



STAR FIELDS

Newsletter of the
Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
In the Interest of Telescope Making & Using

Vol. 30, No. 3 March 2018

This Month's Meeting . . .

Thursday, March 8th, 2018 at 8:00 PM

Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

Parking at the CfA is allowed for the duration of the meeting

Imaging a Black Hole with the Event Horizon Telescope



The South Pole Telescope. Image by Daniel Michalik.

The [Event Horizon Telescope \(EHT\)](#) is a project to create a large telescope array consisting of a global network of [radio telescopes](#) and combining data from several [very-long-baseline interferometry](#) (VLBI) stations around the Earth (including MIT's Haystack Observatory in Westford, MA) to create a "virtual" telescope with an effective diameter of the entire planet. The aim is to observe the immediate environment of the [Milky Way's supermassive black hole](#) Sagittarius A, as well as the even larger black hole in [Messier 87](#).

Harvard University grad student Andrew Chael will give us a nuts-and-bolts look at the EHT and update us on its current status.

Please join us for a pre-meeting dinner discussion at [House of Chang, 282 Concord Ave., Cambridge, MA.](#) at 6:00 pm before the meeting.

President's Message . . .

Work continues on our two new ATMoB Committees: Outreach Committee and Mirror & Telescope Making Committee. I recently sent out an atmob-announce email seeking members who might be willing to join the Outreach Committee to include someone to serve as its Chair. We'll also want one or two members to serve as star party coordinators. At the same time, Vice President Tom McDonagh has been getting our Mirror & Telescope Making Committee off the ground. The goal of our new committees is to give these important club activities a much-needed "shot in the arm."

Speaking of recognition, it's always nice to advertise our club at public astronomy gatherings by wearing items (hats, T-shirts) with the ATMoB logo. Bruce Berger and Eileen Myers have been looking into the creation of a pin with the ATMoB logo that can be worn on hats, lapels, etc. As is the case with the two new ATMoB committees, we'll keep you posted as things progress.

March brings the return of the annual Messier Marathon, when all (or nearly all) of the 110 Messier objects can be viewed in a single night. This year's target date is Saturday, March 17, which meshes nicely with a new moon. We'll be meeting at the Clubhouse on that date to see how many Messier deep-sky delights we can knock off before eyelids droop and the comfort of a warm bed at home is impossible to resist. Anyone looking for a change of pace can join me in tackling the 110 double, triple, and multiple stars in my Double Star Marathon.

Next month brings the spring edition of Astronomy Day, slated for Saturday, April 21st. I've already reserved, through the courtesy of Haystack Observatory, a conference room to hold an Astronomy Day event for the local community. I'll be presenting a how-to talk on getting into backyard astronomy, and we'll have (weather permitting) scopes set up outside. I'll make an official announcement and request for volunteers at the March meeting.

As I mentioned last month, we need to start planning for a new Board to run the club during the 2018-2019 season. Open positions include President, Vice President, and Secretary. A candidate search will be necessary, which requires a 3-person Nominating Committee. We'll need 6 candidates to run for the "NomCom", and a vote to select the final 3 will be made at the April meeting.

Clear Skies,

~ Glenn Chaple – President ~

February Meeting Minutes . . .



Kevin Collins. *

Summary of the ATMoB meeting held February 8, 2018 at the Harvard-Smithsonian Center for Astrophysics in the Phillips Auditorium. President Glenn Chaple called the meeting to order at 8:00 pm.

- The Secretary's Report and the January Board meeting summaries were read by Phil Levine
- The Treasurer's Report was presented by Eileen Myers
- The Membership Report was presented by Chris Elledge
- Glenn Chaple presented the Observing Report
- Steve Clougherty presented the Clubhouse Report
- Announcements:

Establishment of a Mirror & Telescope Making Committee (to instruct and mentor members in mirror making and telescope design and construction), and an Outreach Committee (to coordinate Star Parties, Popscope, and other public astronomy events) was discussed at the January Executive Board meeting.

The following Board positions will be open after the current term expires: Club President, Club Vice-President, and Club Secretary.

A Messier Marathon is planned at the Westford Clubhouse. The date is March 17.

There will be an Astronomy Day event on Saturday, April 21st, to be held at M.I.T. Haystack in Westford.

Mario Motta announced that [International Dark Sky Association \(IDA\) Week](#) will be April 15-April 21. Mario mentioned the formal establishment of a Massachusetts Chapter of the IDA. He indicated that the "Dark Sky Bill" was not brought up for vote by the Massachusetts legislature and the bill has been sent back into committee for study.

Glenn mentioned recent POPSCOPE activities, and thanked ATMoB member Bob Toop for helping out with POPSCOPE's public astronomy nights.

On February 14th Mario is scheduled to debate the topic of health and LED lighting at Strategies in Light / The LED Show, a lighting conference in Long Beach, California. He will be reviewing his AMA paper on the health implications of LED lighting.

<http://events.pennwell.com/SIL2018/Public/SessionDetails.aspx?FromPage=Sessions.aspx&SessionID=21051>.

Editor: Mario's summary of the conference is presented in this newsletter.

John Sheff informed the membership about the upcoming Cambridge Science Festival being held on April 13 - 22.

<https://www.cambridgesciencefestival.org/current-festival/>

Tom McDonagh introduced a student from BU, Meredith Rumore, who is writing a research paper on club organizations in the Boston area. She has selected ATMoB as one of the clubs highlighted, and will be interviewing club members for information.

- Old Business: none
- New Business: none

The guest speaker for the evening was Kevin Collins. His talk about the 2017 total solar eclipse was titled, "Journey into Totality".

Kevin outlined the logistical issues involved with proactively selecting the best observing site for the 2017 total solar eclipse. Since clear sky weather conditions are difficult to predict, Kevin made reservations at 17 different hotels throughout the country. Weather conditions determined which ones to cancel at the last moment. He utilized a number of different weather prediction services, including the European Centre for Medium-Range Weather Forecasts (ECMWF), Japan Meteorological Agency (JMA), and the National Weather Service (NWS).

<https://www.ecmwf.int/>

<http://meteocentre.com/numerical-weather-prediction/forecast-systems.php?lang=en&map=na&run=06&mod=jma&mode=latest&yyyy=latest&mm=latest&dd=latest>

<https://www.weather.gov/>

Kevin presented various impressive photos of solar totality, including the diamond ring and the solar corona.

Refreshments for the evening were provided by Bruce Tinkler.

Glenn Chaple adjourned the meeting at 9:35 pm

~ *Phil Levine - Secretary* ~

Meeting Recordings . . .

The recording of ATMoB meeting #906 is available on YouTube: https://youtu.be/IUX5M_Nh8Ds

I would like to thank Kevin Collins for allowing us to record his presentation "Journey into Totality".

This link is to the publicly available cut of the meeting recording. To view the original version of the meeting, please see the Announce Forum on the ATMoB Website <http://www.atmob.org>

~ Chris Elledge – Membership Secretary ~

Membership Report . . .

I am pleased to welcome our newest members Stephane Dumas, Dominique Farinaux-Dumas, and Swaroop Vattam and his Family.

As of February 20th, 2018 we have 310 memberships covering 383 members. This is broken down as follows:

- 161 Regular Members
- 100 Senior Members
- 9 Student Members
- 36 Family Memberships covering 109 Members
- 4 Guest Members

Please contact me if you need any help with your membership or logging into the website.

~ Chris Elledge – Membership Secretary ~

Clubhouse Report . . .



Slav Mlch working in the Clubhouse basement. *

February 2018 Clubhouse Report

During the month of February we held a work party at the Clubhouse in Westford with a total of 19 members volunteering.

The weather was clear, but extremely frigid conditions precluded outdoor ground work.

Vladislav Mlch took the lead on the basement drainage project and cleaned out debris surrounding the oil tank. He ground a deeper channel in the cement pad located under the tank. The pad is designed to divert any foundation water seepage from trickling into the oil tank spill pan.

The furnace continues to shut down during cold spells, so we have raised the thermostat temp to 55 degrees. In addition, we leave the electric baseboard heaters on during the week to prevent freezing conditions inside the Clubhouse. Further investigation into the causes of the furnace shutdown will be done by our heating service provider.

Dave Prowten reset the focuser on the 25-inch Dob so that a complete and true collimation adjustment could be done. Phil Rounseville was able to fine tune collimation on the telescope after this adjustment, and the alignment is now very good.

John Maher installed a new MoonLight focuser on the 16-inch Meade SCT which is housed in the Ed Knight roll off observatory. The focusing mechanism now works beautifully! John held a workshop on the operation of this telescope with a small group of members during the afternoon.



MoonLight focusing assembly and counter weight system. *

Mike Mattei held a mirror making workshop during the afternoon of the work party. In the near future Mike and the Mirror & Telescope Making Committee will make recommendations for the upgrading of grinding, polishing and testing equipment. We plan on actively pursuing a more robust mirror making program at the Clubhouse in the future.

We would like to thank Eileen Myers, Sai Vallabha, Art Swedlow, John Reed and Al Takeda for all of the work they put into preparing lunch for the volunteer crew and subsequent clean up.

Many thanks to the following volunteers who helped out during the month of February: Paul Cicchetti, Steve Clougherty, James DeCamp, Chris Elledge, John Hinz, Barry Johnson, Dick Koolish, Mike Mattei, Tom McDonagh, Vladislav Mlch, Eileen Myers, Dave Prowten, John Reed, Phil Rounseville, Art

Swedlow, Al Takeda, Joe Tansey, Bill Toomey, and Sai Vallabha.

The next work session at the Clubhouse will be held on Saturday, March 3rd.

Important Notice: Mirror making sessions will now take place on **Saturday afternoon's beginning at 1:00 pm. Other times may be scheduled. Check your email on the ATMOb-ANNOUNCE list.**

~ *Clubhouse Committee Chairs* ~
 ~ *Steve Clougherty, John Reed and Dave Prowten* ~

Clubhouse Saturday Schedule		
March 3	WORK PARTY # 3 ** Dave Prowten	
March 10	Eileen Myers	Rich Nugent
March 17	Messier Marathon #2 Nina Craven & Brian Maerz	
March 24	Karl Dean	Mike Hill
March 31	WORK PARTY # 4 ** Eric Johansson	
April 7	Glenn Chaple	Sai Vallabha
April 14	Tom McDonagh	Bill Toomey
April 21	John Maher	Dave Siegrist

** Closing time for the Clubhouse is determined by the work crew

Clubhouse Evening Schedule	
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Afternoon Mirror Making	1:00 pm - ##
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty.	
Saturday afternoon mirror making schedules will be posted to the ATMOb-ANNOUNCE email.	
Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.	
Due to inclement weather conditions on Saturday evenings, the "A" members on duty may elect to close the Clubhouse. Please call the Clubhouse at (978) 692-8708 or check for email messages posted to ATMOb-ANNOUNCE.	

Eyepieces For Sale . . .

55mm Clave plossl 2" eyepiece \$375
 25mm, 20mm, 16mm, 12mm 8mm, 6mm, 4mm 3mm Clave plossl set, 25mm diameter w/adaptor to 1.25", polished aluminum body w/flat tops \$2,000
 18mm Criterion AR \$30
 40mm GOTO Kellner screw on (threaded connection) \$200
 4mm Edmund (I think) ortho \$35

4mm Brandon flat top \$120
 8mm Brandon flat top aluminum body 1960, style \$120
 8mm Brandon flat top \$85
 16mm Brandon flat top aluminum body 1960, style \$120
 .353" "N" Fecker brass body \$100

Contact Peter Bealo pbealo@comcast.net or 978-204-9848

~ *Submitted by Peter Bealo* ~

Sky Object of the Month . . .

March 2018

Courtesy LVAS Observer's Challenge***

NGC 2371-2 – Dual Lobed Planetary Nebula in Gemini
 Mag. 11.2; Size 55"



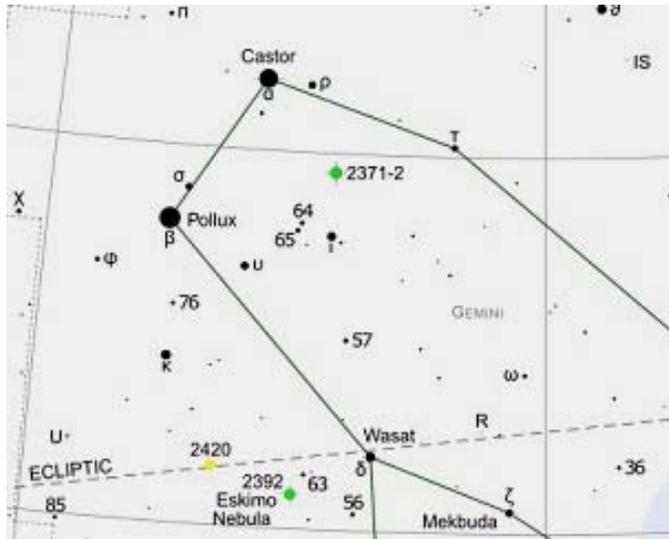
www.astro-photos.net

Our March, 2018 LVAS Observer's Challenge takes us to a planetary nebula in Gemini – not the well-known Eskimo Nebula (NGC 2392), but the fainter and more difficult dual lobed planetary NGC 2371-2. It was discovered by William Herschel in 1785. Herschel saw it as two separate entities, which led to its ultimately receiving two listings in the NGC Catalog as 2371 and 2372.

Due to its telescopic appearance, NGC 2371-2 goes by the nick-names the Peanut Nebula, the Gemini Nebula (a two-part planetary whose home constellation is the Twins, get it?), and the Double Bubble Nebula. The latter is used by Stephen James O'Meara, who features NGC 2371-2 in his book *The Secret Deep*. It also appears on the list of 110 "Finest NGC Objects" in the annual *RASC Observer's Handbook*.

The Double Bubble Nebula presents a variety of challenges. First, you have to be able to see it – not an easy task in scopes with apertures under 10 inches. An OIII filter, if you have one, would help. If you're working with a larger telescope, look for a pair of arcs northwest and southeast of the main nebula and visible in the image below. These visual tests will require dark skies and high magnification. The third challenge is to pick out the magnitude 14.8 central star.

The distance to NGC 2371-2 is uncertain, but is likely on the order of 4400 light years. The main lobes span a distance slightly greater than a light year, while the outer arcs double that size.



freestarcharts.com

***The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in their monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either [Roger Ivester \(rogerivester@me.com\)](mailto:rogerivester@me.com) or [Fred Rayworth \(fred@fredrayworth.com\)](mailto:fred@fredrayworth.com). To find out more, click on the following links: [LVAS Observer's Challenge past reports](#) and/or visit the [Las Vegas Astronomical Society website](#).

~ Glenn Chaple for the LVASS ~

Mario Defends AMA Report . . .



Mario on the show floor. Image courtesy of Mario Motta, MD.

On February 15 I gave a 30-minute talk at the Strategies in Light / The LED Show, where I was asked to debate Brian Liebel, an IES (International Engineering Society) member and chair of their standards committee.

It was held in the Long Beach, CA convention center. Lighting manufacturers from 60 countries attended, as well as lighting engineers, etc. There were over 50 vendors from China alone on

the convention floor!. I gave a 30-minute presentation, where I was asked to describe my 2016 AMA (American Medical Association) report that suggested a 3000K limit on outdoor lighting, as well as proper shielding and proper lighting intensity.

My opponent then spoke for 30 minutes. Interestingly, he gave no real counter science or arguments. He instead went methodically through the AMA report I wrote, practically line by line, and then proceeded to pick an occasional reference that was footnoted in my report to support my statements, as is necessary for any scientific report at the AMA. He stated that he read all of my references, choose some of the references, then insisted that there were incongruences that did not support the reference's conclusion, and thus invalidated parts of my report!

In my rebuttal I stated that he was ignoring the fact that these references were all peer reviewed papers, and as such had to pass peer review committees to be published. I said that even if I concede that some of his points regarding references might be factual, his discussion on references misses the issues addressed in the AMA report and in no way do they change any of its conclusions. So his statements were irrelevant to me.

He then made a very inflammatory statement in the Q&A session, asking "Will the AMA take responsibility for all the deaths that will occur by using 3000K lighting instead of 4000K?" He was rebuked by the moderator for such an inflammatory statement. I then rebutted, saying I completely rejected his statement as not based on any facts. I said that he was basing his comment on the one study made by the Lighting Research Center (LRC) of the Rensselaer Polytechnic Institute. That study was industry supported. It showed slightly better discrimination in a lab setting, but real world studies showed no statistical difference. In fact a recent Japanese study actually showed better vision with 3000K in poor weather, such as rain and fog, than 4000K, because of less scatter, and no difference in good weather. In my reply, I asked if the IES will then take responsibility for any accidents over the past 30 years when they advocated for 2200K HPS (High Pressure Sodium) lighting, which is the current de facto standard. He never responded, it was clear the audience was not accepting this ridiculous statement.

This I could see threw him into somewhat of a tizzy, as I think he was planning the discussion phase to focus on my "AMA report errors", rather than stating it still does not matter. As it was in the discussion phase for 45 minutes, it was clear the vast majority of the audience clearly sided with me by the nature and tone of the questions. There was a neurobiologist who had trained at Mass General who complained only that the AMA report did not go far enough! A Cree employee was at the question microphone, I noticed, and I told him how Gloucester went with 19 Watt Cree lighting fixtures, and that I thought they were great. His comments were very complimentary after that. A couple of engineers found something to nitpick, but nothing major. At the end the moderator felt I had made my points quite well and won the day.

We then had a special table side chat about the differences between AMA and IES. A very good discussion ensued. I see

that we can bridge some of these differences, and in fact I am speaking to the IES annual meeting in Quebec in March, where I will meet him again. On one of my slides I had shown that nearly every major American and Canadian city has gone 3000K or lower, ignoring the IES. In fact, Toronto actually stated they will be "AMA compliant" in their lighting. Several times Mr. Liebel requested that the AMA and IES come up with a "consensus" statement on street lighting in the near future. I told him that we will see what happens after the upcoming annual meeting. But I can clearly see he is feeling the heat and looking for a way out of his dilemma.



Lighting vendors at the convention center. Image courtesy of Mario Motta, MD.

~ Submitted by Mario Motta, MD ~

2018 NEAF Convention . . .



NEAF 2009 *

[Northeast Astronomy Forum \(NEAF\)](#)

Presented by the Rockland Astronomy Club

Saturday, April 21, 2018 through Sunday, April 22, 2018

SUNY Rockland Community College

145 College Road

Suffern, New York 10901

Vendors of telescopes and accessories from all over the world, exhibits, outdoor solar observing with all kinds of equipment, lectures and raffle prizes.

[Northeast Astro-Imaging Conference](#)

Astrophotography Workshops and Lectures

Thursday, April 19 & Friday, April 20, 2018

Crowne Plaza Conference Center, Suffern, New York

Mercury, Venus and the Moon . . .

Sunday, March 18, 2018 - Special Observing Event



The conjunction of the Moon, Venus and Mercury. From Stellarium.

Throughout the month of March the planets Mercury and Venus will have the best evening apparition for 2018. From March 2nd to the 5th the pair will be within 1 degree apart from each other. Throughout the month they will remain separated only by 5 degrees.

When Mercury reaches perihelion on March 10th, the planet will be physically closest to the Sun and be at its brightest. On March 15th it reaches its greatest eastern elongation from the Sun at 18 degrees.

Three days later, on March 18th, the waxing crescent Moon (one day after New Moon), Venus and Mercury will form a straight line more than 8 degrees long. Look toward the western horizon after Sunset. Binoculars may help you see the thin crescent Moon.

ATMoB Member Observing Picks . . .

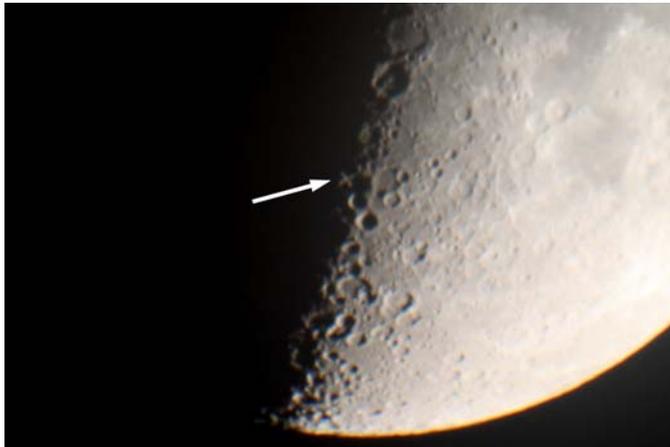
February 2018 - Joseph Rothchild's Picks

- Planetary Nebula: NGC 2392 in Gemini (Eskimo Nebula)
- Galaxy: NGC 2903 in Leo
- Planetary Nebula: IC 418 in Lepus (Raspberry/Spirograph Nebula)
- Double Star: Rigel (Beta [β] Orionis)

"Do you have a list of favorite deep-sky objects you'd like to share with the ATMoB membership? We began a "Member Picks" program where an ATMoB member would list 4-6 of their favorite deep sky targets visible that month. The list would be announced during the Observing Committee report at the monthly meeting." [Glenn Chaple](#)

~ Submitted by Glenn Chaple ~

Lunar X and V for 2018 . . .



Lunar X. AT66 Refractor, Canon T1i. 6/23/2015. Cropped image by Al Takeda *

"The Lunar X (also known as the Werner X or the Purbach Cross) is an effect of light and shadow that creates the appearance of the letter 'X' about 6 hours before the first quarter and 6 hours after the last quarter moon. It is formed by the rims of Blanchinus, La Caille, and Purbach craters. It lasts for only a few hours, but the X will appear to float just beyond the terminator for about an hour." *Editor: reprinted from Julie Kaufmann's Newsletter article from March 2017.*

Lunar X Approximate Start Times for 2018 ♠

Date	UT	EST / EDT
1/24/2018	04:42 UT	23:42 EST ♣
2/22/2018	18:07 UT	13:07 EST
3/24/2018	06:57 UT	02:57 EDT
4/22/2018	19:13 UT	15:13 EDT
5/22/2018	07:02 UT	03:02 EDT
6/20/2018	18:37 UT	14:37 EDT
7/20/2018	06:14 UT	02:14 EDT
8/18/2018	18:09 UT	14:09 EDT
9/17/2018	06:32 UT	02:32 EDT
10/16/2018	19:30 UT	15:30 EDT
11/15/2018	08:59 UT	03:59 EST
12/14/2018	22:46 UT	17:46 EST

♣ - Previous day

♠ - Data from Dana T. on the Cloudy Nights forum.

~ Submitted by Julie Kaufmann and Al Takeda ~

Messier Marathon . . .

Our next Messier Marathon will be held at the Clubhouse on Saturday, March 17th. A Messier Marathon is an observing challenge dedicated to observing all of the 110 Messier objects in one night. Observers who are unable to stay up all night can split up the list into two or more parts. This event at the Clubhouse is the 2nd of 3 nights dedicated to viewing the Messier objects.

You need to arrive during daylight to set up your telescope, equipment, star charts and your observing list.

Prepare to observe M74 and M77 before they slip below the horizon. This year's astronomical twilight ends at 8:27 pm EDT. The following chart will get you started.

There are many lists on the Internet. The chart below was downloaded from ASTRO-TOM.

Observing Order For Messier Objects

Order	M #	Con	R.A.	Deg	Mag	Type †
1	M 77	CET	2:43	0	8.8	SG
2	M 74	PSC	1:37	15	9.2	S
3	M 33	TRI	1:34	30	5.7	SG
4	M 31	AND	0:43	41	3.4	SG
5	M 32	AND	0:43	40	8.2	EG
6	M 110	AND	0:40	41	8.0	EG
7	M 52	CAS	23:24	61	6.9	OC
8	M 103	CAS	1:33	60	7.4	OC
9	M 76	PER	1:42	51	11.5	PN
10	M 34	PER	2:42	42	5.2	OC
11	M 45	TAU	3:47	24	1.2	OC
12	M 79	LEP	5:24	-24	8.0	GC
13	M 42	ORI	5:35	-5	4.0	DN
14	M 43	ORI	5:35	-5	9.0	DN
15	M 78	ORI	5:47	0	8.0	DN
16	M 1	TAU	5:34	22	8.4	PN
17	M 35	GEM	6:09	24	5.1	OC
18	M 37	AUR	5:52	32	5.6	OC
19	M 36	AUR	5:36	34	6.0	OC
20	M 38	AUR	5:29	35	6.4	OC
21	M 41	CMA	6:47	-20	4.5	OC
22	M 93	PUP	7:45	-23	6.2	OC
23	M 47	PUP	7:37	-14	4.4	OC
24	M 46	PUP	7:42	-14	6.1	OC
25	M 50	MON	7:03	-8	5.9	OC
26	M 48	HYA	8:14	-5	5.8	OC
27	M 44	CNC	8:40	19	3.1	OC
28	M 67	CNC	8:50	11	6.9	OC
29	M 95	LEO	10:44	11	9.7	SG
30	M 96	LEO	10:47	11	9.2	SG
31	M 105	LEO	10:48	12	9.3	EG
32	M 65	LEO	11:19	13	9.3	SG
33	M 66	LEO	11:20	12	9.0	SG
34	M 81	UMA	9:56	69	6.8	SG
35	M 82	UMA	9:56	69	8.4	IG
36	M 97	UMA	11:15	55	11.2	PN
37	M 108	UMA	11:12	55	10.0	SG
38	M 109	UMA	11:58	53	9.8	SG
39	M 40	UMA	12:22	58	8.0	dbl
40	M 106	CVN	12:19	47	8.3	SG
41	M 94	CVN	12:51	41	8.1	SG
42	M 63	CVN	13:16	42	8.6	SG
43	M 51	CVN	13:30	47	8.1	SG
44	M 101	UMA	14:03	54	7.7	SG
45	M 102	UMA	14:03	54	7.7	SG
46	M 53	COM	13:13	18	7.7	GC
47	M 64	COM	12:57	21	8.5	SG
48	M 3	CVN	13:42	28	6.4	GC

† Object types:

- PN Planetary nebula
- DN Dark, Diffuse nebula
- GC Globular cluster
- IR Irregular galaxy
- OC Open cluster
- SG Spiral galaxy
- EG Elliptical galaxy

Editor: * Photos by Al Takeda unless otherwise noted.

April Star Fields DEADLINE
Sunday, March 25th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: First Class Postage Mailed March 4, 2018

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
99 College Ave
Arlington, MA 02474
FIRST CLASS

EXECUTIVE BOARD 2017-2018

PRESIDENT:	Glenn Chaple	(978) 597-8465
VICE PRES:	Tom McDonagh	(617) 966-5221
SECRETARY:	Phil Levine	(781) 956-6509
MEMBERSHIP:	Chris Elledge	(781) 325-3772
TREASURER:	Eileen Myers	(978) 456-3937
MEMBERS AT LARGE:	Bruce Tinkler	(781) 862-8040
	Al Takeda	(508) 494-7877
	Maria Batista	(617) 347-3730
PAST PRESIDENTS:		
2012 - 14	Mike Hill	(508) 485-0230
2010 - 12	Bernie Kosicki	(978) 263-2812
COMMITTEES		
CLUBHOUSE :	John Reed	(781) 861-8031
	Steve Clougherty	(781) 784-3024
	David Prowten	(978) 369-1596
OBSERVING:	Bruce Berger	(978) 387-4189
NEWSLETTER	Al Takeda	newsletter@atmob.org

PUBLIC OUTREACH

STAR PARTY COORDINATOR:
Virginia Renehan starparty@atmob.org

How to Find Us...

Web Page www.atmob.org

MEETINGS: Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION see www.atmob.org and check your email on the ATMOB-ANNOUNCE list.

CLUBHOUSE: Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is open every Saturday from 7 p.m. to late evening. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to Exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farmhouse on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance: (978) 692-8708.

Heads Up For The Month . . .

To calculate Eastern Standard Time (EST) from Universal Time (UT) subtract 5 from UT. (Eastern Daylight Time (EDT) subtract 4 from UT)

Mar 5 Mercury 1.4 degrees North of Venus
Mar 9 Last Quarter Moon (Moonrise at midnight)
Mar 11 Daylight Saving Time begins. Moon at apogee
Mar 17 New Moon
Mar 20 Vernal Equinox (Northern Hemisphere Spring)
Mar 24 First Quarter Moon (Moonset at midnight)
Mar 31 Full Moon
Apr 8 Last Quarter Moon (Moonrise at midnight)