Sm-Nd,Pb, and Zr geochronology of Precambrian terranes (ORG/ASUSSR)

Topic 7: Mineral Resources

- * 7.1 Development of geologic-genetic models of gold deposits in terrigenous and volcanic-plutonic rocks in the US and the USSR (OMR/MINGEO)
- * 7.2 Development of geologic-genetic models of platinum-nickel-copper sulfide deposits in the US and USSR (OMR/MINGEO)
- * 7.3 Comparative metallogenesis of the USSR Far East and Alaska (OMR/ASUSSR/MINGEO)

U.S. Geological Survey - USSR Ministry of Geology
Memorandum of Understanding in Geoscience

Topic 8: Energy Resources

(All projects joint between MINGEO and Branch of Petroleum Geology)

- * 8.1 Comparative analysis of methodology and the results of evaluation of oil and gas resources in petroleum basins of the USSR and the United States for the purpose of improving methods of hydrocarbon resource prediction and assessment.
- 0 8.2 Comparative geochemical characterization of Precambrian source rocks in the USSR and the United States.
- * 8.3 Geologic conditions of gas hydrate formation, distribution of hydrate deposits, and role of paleo-hydrates in the formation of gas fields.
- 0 8.4 Genesis and prediction of non-hydrocarbon gases in hydrocarbon accumulations.
- 0 8.5 Geologic conditions controlling types and quality of reservoir rocks and changes in reservoir properties during subsidence.
- 0 8.6 Evaluation of computerized models of reservoir and source rock compaction and of kinetics of oil and gas generation on data of selected basins in the USSR and the United States.
- * 8.7 Development of a unified international classification of petroleum resources and reserves.
- 0 8.8 Methods of assessment of the amounts of hydrocarbons and field size distribution at large depths based on computerized programs developed in the USSR and the United States.
- 0 8.9 Study of factors affecting field size growth in time at different levels of exploration maturity.
- 0 8.10 Improvement of methods of economic assessment of undiscovered oil and gas resources.
- * 8.11 Compilation of map of petroleum basins of the world.

U.S. Geological Survey - USSR Ministry of Geology
Memorandum of Understanding in Geoscience

Topic 9: Water Resources

(All projects joint between MINGEO and Water Resources Division)

- * 9.1 Joint study of herbicides in ground water from selected agricultural sites (MINGEO)
 - * 9.2 Water wells as strain meters in earthquake prediction (MINGEO)
 - 0 9.3 Hydrodynamics of sedimentary basins (MINGEO)
 - * 9.4 Regional characteristics of the secondary porosity of carbonate aquifers (MINGEO)
-

Topic 14: Continental Scientific Drilling

- * 14.1 Analysis of permeability of core samples and in-situ stress measurements in super-deep drill holes (OEVE/MINGEO)
- * 14.2 Petrologic, geochemical, and geochronological studies of samples from super-deep drill holes (ORM/MINGEO)
- * 14.3 Scientific drilling on Lake Baikal (in connection with USGS/ASUSSR paleoclimate project) (OEMG/OIG/MINGEO)

USGS - Soviet Academy of Sciences Projects Implemented
Under the NSF - ASUSSR MOU in Basic Scientific Research

* 1.0 Paleoclimatology and Paleolimnology of Lake Baikal

An integrated group of projects on Lake Baikal between USGS and the USSR Academy of Sciences:

- 1.1 Stratigraphy and sedimentology of Baikal sediments (OEMG)
- 1.2 Micropaleontological studies (ORG)
- 1.3 Organic geochemistry of Baikal sediments (OEMG)
- 1.4 Sulfur geochemistry of Baikal sediments (OEMG)
- 1.5 Inorganic geochemistry of Baikal sediments (WRD)
- 1.6 Stable isotope geochemistry (ORM)
- 1.7 Radiocarbon dating of Baikal sediments (OEMG)
- 1.8 Tephrochronology of Baikal sediments (ORG)

USGS CONTACT FOR INFORMATION:

Paul P. Hearn, Jr.
Chief for Soviet Programs
MS 917
Office of International Geology
U.S. Geological Survey
Reston, Virginia 22092
703-648-6287

● NSF, USGS & Soviets sign agreements

On Jan. 8, after almost two years of negotiation, Secretary of State Shultz and Soviet Foreign Minister Shevardnadze signed an Agreement on Cooperation in the Field of Basic Scientific Research, which sets up a general framework at the agency level for joint U.S./Soviet research programs in areas of mutual interest. On May 6, Erich Bloch, director of the National Science Foundation, and Dallas Peck, director of the U.S. Geological Survey signed two memorandums of understanding that represent the first operational implementation of this agreement. These MOU's are between NSF and the Academy of Sciences of the U.S.S.R.; and between USGS and the Ministry of Geology of the U.S.S.R. The Soviet Academy of Sciences and NSF are also specified as participating organizations under the USGS MOU and will have organization coordinators who serve as the main contacts for their organizations.

U.S./Soviet cooperation in the geosciences dates back to 1959, when the U.S. and U.S.S.R. academies of sciences signed the Interacademy Exchange Agreement. The scope of cooperation has broadened in subsequent years, with the signing of U.S./

U.S.S.R. bilateral agreements in the areas of environmental protection (1972), ocean studies (1973) and space research (1987). However, the NSF and USGS MOUs are much more comprehensive with respect to the geosciences, providing for cooperative research in many areas.

The Basic Sciences Agreement and the subordinate MOU's address cooperation in basic, as opposed to applied, research. Cooperation involving applied research was excluded to ensure that all cooperative activities would mutually benefit both sides. The USGS/Ministry of Geology MOU is directed toward cooperation in the geosciences. In addition to substantial geoscience components, the NSF/Academy of Sciences MOU also provides for cooperation in the areas of mathematics, theoretical physics, chemistry, life sciences, basic engineering research, scientific problems of the Arctic and the north, and science policy.

The participation of NSF and USGS on the U.S. side, and the Academy of Sciences and Ministry of Geology on the Soviet side will provide for access to a broad range of geoscience research facilities. As a general rule, the U.S. academic research community

will be served through the NSF/Soviet Academy program, and USGS-initiated research proposals will be coordinated through the USGS/Ministry of Geology MOU. Under certain circumstances, however, the channels of the USGS/Ministry of Geology program will be available to facilitate cooperative projects between researchers falling in these categories in each country.

The MOUs will call for interested scientists and scientific research institutions in both countries to submit written research proposals through appropriate channels. These proposals must include the title, the name of the principal investigator and lead organization in each country, a description of the scientific product, the nature of work, equipment required, anticipated travel, a list of participants and their biographic and bibliographic data, and the proposed starting date and duration. Proposals are to be submitted no less than four months in advance of the proposed starting date. Before implementation, all proposals will be subject to internal government review on both sides. Topics are currently being discussed for possible proposal under the USGS/Ministry of Geology MOU. These include comparative studies of U.S. and Soviet mineral deposits, various studies involving Soviet super-deep drill holes, a comparison of oil and gas resource-assessment techniques, and the use of data bases for mineral-resource assessment.

Both MOU's stress investigator-initiated, competitively reviewed joint research projects. Although this is the normal mode of initiating research projects in the United States, it is a major departure for U.S./Soviet cooperation, which until now has involved a "top-down" approach more typical of Soviet practices than our own. It is expected that "glasnost" and "perestroika" will provide favorable conditions for this "bottom-up" approach to become more established. Movement in this direction is already occurring, as shown by recent changes in the way geoscience activity is funded in the Soviet Union. Before, the Soviet Academy allocated research funds to institute directors, who decided independently how they would be distributed. However, in 1988 a new system was initiated, whereby heads of laboratories submit proposals and scientific councils within each institute vote to select the research areas to be funded.

On the U.S. side, neither the NSF nor the USGS program will have a substantial dedicated budget. Although there will be very modest funding available for developmental activities

Geoscience topics for U.S./Soviet research cooperation

- N,U global change
- N global biogeochemical cycles
- N,U regional geology, stratigraphy, tectonics
- N,U paleontology and geochronology
- N,U magmatic and metamorphic processes
- N,U volcanoes and volcanic processes
- U mineralogy
- U marine geology, geochemistry, geophysics
- U mineral resources
- U energy resources
- U water resources
- N,U paleoclimate and climate change
- N,U surficial processes and geomorphology
- N,U continental lithospheric seismology, geophysics, geochemistry
- N,U seismic risk and earthquake prediction
- N,U continental scientific drilling
- N physical and chemical processes of the Earth's interior
- N upper mantle studies
- N deep earth physical and chemical processes

N: topic included under NSF memorandum of understanding
U: topic included under USGS memorandum of understanding



Top left, the drill crew at the Soviet Ministry of Geology deep drill hole at Krivoy Rog, U.S.S.R., is shown here. (Photo by Art Barber, DOSECC)

Top right, geologists from the USGS, the Soviet Ministry of Geology, and the Soviet Academy of Sciences prepare an inflatable raft before a sample collecting trip along the Chulman River in eastern Siberia. This work was part of a project under the U.S./Soviet academies of science exchange agreement. (Photo by Sergei Ladigin, Soviet Academy of Sciences)

Center, geologists from USGS, the Soviet Ministry of Geology, and the Soviet Academy of Sciences examine core samples at a storage facility near the town of Neryungri, in eastern Siberia. Conducted under the U.S./Soviet academies of science exchange agreement, this work was part of a project to assess potassic metasomatism associated with regional tectonic activity. (Photo by Sergei Ladigin, Soviet Academy of Sciences)

Bottom, geologists from USGS and the Soviet Academy of Sciences do field work in the Khamra-Daban mountains near the southeastern edge of Lake Baikal in central Siberia. This work was part of a U.S./U.S.S.R. academies of science project to compare the tectonics and structure of the Baikal and Rio Grande rift zones. (Photo by Mike Dungan, Southern Methodist University)

such as workshops through NSF's Division of International Programs, any resulting cooperative research projects will be considered and funded directly by NSF's discipline-oriented programs through their normal competitive processes. USGS funding will support only USGS-initiated projects, and will be drawn from already-existing USGS programs. Under the NSF/Soviet Academy of Sciences MOU, cooperation will be limited to a number of broadly defined areas, and, under them, specific topics where the highest scientific payoffs can be expected. This funding strategy is intended to ensure that all activities funded under these programs meet the highest quality standards and reflect the best opportunities for scientific advancement through international cooperation.

The 28th International Geological Congress, to be held July 9-19 in Washington, D.C., will provide one of the first major opportunity for discussing possible cooperation under the NSF and USGS MOUs. Representatives of the Soviet Ministry of Geology and the Soviet Academy of Sciences have indicated their desire to meet with U.S. geoscientists to discuss potential joint projects under a broad range of topics.

More information about the NSF/Soviet Academy of Sciences program is available from the Division of International Programs, National Science Foundation, Washington, D.C. 20550, Attention: U.S./U.S.S.R. Research Program. Information about the USGS/Soviet Ministry of Geology Program is available from the Office of International Geology, Mail Stop 917, U.S. Geological Survey, Reston, Va. 22092.

Paul P. Hearn Jr.
U.S. Geological Survey, Reston, Va. 22092

Gerson Sher
National Science Foundation, Washington, D.C. 20550

MEMORANDUM OF UNDERSTANDING BETWEEN
THE U.S. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
AND
THE U.S.S.R. ACADEMY OF SCIENCES
ON COOPERATION IN THE
PHYSICAL, CHEMICAL, AND ENGINEERING SCIENCES

The U.S. National Institute of Standards and Technology (formerly the National Bureau of Standards) and the U.S.S.R. Academy of Sciences, referred to below as the Sides, desiring to facilitate the expansion of scientific cooperation for mutual benefit to the two Sides, have agreed as follows:

Article 1

This Memorandum of Understanding is subject to the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Field of Basic Scientific Research signed January 8, 1989, (hereinafter referred to as "the Agreement").

Scientific cooperation may be conducted in the subject areas of theoretical and experimental physics, chemistry, and basic scientific aspects of engineering in topics that are of interest to both Sides. Topics of cooperation will be selected by both Sides to cover areas of mutual interest in which both Sides have active work in progress in their institutions.

Article 2

Such cooperation may be implemented by exchange of scientists, exchange of scientific and technical information and documentation, joint meetings and seminars, joint projects, and by other means as may be mutually agreed. All activities are subject to the applicable laws and regulations of the Sides, and are subject to the availability of funds.

Article 3

Each Side shall designate a coordinator for determining the scientific directions of the cooperation and for ensuring the scientific usefulness of this cooperation.

Article 4

The Sides agree to exchange annually up to five scientists from each Side with a total length of stay of up to 14 man-months for carrying out joint research, and also to

exchange annually up to ten leading specialists from each Side representing the scientific disciplines listed in Article 1 of this Memorandum for consultations and lectures, for a total length of stay of up to six man-months.

Article 5

The selection of scientists referred to in Article 4 rests with the sending Side, and all visits will be undertaken subject to acceptance by the receiving Side. Nevertheless, each Side may suggest scientists it would like to receive from the other Side pursuant to Article 4, and each Side, insofar as possible, will take into account these desires of the other Side. Scientific exchanges will be carried out under the principle of mutual benefit and equality.

Article 6

Exchange of scientists and other activities under this Memorandum will be conducted on a receiving-side-pays basis, which means:

1. The receiving Side will assume the expenses for receiving scientists and will pay:
 - a. lodging in a hotel or the provision of an apartment;
 - b. travel expenses within the country in accordance with the program of visits;
 - c. emergency medical care, including emergency dental care;
 - d. expenses for automobile transportation at arrival and departure.
 - e. a reasonable per diem amount to be agreed upon by an exchange of letters between the Executive Agents.
2. Each Side will provide scientists of the other Side the opportunity to conduct scientific research work in laboratories and libraries without cost.
3. Expenses for procuring materials, apparatus, literature, photocopies, and microfilm, which are essential for the completion of the agreed plan of work by scientists of the other Side will be borne by the receiving Side.
4. The receiving Side will not pay expenses for the stay of members of the family of visiting scientists in the receiving country.

Expenses for transportation to and from the main destination, which as a rule will be Washington or Moscow, will be borne by the sending Side.

3

As both Sides acknowledge the importance and desirability of periodic working meetings of their officers to discuss implementation and cooperation, such meetings can be held either in the U.S.S.R. or U.S.A. as mutually agreed upon.

The Sides will facilitate participation by Soviet and American scientists in scientific events to be held by both organizations in the U.S.S.R and U.S.A.

Article 7

Nominations of scientists for exchange visits will be submitted to the receiving Side no later than four months before the proposed date for starting the visit. For each scientist nominated, the sending Side will provide the following information: the full name of the scientist, date and place of birth, education and academic degrees, place of work, scientific specialty, a list of the main scientific works and publications, the proposed program of scientific work with a suggested list of the scientific establishments or laboratories to be visited and the scientists to be met, knowledge of foreign languages, topics of lectures that could be delivered by the scientist, proposed date of arrival, and the length of stay.

Article 8

The receiving Side will respond to this nomination no later than three months after its receipt. If the nomination is acceptable, the receiving Side will inform the sending Side of a possible date of arrival of the scientist in the country and will give its agreement to the program or will propose alternatives to the program.

After receiving the consent of the receiving Side to accept a given scientist, the sending Side shall inform the receiving Side by telegram or telex, two weeks or more in advance, of the exact date of the arrival of the scientist in the country.

Article 9

The receiving Side will facilitate the timely receipt of visas by the scientists of the other Side travelling in accordance with this Memorandum.

Article 10

The U.S. National Institute of Standards and Technology authorizes its Office of the Director for International and Academic Affairs, and the U.S.S.R. Academy of Sciences authorizes its Department of Scientific Cooperation to serve as the Executive Agents and to conduct administrative affairs in connection with cooperation under this Memorandum.

4

Article 11

Protection of intellectual property and rights thereto will be implemented in accordance with Annex II of the Agreement.

Article 12

This Memorandum shall enter into force upon signature by both Sides and shall remain in force for five years. It may be amended or extended by mutual agreement. It may be terminated by either Side upon six months written notice.

Done in duplicate, in the English and Russian languages, both texts being equally authentic.

FOR THE U.S. NATIONAL INSTITUTE
OF STANDARDS AND TECHNOLOGY:

Diana Zimley
Signature

Moscow USSR
Place

May 13, 1991
Date

FOR THE U.S.S.R.
ACADEMY OF SCIENCES:

[Signature]
Signature

Moscow
Place

13 / 1991
Date

April 25, 1991

The NIST-USSR Academy of Sciences MOU

A Memorandum on Cooperation between the U.S. National Bureau of Standards (now the National Institute of Standards and Technology) was signed on December 13, 1978 by Dr. E. Ambler, Director of NBS, and Mr. Ye. P. Velikhov, Vice President, USSR Academy of Sciences. This memorandum was within the framework of the US-USSR Agreement on Cooperation in the Fields of Science and Technology, dated July 8, 1977 and covered the fields of thermal physics and thermodynamics, materials science, spectroscopy, chemistry and chemical kinetics, and cryogenic science.

The US-USSR Agreement on Cooperation was not renewed upon its termination in 1982; however, it was determined by a committee representing the Department of State and other agencies of the Executive Branch that activities under the NBS/Academy Memorandum should continue. The NBS/Academy Memorandum was renewed with a termination date of December 12, 1988.

Since the expiration of the NBS/Academy Memorandum in 1988 the parties have agreed to continue operation under the old memorandum pending the signing of a new one. This has been delayed by discussions within the USG concerning the scope of the memorandum and the appropriateness of placing it under the Basic Sciences Agreement. These questions have now been resolved with the proposal to expand the scope of the Basic Sciences Agreement.

The activity under the memorandum has consisted of a number of short visits (2 weeks to a month) by scientists from both sides on a wide range of subjects.

The primary current issues are:

The ability of the Soviet side to deliver housing etc. under the terms of the memorandum given the present unstable conditions in the USSR. The current memorandum obligates the receiving side to pay living expenses of the visiting scientists. A sending side pays basis might be preferable in the future (assuming a convertible ruble).

We have received complaints of lack of access to the benefits provided by the memorandum by scientists outside of the Russian Republic and even outside of Moscow. A more decentralized approach by which NIST sets up exchange visits with individual Academy laboratories would be preferable in the future.

4/23/91

MEMORANDUM OF UNDERSTANDING
ON
COOPERATION IN THE MAPPING SCIENCES

BETWEEN

THE U.S. GEOLOGICAL SURVEY OF THE
DEPARTMENT OF THE INTERIOR
OF THE
UNITED STATES OF AMERICA

AND

THE MAIN ADMINISTRATION OF GEODESY AND CARTOGRAPHY
OF THE
UNION OF SOVIET SOCIALIST REPUBLICS

The U.S. Geological Survey of the Department of the Interior of the United States of America and the Main Administration of Geodesy and Cartography of the Union of Soviet Socialist Republics, hereinafter referred to as "the Parties,"

HAVE AGREED as follows:

ARTICLE I. GENERAL PROVISIONS

1. This Memorandum of Understanding (MOU) is subject to the general principles of Agreement between the Government of the United States of America (USA) and the Government of the Union of Soviet Socialist Republics (USSR) on Cooperation in the Field of Basic Scientific Research signed January 8, 1989, hereinafter referred to as the "Basic Scientific Research Agreement."
2. The Parties shall coordinate, facilitate, and support the development and implementation of cooperation under this MOU on the basis of the principles of equality, overall reciprocity, and mutual benefit.

3. The Parties have jointly identified potential topics for cooperation, listed and described in Annex II of this MOU, which is an integral part of the MOU.
4. Cooperation under this MOU shall facilitate and support exchange of scientists and cooperative scientific activities and shall consist primarily of the following elements: cooperative scientific research projects and exchanges of publications and scientific data such as maps and charts, digital cartographic, geodetic, gravity, global change, and related information. Other forms of cooperation such as joint seminars or workshops may be added by agreement of the Parties.
5. Implementation of cooperation under this MOU shall be conducted in accordance with the national laws and regulations of each country.
6. Obligations assumed by the Parties are subject to the availability of funds. Each side will share in the effort and the cost of each specific activity. Although this provision does not require a precise matching of funds, personnel, or facilities in any given activity, the Parties agree that the implementation of cooperation under this MOU shall be balanced and of mutual benefit.

the Parties or their designees prior to the initiation of a project or cooperative activity. In any country where one Party decides not to obtain such rights and interests, the other Party has the right to do so.

2. Copyrights. The Parties shall take all steps in accordance with their national laws appropriate to secure a copyright to works created in the course of scientific and technological cooperation under this MOU.

- a. Except as otherwise provided, each Party is entitled to a nonexclusive, irrevocable, royalty-free license under a copyright to translate, reproduce, publish, and distribute published scientific, technical, and medical works in its own territory, with the right to grant sublicenses in that country in accordance with that country's laws and practices. Any such copyrighted work shall indicate the names of authors of the work. Either Party is entitled to such a license in third countries upon agreement with the other Party. The Party seeking such a license shall submit a written request to the other Party for its agreement. Unless the other Party gives notification to the contrary within 90 days after receiving such a request, its agreement shall be presumed.
- b. Rights to other copyrighted works shall be allocated in the same manner as provided in Article IV, Paragraph 1 herein. A Party receiving rights pursuant to this provision to copyrighted works which embody business-confidential information, shall protect such information in

DONE at _____, this _____ day of _____, 1990, in the
English and Russian languages, both texts being equally authentic.

FOR THE U.S. GEOLOGICAL SURVEY
OF THE DEPARTMENT OF THE
INTERIOR OF THE UNITED
STATES OF AMERICA:

FOR THE MAIN ADMINISTRATION
OF GEODESY AND CARTOGRAPHY OF
THE UNION OF SOVIET SOCIALIST
REPUBLICS:

4. In accordance with national laws and regulations, the parties will seek to facilitate, through collaboration with the appropriate authorities, the granting of visas and other forms of official permission for entry into and exit from their respective national territories of persons participating in the implementation of the MOU, access to appropriate instrumentation and equipment, and prompt and efficient access of persons of the other Party participating in the implementation of this MOU to its relevant geographic areas, institutions, data, materials, and individual scientists, specialists, and researchers.

SECTION II. IMPLEMENTATION

1. Projects of mutually beneficial cooperative scientific research and applications shall be selected by the Joint Working Group. The Joint Working Group shall, in turn, direct the development of annual work plans outlining the tasks to be accomplished within the agreed topics. Only after both USGS and GUGK concur will a work plan be implemented.
2. Exchanges of scientific data, publications, and information shall be encouraged and facilitated by the Parties through established channels.
3. The Parties agree to take all appropriate and necessary actions to achieve the fulfillment of the terms and conditions for each activity as specified in the proposal and as agreed in writing by the Parties. Subsequent changes to the scope of work, principal participants, or performance period of the

4. When representatives of either Party visit the other country for official discussions relating to the overall implementation of this Memorandum of Understanding, the receiving side shall provide all necessary expenses for activities within its territory, including transportation, lodging, and subsistence. Official delegations shall be proposed and agreed to in advance.

5. Terms and Definitions: To develop a list of contemporary cartographic/geographic terms and associated definitions for comparative purposes.
6. Geographic Names: To exchange information concerning national principles, policies, and procedures to standardize geographic names. To exchange source materials (maps, atlases, gazetteers) of names for general reference purposes. To discuss national programs for automation of the collection, archiving, and processing of geographic names. To establish communications between the U.S. Board on Geographic Names and the Soviet counterpart for resolution of questions and to facilitate the exchange of information to the mutual benefit of both nations.

4/29/91

Memorandum of Understanding
between
U.S. Geological Survey, Department of the Interior
and
Main Administration of Geodesy and Cartography, USSR

Purpose: To pursue scientific and technical cooperation in the surveying and mapping sciences and their applications to resource management. The topics for cooperation include Geographic Information Systems (GIS) applications in resource management decisionmaking; global change investigations; Antarctic programs; satellite product comparison; surveying and mapping terms and definitions; and geographic names.

Background: At the International Society for Photogrammetry and Remote Sensing (ISPRS) Congress conducted in Kyoto, Japan, in August 1988, a representative of the USSR Main Administration for Geodesy and Cartography (GUGK) discussed opportunities for high-level exchange visits with a representative of the Survey's Mapping Division. Followup discussions were conducted in January 1989 at the United Nations Cartography Conference. In July 1989, a six-person delegation, led by the Chief of the National Mapping Division (NMD) of USGS, visited the USSR at the invitation of the GUGK. The delegation visited GUGK facilities in Moscow, Leningrad, and Minsk. In March 1990, USGS hosted a visit by a six-person USSR delegation, led by the GUGK First Deputy Chief.

On the basis of these meetings, USGS/NMD has determined that there is sufficient interest and potential benefit in collaboration. Soviet mathematicians are well known for their capability in model development and considerable gains may be achieved by drawing on their expertise in global climate change prediction models and GIS development. Such models are of little worth unless realistic environmental data can be collected globally for use in global change algorithms and GIS. The collection of this data is difficult in many areas of the world which have restricted access. The Memorandum of Understanding (MOU) is intended to assist in the acquisition of land use, land cover, and related map (georeferenced) data from the Soviet Union which currently is unavailable and is critical to the application of such global mathematical modeling.

The USGS, as a matter of practice, conducts image analysis for land sensing satellites available to the civilian community, but is unaware of the technique and equipment capabilities currently employed by Soviet scientists within their satellite program. Advantages are anticipated by comparing Soviet value added products from Soyuzkarta with similar U.S. products and evaluating their methods. Similarly, cooperation in the Antarctic in such areas as tide gauging and ice thickness studies, as well as applications of GIS technology, will benefit scientists who seek a better understanding of the relationships among temperature change, ice melt, and sea level rise.

The U.S. cartographic community will also benefit by a better understanding of the definitions used by the Soviet cartographic community in the Soviet produced scientific literature. This understanding also will enhance the communication ability of the worldwide cartographic community.

Current Status: The MOU received Circular 175 approval in December 1990, and was sent to the GUGK through the Embassy for their review. The GUGK indicated their willingness to sign, but a careful review of the Russian translation indicated significant differences in the language. The texts currently are being negotiated. We expect to sign, or at least initial, the texts at the JCM.

Initialing would attest to the agreement in principle, but the MOU will not be fully implementable until all language differences are rectified.

SUMMARY OF DISCUSSIONS
BETWEEN
THE USSR ACADEMY OF SCIENCES
AND
THE NATIONAL INSTITUTES OF HEALTH

January 31-February 8, 1991
Bethesda, Maryland

In accordance with the agreement reached at the First Joint Commission Meeting under the US-USSR Agreement on Cooperation in the Field of Basic Scientific Research, a delegation from the Academy of Sciences of the USSR (ASUSSR) visited the National Institutes of Health (NIH) January 31-February 8, 1991 to explore cooperation in basic biomedical science. The Soviet delegation was led by Academician Rem V. Petrov, Vice President, ASUSSR. The schedule of meetings and list of participants are attached as Annex I and Annex II.

During their visit, the delegation met with the Acting Director, NIH; the Director of the Fogarty International Center; and directors and staff of the National Cancer Institute; the National Institute of Child Health and Human Development; the National Institute of Allergy and Infectious Diseases; the National Eye Institute; the National Institute of Neurological Disorders and Stroke; the National Institute of Diabetes and Digestive and Kidney Diseases; the National Library of Medicine; the National Center for Human Genome Research; the Warren G. Magnuson Clinical Center; and the Office of AIDS Research. Academicians Petrov and Igor M. Makarov also participated in the meeting of the Fogarty International Center's Advisory Board on February 5.

Among the topics discussed for possible cooperation were cancer, immunology and AIDS, molecular biology and genetics, neurobiology, clinical research and scientific information exchange. Specific research projects in these areas were also discussed.

Both sides agreed that the basic principle of cooperation should be the promotion of direct contacts between scientists, who would bear the primary responsibility for developing specific collaborative research activities.

Both sides discussed the mechanisms to support cooperation that currently exist at NIH and the ASUSSR. For NIH, these include research grants, the Visiting Program and Guest Researcher Program for foreign scientists, the Senior International Fellowship Program for U.S. scientists, the International AIDS Epidemiology Training and Research Grants Program, and a special Fogarty Center fund to promote cooperation between NIH scientists and Soviet scientists. In addition, the ASUSSR was

DESCRIPTION OF THE OCEAN DRILLING PROGRAM

The Ocean Drilling Program (ODP) is a multinational program of basic research in the marine geosciences. The objective of the ODP is to explore the structure and history of the earth as it is recorded in the basement rock and overlying sediments accumulated on the seafloor. The program uses the JOIDES Resolution (SEDCO/BP 471), a 471 foot offshore drilling vessel, which has been converted for scientific drilling. The ship operates with a crew of 50 and a technical complement and international scientific party of 50.

The primary scientific objectives of the program are to study:

- * the origin and evolution of the oceanic crust.
- * the geologic structure and evolution of continental margins.
- * the origin and history of marine sedimentary sequences
- * the causes of long-term changes in the earth's atmosphere, oceans, ice cover, marine organisms, and magnetic field.

The Ocean Drilling Program is managed by the National Science Foundation through a contract with the Joint Oceanographic Institutions, Inc. (JOI), a non-profit corporation composed of the 10 major U.S. oceanographic institutions. JOI has subcontracts with Texas A&M University for management of scientific support and drilling operations aboard the JOIDES RESOLUTION, and with Lamont-Doherty Geological Observatory of Columbia University for management of logging operations. Scientific advice and direction for the program are provided to JOI through the international scientific organization, Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). The selection of actual drilling sites is in response to drilling proposals submitted to JOIDES by individuals in the international scientific community.

The Ocean Drilling Program is supported by the National Science Foundation (which provides approximately 55% of program costs) and the following 6 international members which contribute \$2.75 million per year: the Federal Republic of Germany, France, Japan, the United Kingdom, a consortium of Canada-Australia, and the European Science Foundation (representing Belgium, Denmark, Finland, Greece, Iceland, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, and Turkey). The FY 1990 program budget is \$38 million.

Drilling operations began in January, 1985, following conversion of the JOIDES RESOLUTION for scientific operations. Initial drilling operations were focused in the North Atlantic, southeastern Pacific, Antarctic and Indian Oceans. In FY 1990 the Program will complete drilling operations in the western Pacific. Drilling during 1991 and 1992 will be concentrated in the eastern

and northeastern Pacific. Initial plans are to have the Resolution in the North Atlantic in 1993 and 1994.

BENEFITS OF SOVIET PARTICIPATION

The Soviets will bring to the ODP assets similar to those of other ODP members, including global interest in both continental and marine geologic processes, a research community that seeks to expand cooperation in scientific research and a financial contribution to ODP operation costs. Specific assets that the Soviet Union would provide are:

- * Regional geologic data bases and knowledge of both their own territorial waters and areas of active research interest such as the Arctic, Antarctic, and north and south Atlantic.
- * Access to their own territorial waters as well as those of their allied countries.
- * Financial support which would bring the overall ODP funding balance to a comfortable 51 percent share for the U.S.
- * Potential access to drilling technology since the Soviets are global leaders in deep drilling technology on the continents

PROCEDURES
OF THE US-USSR JOINT COMMISSION
ON COOPERATION IN BASIC SCIENTIFIC RESEARCH

In accordance with Article X of the Agreement Between the Government of the Union of Soviet Socialist Republics and the Government of the United States of America on Cooperation in the Field of Basic Scientific Research on the establishment of a Joint US-USSR Commission on Cooperation in Basic Scientific Research of January 8, 1989, the Joint Commission has established the following procedures:

Article 1

The US-USSR Joint Commission on Cooperation in the Field of Basic Scientific Research, hereafter referred to as the Joint Commission, was established to review, coordinate and facilitate cooperation in the field of basic scientific research.

The Joint Commission shall consider only basic scientific research as defined in Article II of the Agreement.

Article 2

The Joint Commission shall consider issues related to cooperation in the field of basic scientific research and act by mutual consent. Each country shall decide its own internal procedures for deciding when its consent should be given.

The functions of the Commission are:

- to consider and recommend ways to create favorable conditions of cooperation;
- to review the results of cooperation undertaken under the subordinate MOUs;
- to consider proposals for additions, deletions or modifications to the list of areas of cooperation in Annex III of the Agreement, which it shall forward to the parties for their approval;
- to consider modes of support for bilateral scientific cooperation.

The Joint Commission shall review changes to Annex III which previously have been approved by the Parties.

The Joint Commission shall only designate broad areas of cooperation. Specific areas and topics will be designated under Memoranda of Understanding. The Joint Commission can recommend measures and programs for consideration and subsequent approval by both Parties.

Article 3

The Executive Agent of each side shall designate a Co-Chairman of the Joint Commission.

The composition of the Joint Commission shall be designated by the respective Co-Chairmen and the Co-Chairmen shall exchange lists of Commission members.

The Joint Commission shall be composed of members from both countries and shall include, at a minimum, representatives of the Executive Agents, Memoranda of Understanding signatories, and the Executive Secretaries. Each side of the Joint Commission shall consist of no more than 15 members, which figure shall include the prescribed members, and is taken to mean all Principals and all their assistants, the Executive Secretary, and all others. Members of the Joint Commission shall serve without compensation.

Article 4

The Joint Commission shall ordinarily meet once a year, alternately in the United States and in the Union of Soviet Socialist Republics.

The Co-Chairman of the hosting side shall be designated at least 90 days before the meeting and act as Chairman of the Joint Commission for the duration of the meeting.

The Co-Chairmen of the Joint Commission shall propose a date, agenda, and delegation list for the meeting not less than 30 days prior to the meeting.

Article 5

The Joint Commission shall issue a Record of the Meeting at the conclusion of each annual meeting.

A Record of the Meeting shall be made in English and Russian not later than 30 days after the conclusion of the meeting, both texts being equally valid.

Article 6

To fulfill its tasks, the Joint Commission may establish temporary working groups.

The Joint Commission determines the role and membership of such temporary bodies.

Article 7

Expenses for the Joint Commission annual meetings shall be handled on a receiving side pays basis. Such expenses shall not exceed the 15 members of the Joint Commission and shall apply only to the time required for the Joint Commission meeting plus surrounding days, not to exceed 7, for local site visits and counterpart meetings. Participation by either country of more than 15 persons shall be at that Party's expense. This policy shall be reviewed on a biannual basis.

Article 8

Any additional needed details on these Procedures should be worked out by the Executive Secretaries and implemented by mutual consent.

FINANCIAL ARRANGEMENTS

Issue: Concern that Soviets cannot support receiving-side-pays arrangement under the Basic Sciences Agreement

Discussion: The JCM under the Basic Sciences Agreement, as well as exchanges under the two subordinate MOUs (NSF-Academy of Sciences; USGS-Ministry of Geology), currently are financed on a "receiving-side-pays" basis. Within the last year, city councils in Moscow and Leningrad decreed that hotels must require hard currency payment, which Soviet scientific organizations hosting visits do not have. The result is that U.S. delegations are sometimes asked to make their own arrangements or they are housed in poor, yet expensive, accommodations or ones that are very inconveniently located.

A related problem deals with expenses for incountry travel of U.S. scientists visiting the USSR. Beginning in 1991, the Soviet airlines (Aeroflot) required Soviet scientific organizations to pay for incountry travel of visiting scientists in hard currency. The result has been that Soviet organizations have experienced great difficulty in arranging visits; or they have arranged for U.S. scientists to travel within the USSR only by train, thereby increasing the time and stress associated with visits to the USSR. This problem may be abating. Recently, NIST and USGS received telexes from their USSR Academy counterparts notifying them that they are now able to purchase tickets for incountry Aeroflot flights in rubles.

U.S. agencies recognize that the problems have been created not by decisions taken by their Soviet scientific counterparts, but rather by the general economic decline in the U.S.S.R. and the scarcity of hard currency. Nevertheless, U.S. agencies are questioning the desirability of continuing the receiving-side-pays arrangement. We are not prepared at this JCM to formally propose a change; however, we would like to express our concern and invite our Soviet colleagues to comment on the possibility of changing our financial guidelines, if warranted, in the future.

Issue: Unavailability of seats on flights to the U.S.

Discussion: At the first JCM last year we expressed our concern that conditions for travel of Soviet scientists to and from the U.S. had become so poor that they have become a serious impediment to scientific, and other, cooperation. The situation has not improved since the last JCM. The problem remains that, while the number of travelers to the U.S. continues to rise, the number of available seats on Aeroflot has not. There is often great uncertainty down to the last minute that the delegation will arrive on the agreed date; and Soviet visitors often are stranded in the U.S. because they do not have confirmed seats on return flights to Moscow. In addition, Aeroflot is now charging hard currency for transatlantic flights, making it even more difficult for some scientists to secure seats.

Joint Statement
Concerning the Ocean Drilling Program and the
Joint Commission Under the Agreement Between the
Government of the United States of America and the
Government of the Union of Soviet Socialist Republics on
Cooperation in the Field of Basic Scientific Research

The Ocean Drilling Program is a multilateral program of scientific ocean drilling designed to improve fundamental understanding of the physical, chemical, and biological processes that determine the geological history, structure, and evolution of the oceanic lithosphere.

Recognizing the importance the Governments of the United States of America and the Union of Soviet Socialist Republics attach to the Agreement on Cooperation in the Field of Basic Scientific Research (the Agreement), signed at Paris on January 8, 1989, and the Ocean Drilling Program;

Noting the opportunities which the Joint Commission under the Agreement provide for considering basic scientific research under the Ocean Drilling Program;

It is, therefore, agreed that, as Co-Chairmen of the Second Meeting of the Joint Commission under the Agreement, the discussion of US and USSR cooperation under the Ocean Drilling Program be placed on the agenda of this and subsequent meetings of the Joint Commission.

Done at Moscow, this 13th day of May, 1991, in the English and Russian languages.

D. Allan Bromley
Co-Chairman, US-USSR
Joint Commission

N. P. Laverov
Co-Chairman, US-USSR
Joint Commission

AGREEMENT BETWEEN
THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND
THE GOVERNMENT OF THE UNION OF SOVIET SOCIALIST REPUBLICS
AMENDING THE AGREEMENT ON COOPERATION IN THE FIELD OF
BASIC SCIENTIFIC RESEARCH OF JANUARY 8, 1989

The Government of the United States of America and the
Government of the Union of Soviet Socialist Republics;

Recognizing the importance of cooperation under the
Agreement between the Government of the United States of
America and the Government of the Union of Soviet Socialist
Republics of January 8, 1989 (hereinafter referred to as the
Agreement); and

Desiring to expand the areas of cooperation in basic
scientific research;

Have agreed as follows:

1. Annex III of the Agreement shall be amended by:

Changing "8. Theoretical Physics" to read
"8. Theoretical and Experimental Physics."

Adding "9. Social Sciences."

2. This Agreement shall enter into force upon signature.

IN WITNESS WHEREOF, the undersigned, having been duly
authorized by their respective Governments, have signed this
Agreement.

DONE at Moscow, this 14th day of May, 1991, in the English
and Russian languages, both texts being equally authentic.

FOR THE GOVERNMENT OF THE
UNITED STATES OF AMERICA:

FOR THE GOVERNMENT OF THE UNION
OF SOVIET SOCIALIST REPUBLICS:

D. Allan Bromley
Director, Office of
Science and Technology
Policy

N. P. Laverov
Chairman, USSR State
Committee for Science
and Technology

Dear Academician Marchuk,

I have the honor to propose amendments to the Memorandum of Understanding on Cooperation in the Field of Basic Scientific Research between the National Science Foundation of the United States of America and the Academy of Sciences of the Union of Soviet Socialist Republics, signed at Washington and Moscow on May 6, 1989. The amendments expand the scope of possible cooperation under the MOU so that it is identical to the list of areas of cooperation in the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Field of Basic Scientific Research, signed at Paris, on January 8, 1989.

Therefore, I propose that Article III(3) and the research topics that are listed under the numbered headings in Annex II be deleted. Furthermore, I propose that in Annex II, we amend "2. Theoretical Physics" to read "2. Theoretical and Experimental Physics" and add "9. Social Sciences" in keeping with the amendments to the aforementioned Agreement between our Governments. Annex II, with the proposed amendments incorporated, is attached.

If the proposed amendments are acceptable, I have the honor to propose that this letter, together with your letter in response, will constitute an agreement between the National Science Foundation and the Academy of Sciences, which shall enter into force on the date of your letter.

Sincerely,

Walter E. Massey
Director
NSF

Academician Guriy I. Marchuk
President, USSR Academy of Sciences
Leninskiy Prospekt, 14
Moscow V-71, U.S.S.R.

April 19, 1991

MEMORANDUM OF UNDERSTANDING BETWEEN
THE U.S. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
AND
THE U.S.S.R. ACADEMY OF SCIENCES
ON COOPERATION IN THE
PHYSICAL, CHEMICAL, AND ENGINEERING SCIENCES

The U.S. National Institute of Standards and Technology (formerly the National Bureau of Standards) and the U.S.S.R. Academy of Sciences, referred to below as the Sides, desiring to facilitate the expansion of scientific cooperation for mutual benefit to the two Sides, have agreed as follows:

Article 1

This Memorandum of Understanding is subject to the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Field of Basic Scientific Research signed January 8, 1989, (hereinafter referred to as "the Agreement").

Scientific cooperation may be conducted in the subject areas of theoretical and experimental physics, chemistry, and basic scientific aspects of engineering in topics that are of interest to both Sides. Topics of cooperation will be selected by both Sides to cover areas of mutual interest in which both Sides have active work in progress in their institutions.

Article 2

Such cooperation may be implemented by exchange of scientists, exchange of scientific and technical information and documentation, joint meetings and seminars, joint projects, and by other means as may be mutually agreed. All activities are subject to the applicable laws and regulations of the Sides, and are subject to the availability of funds.

Article 3

Each Side shall designate a coordinator for determining the scientific directions of the cooperation and for ensuring the scientific usefulness of this cooperation.

Article 4

The Sides agree to exchange annually up to five scientists from each Side with a total length of stay of up to 14 man-months for carrying out joint research, and also to exchange annually up to ten leading specialists from each Side representing the scientific disciplines listed in Article 1 of this Memorandum for consultations and lectures, for a total length of stay of up to six man-months.

Article 5

The selection of scientists referred to in Article 4 rests with the sending Side, and all visits will be undertaken subject to acceptance by the receiving Side. Nevertheless, each Side may suggest scientists it would like to receive from the other Side pursuant to Article 4, and each Side, insofar as possible, will take into account these desires of the other Side. Scientific exchanges will be carried out under the principle of mutual benefit and equality.

Article 6

Exchange of scientists and other activities under this Memorandum will be conducted on a receiving-side-pays basis, which means:

1. The receiving Side will assume the expenses for receiving scientists and will pay:
 - a. lodging in a hotel or the provision of an apartment;
 - b. travel expenses within the country in accordance with the program of visits;
 - c. emergency medical care, including emergency dental care;
 - d. expenses for automobile transportation at arrival and departure.
2. Each Side will provide scientists of the other Side the opportunity to conduct scientific research work in laboratories and libraries without cost.
3. Expenses for procuring materials, apparatus, literature, photocopies, and microfilm, which are essential for the completion of the agreed plan of work by scientists of the other Side will be borne by the receiving Side.
4. The receiving Side will not pay expenses for the stay of members of the family of visiting scientists in the receiving country.

Expenses for transportation to and from the main destination, which as a rule will be Washington or Moscow, will be borne by the sending Side.

As both Sides acknowledge the importance and desirability of periodic working meetings of their officers to discuss implementation and cooperation, such meetings can be held either in the U.S.S.R. or U.S.A. as mutually agreed upon.

The Sides will facilitate participation by Soviet and American scientists in scientific events to be held by both organizations in the U.S.S.R and U.S.A.

Article 7

Nominations of scientists for exchange visits will be submitted to the receiving Side no later than four months before the proposed date for starting the visit. For each scientist nominated, the sending Side will provide the following information: the full name of the scientist, date and place of birth, education and academic degrees, place of work, scientific specialty, a list of the main scientific works and publications, the proposed program of scientific work with a suggested list of the scientific establishments or laboratories to be visited and the scientists to be met, knowledge of foreign languages, topics of lectures that could be delivered by the scientist, proposed date of arrival, and the length of stay.

Article 8

The receiving Side will respond to this nomination no later than three months after its receipt. If the nomination is acceptable, the receiving Side will inform the sending Side of a possible date of arrival of the scientist in the country and will give its agreement to the program or will propose alternatives to the program.

After receiving the consent of the receiving Side to accept a given scientist, the sending Side shall inform the receiving Side by telegram or telex, two weeks or more in advance, of the exact date of the arrival of the scientist in the country.

Article 9

The receiving Side will facilitate the timely receipt of visas by the scientists of the other Side travelling in accordance with this Memorandum.

Article 10

The U.S. National Institute of Standards and Technology authorizes its Office of the Director for International and Academic Affairs, and the U.S.S.R. Academy of Sciences authorizes its Department of Scientific Cooperation to serve as the Executive Agents and to conduct administrative affairs in connection with cooperation under this Memorandum.

Article 11

Protection of intellectual property and rights thereto will be implemented in accordance with Annex II of the Agreement.

Article 12

This Memorandum shall enter into force upon signature by both Sides and shall remain in force for five years. It may be amended or extended by mutual agreement. It may be terminated by either Side upon six months' written notice.

Done in duplicate, in the English and Russian languages, both texts being equally authentic.

FOR THE U.S. NATIONAL INSTITUTE
OF STANDARDS AND TECHNOLOGY:

FOR THE U.S.S.R.
ACADEMY OF SCIENCES:

Signature

Signature

Place

Place

Date

Date

DRAFT

U.S.-USSR Agreement on Cooperation
in the Field of Basic Scientific Research

Second Joint Commission Meeting
May 13-14, 1991
Moscow, U.S.S.R.

RECORD OF THE MEETING

The Second Joint Commission Meeting under the U.S.-USSR Agreement on Cooperation in the Field of Basic Scientific Research was held May 13-14, 1991, in Moscow, U.S.S.R. The U.S. delegation was led by Dr. D. Allan Bromley, Director of the Office of Science and Technology Policy (OSTP). The USSR delegation was led by Academician Nikolay P. Laverov, Chairman of the State Committee for Science and Technology (SCST). The meeting agenda and the participant lists are attached as Annex I and Annex II.

The sides exchanged views on science policy in the United States and the USSR, and discussed the impact of Soviet defense conversion on basic scientific research. The Co-Chairmen signed a Joint Statement agreeing to discuss US and USSR cooperation under the Ocean Drilling Program at this and subsequent meetings of this Joint Commission (attached at Annex III).

The sides reviewed ongoing cooperation and discussed the development of new cooperation under the Agreement. The sides noted with great satisfaction the continued growth of cooperation under the Memorandum of Understanding on Cooperation in the Field of Basic Scientific Research between the National Science Foundation (NSF) and the USSR Academy of Sciences, and the Memorandum of Understanding on Cooperation in Geosciences between the U.S. Geological Survey (USGS) and the Ministry of Geology of the USSR. The Joint Commission agreed to amend the Basic Sciences Agreement and the NSF-Academy of Sciences MOU.

The Joint Commission heard reports on cooperation planned under the Memorandum of Understanding between the U.S. National Institute of Standards and Technology (NIST) and the USSR Academy of Sciences on Cooperation in the Physical, Chemical, and Engineering Sciences; and the Memorandum of Understanding on Cooperation in Mapping Sciences between the USGS and the USSR Committee on Geodesy and Cartography (CGK). The U.S. National Institutes of Health (NIH) and the USSR Academy of Sciences reported on discussions regarding possible cooperation under the Basic Sciences Agreement. The Joint Commission also heard a report from the NSF and the USSR Academy of Sciences on cooperation in the Ocean Drilling Program (ODP).

The Joint Commission discussed organizational and policy issues. The U.S. noted problems encountered in arranging exchanges due to hard currency problems in the USSR and the difficulty Soviet visitors have in securing confirmed seats on Aeroflot. The sides reviewed the Joint Procedures adopted at the first Joint Commission Meeting and recommended that Article 3 be amended to provide for the addition of two members to the Joint Commission from each side for each new MOU brought under the Agreement. The sides discussed other policy issues, including:

A number of documents were signed at the Joint Commission Meeting. The Co-Chairmen signed the Agreement Between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Amending the Agreement on Cooperation in the Field of Basic Scientific Research of January 8, 1989 (attached at Annex IV). The NSF and USSR Academy of Sciences signed an exchange of letters agreeing to amend the NSF-Academy of Sciences MOU (attached at Annex V). Dr. Bromley and the USSR Academy of Sciences signed the NIST-Academy of Sciences MOU (Annex VI). USGS and CGK signed the Memorandum of Understanding on Cooperation in the Mapping Sciences (Annex VII).

The sides agreed to hold the next Joint Commission Meeting in Washington, D.C., in 1992.

D. Allan Bromley
Co-Chairman, US-USSR
Joint Commission

Nikolay P. Laverov
Co-Chairman, US-USSR
Joint Commission

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01a. Summary	Developments in the USSR Over the Past Year (1 pp.)	5/1/91	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: International Files - Country Files
WHORM Cat.:
File Location: Russia - Meetings [3 of 5] [1991]

Date Closed:	5/10/2010	OA/ID Number:	62068-003
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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

P-1 National Security Classified Information [(a)(1) of the PRA]
 P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
 P-3 Release would violate a Federal statute [(a)(3) of the PRA]
 P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
 P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
 P-6 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. Removed as a personal record misfile.

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

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01b. Summary	Developments in Soviet Science (1 pp.)		(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: International Files - Country Files
WHORM Cat.:
File Location: Russia - Meetings [3 of 5] [1991]

Date Closed:	5/10/2010	OA/ID Number:	62068-003
FOIA/SYS Case #:	2005-0336-F	Appeal Case #:	
Re-review Case #:		Appeal Disposition:	
P-2/P-5 Review Case #:		Disposition Date:	
AR Case #:		MR Case #:	
AR Disposition:		MR Disposition:	
AR Disposition Date:		MR Disposition Date:	

RESTRICTION CODES

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

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 P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
 P-3 Release would violate a Federal statute [(a)(3) of the PRA]
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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01c. Statement	USSR Security Council (5 pp.)		(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: International Files - Country Files
WHORM Cat.:
File Location: Russia - Meetings [3 of 5] [1991]

Date Closed: 5/10/2010	OA/ID Number: 62068-003
FOIA/SYS Case #: 2005-0336-F	Appeal Case #:
Re-review Case #:	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

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

PRM. Removed as a personal record misfile.

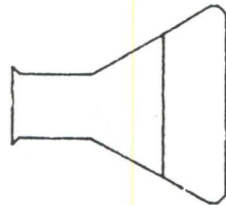
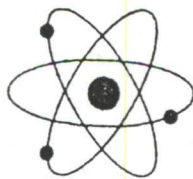
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USSR ACADEMY OF SCIENCES

Leading Officials

April 1991



President
Guriy Ivanovich MARCHUK

Chief Scientific
Secretary
Igor' Mikhaylovich MAKAROV

Foreign Relations
Main Administration
Chief: Sergey Sergeyeovich
MARKIANOV

Vice Presidents

Zhores Ivanovich ALFEROV
Konstantin Vasil'yevich FROLOV
Valentin Afanas'yevich KOPTYUG
Vladimir Nikolayevich KUDRYAVTSEV
Nikolay Pavlovich LAVEROV
Anatoliy Alekseyevich LOGUNOV
Gennadiy Andreyevich MESYATS
Oleg Matveyevich NEFEDOV
Yuriy Andreyevich OSIP'YAN
Rem Viktorovich PETROV
Yevgeniy Pavlovich VELIKHOV

Presidium Members Elected by Academicians

Aleksandr Alekseyevich BOYARCHUK
Aleksandr Yevgen'yevich CHUDAKOV
Nikolay Leont'yevich DOBRETSOV
Lyudvig Dmitriyevich FADDEYEV
Viktor Aleksandrovich KABANOV
Leonid Veniaminovich KELDYSH
Nikolay Pavlovich LYAKISHEV
Boris Yevgen'yevich PATON
Vladimir Petrovich PLATONOV
Aleksandr Sergeyeovich SPIRIN
Valeriy Ivanovich SUBBOTIN
Vladimir Fedorovich UTKIN

April 25, 1991

Departments of the USSR Academy of Sciences

Department	Academician Secretary
Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds	Dmitriy Georgiyevich Knorre
Economics	Stanislav Sergeyevich Shatalin
General Biology	Vladimir Yevgen'yevich Sokolov
General Physics and Astronomy	Aleksandr Mikhaylovich Prokhorov
General and Technical Chemistry	Oleg Matveyevich Nefedov
Geology, Geophysics, Geochemistry, and Mining Sciences	Vilen Andreyevich Zharikov
History	Ivan Dmitriyevich Kovalchenko
Information Sciences, Computer Technology, and Automation	Stanislav Vasil'yevich Yemel'yanov
Literature and Language	Yevgeniy Petrovich Chelyshev
Mathematics	Andrey Aleksandrovich Gonchar
Nuclear Physics	Aleksandr Nikolayevich Skriskiy
Oceanology, Atmospheric Pysics, and Geography	Leonid Maksimovich Brekhovskikh
Philosophy and Law	Vacant
Physical Chemistry and Technology of Inorganic Materials	Yuriy Aleksandrovich Buslayev
Physical Technical Problems of Power Engineering	Yuriy Nikolayevich Rudenko
Physiology	Pavel Vasil'yevich Simonov
Problems of Machine Building, Mechanics, and Control Processes	Konstantin Vasil'yevich Frolov
Problems of World Economics and International Relations	Vitaliy Vladimirovich Zhurkin

USSR State Priority S&T Programs*
1991

1. High Energy Physics
2. High-Temperature Superconductivity
3. Mars
4. Human Genome
5. New Information Technologies
6. Technologies, Machines and Processes of the Future
7. New Materials
8. Advanced Biological Engineering Methods
9. High-Speed Ecologically Clean Transport
10. Ecologically Clean Power Engineering
11. Resource-Saving and Ecologically Clean Metallurgical and Chemical Processes
12. Combating Widespread Diseases
13. Construction in the Year 2000
14. Controlled Fusion and Plasma Processes**
15. Safety of Population and National Economy Objects in View of the Risk of Natural and Technological Catastrophes**
16. Prospective Telecommunication Facilities and Integrated Communication System**
17. Global Changes of the Environment and the Climate**

*Published by the USSR State Committee
for Science and Technology

**Added since last year

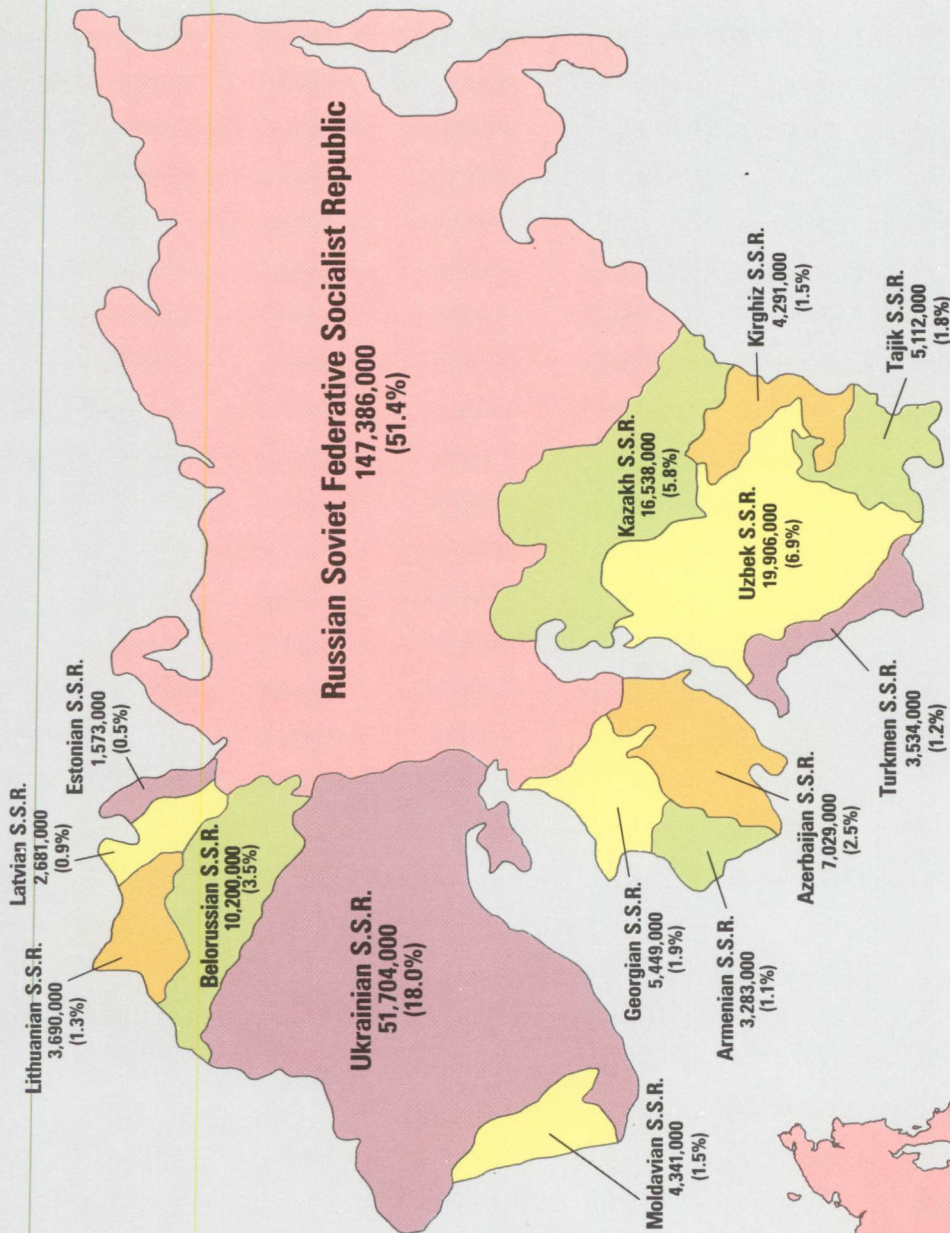


The United States Government has not recognized the Soviet Union's claim to the islands of Sakhalin and the Kuril Islands, and its representation is not necessarily authoritative.

Proportional Area Representation of Soviet Republic Populations

Guide to Population Statistics

2,681,000 Union republic population
(Based on 1989 census data)
(1.9%) Percentage of total Soviet
Union population



Soviet Union

The United States Government has not recognized the incorporation of Estonia, Latvia, and Lithuania into the Soviet Union. Other boundary representation is not necessarily authoritative.

AGREEMENT BETWEEN
THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND
THE GOVERNMENT OF THE UNION OF SOVIET SOCIALIST REPUBLICS
ON COOPERATION IN THE FIELD OF BASIC SCIENTIFIC RESEARCH

The Government of the United States of America and the
Government of the Union of Soviet Socialist Republics
(hereinafter referred to as "the Parties");

Considering basic scientific research as important for
development of national economies;

Realizing that international cooperation in the field of
basic scientific research will strengthen the bonds of
friendship and understanding between their peoples and will
advance the state of science to the benefit of both countries,
as well as of all mankind;

Recalling the fruitful cooperation which has occurred
between the two countries in the past;

Referring to the relevant principles, provisions and
objectives set forth in the Final Act of the Conference on
Security and Cooperation in Europe;

Convinced of further need for developing mutually
advantageous scientific cooperation;

Noting the General Agreement Between the Government of the
United States of America and the Government of the Union of
Soviet Socialist Republics on Contacts, Exchanges and
Cooperation in Scientific, Technical, Educational, Cultural and
Other Fields, signed on November 21, 1985;

Wishing to establish closer and more regular cooperation
between scientific organizations and individual scientists;

Have agreed as follows:

ARTICLE I

The Parties shall coordinate, facilitate, and support the development and implementation of cooperation in the field of basic scientific research on the basis of the principles of equality, overall reciprocity, and mutual benefit.

ARTICLE II

Taking into account that fundamental and applied research involve a continuum of scientific activity, for the purposes of this Agreement, "basic scientific research" means theoretical or experimental research having as its objective the acquisition of fuller knowledge or understanding of the elemental principles of phenomena and observable facts; such research extends the knowledge base from which many societal benefits ultimately flow, and, in the framework of this Agreement, such research is not designed for the transformation of new discoveries into applied technologies. The foregoing definition does not preclude subsequent application of knowledge or understanding gained from basic scientific research conducted under this Agreement, subject to the extent of rights under Annex II.

ARTICLE III

Cooperation under this Agreement may be implemented in the following forms:

- Joint scientific research projects including the exchange of scientists, specialists, and researchers participating in them as well as exchange of their results;

- Joint scientific conferences, symposia, and workshops;
- Exchange of scientific information and documentation;
and
- Other forms of cooperation which may be mutually
agreed.

ARTICLE IV

Scientific organizations of the two Parties will conclude subsidiary Memoranda of Understanding (hereinafter referred to as "MOUs") in order to carry out the operational implementation of this Agreement. Consideration of MOUs shall be initiated upon agreement of the Parties, acting through their Executive Agents identified in Annex I, which is an integral part of this Agreement.

ARTICLE V

Cooperative activities in the field of basic scientific research under this Agreement will be subject to official approval in each country, and implemented, in accordance with their respective international obligations, national laws, regulations and procedures. Such cooperation will be governed by the applicable MOUs. Within this framework:

- such cooperation may include the participation of scientific institutions, government and nongovernment agencies, higher educational institutions, and individual scientists, specialists and researchers (hereinafter referred to as "partners");
- partners may carry out such cooperation in approved
areas through direct contact

In order to facilitate implementation of this Agreement, partners of one country intending to visit partners of the other country for purposes of developing or implementing cooperation under this Agreement are to so indicate in applying for permission to enter.

ARTICLE VI

Cooperation under this Agreement shall be conducted within the limits of available funds. Financial arrangements for cooperation will be set forth in the MOUs.

ARTICLE VII

With respect to cooperation under this Agreement, each Party, in accordance with its international obligations, national laws and regulations, shall:

(a) encourage the participation of qualified scientists, specialists, and researchers in activities under this Agreement, whether or not they are affiliated with institutions participating in cooperation;

(b) facilitate prompt and efficient entry into and exit from its territory of persons participating in the implementation of this Agreement, as well as of appropriate instrumentation and equipment; and

(c) facilitate prompt and efficient access of persons of the other Party participating in the implementation of this Agreement to its relevant geographic areas, institutions, data, materials, and individual scientists, specialists, and researchers.

ARTICLE VIII

Protection of intellectual property and rights thereto shall be as set forth in Annex II, which constitutes an integral part of this Agreement.

ARTICLE IX

Scientific and technological information derived from cooperative activities under this Agreement, other than information not disclosed for commercial or industrial reasons, shall be made available, unless otherwise agreed in writing as provided for in Articles IV and V, to the world scientific community. This will be accomplished through customary channels and in accordance with Article VIII and Annex II of this Agreement, and the normal practices and regulations of the Parties.

ARTICLE X

The Parties agree to establish a US-USSR Joint Commission on Cooperation in the Field of Basic Scientific Research (hereinafter referred to as the "Joint Commission"). The composition of the Joint Commission and the principles for its operation are specified in Annex I.

ARTICLE XI

Initial areas of cooperation are listed in Annex III, which constitutes an integral part of this Agreement. Additions, deletions, or modifications to the list of areas may be

considered by the Joint Commission, as provided in Annex I, paragraph 7, and must be approved by the Parties, as provided in paragraph 4 of Article XIV.

ARTICLE XII

This Agreement and the MOUs shall be without prejudice to other agreements concluded between the Parties.

ARTICLE XIII

This Agreement shall be without prejudice to the cooperation of either Party with other States and international organizations.

ARTICLE XIV

1. This Agreement shall enter into force upon signature by both Parties and shall remain in force for five years. It may be extended for further five-year periods through an exchange of notes between the Parties.

2. Either Party may at any time give written notice to the other Party of its intention to terminate this Agreement, in which case this Agreement will terminate six months from the date notice is received by the other Party.

3. Expiration of this Agreement shall not affect the implementation of any cooperative activity undertaken pursuant to this Agreement and not fully executed before expiration occurs.

4. This Agreement may be amended by written agreement of the Parties.

IN WITNESS WHEREOF, the undersigned, being duly authorized by their respective Governments, have signed this Agreement.

DONE at PARIS, this 8th day of JANUARY, 1989, in duplicate in the English and Russian languages, both texts being equally authentic.

FOR THE GOVERNMENT OF THE
UNITED STATES OF AMERICA:

George P. Shultz

FOR THE GOVERNMENT OF THE UNION
OF SOVIET SOCIALIST REPUBLICS:

Nikolai A. Gerasimov

ANNEX I

US-USSR JOINT COMMISSION ON COOPERATION IN
THE FIELD OF BASIC SCIENTIFIC RESEARCH

In accordance with Article X of this Agreement:

1. The Parties shall establish a Joint Commission consisting of representatives of both Parties, including their Executive Agents, as set forth in paragraph 4 below, and the parties to the MOUs.
2. Members of the Joint Commission shall serve without compensation.
3. The Joint Commission shall adopt procedures for its operation, and shall ordinarily meet once a year, alternately in the United States and in the Soviet Union.
4. Each Party shall have an Executive Agent to assist the Joint Commission. The Executive Agent of the United States will be the White House Office of Science and Technology Policy (OSTP). The Executive Agent of the Soviet Union will be the USSR State Committee for Science and Technology (GKNT).
5. The Executive Agent of each Party shall designate a Co-Chairperson of the Joint Commission. The Co-Chairperson of the hosting side shall act as Chairperson of the Joint Commission for the duration of that meeting. The Joint Commission shall act by mutual agreement.
6. The Joint Commission shall review, coordinate, and facilitate cooperation in the field of basic scientific research and recommend measures and programs for consideration and subsequent approval by both Parties.

7. The Joint Commission may consider proposals for additions, deletions, or modifications to the list of areas of cooperation in Annex III, which it shall forward to the Parties for their approval. Changes to Annex III which have been approved by the Parties will be submitted in writing to the Joint Commission.

ANNEX II

INTELLECTUAL PROPERTY

Pursuant to Article VIII of this Agreement:

I. GENERAL

A. For purposes of this Agreement, "intellectual property" is understood to have the meaning found in Article 2 of the Convention Establishing the World Intellectual Property Organization, done at Stockholm July 14, 1967.

B. The Parties shall ensure adequate and effective protection for intellectual property created or furnished under this Agreement and relevant implementing arrangements thereunder.

II. COPYRIGHTS

The Parties and the partners shall take appropriate steps to secure copyright to works created under this Agreement in accordance with their national laws, except as specifically provided otherwise in an applicable implementing arrangement. Rights to works created under this Agreement shall be determined in the applicable implementing arrangement.

III. INVENTIONS

A. For purposes of this Annex, "invention" means any invention made in the course of cooperation under this Agreement or implementing arrangements thereunder which is or may be patentable or otherwise protectable under the laws of the United States of America, the Union of Soviet Socialist Republics, or any third country. An invention "made" means one conceived or for which an application for patent or other title of protection has been filed or which has otherwise been reduced to practice.

B. Between a Party and its nationals, the ownership of rights and interests in inventions will be determined in accordance with that Party's national laws and practices.

C. As between the Parties, unless otherwise specifically provided in an applicable implementing arrangement, the Parties and the partners shall take appropriate steps to secure rights to implement the following:

1. If the invention is made in the course of a program of cooperative activity that involves only the transfer or exchange of information between the Parties, such as by joint meetings, seminars, or the exchange of technical reports or papers, unless provided otherwise in an applicable implementing arrangement:

- a. The Party whose personnel makes the invention ("the Inventing Party") has the right to obtain all rights and interests in the invention in all countries in accordance with applicable national laws of such countries;

- b. In any country where the Inventing Party decides not to obtain such rights and interests, the other Party has the right to do so.

2. If the invention is made by personnel of one Party ("the Assigning Party") while assigned to the other Party ("the Receiving Party") in the course of a program of cooperative activity that involves only the visit or exchange of scientific and technical personnel:

a. The Receiving Party has the right to obtain all rights and interests in the invention in all countries in accordance with applicable national laws of such countries;

b. In any country where the Receiving Party decides not to obtain such rights and interests, the Assigning Party has the right to do so.

D. Arrangements involving other forms of cooperation, such as joint research projects with an agreed scope of work, shall provide for the mutually agreed upon disposition of rights to an invention made as a result of such activity on an equitable basis. Except as otherwise specifically agreed, each Party has the right to obtain all rights and interests in the invention in its own country, whereas the right to secure legal protection of that invention in third countries, as well as the right to license or transfer such rights and interests in third countries, shall be allocated by mutual written agreement.

E. Notwithstanding the foregoing, if an invention is of a type for which exclusive rights are available under the laws of one Party but not of the other Party, the Party whose laws provide for exclusive rights shall be entitled to all rights in all countries which provide rights to such invention. The Parties may agree, however, to a different allocation of rights to such invention.

F. The Parties shall disclose to one another inventions made in the course of programs of cooperative activities and furnish to one another any documentation and information

necessary to enable them to secure any rights to which they may be entitled. The Parties may ask one another in writing to delay publication or public disclosure of such documentation or information for the purpose of protecting their respective rights related to inventions. Unless otherwise agreed in writing, such restriction shall not exceed a period of six months from the date of communication of such information. Communication shall be through the parties to the applicable MOUs.

IV. BUSINESS-CONFIDENTIAL INFORMATION

A. The Parties do not expect to furnish to one another or create, or have the partners furnish or create, business-confidential information in the course of cooperation under this Agreement. In the event that such information is inadvertently furnished or created or the Parties agree to furnish such information, the Parties and the partners shall give full protection to such information in accordance with their laws, regulations, and administrative practices.

B. For purposes of this Annex, "business-confidential information" means information of a confidential nature which meets all of the following conditions:

1. it is of a type customarily held in confidence for commercial reasons;
2. it is not generally known or publicly available from other sources;
3. it has not been previously made available by the owner to others without an obligation concerning its confidentiality; and

4. it is not already in the possession of the recipient Party or partner without an obligation concerning its confidentiality.

C. Any information to be protected as "business-confidential information" shall be appropriately identified by the Party or partner furnishing such information or asserting that it is to be protected, except as otherwise provided in the Parties' laws, regulations, and administrative practices. Subject to the aforesaid laws, regulations and administrative practices, unidentified information will be assumed not to be information to be protected, except that a Party to the cooperative activity may notify the other Party in writing, within a reasonable period of time after furnishing or transferring such information, that such information is business-confidential information under the laws, regulations, and administrative practices of its country. Such information will thereafter be protected in accordance with paragraph A above.

V. OTHER TYPES OF INTELLECTUAL PROPERTY

"Other types of intellectual property" means any intellectual property protectable in accordance with the laws, regulations and administrative practices of either Party or any third country other than those described in Articles II, III, and IV above and includes, for example, mask works and trademarks. Rights to other types of intellectual property shall be determined in the same manner as for inventions,

Article III, Paragraphs B-D of this Annex. If an intellectual property is one for which protection is available under the laws of one Party but not of the other Party, the Party whose laws provide such protection shall be entitled to all rights in all countries which protect such intellectual property. The Parties may agree, however, to a different allocation of rights to such intellectual property.

VI. MISCELLANEOUS

A. Each Party and each partner shall take all necessary and appropriate steps to provide for the cooperation of its authors, inventors, and discoverers which is required to carry out the provisions of this Annex.

B. Each Party shall assume the responsibility to pay to its nationals such awards or compensation as may be in accordance with its laws and regulations. This Annex does not create any entitlement or prejudice any right or interest of the author or inventor to an award or compensation for his or her work or invention.

C. Intellectual property disputes arising under this Agreement should be resolved, if possible, through discussions between the concerned partners. If the partners cannot resolve such a disagreement, it shall be settled through consultations between the Parties or their designees.

VII. EFFECT OF TERMINATION OR EXPIRATION

Termination or expiration of this Agreement shall not affect rights or obligations under this Annex.

VIII. APPLICABILITY

This Annex is applicable to any implementing arrangements or cooperation under this Agreement, except as otherwise specifically provided for in individual implementing arrangements.

ANNEX III

AREAS OF COOPERATION

1. Geosciences
2. Basic Scientific Research in Engineering Sciences
3. Scientific Problems of the Arctic and the North
4. Life Sciences
5. Science Policy
6. Chemistry
7. Mathematics
8. Theoretical Physics

US-USSR BASIC SCIENCES AGREEMENT OF 1989

History and Background

- In discussions leading to formal negotiations, the Soviets wanted the 1989 Agreement to be a direct successor to the 1972 US-USSR Science and Technology Agreement which was allowed to expire after the imposition of martial law in Poland in 1981.
- However, the 1972 Agreement was widely believed to have produced one-sided S&T benefits (in Soviet favor) and allowed the Soviet side to gain unintended access to sensitive and/or advanced U.S. technology; consequently the U.S. clearly established, in negotiating the new agreement in 1987-1988, that such an agreement was to provide for demonstrable mutual benefit and to focus on basic research cooperation; by eliminating applied research, the current agreement is designed to avoid undesired and unwanted technology transfer.
- To this end, the NSC mandated in March 1988 that all US-USSR S&T cooperative activities are to be subject to USG interagency review.
- To implement this goal, the NSC approved in September 1988, the current interagency review procedures; developed by an interagency task force, these govern all bilateral S&T activities with the USSR and East Europe, including the US-USSR Basic Sciences Agreement.
- The latter was negotiated by a USG interagency delegation in 1988 and signed in January 1989 by Secretary of State Schultz and Foreign Affairs Minister Shevardnadze.

Current Policies, Procedures and Implementation

- To differentiate the 1989 Basic Sciences Agreement from the expired 1972 S&T Agreement, the current agreement not only excludes applied research activities, but calls for a "bottom-up" approach, i.e., proposals are to be initiated by U.S. and Soviet working scientists, as opposed to those negotiated and "imposed" from the top under the 1972 Agreement (by the 11 working groups under the then Joint Commission).

- To implement the current decentralized approach, USG technical agencies are authorized to work out MOU's with their USSR counterparts and, under these "sub-agreements," to encourage their scientists to develop joint basic research projects, subject to the interagency review process noted earlier.
- By early 1990, NSF and USGS developed such MOU's with the USSR Academy of Sciences and the USSR Ministry of Geology.
- These USG technical agencies reported on their experience to the first meeting of the new Joint Commission under the Basic Sciences Agreement, held in Washington, April 19-20, 1990.
- Since then, the NIST-Academy of Sciences MOU and a new MOU in Mapping Sciences between USGS and the USSR Committee on Geodesy and Cartography have been proposed to be brought under the Basic Sciences Agreement.
- The U.S. expects to sign the NIST-Academy MOU at the second meeting of the Joint Commission in Moscow, May 13-14, 1991. The U.S. also expects to sign or at least initial the USGS-CGK MOU, assuming negotiations are completed by that time.
- At the 2nd Joint Commission Meeting, the U.S. and USSR also will agree to discuss cooperation in the Ocean Drilling Program at this -- and subsequent -- JCM's (the ODP MOU was signed in February 1991).
- Then, too, to broaden cooperation, the U.S. side proposes at the upcoming Joint Commission Meeting to add experimental physics and social sciences as new areas for joint research.

US-USSR SCIENCE AND TECHNOLOGY AGREEMENTS

Basic Scientific Research

- Signed January 1989
- Executive agents are OSTP and USSR State Committee for Science and Technology (SCST)
- Provides for cooperation in eight broad areas: geosciences; basic scientific research in engineering sciences; scientific problems of the arctic and the north; life sciences; science policy; chemistry; mathematics; and theoretical physics
- Includes a Memorandum of Understanding (MOU) Between the National Science Foundation and the USSR Academy of Sciences and a Memorandum of Understanding between the US Geological Survey and the USSR Ministry of Geology
- Second JCM is scheduled for May 13-14, 1991 in Moscow. Agenda includes: agreement to amend Basic Sciences Agreement and NSF-Academy MOU; signature of NIST-Academy MOU; initialing or signature of MOU in Mapping Sciences; report on NIH-Academy discussion on possible cooperation; agreement to use Basic Sciences JCM as venue for discussing US-USSR cooperation in the Ocean Drilling Program.

Ocean Drilling Program

- MOU signed in February 1991.
- Provides for Soviet participation in a multinational program of basic research in the marine geosciences. Objective of ODP is to explore the earth's structure and history as they are recorded in the basement rock and overlying sediments accumulated on the seafloor.
- Uses the JOIDES Resolution.
- US-USSR cooperation in ODP will be reviewed annually at the Basic Sciences JCM; but the MOU is not included under the Basic Sciences Agreement.

Medical Science and Public Health

- Signed May 1972; extended in 1977, 1982, and 1987
- Executive agents are US Department of Health and Human Services and the USSR Ministry of Health
- Provides for cooperation in cardiopulmonary diseases; malignant neoplasia; environmental health; arthritis and musculoskeletal diseases; viral infections other than HIV, eye diseases; individual health scientist exchanges; primatology; biomedical problems of alcohol and drug abuse; and human immunodeficiency virus (HIV) infection; biomedical communications; mental health; dental and oral health; geriatrics and gerontology; and public health policy.

Environmental Protection

- Signed in May 1972
- Executive agents are the US Environmental Protection Agency and the USSR State Committee for Environmental Protection (GOSKOMPRIRODA)
- Currently provides for cooperation in 11 areas: prevention of air pollution; prevention of pollution effects on vegetation; prevention of pollution associated with agricultural production; enhancement of the urban environment; protection of nature and the organization of preserves; protection of the marine environment from pollution; biological and genetic effects of environmental pollution; influence of environmental changes on climate; earthquake prevention; arctic and subarctic ecological systems; and legal and administrative measures for protecting environmental quality

Transportation

- Signed June 1973; cancelled in 1983; new agreement signed in May 1988
- Executive agents are the US Department of Transportation and the USSR State Committee for Science and Technology
- Provides for cooperation in civil aviation; railroad safety; highway bridge construction; and highway and traffic safety programs

Peaceful Uses of Atomic Energy

- Revised agreement signed at June 1990 summit; original agreement signed in 1973 and extended in 1983, 1986, and 1988
- Executive agents are the US Department of Energy and the USSR Ministry of Atomic Power and Industry (MAPI)
- New agreement strengthens long-standing framework for research in magnetic confinement fusion, fast breeder reactor safety, the fundamental properties of matter, and civilian nuclear reactor safety
- Includes a subsidiary MOU on Cooperation in the Field of Civilian Nuclear Reactor Safety and a subsidiary MOC in the Fields of Environmental Restoration and Waste Management (signed in September 1990).

Agriculture

- signed 19 June 1973; self-renewing every 5 years
- Executive agents are USDA and the USSR Commission on Food and Food Procurement
- Cooperation includes working groups for agricultural economic research and information; agricultural research and technology development; and food processing.

NEWS NOTES

U.S., Soviet scientists study paleoclimate history

U.S. and Soviet scientists have been studying Lake Baikal in southeastern Siberia for paleoclimate information. The U.S. Geological Survey, the University of South Carolina and other U.S. universities have begun a long-term multidisciplinary research program, with the expected result of the longest and most complete continental climate record available in the world. Work is being done with several institutes of the Soviet Academy of Sciences and the Soviet Ministry of Geology.

Initial funding has been received through USGS Geologic Division Climate Change Program, and the University of South Carolina. Funding for fiscal years 1992-95 will be requested to support expanded high-resolution seismic coverage, piston coring, and shallow drilling from the ice.

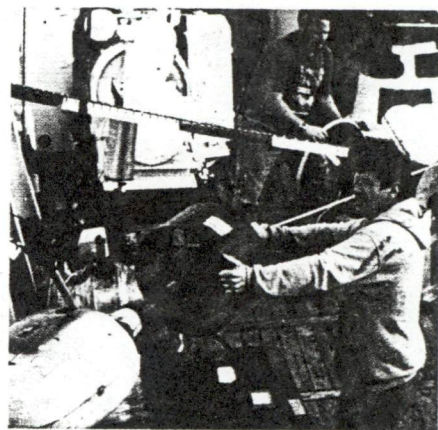
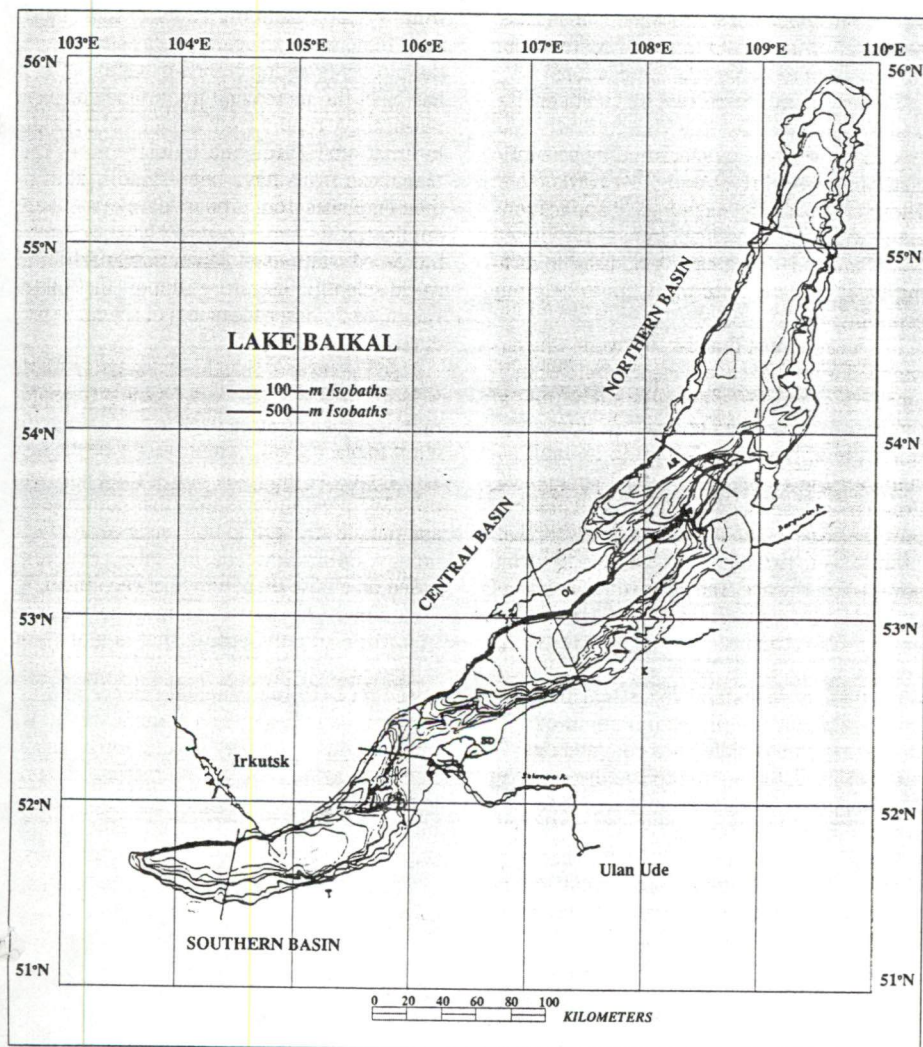
Lake Baikal, a Miocene-age rift lake, is one of the oldest lake systems in the world. It is the deepest fresh-water lake, with an average depth of 730 meters and a maximum depth of

1,620 meters. The lake holds about one-fifth of the world's reserves of fresh water. About 336 rivers and streams flow into it, and the River Angaras is its only outflow. The lake's high-latitude location (52 degrees to 58 degrees north) causes it to be very sensitive to changes in solar insolation due to long-period variation in Earth's orbital parameters, widely believed to be the main force behind climate change in the Pleistocene. Also, the extreme continentality of the climate in southeast Siberia, that is, its freedom from ocean influences, makes it ideal for studying changes in the seasons through time. Also, although much of Siberia was glaciated during the last ice age, including mountains in the Baikal drainage basin, Lake Baikal was not glaciated due to lack of precipitation. Therefore, reconstruction of the record from this lake will document climate events on a variety of time scales, including glacial, interglacial changes, the last Ice Age, events like the Younger Dryas and short-term events like the Little Ice Age.

Estimating the age range of paleoclimatic records is difficult due to the lack of information on sedimentation rates in Lake Baikal. Paleomagnetic, radiocarbon and facies analy-

ses of sediments on the lake floor suggest that sedimentation rates may vary from a few centimeters to tens of centimeters per thousand years. The seismic data also suggests that a variety of ages of sediments — as old as Pliocene — may be exposed at or near the lake floor because of faulting, unconformities, and variation in unit thicknesses. These variations in exposure, thickness, and sedimentation rates would allow carefully selected cores to sample both relatively short, high-resolution records where sedimentation rates are high, and long, relatively low-resolution records where sedimentation rates are low or where older sedimentary units are exposed. Accordingly, a variety of ages and sedimentation rates are probably available for integrating paleoclimatic changes on different time scales.

Other cooperative research studies between the USGS and the Soviet Union include studies of U.S. and Soviet mineral deposits, oil and gas resource-assessment techniques and the use of data bases for mineral-resource assessment. Trips were taken to study the Rio Grande rift zone in Texas, New Mexico and Colorado and the Baikal rift zone to compare the rifts for significant similarities and differences and to



Researchers retrieve a fish used in 3.5 kilohertz high-resolution seismic profiling from the deck of the Vereshagin.

L: Workers at USGS, Woods Hole, produced this digitized bathymetric chart of Baikal.

determine the origin and evolution. Cooperative studies also involve Soviet super-deep drill holes, including those at Kola and Krivoy Rog, U.S.S.R. (April *Geotimes*, cover).

For background information on the initial agreements between the National Science Foundation, U.S. Geological Survey, and the Academy of Sciences of the U.S.S.R., and the Ministry of Geology of the U.S.S.R., see July 1989, *Geotimes* p. 8-9.

(Information from Paul Hearn, Office of International Geology, and from "U.S. and Soviet Scientists Study the Baykal Rift Zone" by Kathleen Kearney Trivers, in *International Science and Technology Insight*, v. 2, n. 2)

MEMORANDUM OF UNDERSTANDING

Between the National Science Foundation
in Washington, D.C.,
for the United States of America

and

The U.S.S.R. Academy of Sciences
in Moscow

on the participation of the U.S.S.R.
in the Ocean Drilling Program
as a Regular Member

The Ocean Drilling Program (ODP) is a program of scientific ocean drilling designed to improve fundamental understanding of the physical, chemical and biological processes that determine the geological history, structure and evolution of the oceanic lithosphere (sediments and crust). The Ocean Drilling Program is a successor to the Deep Sea Drilling Project, which began in 1968, and the International Phase of Ocean Drilling, which began in 1975. The program involves a change of the drilling platform from the GLOMAR CHALLENGER to a larger drillship with a limited riser capability.

During the period October 1983 - October 1984, the National Science Foundation, through its contractors, refitted an existing drillship for scientific ocean drilling and for subsequent program operations. During this same period, all regular and candidate member countries have participated in science planning activities to establish the areas of priority for drilling operations. Early in U.S. Fiscal Year 1985, a nine-year program of ocean drilling began.

The Ocean Drilling Program is conducted by contractors, responsible to the National Science Foundation, who carry out the functions of science planning, science operations, and vessel operations. The Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) is the international body responsible for developing scientific plans and providing general scientific direction for the Ocean Drilling Program. The Science Planning Contractor organizes and provides administrative support to JOIDES.

The Council shall serve as a consultative body reviewing financial, managerial, and other matters involving the overall support of the Ocean Drilling Program. The Council shall provide a forum for exchange of views among the contributing countries. No formal voting procedures will be established.

The National Science Foundation representative will serve as permanent Chairman of the Council. A formal agenda will be prepared for each meeting and written records of each meeting will be kept. The National Science Foundation will provide secretariat services to the Council.

The Council will normally meet once each year. The annual meeting shall include a financial report and discussion, an audit report, a review of scientific and technical achievements for the past year, draft program plans and budgets for the coming year, and other topics of mutual interest. Normally, all regular meetings of the Council will take place in Washington, D.C.

Liaison representatives of prime contractors and important scientific planning entities will be available to the Council.

Article 5 - INTELLECTUAL PROPERTY RIGHTS
Protection of intellectual property and rights thereto shall be as set forth in the Agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in Ocean Studies, signed 1 June, 1990.

Article 6 - RIGHT TO MAKE PROPOSALS; DATA PRIVILEGES
The U.S.S.R. Academy of Sciences will have the right:

- a) to make proposals to JOIDES of scientific projects or technical objectives of special interest to the U.S.S.R.
- b) to participate in the analysis, and have access to the data, of geophysical and other site surveys performed in support of the program.
- c) to engineering plans, data or other information developed under contracts supported as program costs, subject to Article 1 limitations.

Site surveys may be contributed by the U.S.S.R. as its scientific interests and available resources allow. Site surveying will be coordinated by JOIDES.

Article 7 - VISA AND CUSTOMS FACILITATION
The National Science Foundation will facilitate through collaboration with the appropriate authorities the

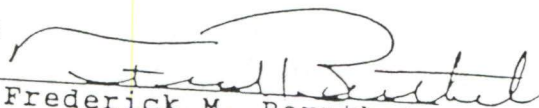
"Program costs" are determined by the National Science Foundation, and are those costs incurred in support of contractors performing functions for joint planning and operations of the Ocean Drilling Program, and program direction and management costs incurred by the National Science Foundation which relate to international participation. Activities which may be carried out by the National Science Foundation's contractors in direct support of United States scientific undertakings are not program costs and will not be funded from commingled accounts.

Article 11 - SALARIES, TRAVEL AND EXPENSES
Salaries, travel and expenses for participants representing the U.S.S.R. will be borne by the U.S.S.R. The National Science Foundation will render the U.S.S.R. scientists assistance when going from an airport to the drillship.

Article 12 - CONSULTATION
Meetings of the National Science Foundation and representatives of the U.S.S.R. Academy of Sciences may be held at any time upon the request of either party to discuss the terms and conditions of this Memorandum and other matters of mutual interest. An annual statement of rights, privileges and commitments will be incorporated as Annex B. Annex B will include any changes to these rights, privileges and commitments, as defined in this Memorandum of Understanding and Annex A, and will be adopted by mutual consent.

Article 13 - TERMINATION NOTICE
Obligations arising from this Memorandum of Understanding may be terminated by either party giving the other party written notice at least one year in advance. Provisions for refunds of contributions, arising out of unilateral termination, are specified in Annex A.

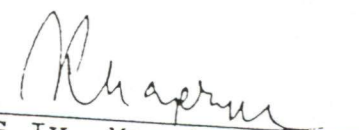
by:


Frederick M. Bernthal
Acting Director
National Science Foundation

on:

Feb. 5, 1991
Date

by:


G. Iv. Marchuk
President
U.S.S.R. Academy of Sciences

on:

25.11 1991
Date

A N N E X B

to the Memorandum of Understanding
between the National Science Foundation
and the U.S.S.R. Academy of Sciences
on the participation of U.S.S.R. Specialists
in the Ocean Drilling Program for 1991

According to the Memorandum of Understanding between the National
Science Foundation and the U.S.S.R. Academy of Sciences on the
participation of the U.S.S.R. in the Ocean Drilling Program in
1991, Academy of Sciences suggests two specialists for every leg.

We are recommending the following scientists:

- Leg 138 - Dr. M. A. Levitan (sedimentology, Institute of
Oceanology)
Dr. E. M. Galimov (isotopic geochemistry,
Vernadsky Institute of Geochemistry)
as a reserve:
- Dr. I. E. Khvorova (foraminifer biostratigraphy,
Geological Institute)
- Leg 139 - Dr. S. G. Krasnov (geology and geochemistry of
oceanic sediments and ores,
VNIIOceanogeologia)
- Dr. B. A. Konyukhov (seismostratigraphy -
Pacific Institute of
Oceanology)
as a reserve:
Dr. V. V. Shilov (stratigraphy and paleontology,
VNIIOceanogeologia)
- Leg 140 - Dr. N. N. Pertsev (petrology, Institute of
Geology and Mineral Resources,
former participant of legs 52, 53,
68B and 69)
- P. K. Kepezhinskis (geochemistry, petrology,
Institute Lithosphere)
as a reserve:
- Dr. A. N. Didenko (paleomagnetology, rock
magnetism, Institute of Earth's Physics)
- Leg 141 - Dr. A. A. Didenko
Dr. Dr. V. B. Kurnosov (lithology, Geological
Institute)
as a reserve:
- Dr. B. N. Baranov (structural geology, spreading
axis, Institute of Oceanology)

US-USSR BASIC SCIENCES AGREEMENT
SECOND JOINT COMMISSION MEETING

U.S.S.R. DELEGATION (TENTATIVE)

Chairman

Academician Nikolay P. Laverov
Deputy Prime Minister, and Chairman,
USSR State Committee for Science
Technology

Vice Chairmen:

Academician Yuriy A. Osipyan
Vice President of the USSR
Academy of Sciences

Vladimir V. Yezhkov
Deputy Chairman of the State
Committee for Science and Technology

Grigoriy A. Gabrielyants
Minister of Geology

Scientific Secretary:

Valeriy Ye. Anoshin
Department of Scientific and Technical
Cooperation with Foreign Countries
State Committee for Science and Technology

Members

Academician Andrey A. Gonchar
Academician-Secretary
Mathematics Department
USSR Academy of Sciences

Academician Igor S. Gramberg
Director, Institute of Geology
and Mineral Resources of
the World Oceans (VNII Okeangeo)

Academician Nikolay A. Plate
Director, Institute of Petrochemical
Synthesis
USSR Academy of Sciences

Academician Aleksandr S. Spirin
Director, Institute of Protein
USSR Academy of Sciences

Yuriy I. Tichkov
Deputy Minister
USSR Ministry of Atomic Power
and Industry

Vladimir A. Pokrovskiy
Director
Department of Science and
Technology Progress
Cabinet of Ministers

Eduard R. Malayan
Deputy Director
US-Canada Department
USSR Ministry of Foreign Affairs
Smolenskaya-Sennaya pl., 32/24
Moscow 121200, USSR

Boris G. Mayorskiy
Director, Department of International
Scientific and Technical Cooperation
USSR Ministry of Foreign Affairs
(same as Malayan)

Academician Nikolay A. Plate
Director, Institute of
Petrochemical Synthesis
Leninskiy Prospekt 29
Moscow 117912, USSR

Academician Aleksandr S. Spirin
Director, Institute of Protein Research
142292 Pushchino
Moscow Region, USSR

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DSD/DEB, ICS/HC/ME, ICS/HC/UR, NE/ISR, NIO/USSR, NPIC, SE/EECA-2, SE/RR/NA,
SE/USSR, SE/USSR/IO, SE/USSR/XF, SE/USSR/XN, SE/USSR/XO, SOV (17/W)

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RUEHLN/AMCONSUL LENINGRAD 0676
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DEPT FOR DES/SCT (CAMPBELL) AND EUR/SOV

WHITE HOUSE FOR OSTP

DOD FOR OSD/DTSA (THOMAS)

DEPT PLEASE PASS NSF AND NAS/NAE

E.O. 12356: N/A
TAGS: TSPL, TPHY, KSCA, UR, US, IS
COMBINE: COMPLETE

SUBJECT: BROMLEY-MARCHUK MEETING AT ACADEMY OF
SCIENCES

1. SUMMARY: AT A RECENT MEETING IN MOSCOW WITH
PRESIDENTIAL SCIENCE ADVISOR BROMLEY, SOVIET ACADEMY
OF SCIENCES PRESIDENT MARCHUK GAVE A BRIEF OVERVIEW
OF THE CURRENT SITUATION OF THE ACADEMY, ITS
REORGANIZATION, AND INDICATED HIS SATISFACTION WITH
THE BILATERAL S&T EXCHANGES. MARCHUK LAMENTED THE
CURRENT INADEQUATE AH,5,-) 8, 585753 , AND THE
LACK OF SYSTEMIC SUPPORT AS THE MAJOR PROBLEMS FACING
THE ACADEMY. END SUMMARY.

2. ON MAY 13, DURING THE U.S.-SOVIET BASIC SCIENCES
JOINT COMMISSION MEETING (MAY 13-15), PRESIDENTIAL
SCIENCE ADVISOR BROMLEY, ACCOMPANIED BY MEMBERS OF
THE U.S. DELEGATION AND EMBASSY SCICOUNS, MET WITH

SOVIET ACADEMY OF SCIENCES PRESIDENT MARCHUK AND
MEMBERS OF THE ACADEMY PRESIDUM.

BILATERAL EXCHANGES--POSITIVE
/-----

3. MARCHUK PRESENTED A BRIEF OVERVIEW OF HIS
PERCEPTION OF THE U.S.-SOVIET BILATERAL S&T
COOPERATION. HE NOTED THE GLOBAL CHANGE PROGRAM AS
THE VENUE FOR STARTING COOPERATION WITH THE NATIONAL
ACADEMY OF ENGINEERING. HE THEN DISCUSSED THE
NATIONAL SCIENCE FOUNDATION'S AGREEMENT WITH THE
ACADEMY, EMPHASIZING THE IMPORTANCE OF PERSONAL
CONTACTS AMONG SCIENTISTS, AND MENTIONED THAT 45

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PROJECTS HAVE NOW BEEN APPROVED.

ACADEMY--ORGANIZATION

4. MARCHUK THEN TOUCHED ON ORGANIZATIONAL MATTERS. HE FIRST COMMENTED THAT PEOPLE PERCEIVE THE ACADEMY POSITIVELY BECAUSE THE ACADEMY IS SEEN AS WORKING ON KEY ISSUES AFFECTING ALL OF SOVIET SOCIETY. HE MENTIONED THE PRESIDENTIAL DECREE MAKING THE ACADEMY AN INDEPENDENT ORGANIZATION LAST FALL. MARCHUK SAID THAT CURRENTLY, THE ACADEMY HAS ABOUT 300 RESEARCH INSTITUTES; APPROXIMATELY 200,000 STAFF MEMBERS AND 65,000 RESEARCHERS; AND ABOUT THE SAME NUMBER OF SCIENTIFIC WORKERS IN THE ACADEMIES OF SCIENCES OF THE REPUBLICS.

5. IN DISCUSSING THE PROBLEMS FACING THE ASSSR, MARCHUK ENUMERATED INADEQUATE LABORATORY FUNDING, LACK OF SYSTEMIC SUPPORT, THE WEAKENING OF CONTACTS BETWEEN ACADEMIA AND EDUCATIONAL INSTITUTES AND TOO MANY LARGE INSTITUTES AS THE MOST PRESSING CONCERNS. HE DID NOT MENTION "BRAIN DRAIN"--EITHER INTERNAL (TO BUSINESSES AND CO-OP VENTURES) OR EXTERNAL.

Q'S AND A'S--MORE ON STRUCTURAL CHANGES

6. DR. BROMLEY ASKED IF THE ACADEMY WOULD BE ABLE TO ABSORB THE STAFF BEING CUT FROM INSTITUTES, AND HOW THE ACADEMY PLANS TO DEAL WITH THIS POSSIBLE SCIENTIFIC UNEMPLOYMENT. MARCHUK ANSWERED BY USING THE EXAMPLE OF THE PHYSICS INSTITUTE (FIAN). FIAN HAD BECOME TOO BIG TO BE EFFICIENT. SO, THE SOVIETS WILL CONVERT IT INTO AN ASSOCIATION CONSISTING OF A NUMBER OF INSTITUTES. EACH INSTITUTE WILL HAVE ITS OWN DEPT FOR DES/SCT (CAMPBELL) AND EUR/SOV

DIRECTOR (ELECTED BY THE STAFF) AND ITS OWN FACILITIES. THIS ARRANGEMENT PRESERVES CONTACTS WITHIN THE ASSOCIATION AND MAKES IT POSSIBLE FOR YOUNGER SCIENTISTS TO WORK MORE INDEPENDENTLY. HE GAVE ANOTHER EXAMPLE: GOLDANSKY, THE DIRECTOR OF THE INSTITUTE OF CHEMICAL PHYSICS, ESTABLISHED AN ASSOCIATION CONSISTING OF 2 INSTITUTES (ONE IN MOSCOW; ONE IN CHERNOGOLOVKA). MARCHUK ADDED THAT THE ACADEMY PRESIDIUM DOES NOT PLAY A ROLE IN THIS SORT OF INSTITUTE DECISION MAKING. INSTEAD, HE RATHER PROUDLY NOTED, THESE INITIATIVES WERE EXAMPLES OF "BOTTOM-UP" DECISION MAKING. REGARDING THE ISSUE OF RELEASED WORKERS, MARCHUK SAID THAT THE SOVIETS WON'T HAVE A PROBLEM FOR AT LEAST 20 YEARS. ONE OF THE PROBLEMS FACING THE ACADEMY HAS BEEN ITS POOR TIES WITH INDUSTRY. RECENTLY, THE GOVERNMENT ADOPTED A GOOD REGULATION TO FACILITATE TRANSFER OF NEW IDEAS TO INDUSTRY - THE ESTABLISHMENT OF SMALL ENTERPRISES ATTACHED TO ACADEMY INSTITUTES.

BRAIN DRAIN

/-----

7. YNBARDING THE ISSUE OF THE BRAIN DRAIN, MARCHUK COMMENTED THAT OVER A NUMBER OF YEARS, MORE THAN 500 SCIENTISTS WORKED ABROAD. GORBACHEV GAVE THE ACADEMY THE RIGHT TO AUTHORIZE EXITS/ENTRANCES AND THE SOVIETS ARE TRYING TO SEND THOSE WHO WISH TO GO TO THE PLACES WHERE THEY WANT TO GO. HE ADDED THAT THERE IS NO ONE IN THE ACADEMY WHO WANTS TO GO ABROAD THAT IS NOT ALLOWED. MARCHUK ALSO CLAIMED THAT THERE

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IS NOT ONE CASE OF AN ACADEMY SCIENTIST WHO STAYED
AFTER SPENDING TIME ABROAD.

8. COMMENT: THE ABOVE CLAIM SHOULD NOT BE TAKEN AT
FACE VALUE; S&TOFFS HAVE BEEN TOLD OF AT LEAST ONE
CASE OF A SCIENTIST DENIED EXIT PERMISSION AND (BOTH
BY THE AMERICAN PROFESSOR PLAYING HOST AND SOVIET
INSTITUTE DIRECTORS) OF CASES OF SCIENTISTS NOT
RETURNING FROM SABBATICALS OVERSEAS. (THESE LAST
COULD CONCEIVABLY BE VIEWED AS NOT "YET" RETURNED TO
THE USSR.) END COMMENT.

USSR-ISRAELI TIES

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9. MARCHUK MENTIONED THAT THE SOVIETS WOULD SOON
SIGN AN AGREEMENT WITH THE ISRAELI ACADEMY OF
SCIENCES. IN FACT, THE AGREEMENT WAS INDEED
CONCLUDED IN MOSCOW WITH AN ISRAELI DELEGATION ON MAY
24. MARCHUK THEN STATED THAT, WHILE IN ISRAEL A FEW
MONTHS AGO, THEY MET WITH SOVIET EMIGRES WHO ASKED
HOW THEY CAN RETURN TO THE SOVIET UNION TO WORK IN
THEIR OWN LABS. MARCHUK REMARKED THAT HE HAD TOLD
THEM THAT, POSSIBLY, THEY COULD RETURN TO THE SOVIET
UNION AS VISITING SCIENTISTS.

APPLIED S&T

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10. BROMLEY THEN ASKED ABOUT SOVIET SMALL
ENTERPRISES. IN THE US., COMPANIES RARELY FAIL
BECAUSE OF TECHNICAL FAILURES, BUT RATHER BECAUSE
THEY LACK MANAGEMENT KNOW-HOW. BROMLEY ASKED WHETHER
THE ACADEMY WOULD REABSORB THESE PEOPLE IF
ASSOCIATIONS/BUSINESSES FAIL, OR ARE THE INDIVIDUALS
ON THEIR OWN? MARCHUK SAID THAT HE COULD NOT GIVE A
FINAL ANSWER, BUT THAT THE ACADEMY WAS AWARE THAT
PEOPLE HAVE LEFT INSTITUTES FOR SMALL BUSINESSES.
THE SOVIET GOVERNMENT HAS CREATED A STABILIZATION
FUND TO SUPPORT SMALL ENTERPRISES, WHICH SHOULD HAVE
A POSITIVE IMPACT.

11. FOLLOWING THIS MEETING, THE TWO SIDES SIGNED THE
NIST-ACADEMY OF SCIENCES MOU.

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ACTION: NONE INFO: DONOVA, FBIS6, IRU, NIO/ECON, ODPB, ODPD, ODPK,
ODPS, ODPW, OPCTR/USSR, ORMO/SE, SAS/PRB-2, SAS/REB, STATDICT, FILE,
C/SAS/AOG, C/SAS/MOB, CIC/AG, CIC/SOV, CPAS/USSR, DSD/DEB, ICS/HC/UR,
NIO/SP, NIO/USSR, NPIC, SAS/MOBL, SE/EECA-2, SE/RR/NA, SE/SISBDE, SE/USSR,
SE/USSR/IO, SE/USSR/XF, SE/USSR/XO, SE/USSRCA-2, SOV, STG/TCB (24/W)

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INFO RUEADWW/WHITEHOUSE WASHDC
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DEPT FOR OES/S AND EUR/SOV

WHITE HOUSE FOR OSTP (O'NEILL)

DOD FOR OSD/DTSA (THOMAS)

DEPT PLEASE PASS NAS/NAE AND NSF

E.O. 12356: N/A
TAGS: TSPL, ETTT, PREL, PGOV, KSCA, US, UR
COMBINE: COMPLETE

SUBJECT: SCIENCE ADVISER BROMLEY-DZASOKHOV MEETING:
SOVIET SCIENCE POLICY, EXPORT CONTROLS

1. PRESIDENTIAL SCIENCE ADVISER DR. ALLAN BROMLEY, ACCOMPANIED BY SCICONS AND OTHER U.S. MEMBERS OF THE BASIC SCIENCES JOINT COMMISSION DELEGATION, WAS RECEIVED MAY 14 IN THE KREMLIN BY A. S. DZASOKHOV, CHAIRMAN OF THE SUPREME SOVIET COMMITTEE ON FOREIGN AFFAIRS. DEPUTY PRIME MINISTER AND CHAIRMAN OF THE STATE COMMITTEE ON SCIENCE AND TECHNOLOGY (GKNT) LAVEROV AND GKNT DEPUTY CHAIRMAN YEZHKOV ALSO ATTENDED ON THE SOVIET SIDE. THE MEETING COVERED SOVIET SCIENCE POLICY, INCLUDING CENTER-REPUBLIC RELATIONS, AND EXPORT CONTROLS.

2. DURING THE INITIAL ROUND OF PLEASANTRIES, DZASOKHOV ENDORSED INCREASED U.S.-SOVIET SCIENTIFIC COOPERATION AND DR. BROMLEY STRESSED THE IMPORTANCE OF EQUAL BENEFITS. DZASOKHOV AGREED WITH DR. BROMLEY AND NOTED THAT SOVIET SCIENCE HAD GREAT POTENTIAL. HE SAID A RECENT VISIT TO KOREA (PRESUMABLY SOUTH KOREA) HAD CONFIRMED HIS VIEW. DZASOKHOV ALSO SAID THAT IN THE PAST THE SOVIETS HAD GIVEN PRIORITY TO MILITARY DEVELOPMENTS, BUT THAT IT IS NOW TIME TO DEVELOP SCIENCE AND TO EMPHASIZE "CREATIVE ACTIVITIES."

POSITIVE ASSESSMENT OF U.S.-COOPERATION

3. LAVEROV THEN GAVE DZASOKHOV A POSITIVE ACCOUNT OF THE RESULTS OF THE BASIC SCIENCES JCM AND SAID BOTH SIDES SHARED A STRONG INTEREST IN IMPROVING SCIENCE

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EDUCATION IN THE SCHOOLS. LAVEROV RAISED VISA TRAVEL, AND IN-COUNTRY PROBLEMS U.S. SCIENTISTS AND DELEGATIONS FACE, SAYING THE PROBLEMS WERE NOT "CAPRICIOUS." THE SOVIET SIDE IS AWARE OF THE DIFFICULTIES AND WOULD OVERCOME THEM, WAS HIS OPTIMISTIC ASSESSMENT. DZASOKHOV SAID THAT THE SUPREME SOVIET WAS ALSO CONSIDERING THOSE PROBLEMS AND WOULD REACH DECISIONS SHORTLY.

BUT TECH TRANSFER COMPLAINTS

4. DZASOKHOV GENTLY CHIDED THE U.S. SIDE BY SUGGESTING THAT THE "POLITICAL INERTIA" THAT IS OCCURRING IN THE U.S.-SOVIET BILATERAL RELATIONSHIP WAS SPREADING TO SCIENCE AND TECHNOLOGY. HE NOTED THAT COCOM RULES CONTINUE TO INHIBIT TRADE IN SOME GOODS AND SPECIFICALLY REFERRED TO THE DECISION AGAINST EXPORTING FIBRE OPTIC CABLE TO THE U.S.S.R. "TO IMPLEMENT OUR PROJECT, WE NEED THIS MATERIAL." DZASOKHOV EXPLAINED. THESE GOODS SHOULD NOT BE UNDER COCOM RULES SINCE THEY WERE WIDELY AVAILABLE. (OR, BROMLEY NOTED THAT COCOM HAD REDUCED THE SIZE OF THE COCOM LIST, BUT DZASOKHOV RESPONDED THAT THAT WAS "SOME MONTHS AGO.") DZASOKHOV SAID HE ONLY RAISED THE MATTER SINCE HE WANTED TO EXPLAIN IT TO SENATORS FASCELL AND PELL WHEN THEY ARRIVED IN MOSCOW SHORTLY. IT IS DZASOKHOV'S HOPE THAT THE CONGRESSMEN MIGHT BE HELPFUL IN REMOVING THE PROHIBITION.

5. LAVEROV ADDED THAT DURING HIS VISIT TO WASHINGTON, THREE MAJOR PROBLEMS HAD BEEN RAISED: THE OCEAN DRILLING PROJECT HAS NOW BEEN RESOLVED, BUT AN "EVEN MORE CURIOUS ISSUE," THE TOPAZ REACTOR, HAS COME UP. DR. BROMLEY INTERJECTED THAT HE AGREED THE TOPAZ MATTER MADE NO SENSE AND SAID THAT ARRANGEMENTS HAD BEEN MADE FOR ITS RETURN TO THE SOVIET UNION. DZASOKHOV THEN SAID THAT HE HAD ACCOMPANIED GORBACHEV TO THE U.S. AND FRANKLY HAD TO SAY THAT HE DID NOT DEPT FOR OES/S AND EUR/SOV

FEEL THAT THE U.S. HAD FREED ALL SCIENCE FROM SECRECY.

SOVIET SCIENCE POLICY -- AND THE REPUBLICS

6. DZASOKHOV THEN NOTED THAT THE SUPREME SOVIET WAS ACTIVELY ENGAGED IN SCIENCE MATTERS, "DESPITE MANY OTHER SERIOUS PROBLEMS." HE REPEATED A LITANY, WE FREQUENTLY HEAR THAT DRAFT LAWS ON INTELLECTUAL PROPERTY RIGHTS, SCIENCE POLICY, AND INCREASING THE NUMBER OF SCIENTIFIC WORKERS ARE BEING CONSIDERED. HE ALSO NOTED THAT THE IMMIGRATION LAW WAS CLOSE TO BEING FINALLY RESOLVED.

7. TURNING TO SCIENCE POLICY, DZASOKHOV ARGUED THAT SCIENCE OFFERS A USEFUL MODEL FOR CENTER-REPUBLIC RELATIONS. HE READILY ADMITTED THAT THERE IS AN ECONOMIC CRISIS IN THE COUNTRY AND THAT ETHNIC STRIFE POSES A SERIOUS THREAT TO PEACE AND STABILITY, BUT SCIENCE COULD BE A UNIFYING FORCE. THE SCIENCE SECTOR NEEDS TO BE CONVINCED THAT SOVIET SOCIETY IS DISINTEGRATING, HE ASSERTED. IT IS IN THE COUNTRY'S INTEREST, AND THAT OF THE REPUBLICS, TO PREVENT THE DIVISION OF SCIENCE AMONG THE INDIVIDUAL REPUBLICS. POLITICIANS AS WELL AS SCIENTISTS UNDERSTAND THIS, HE EXPLAINED. "EVEN BALTIC SCIENCE IS NOT RUNNING AFTER LANDSBERGIS," HE SAID. LAVEROV INTERJECTED THAT THE REPUBLICS, "EVEN ESTONIA," WERE EAGER TO ACCEPT FUNDING FROM THE CENTER AND TO

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MAINTAIN ALL-UNION CONTACTS.

SCIENCE AND MARKET REFORMS

8. DR. BROMLEY THEN ASKED WHAT THE SHIFT OVER TO A MARKET ECONOMY WILL MEAN TO THE U.S. SCIENCE AND TECHNOLOGY RELATIONSHIP. LAVEROV JUMPED IN, SHOWING THAT HE FULLY UNDERSTOOD THE THRUST OF DR. BROMLEY'S QUESTION: "YOU MEAN, WHEN DOES COOPERATION END AND COMPETITION BEGIN?"

9. DZASOKHOV REPLIED THAT TIME IS STILL NEEDED TO CREATE MARKET CONDITIONS. THERE HAVE BEEN MANY BAD APPROACHES: TAKE, FOR EXAMPLE, THE ISSUE OF SOVEREIGNTY. THAT NOTION APPLIED TO THE NATIONAL TERRITORY. WHAT DOES IT HAVE TO DO WITH THE MARKET? SOVEREIGNTY MEANS THAT THE PRODUCER SHOULD HAVE

SOVEREIGNTY. SCIENCE NEEDS SUBJECTIVE INCENTIVES -- GORBACHEV'S STRENGTH SHOULD HELP SOVIET SCIENCE SURVIVE THE PRICE FORMATION PHASE. THE SOVIET ALL-UNION BUDGET HAS BEEN DEEPLY CUT, ESPECIALLY FOREIGN EXCHANGE ALLOCATIONS, BUT THE SCIENCE SECTOR WAS EXEMPTED FROM THE CUTS AND EVEN RECEIVED A 17 PER CENT BUDGET INCREASE. AS FOR THE FUTURE, SOVIET SCIENCE WOULD HAVE TO BE MORE APPLICATIONS-ORIENTED BUT AT THE SAME TIME NOT LOSE SIGHT OF THE NEED FOR FUNDAMENTAL RESEARCH TO CREATE THE BASES FOR NEW TECHNOLOGIES.

10. LAVEROV THEN EXPRESSED CONCERN OVER THE FUTURE COURSE OF U.S.-SOVIET SCIENCE COOPERATION, SAYING ONE LOOMING POTENTIAL DIFFICULTY WAS THAT SCIENCE MIGHT BECOME CAUGHT UP IN PROBLEMS OF ECONOMIC COOPERATION. WAYS MUST BE FOUND TO PREVENT THIS, HE SUGGESTED. DR. BROMLEY REPLIED THAT IT IS NOT ENTIRELY POSSIBLE TO DIVORCE THE SCIENTIFIC FROM THE ECONOMIC RELATIONSHIP.

11. DZASOKHOV SAID THAT THE U.S.S.R. NOW HAS MANY ECONOMIC AGREEMENTS WITH OTHER COUNTRIES AND A NUMBER OF THOSE AGREEMENTS HAVE A SCIENCE COMPONENT. HOWEVER, THE SOVIET UNION WAS NOW SEEKING TO CONCLUDE SEPARATE SCIENCE AGREEMENTS WITH THE DEVELOPED COUNTRIES. LAVEROV THEN MADE A PITCH FOR CLOSER COLLABORATION AMONG U.S. AND SOVIET SCIENTISTS (A THEME HEARD REPEATEDLY DURING THE BROMLEY VISIT). SCIENCE SHOULD BE SEPARATED FROM ECONOMICS WHERE THERE OFTEN IS SECRECY AND CONCEALMENT FOR SECURITY OR BUSINESS REASONS. IT IS IMPORTANT THAT SOVIET DEPT FOR OES/S AND EUR/SOV

E.O. 12356: N/A

TAGS: TSPL, ETTT, PREL, PGOV, KSCA, US, UR

SCIENTISTS BE ABLE TO WORK DIRECTLY WITH THEIR U.S. COUNTERPARTS.

MATLOCK
END OF MESSAGE

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US-USSR Basic Sciences Agreement
Joint Commission Meeting
May 13-14, 1991
Moscow, USSR

SCHEDULE OF SITE VISITS

Thursday, May 9

4:20 P.M. Campbell and O'Neil arrive Moscow via PA 1072
from Frankfurt

Friday, May 10

Working Meeting with GKNT, Campbell, O'Neil and
US Embassy officers

Saturday, May 11

9:35 A.M. PA 30 arrives from New York

Dr. Bromley, Ratchford, Herzfeld, Bernthal, Sher,
Sayre, Frederick, Hearn, Sinnott, Smith, Thomas,
Schriesheim, Wince-Smith, and Stepanian.

3:10 P.M. Dr. Schambra arrives Moscow via Austrian Airlines
601 from Vienna.

Sunday, May 12

4:20 P.M. Dr. White arrives Moscow via PA 1072 from
Frankfurt

2 PM RSFSR Dr. Malyshev and Dr. Sherin
4 P.M. Appointment for Dr. Bromley with Academician
Ryzhov or RSFSR official

7:30 P.M. Dinner meeting for Dr. Bromley and Academician
Marchuk

Monday, May 13

0800-0930 Breakfast delegation meeting
A.M. 1000-1215 Opening session of JCM 1000

P.M. Working level meetings
Principals free for appointments

1500 Meeting w/ DZA Sokolov, Chairman of Supreme Soviet Committee on
5:15 P.M. Dr. Boright arrives Moscow via PA 1072 from Frankfurt
Foreign affairs
Politburo member
CPBU Secretary
for Science

Evening US-Hosted reception at Spaso House 1830-2000

Sunday Dr Bromley's Appointment Schedule

2:00 PM Dr Malyshev - Dep. Premier RSFSR for
Science & Education

w/ Dr Ratchford / John O'Neil /
Dr Bernthal / Gerson
Bob Clarke / Eric Greene

4:00 PM Academician Ryshev Chairman USSR
Supreme Soviet Committee
on Science

w/ Dr. Ratchford / John O'Neil /
Dr Herzfeld / John Thomas
Dr Schamir / Alex
Bob Clarke / Sid
Fred Bernthal

7:30 PM Academician Marchuk President
Academy of
Sciences

w/ Dr Ratchford / John O'Neil /
Dr Bernthal / Heather / ~~Gerson~~
Dr Herzfeld / ~~John Thomas~~
- Dr Bob White / ~~Gerson~~
- Bob Clarke / ~~Eric Green~~
~~Cathy~~ ~~Smith~~

Sunday, May 19

6:15 A.M. Depart Moscow for Frankfurt via Lufthansa 1061
(Dr. Bromley, Ratchford, Herzfeld, ~~Bernthal~~,
Boright, Campbell). Connect with PA 61,
departing Frankfurt for Dulles at 1:15 P.M.

6:30 A.M. Arrive Moscow from Irkutsk via Aeroflot 129
(Sher, Hearn?)

Monday, May 20

~~Visit to Gor'kiy~~ (Sinnott, Thomas)

Tuesday, May 21

7:45 A.M. Depart Moscow for Frankfurt via PA 1073 (Hearn)

3:05 P.M. Depart Moscow for Paris via Air France 2983
(Sinnott) ← *Sunday*

Tuesday - Saturday, May 21-25

Visits in Moscow area around "conversion" theme
(Thomas, O'Neil?, Smith?)

Thursday
Saturday, May 25 *Depart for London* *Tues/Wed* *Sverdlovsk*
O'Neil

12:00 P.M. Depart Moscow for New York via PA 31 (Thomas,
O'Neil?)

Friday, June 7

Depart Tallinn for Stockholm via Aeroflot 767