



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. 34, No. 3 March 2022

This Month's Meeting . . .

Thursday, March 10th, 2022 at 8:00 PM
[Zoom On-line Meeting](#)

All ATMoB meetings scheduled for the Center for Astrophysics (Harvard & Smithsonian) in Cambridge, MA have been **canceled indefinitely** due to concerns over the [coronavirus](#) outbreak.

We are holding virtual on-line meetings using the Zoom application. Please refer to the [ATMoB website](#) for future meetings. Members should check their email on the ATMOB-ANNOUNCE list for additional information. Please [select this Zoom link to attend the 950th Meeting of the Amateur Telescope Makers of Boston.](#)

An Antarctic Odyssey: Winter-Over at South Pole Station



John Briggs (left) at the South Pole. Credit unknown.

Our speaker this month is John W. Briggs. John's presentation is titled: An Antarctic Odyssey: Winter-Over at South Pole Station. He writes: "In a lavishly illustrated presentation, John W. Briggs of New Mexico will describe his year-long experience living at the Geographic South Pole while working for the Center for Astrophysical Research in Antarctica. In preparation for this at Yerkes Observatory of the University of Chicago, John was a team member building a 24-inch infrared telescope and related experiments that were set up at the Pole in time for him and colleagues to observe the July, 1994, explosive crash of fragmented comet Shoemaker-Levy 9 into the planet Jupiter. John weathered the "winter-over" with 26 other members of the U.S. Antarctic Program in an experience that many believe approximates what life will be like someday at a lunar or Martian outpost. Once begun, South Pole winter-over is an irreversible commitment, since the Program's special LC-130 ski planes can't land in the winter temperatures. In 1994 temperatures plummeted to a low of 107 degrees F. below zero (with a wind-chill as low as -180 degrees F.). John will delight the audience with his perspective on the total South Pole experience, the strange natural environment, the odd social atmosphere, and the challenging ongoing science."

John has lived and worked at far-ranging observatories in various technical capacities, including Mount Wilson, Yerkes, National Solar, Maria Mitchell, Venezuelan National, Chamberlin, and South Pole Station. He came to New Mexico with his family in 1997 to assist in the final commissioning of the Sloan Digital Sky Survey at Apache Point in south east New Mexico. In the 1980s he was an assistant editor at *Sky & Telescope* magazine and built the Bogsucker Observatory in Massachusetts. John is also a former member of the ATMoB. He is a member of many astronomical organizations including the Springfield Telescope Makers responsible for the annual Stellafane Convention in Vermont, and he serves on the board of the century-old American Association of Variable Star Observers (AAVSO). His principal activity now involves the [Astronomical Lyceum](#), an informal museum, library, laboratory, and lecture hall devoted to historical astronomy and its preservation in Magdalena, New Mexico, and his role as secretary of the new [Alliance of Historic Observatories](#).

Please join me and enjoy the story of John's unique experience to one of the darkest (and coldest) sites on Earth!

~ Rich Nugent – President ~

President's Message . . .

Last month I wrote about solar observing and promised there would be more. During the last month the Sun has been quite active with at least two very large prominences visible through H-alpha telescopes. But what if you don't own one of those? It's still possible to keep tabs on the Sun – without even leaving the house. And, you won't even need special filters because you'll be observing via the Internet.

My dad used to read the morning paper while drinking his coffee and I do the same thing...except, instead of a newspaper, I use my iPad to peruse my favorite astronomical sites on the web. I check my emails and then go to Cloudy Nights Classifieds (<https://www.cloudynights.com/classifieds/>) and Astromart (<https://astromart.com/>) - just to see what folks are selling. Next, I look at the Astronomy Picture of the Day (<https://apod.nasa.gov/apod/astropix.html>), Spaceweather.com (<https://www.spaceweather.com/>), *Sky & Telescope's* site (<https://skyandtelescope.org/>), *Astronomy* magazine's site (<https://www.astronomy.com/>), the National Solar Observatory (<https://nso.edu/>), Earth Observatory (<https://earthobservatory.nasa.gov/>), and the Lunar Picture of the Day (<https://www2.lpod.org/wiki/>), and Space.com (<https://www.space.com/>). Of course, you can probably pick the two sites that give information about the state of the Sun.

If you're looking for a one-stop-shopping web site for solar observing, go to Spaceweather.com. Here you'll find a wealth of current information on just about everything the Sun is doing. The left side-bar starts by providing data about the solar wind, including its speed and density. Real-time data from NASA's Advanced Composition Explorer (ACE) spacecraft is a click away. Information about solar x-rays is available from the Geostationary Operational Environmental Satellite - R Series. Looking at x-ray data gives me some idea of the flare activity around sunspot groups. If I see strong x-ray fluctuations it's time to break out the H-alpha scope! Scrolling down, a white-light image of the Sun is available. Of course this alerts us to sunspot activity. Just remember, practice safe solar observing techniques at all times! A front filter on a scope is, in my opinion, the safest way to go. I even go so far as to tape mine in place, just in case! The next solar max is expected in 2025. Sunspot activity should ramp up over the coming years. The site also has the Current Auroral Oval showing where auroras are likely and gives the current Planetary K Index. Clicking on "More Data" gives the Kp index over the last two days. When the Kp index is high auroras are likely! I start looking for the "Northern Lights" when the Kp index is 6 or higher. The side-bar also includes info on coronal holes, regions that allow the solar wind to escape into space.

Spaceweather.com also gives data on near-Earth asteroids, meteor showers, fireballs, cosmic ray data, and atmospheric phenomena, including noctilucent clouds, and a wide range of other astronomical interests. But scroll down even farther and you'll find links to some amazing sites dedicated to solar astronomy.

As an aside, an excellent site is Les Cowley's Atmospheric Optics (<https://www.atoptics.co.uk/>). If you see any sort of play of sunlight in the sky, it's likely he's covered the phenomena on this site! It's a great place to browse and learn new things! Have you ever witnessed a green flash? I did for the first time ever, while I was visiting San Diego! It prompted me to visit Crowley's site to learn more about this elusive and fleeting phenomenon.

If you're interested in space-based platforms, there are links to the [Solar Dynamics Observatory](#) (SDO), the [\(STEREO\)](#) and the [Solar and Heliospheric Observatory](#) (SOHO). You can learn about these satellites and their missions.

As an H-alpha observer I make sure I check out the real-time data from the National Solar Observatory and their global monitoring program, GONG (<https://nso.edu> and <https://gong2.nso.edu>). Real-time H-alpha images are available and let you know what's going on at the Sun. This site provides the images I send to alert you about large solar prominences. The GONG telescopes at Cerro Tololo, Chile and Learmouth, Australia provide the sharpest images. And, while you're on the site, check out the Inouye Solar Telescope. This new, ground-based solar telescope will give views of the Sun in unprecedented detail, showing some features of the photosphere as small as 18 miles across!

Observing the Sun can provide hours of enjoyment, provided you have the proper equipment and follow the guidelines for safe solar observing. And, if it's cloudy, let the Internet be your observatory. With the frequent cloudiness of New England, becoming a solar observer will allow more opportunities to enjoy this hobby of ours! Clear skies!

There are one or two more items to mention. As the pandemic continues to evolve, I am hopeful that we'll be able to resume regular Clubhouse activities in the near future! One area of interest to me is mirror making. I would like to see more activity in our grinding and polishing rooms. I'm hoping there is still interest in learning the art of parabolizing a telescope mirror. With the availability of telescopes it seems that this is a dying art but, since it was the driving force behind the founding of the Amateur Telescope Makers of Boston, I'd like to see it continue. It's my hope that we can teach a cadre of individuals the skills so they can teach future generations of telescope makers. We certainly have the facilities and there is still expertise in the club so let's make this happen, yes?

I continue to reach out to the folks at the Center for Astrophysics (CfA) in the hopes that we'll be allowed back into the Phillips Auditorium soon. So far, the schedule is closed but the folks there haven't forgotten us. I'm hoping we'll be back in there by this fall! When this happens, our next President will be able to preside over a live meeting!

And finally, speaking about our next President, its election time! I'm putting together a list of nominating committee candidates for our April meeting. We'll do electronic voting to select three members to find the slate of officers for the June elections. If you are interested in getting involved please let me know! There are job descriptions on our web site but you can ask any board member for more information. Please consider volunteering either as a member of the nominating committee or as a club officer. Thanks in advance!

~ Rich Nugent – President ~

February Meeting Minutes . . .



Dr. Sara Seager on Zoom. *

ATMoB 949th Meeting Minutes February 10, 2021

Rich Nugent presented the President's welcome. He commented on the present Covid-19 situation. It is doubtful that we will be meeting again in person at the CfA by May. It really depends upon Harvard University opening up to the public. President Nugent also announced that we lost a fellow ATMoB member, Paul Courtemanche (1979-2002) last month.

- Rich Nugent presented the Secretary's report for Alva Couch, including a summary of Matthew East's talk on the complex problem of stability for next-generation space telescopes.
- Eileen Myers presented the Treasurer's report and reported a planned net outflow for the month of January, including purchase of heating oil and Mittelman-ATMoB Observatory supplies, offset by new memberships and purchase of a telescope by the Medford Public Library.
- Chris Elledge presented the Membership report and welcomed new members Evelyn Bagley; Rodrigo Carrillo and Beatriz Sanchez; and Adam Weiss.
- Glenn Chaple and Rich Nugent presented the Observer's report, including pictures of the close approach to Earth of minor planet 1994 PC1 by Doug Paul and Mark Helton. Other occurrences include a grouping of Venus, Mars, and Mercury on Feb. 13; Moon, Mars, and Venus together before sunrise on Feb. 27, and the International Space Station (ISS) visibility before sunrise between Feb. 17 and March 13. There is an asteroid occultation of (626) Notburga for 2.9 seconds on Friday, March 11. The February Observer's Challenge is the Orion Nebula, including M42 and its close neighbor M43. Images of these objects were provided by Chris Elledge, Mario Motta, and Doug Paul and were shown at the meeting.
- Steve Clougherty presented the Clubhouse report. Rich Nugent, John Stodieck, and Steve Clougherty went to the Clubhouse to replace the bathroom fan and everything was in

order. Clubhouse work parties for February and March are canceled due to a concern over hosting large groups in the Clubhouse during the Omicron surge. Work parties will not be resumed until at least April. Members are welcome to use the observing fields whenever desired, as long as they turn MIT's flood lights back on when they leave. In April and May we hope to resume work parties, organize donated equipment, and eventually bring the Mirror-o-Matic polisher online.

- Bruce Berger presented the Mittelman-ATMoB Observatory (MAO) report. We've been having some problems with ice on the roof and sliding channels. The plan is to apply silicone to the gaskets and to install heaters onto the roof rails. Due to the UPS donation last month, we now have 20 minutes of backup power in both the telescope enclosure and the Electronics/MAO Control room. An animated GIFF of the James Webb Space Telescope was shown to the membership. AI Takeda used the MAO to image the James Webb Space Telescope, 3 days after its launch, on its way to the Lagrange 2 point.
 - Kelly Beatty and Rich Nugent presented the Outreach report. Kelly Beatty and Bruce Berger drove to Maine to pick up 12 StarBlaster telescopes for the Library Telescope program. They are now being stored at the New England SciTech Center where we plan to have a telescope modification party in March. The Boston Public Library has put in a request for these telescopes.
 - Old business:
<https://smile.amazon.com> is a great way to donate to ATMoB while shopping on Amazon.
 - New Business:
The election schedule for 2022 includes the following monthly activities:
 - April: Announce candidates for Nominating Committee and have a vote on these members. Rich Nugent is looking for one more person to volunteer for the nominating committee.
 - May: Announcement of the slate of candidates.
 - June: Election of club board members at the Annual meeting.
- Our February meeting featured Dr. Sara Seager whose talk was on "Venus as a Potentially Habitable World".
- Dr. Sara Seager of MIT described the "phosphine mystery" in the atmosphere of Venus. This mystery began when Dr. Jane Greaves, using the James Clerk Maxwell radio telescope in the United Kingdom, detected an absorption spectrum characteristic of phosphine (PH₃) on Venus. From everything we already knew about the caustic atmosphere of Venus, this should not happen. Normally the presence of phosphine is a possible sign of life. All of this together means that either (1)

there are some chemical processes occurring that we do not understand, or (2) the absorption spectrum somehow indicates something other than phosphine, or (3) there is possible evidence of life in the upper atmosphere of Venus. Which of these possibilities is true is an ongoing controversy. As a [2007 National Research Council \(NRC\) report](#) states, “Nothing would be more tragic in the exploration of space than to encounter alien life and fail to recognize it.”

~ *Alva Couch – Secretary* ~

Quarterly Board Meeting . . .

The Executive Board will be meeting on Thursday, March 17th at 8 p.m. on Zoom, to discuss club business and proposals. The meeting is open to the membership. A Zoom invitation will be sent out on the ATMob-Announce email list before the meeting.

~ *Rich Nugent – President* ~

Membership Report . . .

I am pleased to welcome our newest members: Stephen Hoffmann, Adam Weiss, and Sam Zipes.

As of March 1st, 2022 we have 340 memberships covering 430 members. This is broken down as follows:

- 143 Regular Members
- 134 Senior Members
- 10 Student Members
- 51 Family Memberships covering 141 Members
- 2 Honorary Members

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

~ *Chris Elledge – Membership Secretary* ~

Meeting Recordings . . .

The recording of ATMob meeting #949 is available on YouTube: <https://youtu.be/83zs1il-FuY>

I would like to thank Dr. Sara Seager for giving her talk.

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

~ *Chris Elledge - Membership Secretary* ~

Clubhouse Report . . .



Observing Field horizon before MIT's tree clearing. 7 November 2020 *



Observing Field horizon after MIT's tree clearing. 5 February 2022 *

During the month of February our Clubhouse activities have been limited due to the ongoing Covid surge. However, observing sessions have taken place on at least two occasions with groups of at least 12 observers and imagers participating.

Bruce Berger and Chris Elledge did some snow clearing on Sunday, January 30th to clear the MAO roof, Clubhouse and observatory entries, and paths to the observing pads. More clearing was performed on Saturday, February 26th which was followed up by members observing that night.

We anticipate keeping the Clubhouse closed during the month of March, although we encourage members to use the observing field. Our goal at this point in time is to more or less fully reopen the Clubhouse to all activities starting in April.

The Clubhouse committee will keep the membership informed as to which activities will resume and the timetable for these events over the coming weeks.

~ *Clubhouse Committee Chairs* ~

~ *Steve Clougherty, John Reed and Dave Prowten* ~

Observer's Challenge** . . .

March, 2022

Medusa Nebula (Abell 21) Planetary Nebula in Gemini

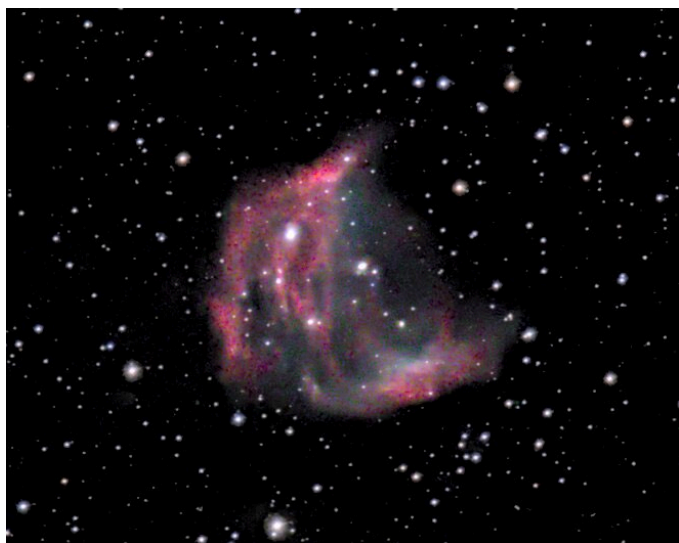
Magnitude 10.3

Size 11.3'



Abell 21 (Medusa Nebula), 32-inch scope, ZWO 6200 camera, 2 hours x Ha, 1 hour each SII and OIII. Image by Mario Motta, MD.

When an Observer's Challenge lacks either a Messier or NGC designation, you know it won't be an easy visual target. Such is the case with our March Challenge, a planetary nebula in Gemini that eluded detection until discovered by American astronomer George Abell in 1955. Bearing the catalog designation Abell 21, it is commonly referred to as the Medusa Nebula.

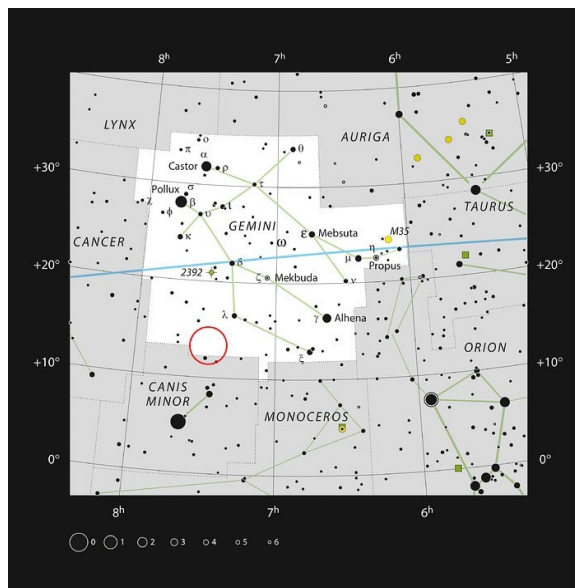


Abell 21 (Medusa Nebula), Canon Ra, 1200mm f/8.0 lens, ISO 1600, 63x2min exposures, 1/2 scale, North up. Image by Doug Paul.

Various sources assign to the Medusa Nebula a visual magnitude of 10.3, bright enough to be detectable in a small-aperture instrument. But unlike the typical young planetary nebula whose apparent dimensions are planetary (40 arc-seconds or less), this oldster spans an area one-third the moon's apparent diameter. Defocus a 10th magnitude star to that size and you'll have a truly faint object. To capture the Medusa

Nebula visually, you'll need a large-aperture scope (8 to 10 inches and up), dark skies (mag-6, if possible), an eyepiece that provides a one-degree field of view, and a nebula filter (OIII or narrowband).

The Medusa Nebula is located at RA 7h 29m 2.7s, Dec +13° 14' 48.4". Star-hoppers can find their way using Charts A through C below. It lies some 1500 light years away and is estimated to be 4 light years across.



Finder Chart A (Star at lower part of circle is 6 Canis Minoris), Image credit: ESO, IAU and *Sky & Telescope*.

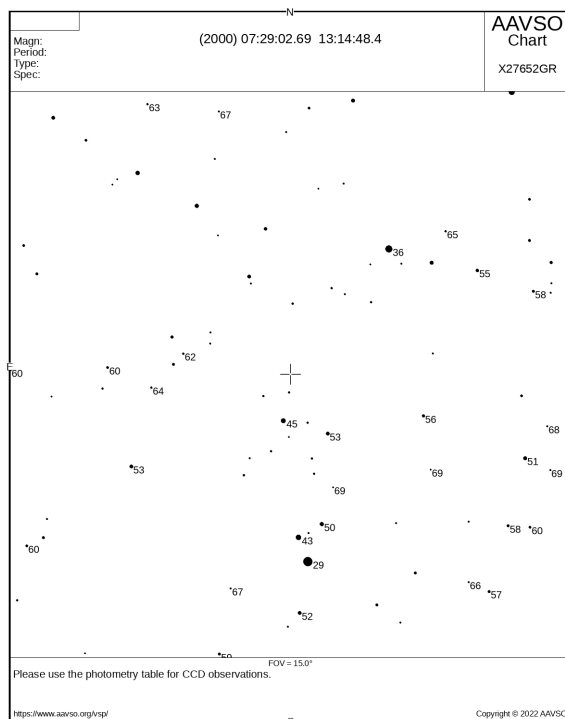


Chart B: Stars plotted to magnitude 7.0. Magnitude 2.9 star is Gomeisa (beta [β] Canis Minoris); magnitude 4.5 star is 6 Canis Minoris. Charts adapted from the AAVSO's Variable Star Plotter (VSP). Numbers indicate stellar magnitudes, decimals omitted. North is up.

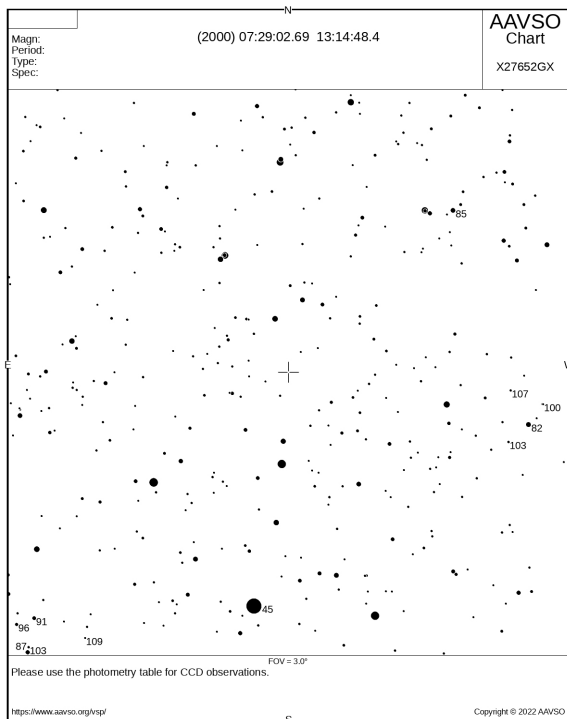


Chart C: Stars plotted to 11th magnitude. 4.5 magnitude star is 6 Canis Minoris. Field size is 1.7 by 2.0 degrees. Charts adapted from the AAVSO's Variable Star Plotter (VSP). Numbers indicate stellar magnitudes, decimals omitted. North is up.

****The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to <https://rogerivester.com/category/observers-challenge-reports-complete/>.**

~ Submitted by Glenn Chaple ~

19 Objects for March . . .

Here is a list of 19+ objects you might want to get outside and observe during March. Some are easy but some are challenging! If you revisit some of the January and February objects and add some of your favorites, you'll have an excellent observing list! Just remember...it's cold out there so bundle up!

Multiple Stars:

38 Geminorum: magnitudes 4.7/7.8; Separation is 7.3"; What colors do you see?

Struve 817: 8.6/8.9; 18.6"; Pretty pair of white stars in the same low power field with Betelgeuse.

Beta Monocerotis: A very impressive triple star! AB: 4.6/5.0; 7.1"; BC: 5.0/5.3; 2.9"

Winnecke 4 (M40): 9.6/10.1; 52.7" (Near 70 UMa); Unimpressive pair of white stars! See if you can spot nearby galaxies, NGC 4290, and NGC 4284.

Colorful Stars:

W Canis Minoris: Magnitude 8.8 carbon star. Can be found 2.3 degrees east of Procyon.

145 Canis Majoris (h 3945): The "Winter Albireo." A superb double star; blue and orange. Near NGC 2362, The Tau Canis Majoris cluster.

Galactic Clusters:

M93: A bit south but well worth the hunt. A fine galactic cluster; often overlooked. While here, check out k Puppis, an exceptionally fine double star.

M47: Bright, easy cluster in Puppis. Probably visible in your finder scope.

M46: A bit east and south of M47. Faint. Pay attention to the superimposed planetary nebula, NGC 2438. UHC/OIII filters will help. The planetary nebula, NGC 2440 lies 3 degrees to the south.

M50: Some 9 degrees north and a little east of Sirius. Under dark skies, visible in finders.

NGC 2362: Tau Canis Majoris cluster. Very pretty!

NGC 2264: The Christmas Tree Cluster in Monoceros

Globular Clusters:

M79: South of Lepus

M53: For a challenge, try to spot nearby globular cluster, NGC 5053.

Planetary Nebulae:

IC 418 (The Spirograph Nebula): small but 9th magnitude. Can you see its pink/orange color?

NGC 2440 (Puppis): Small-ish: faint. Three degrees south of M46/47. UHC or OIII filters will help.

IC 2149 (Auriga): Magnitude 10.6 and small. Easier than it sounds. Located only 1.2 degrees from Menkalinan.

M97 (The Owl Nebula): Large scopes may show the eyes. Of course, UHC/OIII filters help with planetary nebulae.

Emission Nebulae:

NGC 2261 (Hubble's Variable Nebula): Just south of the Christmas Tree Cluster. Also, a reflection nebula.

NGC 2359 (Thor's Helmet): Start at M47 and move 3 degrees west to magnitude 5.8, HD58461 and magnitude 5.6, HD 57478. Thor's helmet is just 1.5 degrees NW from these stars. Use a UHC or OIII filter.

NGC 2264 (The Cone Nebula): Involved with the cluster listed above.

Galaxies:

M63, M101, M106, M108, and M109: M63 is bright but the others are faint...especially M101!

March 2022 Observer's Challenge:

Abell 21 (The Medusa Nebula): Planetary nebula in Gemini. Large (12.4 x 8.5 arcminutes), Faint (Integrated brightness magnitude 10.2). Dark skies and UHC/OIII filters will help. For a bonus object, check out nearby NGC 2392 (The Eskimo Nebula).

If you are unfamiliar with the location of any of these stars or deep sky objects, Google search for the object's R.A. and Dec. then consult your star atlas. Except for W CMi, these objects

are plotted in *Sky & Telescope's Pocket Sky Atlas*. 145 Canis Majoris is plotted but is unlabeled.

~ Rich Nugent – President ~

Mini Messier Marathon for March . . .

From: messier.seds.org.

M41: Galactic cluster just south and east of Sirius. Note the orange, 7th magnitude, Espin Star at the cluster's center. While you're here, check out NGC 2362, the Tau Canis Majoris Cluster and h3945, the Winter Albireo.

M93: A bit south but well worth the hunt. A fine galactic cluster; often overlooked. While here, check out k Puppis, an exceptionally fine double star.

M47: Bright, easy cluster in Puppis. Probably visible in your finder scope.

M46: A bit east and south of M47. Faint. Pay attention to the superimposed planetary nebula, NGC 2438. UHC/OIII filters will help. The planetary nebula, NGC 2440 lies 3 degrees to the south.

M50: Some 9 degrees north and a little east of Sirius. Under dark skies, visible in finders.

M48: I star hop from the head of Hydra to magnitude 3.9, C Hydrae. The cluster lies just 3 degrees to the west of that star. Pretty cluster of faint stars.

M67: One of the oldest galactic clusters known. Just west of the star Acubens. Faint but worth a visit.

M44: The beehive cluster. Visible to naked eye on dark nights. Large scattering of stars. Owners of large aperture scopes may want to try for the faint galaxies behind this object.

M81/82: Spectacular galaxies in Ursa Major! Very bright. About 12 million light years away. Binoculars will show this pair from a dark sight. M82, the Cigar Galaxy, hosted a bright (10th magnitude) supernova in 2014.

Wishing everyone health, happiness, and clear skies,

~ Rich Nugent – President ~

Skyward . . .

By David H. Levi
March 2022

Star Gazers

"What crowd is this? What have we here? We must not pass it by: A telescope upon its frame, and pointed to the sky..."
William Wordsworth, 1806

While I was working on my master's degree at Queen's University in Canada some 42 years ago, I came across this poem, loved it, and decided to include it in my thesis. Norman MacKenzie, my thesis advisor, a scholar and a genius, penciled one comment at the bottom of this poem: "Wordsworth wrote some wretched verse." Norman did not have much of a sense of humor, but I am still laughing at his written comment.

In his poem, Wordsworth complains about how many people who look through a telescope are disappointed in what they see. At no point in time is that idea more cogent than now. If a telescope we look through cannot offer us a view as good as a space telescope, then that telescope is a failure. By the end of the poem, the crowd abandons the telescope:

*"One after one they take their turns, nor have I one espied.
That doth not slackly go away, as if dissatisfied."* William Wordsworth, 1806

For me, the night sky is far more than our imagined perceptions of what we can see through a telescope. Some of us can look at an Internet photograph all day long, but not I. The beauty of the sky lies in its reality. The planets I see are real worlds. The constellations I point out to young observers contain real stars. One evening I asked a group if they had seen the recent eclipse of the Moon. "Yes," answered one, "I saw it online." No, he didn't. Eclipses are real only if you see them in the sky, while they are happening.

It is a given that a back yard telescope will never show us Jupiter as detailed or as colorful as a telescope out in space will. What that telescope does show us is the genuine sky, a sky without artificial color enhancement, a sky as it really exists on top of our heads on every clear night. It shows us a sky untarnished by the trivial events of the day, and unspoiled by petty concerns that are bothering us. Our own telescope truly shows us the Moon as it was a third of a second ago, a star as it appeared thirty-four years ago, or a galaxy as it appeared twelve million years in the past. Our back yard telescope shows us what is there, and unlike the crowd from 1806 that left dissatisfied, the people of today can understand that the sky they see is real.

~ Submitted by Mario Motta at the request of David Levy ~

Correction . . .

The Trapezium image caption in February's Observer's Challenge should read: "Canon 90D, 2400mm f/16 lens, ISO 800, lucky imaging: 25% of 200 .5sec subs. 100% scale, North up. Image by Doug Paul".

Editor: * Photos by Al Takeda unless otherwise noted.

April Star Fields DEADLINE
Sunday, March 27th

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
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FIRST CLASS

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ASSOCIATE EDITOR: Eileen Myers

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STAR PARTIES: Bernie Kosicki
Laura Sailor
John Harrington

How to Find Us...

Web Page www.atmob.org

MEETINGS: Zoom On-Line Meetings until further notice. Meetings held the second Thursday of each month (September to July) at 8:00 PM. For meeting details go to 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 currently closed. 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 phone #: (978) 692-8708.

Heads Up For the Month . . .

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

Mar 7 Uranus 0.8 degrees North of Moon

Mar 10 First Quarter Moon (Moonset at midnight)

Mar 11 Asteroid Notburga (626) occultation ~20:01 EST (01:01 UT, 3/12)

Mar 13 Daylight Saving Time begins

Mar 18 Full Moon

Mar 20 Vernal equinox (Spring begins in the Northern Hemisphere)

Mar 20 Venus at greatest western (morning) elongation

Mar 24 Last Quarter Moon (Moonrise at midnight)

Mar 28 Mars, Venus, Saturn and the Moon within a 7 degree field (dawn)

Apr 1 New Moon