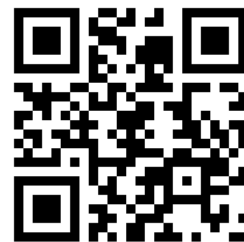




Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society



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www.cvas-utahskies.org

Meeting Announcement

We will be having a Zoom club meeting on Wednesday, at 7:00 pm. We will let you know more as the date gets closer. We hope you will all be able to join us.

Clear Skies!

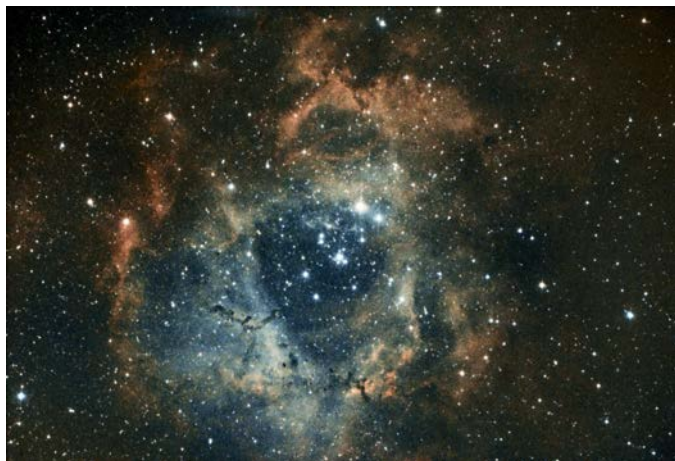
The CVAS Executive Committee

The President's Corner By Bruce Horrocks – CVAS President

Greeting to you all! Hope you are doing well and with January now over we only have what seems like 5 more months of winter. I know time is all relative, but the older I get the longer winter seems to last. But really with only one more month of possible cold temperatures, I think spring is slowly making its way to us.

I have seen many articles about new trends in astronomy and where they think this hobby will be going. One thing is for sure and that is that astronomy is a hot selling hobby for now. If you have tried to buy a telescope or anything related to that you know what I mean. Most suppliers have large list of back ordered items and unfortunately this has brought a few price increases as well. But the one area that has really seen the most change has been in the side of astrophotography. The vast number and range of telescope cameras, filters, processing software, and other related items has really grown and improved.

A couple of years ago I read about some new telescopes that were being developed that had image processor built right into the telescopes. You can now see these telescopes for sale and being used.



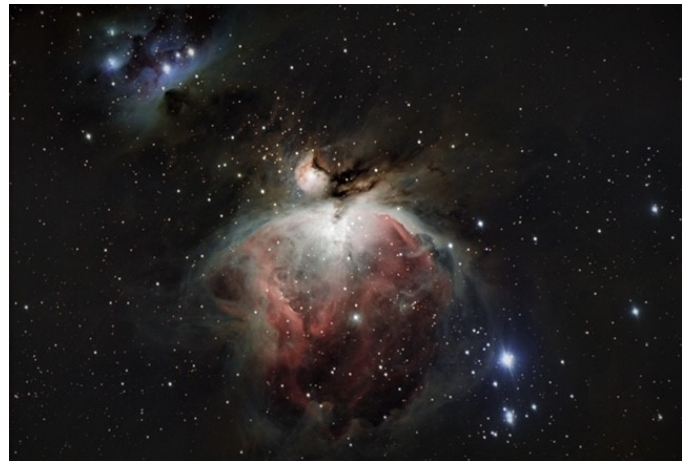
One of these new telescopes is the eVscope by Unistellar. This new telescope was one that when I first read about seemed to be the most intriguing. The current model of this telescope has a focal length of 450 mm and a focal ratio of f/4. There is an electronic sensor that is used in lieu of eyepieces, so what you are seeing is a stacked, real time view of the target you are looking at. Using this process, you are able to see the true colors of nebulas, planets, and other deep space objects. They claim that this live stacking process increases the visual experience by a factor of 100. They come with a computerized mount that connects to your phone or a smart tablet for control. The cost of these is currently around \$3,000 and like anything else right now, you can expect a long wait to get yours. While I don't think I will be running out to get one of these, I do believe that this will be the type of telescope of the future.



For many years I considered myself a visible astronomer. I really had no interest in trying photography with my telescope and like to look at the moon and the planets. But this was pretty much all I could see. As I got older and the eyes started to get blurry, visual observing wasn't so enjoyable. So, for about 4 years or so I actually quit looking at things and just packed my telescopes up. Then one day I met a local photographer and he was showing me some images he took of Andromeda while not even using a telescope. I was shocked to see what his pictures had revealed. I had looked at it with my telescope, but all I could see was what a fuzzy dot. I thought to get anything better than that you needed a budget the size of the Hubble Observatory.

The cost of CCD and CMOS cameras has really come down in price over the years and with some software enhancement you are now able to get really professional class images on an affordable budget.

I am sure that there will always be telescopes with eyepieces for your viewing pleasure, but it is just my guess that as they improve the sensors and the software, these will be the telescopes of the near future.



A couple of years ago I had the chance to go see the Mt. Palomar telescope. As I walked around the site of this massive telescope, I noticed one of the first color images it had taken of the Orion Nebula. It was okay, nothing really spectacular and even my wife told me my images looked much better, but for 1953 I am sure it was amazing. I imagine that years from now like in 2041 or so someone will look at my images and say they look okay, but nothing like what they might be able to produce then. I love progress and I really do appreciate those that strive to make our lives better and improved. I think we all will be amazed at what the future will bring. But for now, let's just get through February.

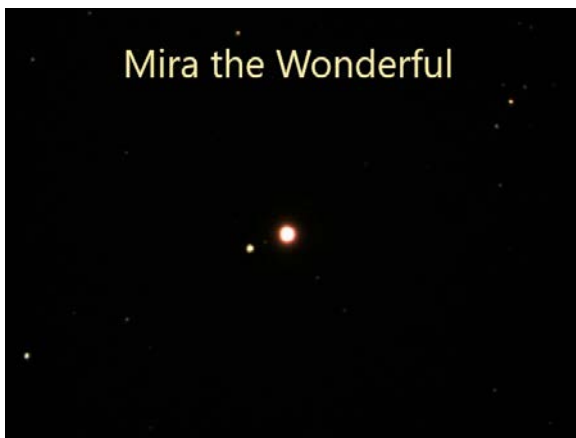
Clear Skies,

Bruce Horrocks

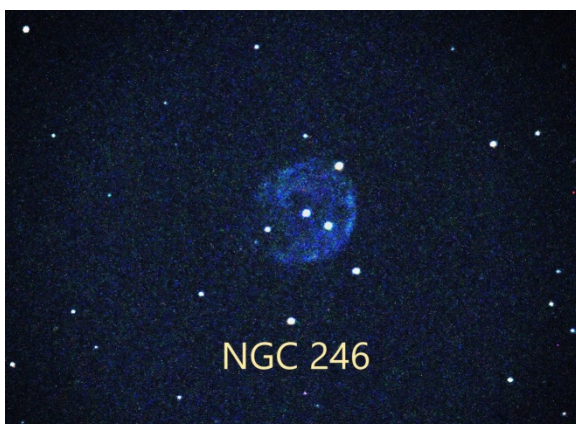
Cetus – The Whale, by Blaine Dickey

The winter constellation Cetus is quite dim with the brightest star only rising to magnitude 2. Nevertheless it has some interesting celestial objects that are worth looking at.

Mira the Wonderful also known as Omicron Ceti is a red variable star that was first observed in 1596 by David Fabricius as a 3rd magnitude star in the neck of Cetus who thought it was a new star. It turns out that it is a variable star that varies from about magnitude 3.5 to a minimum of 8.5 to 10 with an 11 month period. As seen in the image below taken recently from my backyard observatory it is a double star as well.



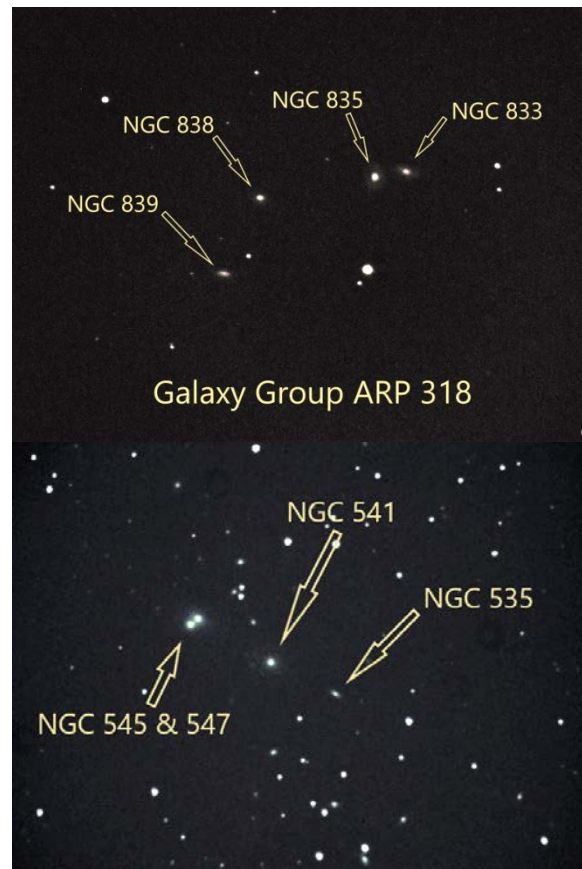
Another object, NGC 246 also known as the Skull Nebula, is a faint and fairly large bluish planetary nebula discovered by William Herschel in 1785. This planetary will require dark skies and fairly large aperture.



NGC 779 is an 11th magnitude spiral galaxy that is located about 63 million light years from our solar neighborhood. This galaxy is receding away from us at about 860 miles per second.



An interesting galaxy group called Arp 318 resides in Cetus and includes the galaxy group of NGC 833, 835, 838, and 839. The brightest member of this group is NGC 835 is a dim 13th magnitude galaxy that is 178 million light years away from our solar system.



Another galaxy group seen above consists of 4 galaxies NGC 535, 543, 546 and 547. These are dim galaxies of magnitudes ranging from magnitude 12 to 14.9. The distance ranges from 230 to 260 million light years. They are receding from us from 1.6 to 1.8% of the speed of light.

NGC 881, a spiral galaxy seen below, is of magnitude 12.4 at a distance of 240 million light years. This image was taken with a MallinCam Jr. Pro video camera. Though the image is of somewhat low quality it is nevertheless amazing to me just how deep this camera can image revealing faint spiral arms around a bright core.



NGC 908 is a brighter spiral galaxy at magnitude of 10.1 It is closer at 58 Million light years. In both these images you can clearly see the spiral arms of each galaxy.



Messier 77 is a bright barred spiral Galaxy discovered by Pierre Mechain in 1780. Mechain communicated this finding to Messier who added it to his list of Messier objects. Messier 77 is quite bright at magnitude 8.9 and is located at a relatively close distance of 33 million light years. This galaxy should be an easy view through a modest size telescope at moderate magnification.



And last but not least is another bright spiral galaxy NGC 157 of magnitude 10.4. This galaxy is located at 92 million light years.



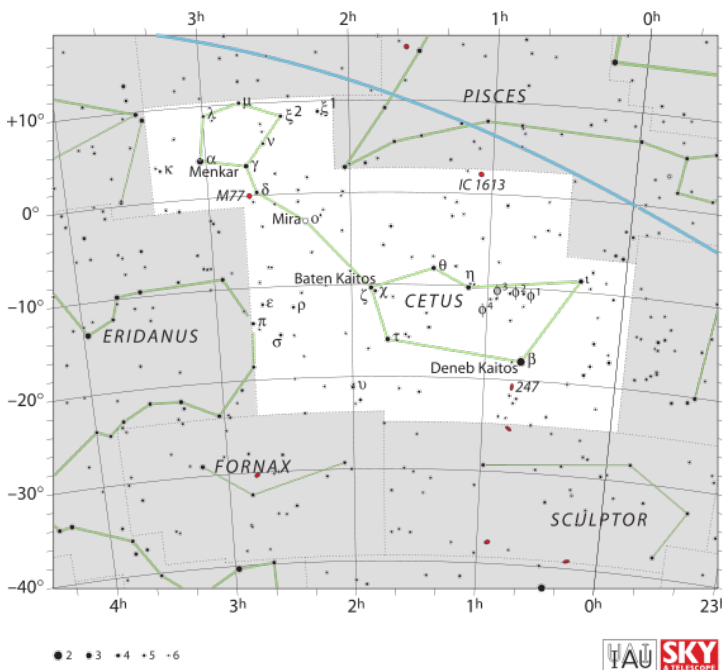
This is a fair sampling of the objects visible in the constellation Cetus. There are always pleasant surprises waiting to delight the diligent celestial navigator.

Spotlight on Cetus, the Whale

By Dale Hooper

Cetus was originally the sea monster from the Andromeda myth, but in modern times we know it as the whale. It gets a bit higher in the sky than Sculptor (which was featured last month) and like Sculptor it is composed of fairly dim stars. It is well away from the plane of the Milky Way galaxy so there are many galaxies which reside in its boundaries.

It is also the home of Mira which is the prototype of a type of variable star. Mira varies from around magnitude 2.0 to 10.1 over a period of 332 days. Mira is a red giant star that is in the process of fusing helium in its core. It is expelling the outer layers of its atmosphere – which will eventually form a planetary nebula after Mira has ceased the fusion process.



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

I am only listing objects which rate at least four stars in *The Night Sky Observer's Guide* (Cetus is in Volume 1). As with Sculptor, there are many galaxies which rate three stars which I haven't listed. Many of these three star galaxies can be readily observed with an eight inch telescope. As usual, the table is organized according to increasing Right Ascension values.

NGC 157 (Galaxy mag 10.4)	00h34.8m	-08°24'
NGC 246 (Plan neb mag10.9)	00h47.0m	-11°53'
NGC 247 (Galaxy mag 9.2)	00h47.1m	-20°46'
26 Ceti (Double star)	01h03.8m	+01°22'
NGC 578 (Galaxy mag 11.0)	01h30.5m	-22°40'
NGC 779 (Galaxy mag 11.2)	01h59.7m	-05°58'
66 Ceti (Double star)	02h12.8m	-02°24'
Mira (Variable star)	02h19.3m	-02°59'
84 Ceti (Double star)	02h41.2m	-00°42'
Messier 77 (Galaxy mag 8.9)	02h42.7m	-00°01'
γ Ceti (Triple star)	02h43.3m	+03°14'
NGC 1087 (Galaxy mag 10.9)	02h46.4m	-00°30'
α Ceti (Binocular double)	03h02.2m	+04°05'

CVAS on Utah Public Radio

Listen to CVAS on Utah Public Radio each Tuesday at 4:48 pm. Blaine Dickey and Tom Westre are writing weekly astronomy related scripts and recording the program at their station. We are pleased that the folks at UPR have invited us to present a weekly topic on astronomy. You can listen in Logan on 91.5 KUSU-FM, or 89.5 KUSR Logan, with translators 92.1 Brigham City, 89.3 Bear Lake. There are other translators from Soda Springs to St George. You can also listen anywhere on their live stream or download UPR's free app on your smartphone. Check this out at www.upr.org

Special Announcement

The CVAS website is up and operating. I would appreciate any feedback from club members. The website has a Gallery page and club members are invited to email me any images they take with their telescopes. If they include their name, type of telescope and camera that would also be informative. I also have a page for club members to send a picture of their telescopes and/or observatories. I also encourage taking pictures of our meetings, STEM events or star parties for the image gallery. – Tom Westre; Webmaster

Object	R.A.	Dec.
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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).
- Preferred font is Times New Roman
- 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)

Upcoming Events and Anniversaries

- Feb 02 - 90th Anniversary (1931), [1st Rocket Mail Launch by Friedrich Schmiedl](#)
- Feb 03 - 55th Anniversary (1966), [Luna 9 Landing on the Moon](#) (1st Moon Landing)
- Feb 06 - 50th Anniversary (1971), [Alan Shepard's Golf Shot on the Moon](#) (Apollo 14)
- Feb 07 - [Mars Spring Equinox](#)
- Feb 12 - [Chinese New Year](#)
- Feb 15 - [Galileo Day](#)
- Feb 18 - [Mars 2020, Mars Landing \(Mars Rover Perseverance\)](#)
- Feb 19 - 465th Anniversary (1556), [Great Comet of 1556](#) 1st Observed
- Feb 20 - 35th Anniversary (1986), [Mir Space Station Launch](#)
- (1906), [Max Wolf's Discovery of the 1st Trojan Asteroid \(588 Achilles\)](#)
- Feb 23 - 80th Anniversary (1941), [Discovery of Plutonium](#)
- Feb 23 - 85th Anniversary (1936), [1st US Rocket Airmail Launch](#) (1936)
- Feb 26 - 125th Anniversary (1896), [Henri Becquerel's Discovery of Radioactivity](#)
- Feb 26 - [Niccolo Cabeo's](#) 435th Birthday (1586)
- Feb 27 - 410th Anniversary (1611), 1st Observation of a Sunspot by [Johannes Fabricius](#)

Library Loaner Telescope Program Status

10/31/2020

Library	Telescope Donated By	Telescope Placed	Available for Checkout	Library Status
Logan Library	CVAS	6/10/2018	10/15/2018	Loaning out with Holds pending
Logan Library #2	ICON Health & Fitness 	6/18/2019	7/15/2019	Loaning out
Hyrum Library	CVAS	12/11/2018	2/1/2019	Loaning out
Smithfield Library	Occipital, Inc	12/14/2018	4/10/2019	Loaning out
North Logan Library	Utah NASA Space Grant Consortium 	3/4/2019	4/5/2019	Loaning out
North Logan Library #2	Friends of the North Logan Library	10/26/2020	11/1/2020	Loaning out
Cache County Library (Providence)	INOVAR & CVAS Members	3/1/2019	5/22/2019	Loaning out
Lewiston Library	Schreiber Food's 	7/9/2019	9/1/2020	Loaning out
Richmond Library	Anonymous	10/25/2019	1/25/2019	Loaning out
Preston Library	Idaho NASA Space Grant Consortium	9/5/2019	9/26/2019	Loaning out
Mendon Library	Campbell Scientific 	4/8/2019	5/30/2019	Loaning out
Newton Library	A Club Member	9/24/2019	9/24/2019	Loaning out

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 lifetime membership

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:

Janice Bradshaw, Treasurer
175 W 700 S
Wellsville, UT 84339

For any questions contact our Treasurer, Janice Bradshaw at lojbrads@yahoo.com
or our Secretary Wendell Waters at wendellw57@comcast.net