CACHE VALLEY ASTRONOMICAL SOCIETY

Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society

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Vol. 3 Number 7 March 2016 www.cvas-utah.org

Meeting Announcement

Our monthly meeting will be held on **Wednesday, March 23, 2016 at 7:00pm** in the Bonneville Room at the Logan Library.

Please note that this is the fourth Wednesday of the month and not the third Wednesday. The Bonneville Room was unavailable on March 16th.

Our featured speaker will be club member Lyle Johnson. The topic of Lyle's presentation is, "Observing with the Unaided Eyes and Observing with Binoculars".

So if you are someone that is just getting started in astronomy or you want to get more out of your time spent observing, this is a presentation that you don't want to miss.

The President's Corner
By Dell Vance, CVAS President

Eureka! Finally, some observing opportunities above 30˚ F. I was out the other night for about 2 hours and had a great time. I have been working on improving my astrophotography using my Celestron

6SE telescope and a DSLR. Tom Westre's success is inspiring me to do more. One of my challenges has been getting the telescope focused with the camera attached.

Blaine Dickey recommended some time ago that I use a Bahtinov Mask to improve the focus. After getting frustrated with the focusing problem, I purchased the Bahtinov Mask. I have to admit it is a lot easier to focus the system and it really does improve my pictures. The bottom picture is last year without a Bahtinov Mask and the top one is this year with the mask.

Image with the Bahtinov Mask - by Dell Vance

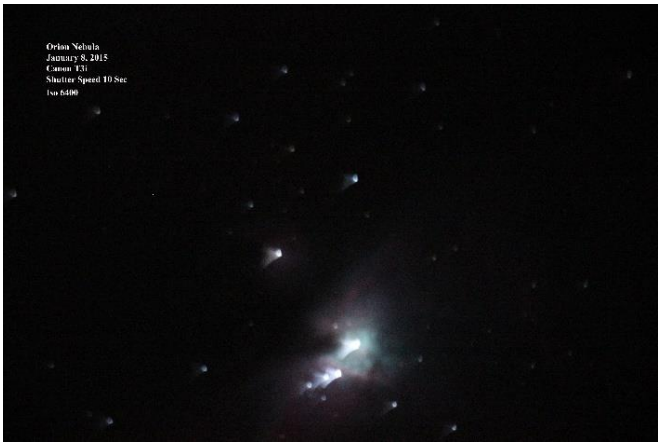


Image without the Bahtinov Mask - by Dell Vance

I used the same telescope and camera to photograph the Orion Nebula. However, the top picture has a shutter Speed of about 70 sec. The good news is that the stars are now spherical without tails.

I still have a long way to go, but I am making progress. I want to encourage you to get out and try something new or improve your process for observing. Be sure to talk with our fellow members. They have great ideas and experience.

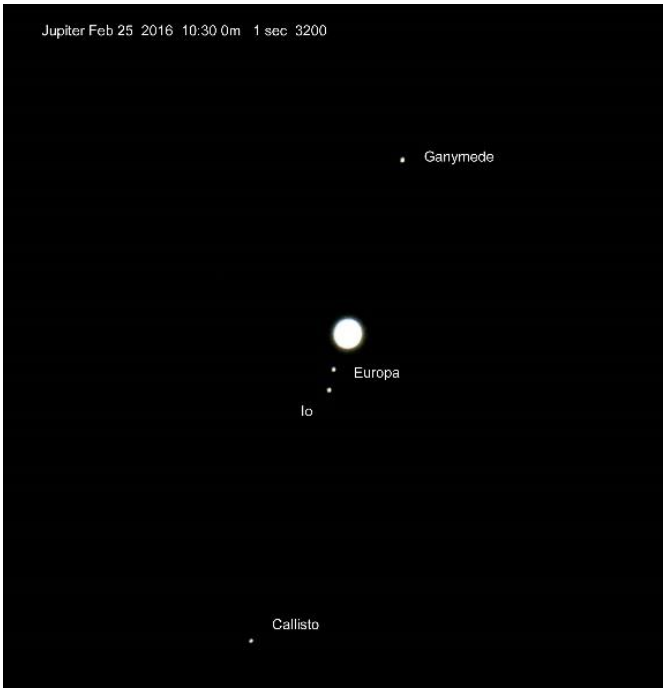
On that note, I want to mention that Tom Westre gave a great presentation at our last monthly meeting. Attendance was pretty poor, but we are hoping that that will improve on our future meetings. Our presenters put a lot of effort into preparing their material and we would like to have as many people there as possible to support their efforts.
This month is particularly a great opportunity to invite our friends to attend the meeting, as it will be informational on how to observe the stars without a telescope. Anyone can do this without a lot of expense. Lyle Johnson will be presenting this on Wednesday, March 23rd, at 7:00 PM at the Logan Library. Be sure to get the word out and bring your friends.

Clear Skies!

Suggestions for March Observing

By Tom Westre

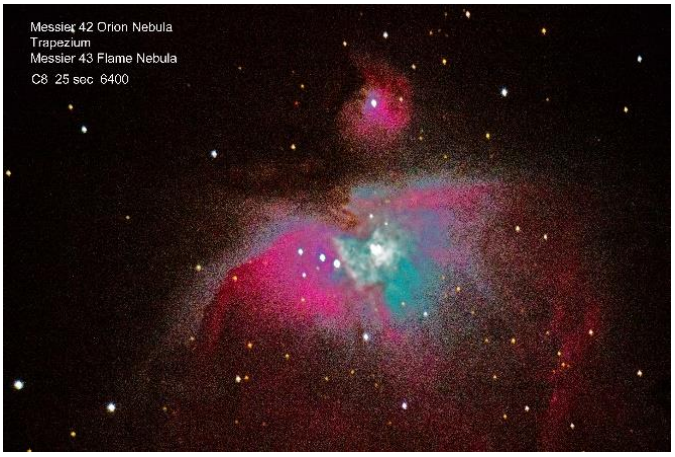
After three months of no observing time, on Feb 20 and Feb 25 I finally got out my 8 inch Meade. I had a long list of targets to image. I have chosen six for this article. Jupiter and the Orion Nebula are common objects I have imaged many times and never seem to get tired of "One more image." I am including three objects I have never imaged but thought you might want to try to observe for yourselves. If you observe these object or image them drop me a line at twestre45@aol.com.



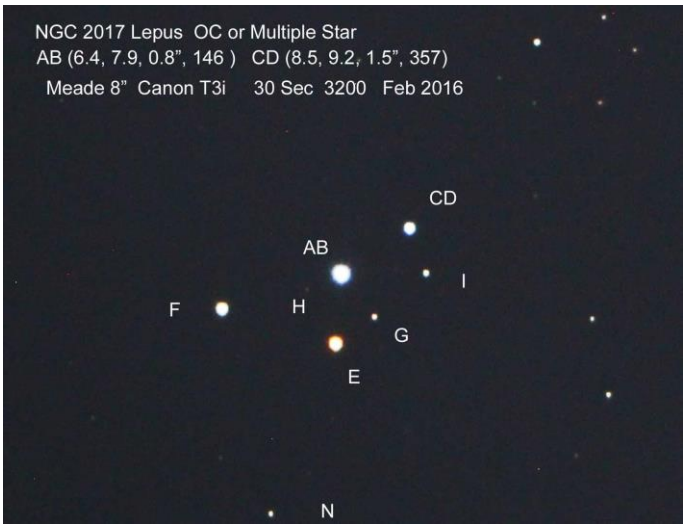
Jupiter images Feb 25, 2016 at 10:30pm with its four Galilean moons, Ganymede, Europa, Io and Callisto. Jupiter rises in the east in the evening this Spring. During several hours of observing its moons they can be seen to move as they orbit the planet. Each night the moons are in a different configuration.

NGC 1579 is a nebula in Perseus, about 5 degrees east of the California Nebula. Sometimes called the Northern Trifid as it looks like the Trifid Nebula in Sagittarius. The Nebula has a bright center I captured in this 35 second image. It's illuminated by stars embedded in the nebula. Its about 2,000 light years away and only 1 million years old.

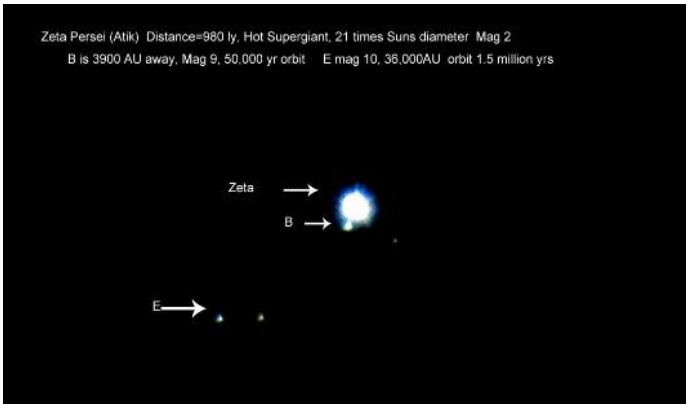
NGC 1662 is a small open cluster in Orion that lies about 1,400 light years away and contains the double star h684. At first sight it may seem undistinguished, but California amateur Russell Sipe sees it shape as looking like a Kingon battle crusier from Star Trek with the chain of stars forming the forward portion of the cursier with two stars on either end forming its bent wings. What do you see?



I am including my image of Messier 42, The Great Nebula in Orion, as it is the first time I imaged M 42 with my 8 inch. I am always amazed at the colors the camera sees but the eye fails to see. If you look in the center in the blue field the famous cluster of four young stars known as the Trapezium can be seen.



NGC 2017 is an interesting open cluster in Lepus. It is also designated at h3780, a multiple star system. . It is either a very sparse open cluster or a very complex multiple star consisting of five brighter stars and four fainter stars. The primary (AB) is a close pair that needs high power to separate. To its SE is the other close double (CD). With high power can you separate the two doubles? Also check out their colors.
(RA 05h 39.4 Dec -17deg 51')



Zeta Persei, also known a Atik, is a multiple star in Perseus, the hero rescuer of Andromeda. Some observers say it is a quintuple star. This system is 980 light years away. Zeta Persei, the brightest member of Perseus OB 2, one of the nearest stellar groupings made of high luminosity O and B stars. Zeta is a blue supergiant that has used most of its hydrogen fuel supply. It radiates 105,000 solar luminosities, and is 21 times the diameter of the sun. It is only 9 million years old and is already dying. It's fate is to explode as a supernova. It has two companions B and E that watch the action. The other two C and D are just line of sight. B is a 9th magnitude that orbits 3900 AU away and takes 50,000 years to orbit Zeta. The fainter E is a 10th magnitude dwarf 36,000 AU from Zeta with a 1.5 million year orbit. Even at that distance Zeta would shine with the light of ten full moons. Check it out with your telescope and see Zeta and its companion. (RA 03 h 54.1m Dec + 31Deg 53')

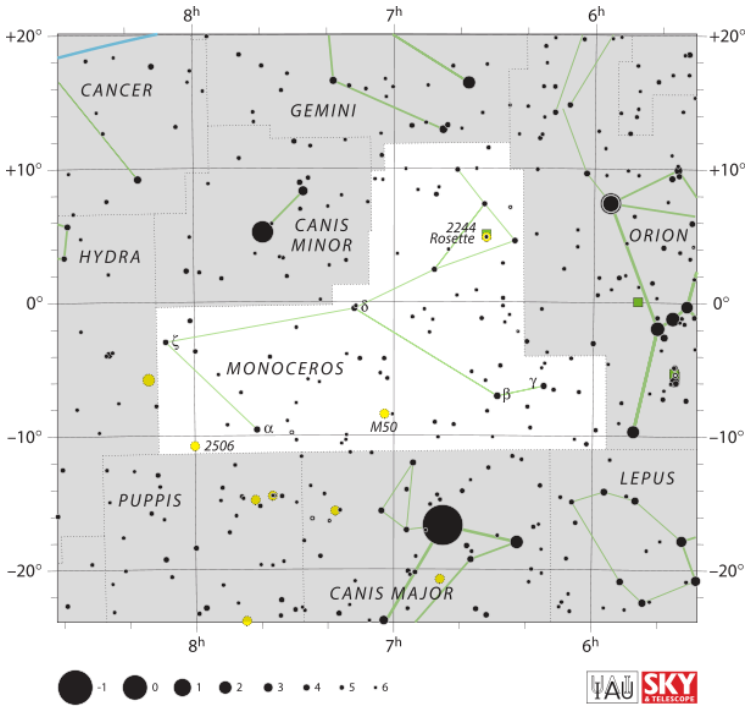
Messier 46 is a nice Open Cluster in Puppis and one of my favorites. It consists of about 100 stars in my 8 inch scope. They are about evenly distributed in a circle about 1 degree across. There is a slight denser concentration at the southern edge where a dark lane separates the region from the rest of the cluster. But that not all, NGC 2438 is a planetary nebula is a foreground object to the Northwest of the cluster. Use a 10 inch scope and high magnification and you might see it. It seems super-imposed on the cluster, but it is several thousand light years closer than M46.

Spotlight on Monoceros, the Unicorn

By Dale Hooper

Monoceros was added as a constellation in the seventeenth century. It is a fairly dim constellation but it is located in the plane of the Milky Way between Orion, Canis Major and Canis Minor so it has many open clusters. The open cluster NGC 2244 is embedded in the Rosette Nebula. The nebula is very faint, but is a beautiful object. I am only listing the objects which rate at least four stars in *The Night Sky Observer's Guide* (Monoceros is in Volume 1). However, there are many additional open clusters in this constellation which rate three stars.

As usual, the table is organized according to increasing Right Ascension values.



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

Object	R.A.	Dec.
ε Monocerotis (Triple star)	06h23.8m	+04°36’
β Monocerotis (Triple star)	06h28.8m	-07°02’
NGC 2244 (Open cluster)	06h32.4m	+04°52’
NGC 2264 (Open cluster)	06h41.1m	+09°53’
NGC 2301 (Open cluster)	06h51.8m	+00°28’
Messier 50 (Open cluster)	07h03.2m	-08°20’

CVAS Minutes – February 2015

The meeting was held in the Bonneville Room of the Logan Library.

Dale Hooper first shared with us information about current events in the sky. The planets are looking good and will get even better over the coming months.

Club member Tom Westre was our speaker. Tom spoke to us about Finding Exoplanets: Earth 2.0, Life in the Universe and Everything.

Tom explained that Carl Sagan discussed exoplanets twenty years before their discovery. He also explained the history of various philosophers which thought there might be exoplanets and extraterrestrial life.

Tom explained that there may be as many as 500 billion galaxies. JWST will be able to observe many galaxies in infrared which should help increase our understanding. Tom stated that there are currently three ways of detecting exoplanets:

1. Direct observation – which finds large planets. This uses “occulting disks” to block the light from the star.
2. Doppler shift caused by the motion of the exoplanet around its star.
3. Brightness variations caused by transits of the exoplanets. The Kepler satellite uses this method and most exoplanets have been discovered using this method.

Tom then spoke about finding planets with life, looking for planets in the habitable zone with liquid water. He said that planets in the habitable zone may not have life if their atmospheres won’t support it.

Tom said that astrophysicist Sara Seager is searching for planets with an atmosphere with bio-signatures, or in other words, spectra which show atmospheres which have the ingredients to support life. Seager is using an equation which is similar to the SETI Drake equation. Tom said that there might even be habitable planets in globular clusters.

We are just at the beginning of exoplanet detection. Amateur astronomers have also been doing follow up work to find exoplanets. Small telescopes can be used for exoplanet detection. Tom told us about an eBook from Bruce L. Gary called **Exoplanet Observing for Amateurs**. He also said that Michael Theusner has written a book called **Exoplanet Observations with Amateur Equipment**.

A few other resources that Tom referred to are transitsearch.org, oscaar.github.io which is a NASA program to help amateurs, and the exoplanet explorer App.

Upcoming Star Parties

Currently there are no organized club star parties planned for March.

Upcoming Events

1 Mar	Last Quarter Moon
	Venera 3, first craft to impact on Venus (1966)
5 Mar	Voyager 1 flies past Jupiter (1979)
7 Mar	John Herschel born (1792)
8 Mar	New Moon, total solar eclipse (Indonesia and Pacific Ocean)
	Jupiter at opposition, (-2.5 mag, 44.4”)
10 Mar	Rings of Uranus discovered (1977)
13 Mar	Daylight Saving Time begins
	William Herschel discovers Uranus (1781)
	Percival Lowell born (1855)
	Giotto probe flies past Comet Halley (1986)
14 Mar	Aldebaran 0.3° south of Moon
	Albert Einstein’s birthday (1879)
	International Pi Day
15 Mar	First Quarter Moon

16 Mar	Robert Goddard launches first liquid fueled rocket (1926)
17 Mar	St Patrick's Day MESSENGER orbits Mercury (2011)
18 Mar	Alexei Leonov, first spacewalk (1965)
20 Mar	Vernal Equinox
21 Mar	Jupiter 2° north of the Moon
23 Mar	Full Moon First photo of the Moon (1840)
25 Mar	Christiaan Huygens discovers Titan (1655)
27 Mar	Easter Sunday
28 Mar	Heinrich Olbers discovers asteroid Pallas (1802)
29 Mar	Heinrich Olbers discovers asteroid Vesta (1807) Mariner 10, first Mercury flyby, (1974)
31 Mar	Last Quarter Moon