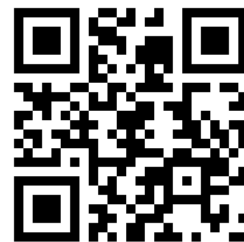




Cache Valley Clear Skies
The Journal of the Cache Valley Astronomical Society



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www.cvas-utahskies.org

Meeting Announcement

Our February meeting will be held **Wednesday, February 27th at 7 pm in Room 840 of the main BTC Campus.** Enter on the east side of the building located at 1301 North 600 West. Dr. Paul Ricket of U of U will be discussing Black Holes.

Upcoming Star Parties

There are no “official” star parties scheduled for the month of January (but that doesn’t mean you can’t put one together on your own!!).

Special Recognition

Several CVAS members received “*Recognition of Exceptional Outreach*” awards at our meeting in January. Janice Bradshaw, Gary Bradshaw, Harvey Brown, Bonnie Schenk-Darrington, Alannah Darrington, Blaine Dickey, Dale Hooper, Bruce Horrocks, Lyle Johnson, Mark Kohler, Brad Kropp, Byron N Ray, Clark Salisbury, Garrett Smith, James Somers, Dell Vance, Wendell Waters, Tom Westre, Paul Yamaguchi were given certificates and pins from the *NASA Night Sky Network*. Congratulations!!

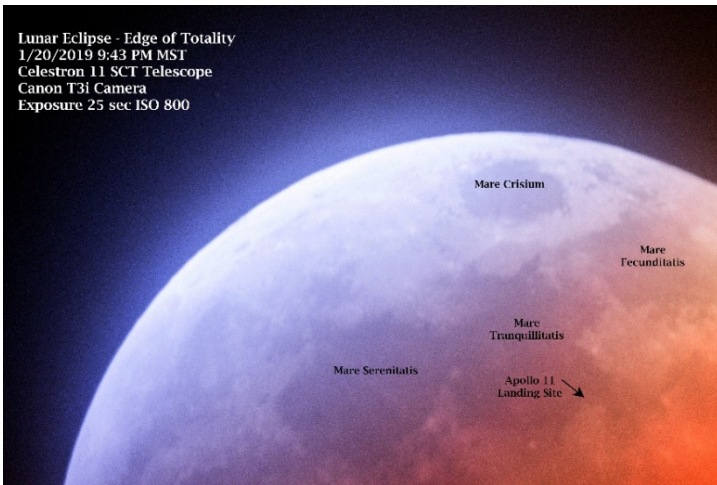
The President’s Corner By Dell Vance, CVAS President



President’s Corner
By Dell Vance

You “gotta love” winter skies in Cache Valley! Most nights in January have been cloudy or foggy. The few nights that it was clear it was 12° F or lower. I was sure that the Lunar Eclipse would be a wash out this year like it was last year. However, there was a hole in the clouds that allowed us to watch the first part of the eclipse on January 20th.

I was so excited as totality neared that that I went out to the observatory and fired up my newer telescope for the first time. It was first light for me with this 11 inch telescope. What a great way to start out with this telescope. I was able to get some great shots of the eclipse. Here is my favorite shot as it entered totality. It made the month, for my astronomy efforts, worthwhile.



We had a great meeting in January with a panel of some of our most experienced members. Many questions were addressed, and I think most of us were able to take away some good information about Telescopes, Mounts, and Eyepieces. We had 19 members there and good participation by all.

February should also be a great month. I expected to see warmer nights as the month progresses. Our CVAS Meeting will be on February 27th and the topic will be “Black Holes”. Dr. Paul Ricket, U of U Physics Department, will be the guest speaker.

Also, in February we have some outreach opportunities with the Cache County School District. We passed a sign-up sheet around the participants at the January Meeting and have filled the slots for the 3 dates that we are going to provide support for. It is great to see this support of astronomy within our club. The events are STEM Fairs at three different elementary schools here in the valley. The booths are fairly small, so we have

limited the support to only two members for each event. The Schools are:

- Wellsville Elementary – February 6th
- Cedar Ridge Elementary (Hyde Park) – March 20th
- Providence Elementary – March 28th

It looks like we should have a great month in February. Be sure to get out and look at the stars this month and get your neighbors involved in the activities with you.

Thanks again for your great support.

Clear Skies!

Newsletter Guidelines

It has been suggested by the CVAS Executive Committee that we come up with some guidelines for article submissions for our newsletter.

- We would like all submissions to be sent to Wendell by the 27th of each month. Just send him an email with the article as an attachment (wendellw57@comcast.net).
- Please submit your articles as a “Word” document.
- If you have pictures or sky maps that go with your article, please place them in the text where you would like them to be, but also send them as separate attachments in the email.
- Please try to keep them at a reasonable length (500 to 800 words or so).
- Perfect spelling and grammar are optional.

Your thoughts and suggestions are always appreciated. After all, this newsletter is for you. Thanks for all of your help in making our newsletter GREAT!! (the editor)

Best CVAS Images and Notes

by Tom Westre

Hi CVAS imagers and observers.

This newsletter article highlights what you are observing and or imaging. We encourage you to send in images and visual reports of what you have found and share it with the rest of us. Several CVAS members reported on the January Lunar Eclipse.

Last month I wrote my first Images and Notes article on the Double Cluster NGC 884 and 869 in Perseus. January was a rough month for observing. However several members did report on the Lunar Eclipse.

We hope February will be a better month to get out and observe. My target for you this month is the open cluster Messier 46 with the nearby planetary nebula NGC 2438.

Constellation: Puppis
 Right Ascension: 07h 41.8m
 Declination: -14deg 49'
 Apparent magnitude: 6.1
 Distance: 5,000 light years
 Est. Age: 251 million years

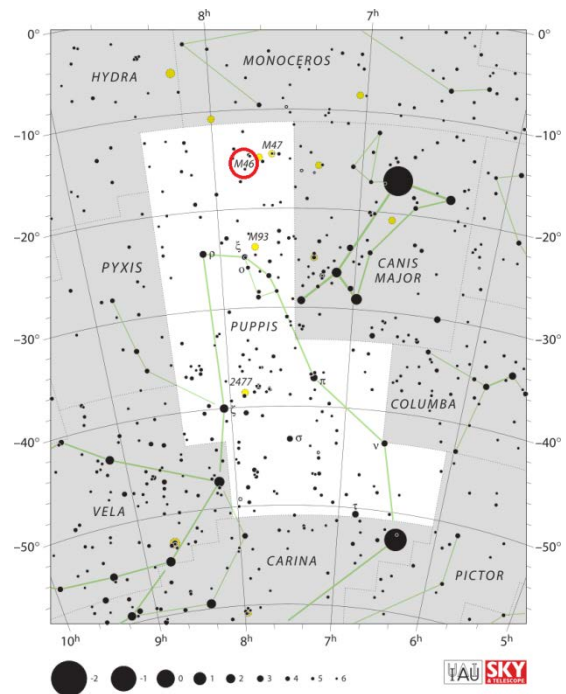


The open cluster M46 lies in the constellation Puppis,

Figure 1 M46 and Planetary Nebula 2438 in Puppis taken Jan 20 2015 with Canon T3i and Orion 80mm refractor. Image by Tom Westre

the Stern just east of Canis Major. M46 is a large open cluster and contains about 500 stars. It is 27 arc minutes in diameter, about the size of the full moon, which means is about 30 light years in diameter and is moving away from us at 41 k/s at a distance of about 5,400 light years.

The planetary Nebula 2438 makes this open cluster and



interesting target. Actually the nebula is only superimposed on the M 46. It's about 7 arc minutes northeast of the cluster center. The nebula is probably a years. It is moving away from us at 77 k/s, much faster than the recession rate of M46.

For an extra bonus treat, check out the open cluster



Messier 47 another open cluster just a degree west of

Figure 2 M46 and Planetary Nebula taken March 2015 with Canon T3i and Celestron 11" telescope. Image by Tom Westre.

M46. Both can be seen in wide view binoculars or a wide angle telescope.

I think you will find observing the unusual open cluster and nebula a treat. Please send me an email with any images or visual observations of the target. Include info on the date, sky conditions, telescope, camera and your

impressions of the nebula. Email me at twestre45@aol.com for March.

Observing the Messier Objects

By Lyle Johnson

When a stargazer acquires his or her first telescope, the moon, Saturn, and Jupiter are surely among the first objects that are observed. The “Messier objects”—relatively bright star clusters, nebulae, and galaxies documented by the French comet hunter Charles Messier in the 1700s—are frequently the next targets that are explored. Several years ago, I decided to locate and view the complete list of Messier objects using my 8" manual reflector telescope. I spent a few months working toward that goal, and on the day that I completed it, I wrote the following account.

April 8, 5:20 a.m.

The temperature outside is a chilly 33° Fahrenheit. I'm kneeling next to my telescope in a recently-plowed field somewhere south of town. I'm not uncomfortable—I'm dressed for this temperature—but my fingers are becoming a little numb.

The sky is pitch black and clear. The Milky Way stretches overhead like a river of clouds, reaching from horizon to horizon, and a few thousand brilliant and faint stars sparkle like the finale of a giant fireworks display. The deep silence of the night is interrupted only occasionally by the soft whoosh of a car on the highway one mile away.

I press the switch on a small red-light flashlight and look down at a map of the constellation Sagittarius. I find my final target—a small circle with a cross indicating M55, a magnitude 7.0 globular star cluster some 17,600 light years from this field.

Turning off the flashlight, I hug my telescope and push it toward the handle of the teapot-shaped group of stars floating above the southeastern horizon. In the finder scope, I locate my first finder stars. Then, I nudge the telescope to the left and downward to my second finder stars. Finally, I stop at the place where the telescope should be pointed directly at M55.

In the finder scope, I see nothing. Is M55 blocked by the stand of trees at the edge of the field? Then, I

look into the eyepiece—my round window to the universe. There it is! Floating in the blackness is the unmistakable round, grainy glow of a globular star cluster! I center the telescope on it, and I admire its beauty and ponder its nature.

Thus I complete my search for all 110 Messier objects!

If you have not yet viewed all of the Messier objects, consider making that an observing goal this year. You will become more familiar with the night sky, you will sharpen your observing skills, and you will enjoy interesting and memorable observing sessions!

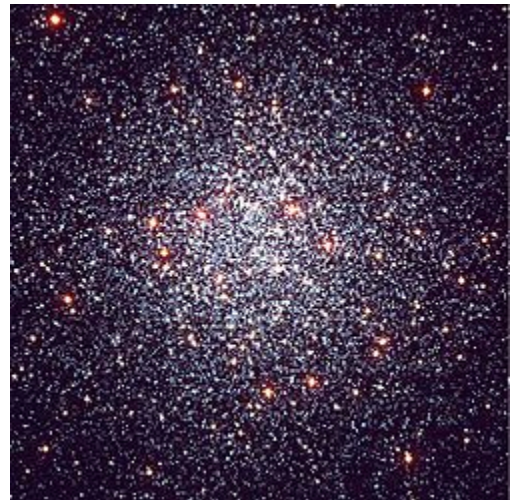
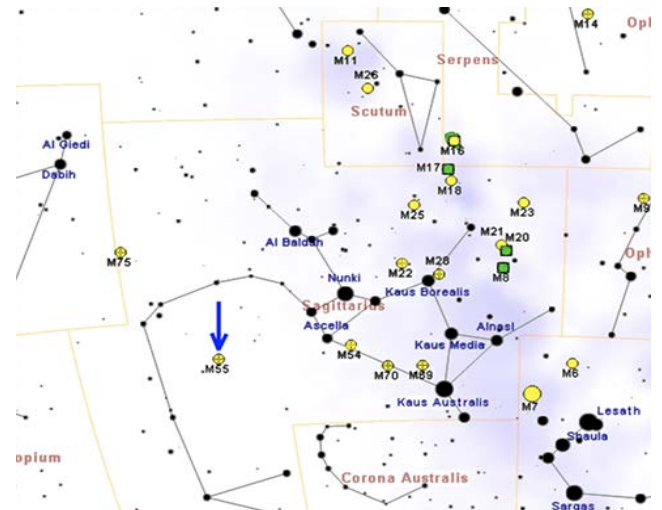


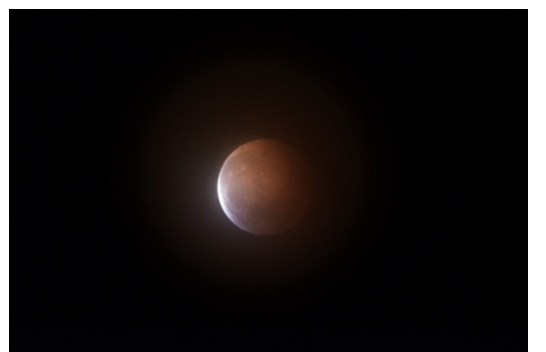
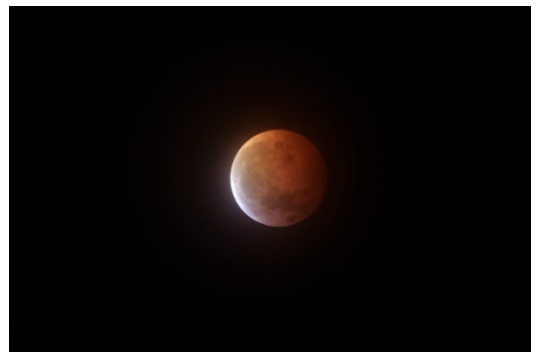
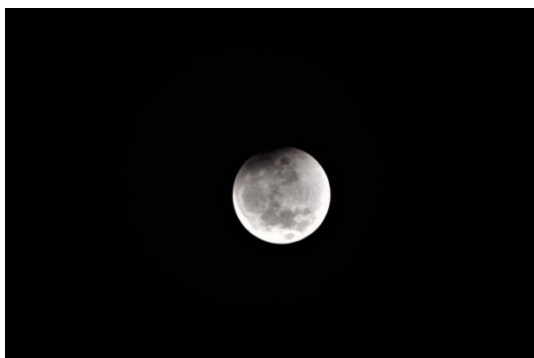
Photo Courtesy of [Wikipedia](#)



Total Eclipse of the moon

By Blaine Dickey

As you may recall we have not had many clear nights here in Cache Valley this winter, so I didn't have much hope of seeing the Total Eclipse of the moon that occurred on the evening of the 20th of January. It had been overcast all day and then miraculously when I look outside around 7:00 pm the clouds had begun to part. Why not give it a try I thought? I went downstairs and brought my Celestron Evolution 6" telescope upstairs and set it up on the driveway along with my NIKON D5100 DSLR and a .5x focal reducer. The earth's shadow began to cover the moon around 8:35 just as predicted. After carefully focusing my camera I began to catch images about every 10 minutes. The cloud cover was pretty much gone until around totality at 9:45 when thin clouds covered the moon. To my surprise my camera was still able to see the fully eclipsed moon. As the Earth's shadow began to retreat it clouded up even more, but from time to time I was able to get a few more images of the Earth's departing shadow through some holes in the clouds. Here are some of the images that were taken that evening.



Spotlight on Lynx, the Lynx (Bobcat)

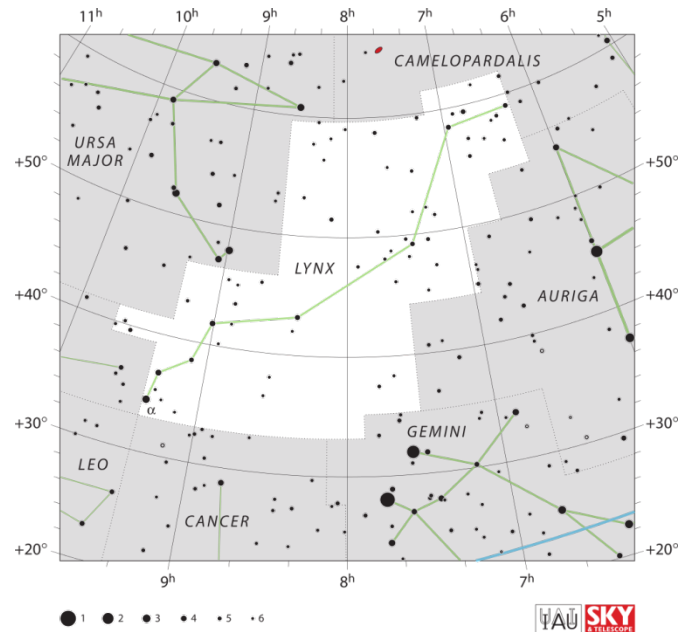
By Dale Hooper

Lynx is a fairly dim constellation sandwiched between Ursa Major, Gemini and Auriga. Much of it is circumpolar for us. It was invented by Johannes Hevelius in the 1600's to fill a gap between Auriga and Ursa Major. Its brightest star is barely third magnitude, but it does have a number of really nice double and multiple stars and some reasonable galaxies.



The constellation Lynx as it can be seen with the unaided eye. © T. Credner & S. Kohle, AlltheSky.com - used with permission

Objects which rank at least three stars in *The Night Sky Observer's Guide* (Lynx is in Volume 1) have been included. As usual, the table is organized according to increasing Right Ascension values.



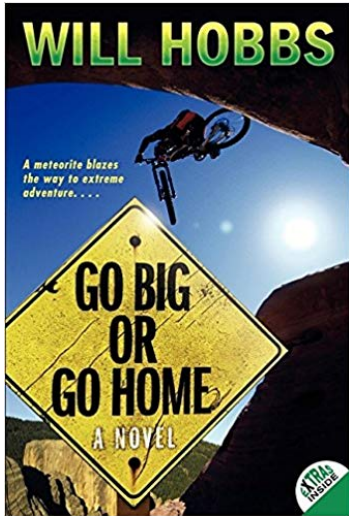
IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

Object	R.A.	Dec.
5 Lyncis (Triple star)	06h26.8m	+58°25'
19 Lyncis (Quadruple star)	07h22.9m	+55°17'
NGC 2415 (Galaxy mag 12.4)	07h36.9m	+35°15'
NGC 2537 (Galaxy mag 11.7) Bear Paw Galaxy	08h13.2m	+46°00'
NGC 2549 (Galaxy mag 11.2)	08h19.0m	+57°48'
Σ1282 (Double star)	08h50.7m	+35°04'
NGC 2683 (Galaxy mag 9.8)	08h52.7m	+33°25'
NGC 2782 (Galaxy mag 11.6)	09h14.1m	+40°07'
Σ1333 (Double star)	09h18.4m	+35°22'
38 Lyncis (Double star)	09h18.8m	+36°48'
Σ1338 (Double star)	09h21.0m	+38°11'
Σ1369 (Triple star)	09h35.4m	+39°57'

Kidstronomy Corner

By Bonnie Schenk-Darrington

I've found some amazing middle-grade astronomy/STEM-oriented novels this past month.



Hobbs, Will. 2008. *Go Big or Go Home*. New York: HarperCollins.
Ages 8 – 12 years 208 pages

\$6.99 on [Amazon.com](https://www.amazon.com)



(4.5 out of 5 planets)

Go Big or Go Home doesn't look like an astronomy-oriented novel at first blush. The cover has a mountain biker on it, which is not something I associate with astronomy. The title didn't suggest an astronomy orientation, either. When this book first came up in my book search at the library, I was sure it was a mistake, until I read the synopsis.

Oh boy, was I wrong! Brady and his BFF and cousin Quinn, both age 17, live in the Black Hills of South Dakota (Brady in Hill City, and Quinn 40 miles away in Lead), and are into everything extreme. This is the perfect book for a boy who loves camping, hiking, caving, biking, fishing, and everything outdoors. The astronomy plot starts up immediately, from the very first page.

Brady's mom is out of town and his dad is working late when Brady sits out on his house's roof and watches a Perseid meteor shower. Suddenly, a meteor crashes through his roof and right through his bed, where he was sitting just minutes earlier! Brady finds the meteorite under his bed, and (excuse the pun) is over the moon. It looks like a

burnt baked potato, but is much heavier. He calls Quinn immediately, and Quinn talks his dad into letting him visit. Various madcap adventures result, including naming the meteorite Fred (which stands for "Far Roaming Earth Diver"); showing it to visiting "meteorite expert guy" Dr. Ripley ("Dr. Rip") at the Hill City Museum, who takes a sample for analysis; taking the meteorite camping, fishing, and caving; showing it to coffee-shop cutie Crystal (on whom both boys have a crush); shooting the meteorite from a homemade catapult; and trying to keep it out of the grubby hands (and paws) of Brady's bullying neighbors, the Carvers, and their dog, Attila. Dr. Rip determines that the meteorite came from a volcano (quite probably Olympus Mons) on Mars and suggests a plausible scenario for how it came to earth.

In the course of all these adventures, Brady, Attila, and Dr. Rip start experiencing some weird symptoms, and they realize that Fred has infected them with Martian bacteria. From there, it's a race against the clock to find the cure and quarantine the contagion.

The book was full of adventure and fun. I lived in Montana (South Dakota's neighbor) for several years, and some of the slang the boys used (e.g., p. 37: "That's so sick, it's wacky") rang *very* true. So did the obsession with the outdoors, and the way the boys' fathers' jobs centered around mining and tourism. All of the astronomy information struck me as both accurate and exciting. And if you do not think it would be awesome to take a meteorite fishing or caving with you, or to shoot it from a catapult, you are—with all due respect—not a teenage boy. What I love most about this book is that, while the boys do play a few video games, they are, most of the time, active and engaged with the outdoors. I also like that Brady has asthma, because two of my children have asthma, and I don't see a lot of characters with that condition in novels. I also like how, although both boys come from blue-collar families, Dr. Rip encourages Brady, "Work hard in school, Brady. , you might have a future in the stars" (p. 182).

One thing I did struggle with, from a parental point of view, is the absentee parenting the boys both undergo. Quinn's dad is a widower. Brady's mom is visiting family in Iowa. Brady's dad is at work during the day. It's believable up to that point. But

then, the boys' fathers decide to take a trip to Wyoming for a couple of days to check out a possible new job for Quinn's dad. How do they let the boys know? They leave a note. Meanwhile, the boys decide to go camping overnight . . . and also leave Brady's dad a note. I have to say that it boggles the mind that both parents and teens in a lower-middle-class, stable, loving family situation would find this a workable arrangement. It beggared belief.

In spite of the Amazon suggested age range of 8 – 12 years old, I think that an 8- or 9-year-old would have trouble coping with this book. I really think it belongs firmly in the middle-grade age range (11 – 14 years). You may wonder what the romance quotient is in this book; it's pretty much zero. Both Quinn and Brady think Crystal is cute, and Quinn's dad likes Crystal's mom. But this is an extremely minor side plot. Quinn's dad and Crystal's mom don't start dating till the end of the book; likewise, Brady asks Crystal out right at the end of the book. The meteorite plot trumps everything else. Brady is *much* more ecstatic about the meteorite than he is about Crystal.

This is a fun novel that explores what extraterrestrial life might look and behave like. I could hardly put it down!

A Different Kind of “Astro” Challenge

Looking for a different type of Astronomy challenge? Try the Full Moon Running and Walking Challenge for 2019. This challenge combines exercise with astronomy. The goal is to run/walk a mile during each full moon of the year. You can also earn a cool glow-in-the-dark medal when you finish the challenge. To register, just follow this link:

[FULL MOON RUNNING & WALKING CHALLENGE 2019](#)

It's not too late to join in the fun, and it's never too late to get some good exercise.

The January Eclipse

Photographed by Bruce Horrocks



Using a Skywatcher Pro 100mm telescope and a ZWO ASI294 Pro Color camera with a 4 second exposure

Upcoming Events and Anniversaries

- Feb 01 - 20th Anniversary (1999), Galileo, Europa 19 Flyby
- Feb 02 - Moon Occults Saturn
- Feb 02 - Asteroid 37582 Faraday Closest Approach To Earth (1.548 AU)
- Feb 02 - Asteroid 19383 Rolling Stones Closest Approach To Earth (1.657 AU)
- Feb 03 - New Moon
- Feb 04 - Asteroid 17627 Humptydumpty Closest Approach (1.822 AU)
- Feb 05 - 45th Anniversary (1974), Mariner 10, Venus Flyby
- Feb 06 - Moon Occults Asteroid 4 Vesta
- Feb 07 - 35th Anniversary (1984), 1st Untethered Spacewalk (Bruce McCandless)
- Feb 10 - Conjunction of Moon and Mars
- Feb 07 - William Huggins' 195th Birthday (1824)
- Feb 10 - First Quarter Moon
- Feb 12 - Asteroid 4148 McCartney Closest Approach (1.086 AU)
- Feb 12 - Asteroid 19535 Rowanatkinson Closest Approach (2.113 AU)
- Feb 13 - Mars Passes 1.1 Degrees from Uranus
- Feb 15 - Galileo Galilei's 450th Birthday (1564)
- Feb 18 - Venus Passes 1.1 Degrees From Saturn
- Feb 19 - Supermoon Full Moon
- Feb 19 - Mercury Passes 0.8 Degrees From Neptune
- Feb 21 - Scott Kelly's 55th Birthday (1964)
- Feb 21 - Mark Kelly's 55th Birthday (1964)
- Feb 24 - 50th Anniversary (1969), Mariner 6 Launch (Mars Flyby Mission)
- Feb 25 - Comet 46P/Wirtanen At Opposition (0.517 AU)
- Feb 26 - Last Quarter Moon
- Feb 27 - Mercury At Its Greatest Eastern Elongation (18 Degrees)

Astro-Personality Highlight

As most of you are aware, on January 1st of this year, the New Horizons spacecraft did a flyby of the asteroid **2014 MU₆₉**, nicknamed **Ultima Thule**. One of the team collaborators has a familiar name: Brian May. Yes it is *that* Brian May, lead guitarist for the rock group *Queen*.



May in concert and at Paranal Observatory

May studied physics and mathematics at [Imperial College London](#), graduating with a BSc (Hons) degree and ARCS in physics with [Upper Second-Class Honours](#). From 1970 to 1974, he studied for a [PhD](#) degree at Imperial College. When Queen started to have international success in 1974, he abandoned his doctoral studies, but co-authored two [peer reviewed](#) research papers, which were based on his observations at the [Teide Observatory](#) in [Tenerife](#).

In October 2006, May re-registered for his PhD at Imperial College and submitted his thesis in August 2007. His PhD investigated [radial velocity](#) using [absorption spectroscopy](#) and [doppler spectroscopy](#) of [zodiacal light](#) using a [Fabry–Pérot interferometer](#) based at the [Teide Observatory](#) in [Tenerife](#). He graduated at the awards ceremony of Imperial College held in the [Royal Albert Hall](#) on 14 May 2008.

In October 2007, May was appointed a Visiting Researcher in Imperial College and continues his interest in astronomy and involvement with the Imperial Astrophysics Group. He is co-author, with Sir [Patrick Moore](#) and [Chris Lintott](#), of *Bang! – The Complete History of the Universe* and *The Cosmic Tourist*. May appeared on the 700th episode of *The Sky at Night* hosted by Sir Patrick Moore. May was also a guest on the first episode of the third series of the BBC's *Stargazing Live*, on 8 January 2013.



May at Johns Hopkins University on 31 December.

On 17 November 2007, May was appointed Chancellor of [Liverpool John Moores University](#), and installed in 2008 having also been awarded an honorary fellowship from the University for his contribution to astronomy and services to the public understanding of science. He held the post until 2013. Asteroid [52665 Brianmay](#) was named after him on 18 June 2008 (probably influenced by the asteroid's provisional designation of 1998 [BM₃₀](#)).

In 2014, May co-founded [Asteroid Day](#) with [Apollo 9](#) astronaut [Rusty Schweickart](#), [B612 Foundation](#) COO Danica Remy and German filmmaker [Grigoriy Richters](#). Asteroid Day is a global awareness campaign where people from around the world come together to learn about [asteroids](#) and what we can do to [protect our planet](#). May was a guest at the 2016 [Starmus Festival](#) where he also performed on stage with composer [Hans Zimmer](#). The theme was *Beyond The Horizon: A Tribute To Stephen Hawking*.

During the [New Horizons](#) Pluto flyby NASA press conference held on 17 July 2015 at [Johns Hopkins Applied Physics Lab](#), May was introduced as a science team collaborator. He told the panel "You have inspired the world." On 31 December 2018 through 1 January 2019, May was in attendance at the watch party for the New Horizons flyby of the Kuiper belt object, [Ultima Thule](#), and performed an updated version of his New Horizons celebratory song.



Greyscale view of 2014 MU₆₉, "Ultima Thule"

CACHE VALLEY ASTRONOMICAL SOCIETY MEMBERSHIP APPLICATION FORM

Member # _____

NAME: _____
 First Middle Initial Last

Address: _____
 Street City State Zip Code

Home Phone: _____ Cell Phone: _____

Work Phone : _____ Occupation : _____

Email Address: _____

How did you learn about CVAS?

_____ Website _____ Star Party _____ CVAS Member _____ Other _____

Membership: \$20 a year

Tell us about yourself: Do you have a special interest in astronomy? Do you have special skills? Are you willing to volunteer on CVAS projects or attend public outreach star parties? Astro equipment owned.

By signing this application, I acknowledge I have access to the CVAS website, cvas-utahskies.org, and the CVAS Constitution. I agree to abide by the constitution.

Signature: _____ Date: _____

Bring this form to the meeting or Mail Application to:

Brad Kropp, CVAS Treasurer
1573 E 1425 N
Logan, UT 84341

For any questions contact our Treasurer at brad.kropp@usu.edu or our Secretary Wendell Waters at wendellw57@comcast.net