



Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society



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www.cvas-utahskies.org

Meeting Announcement

Due to the ongoing covid-19 crisis, there will be no meetings or other events until further notice. We will for sure let you know when we are planning to get together again. Until then, please stay safe and stay healthy.

Clear Skies!

The CVAS Executive Committee

The President's Corner By Bruce Horrocks – CVAS President

I guess it is now official; we are in the dog days of summer. It is hot, dusty, and dry and I am ready for fall time and cooler temperatures. I used to think they called it the dog days of summer because it was so hot that all the dogs, at least mine, just laid around and did nothing. It wasn't until I learned that it was because Sirius, the Dog Star, started showing up again early in the morning sky. I woke up early the other morning and it was good to see it and the other constellations in the sky before the sun came up.

I was never really interested in spending much time looking at the sun until recently. I had the good old solar filters I would put on my telescope to look for sunspots and mainly see just a big white spot in the sky. I even have an old filter that goes on the eyepiece from a Sears telescope I have, boy was that not a risky thing they used to do. I now only use filters that are right out on the front or my Daystar Quark Solar filter. Even with that I worry about so much heat going into the body of the telescope. With my Quark filter I have found looking at the sun to be much more interesting and fascinating. It is so exciting to actually see the solar



Photo by Bruce Horrocks

surface and the prominences that come up from the surface. So, with this hot month ahead I thought I would just share a few interesting facts that I enjoy knowing about the sun.

1) The sun is huge - Not that you can, but the sun could hold around 1,000,000 earths size object if you could stick them in. If you squished them are to get all the extra space out the number increase to 1,300,000 or so. The sun makes up almost 99.9 % of all the matter in our solar system. That is really just one big ball of gas.

2) The sun is loud – We really should be grateful that sound can't travel through space. When you think of how much nuclear fusion is going on at the sun each second that is a lot of explosions you would hear. Some estimate but this at around 6 trillion atomic bombs per second going off. That kind of sound would just be beyond comprehension. So, when you see that big quiet looking sun, know that it is really far from that and be glad you don't hear it.

3) The sun produces a lot of energy – If you could put a sphere around the sun out here in the earth's orbit plane where we are, the surface of the earth in that sphere would only be around 1/2 of 1 billionth of that surface area. This means that earth is only getting about 1 out of 2,000,000,000 of the energy out of the sun. The rest of that sun energy is just wasted into space. Maybe you have heard of the Dyson Sphere, a theoretical way to capture all the suns energy. I would say just imagine if you could only double what the earth gets and turn that into energy, we would not need any fossil fuels to help us live on this earth. On these hot days I am glad to only get what we get.

4) The sun is hot – Inside the core of the sun temperatures can reach 15 million degrees Celsius. That is really hot! I don't know too many things that could endure temperatures like that. If it were not for the large gravitational forces the heat of the core could cause the sun to explode. As you get to the surface the sun temperature cools to a mere 5,600 degrees Celsius. That is a huge drop. Then for some reason when you head out into space some of the corona ejections can be hundreds of times hotter than the surface, one thing that scientist are trying to figure how why.

5) The sun is really moving fast – As the sun orbits around in the galaxy it is really moving fast at around 220 kilometers per second. To compare that with planets in our solar system, Mercury is the fastest at a mere 48 kilometers per second. I guess it is all just relative, but we are all moving really fast thru space and while it seems like the days just drag on, we are really moving forward.

We hope that you are all doing well and enjoying the summer and staying safe. We hope we can someday get together again and do some star gazing or something that we all enjoy. Maybe pizza will have to be a part of that. Until then let's hope for clear skies and a safe resolution of this virus challenge.

Bruce Horrocks

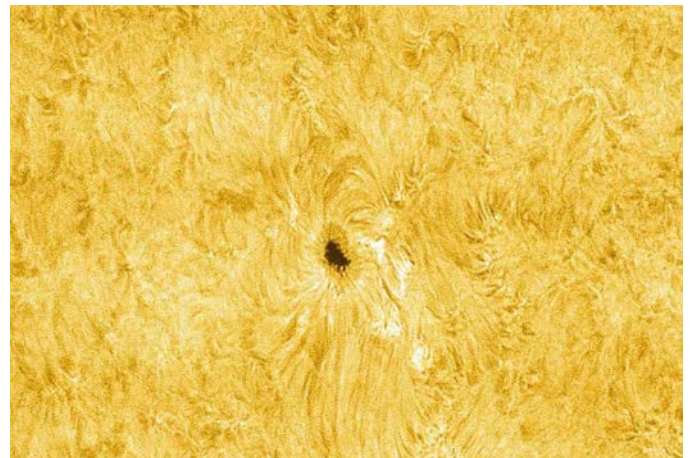


Photo by Bruce Horrocks

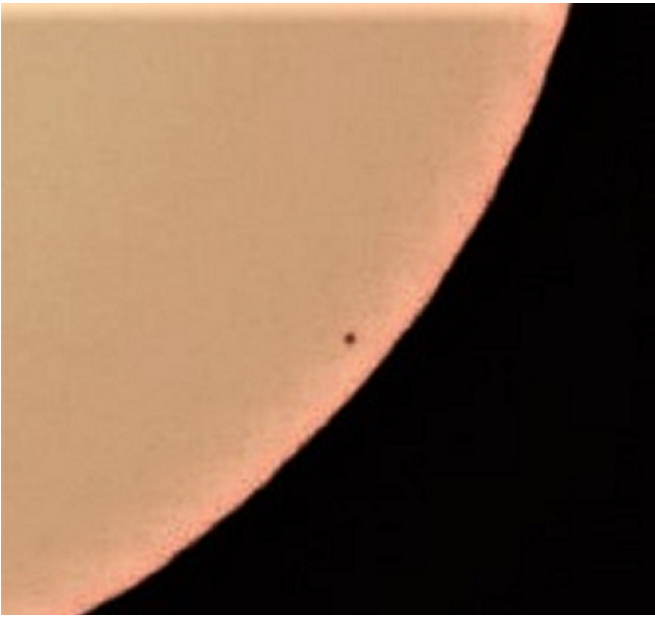
CVAS on Utah Public Radio

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.

Year in review by Blaine Dickey

Beginning in November of last year we have seen a string of celestial events that has made the last eight months one of the best times for observing that I can recall in recent times.

On November 11, 2019 we witnessed the transit of Mercury across the Sun that lasted much of the morning as witnessed here in Cache Valley.



moon and then a little over an hour later Mars emerged from its unlit side.



On April 2 in the evening we watched as brilliant Venus passed close by the Pleiades in the western sky as seen below.



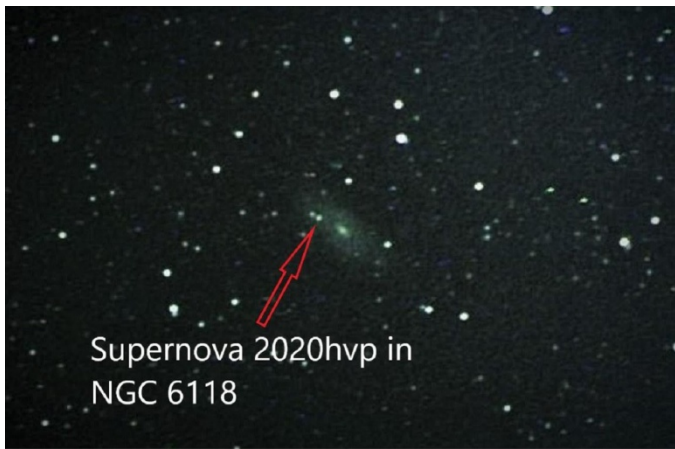
Following the transit of Mercury a total eclipse of the moon took place on January 20, 2020. That evening although it was somewhat cloudy it was still possible to witness and image this event. Below are some images I took that evening.



Then early on the morning of February 18, 2020 the planet Mars was occulted by the bright side of the

At least four supernovas appeared in our night sky this year including these two, SN 2020nzb in NGC 4457 constellation Virgo and SN 2020hqv in NGC 6118 in the constellation Serpens in the as seen below.

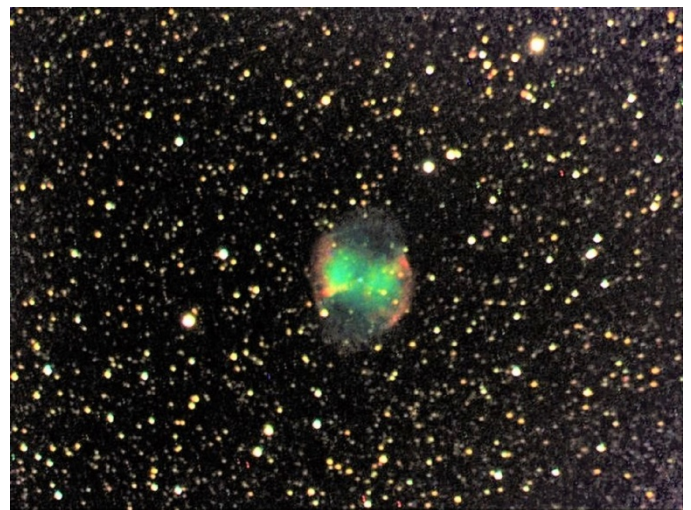




Finally after two promising comets fizzled, many of us have been privileged and awed to see an extraordinary comet NEOWISE with its long tail in our early morning and late evening skies.



And of course this doesn't cover everything. All the other deep sky objects, planets, the moon, meteors, and double stars have been there as well helping us enjoy this extraordinary year. Who knows what wonders the next several months of this year will bring? I'm excited to find out!



Double vision

By Harvey Brown

So the summer is here and it's hot and the COVID-19 is still here and everyone is to stay apart from each other, but with the heat and great clear nights it's hard to stay away. With many more doubles seen this month alone I thought I'd do my ANTI-Social Distancing. So the doubles I present to you are great close ones. Now some of these have only a Tyco number to find them so I hope you have a great star program to get you to them, like Stellarium or Ciel or such. A lot of these are dim and some Averted Vision will be used but that's what makes finding and seeing Doubles fun. Enjoy the clear nights and these close Doubles.

Σ 2804 Con: Pegasus
HIP 106395 SAO 89792 HD 205160
Mag: Pri: 7.7 Sec: 8.0
Sep: 3.7"
Type: Uncertain
RA 21h 32m 58.30s DEC +20° 42' 44.5"
Eyepiece: 5mm
"Very close, but if you look long enough you see the split and slight Magnitude difference also."
Color: Yellow-White

HJ 2974 Con: Cygnus
Tyco2 1640-00308-1
Mag: Pri: 9.7 Sec: 9.9
Sep: 14.4"
Type: Uncertain
RA 20h 30m 59.23s DEC +20° 07' 15.6"
Eyepiece: 5mm
"This is the type of double I like. Close in magnitude and separation. Two eyes looking at you. Out in the open."
Color: Yellow-Yellow

SCJ 27 AB Con: Delphinus
HIP 101920 HD 196793 Tyco 2 1092-00527-1
Mag: Pri: 8.6 Sec: 10.0
Sep: 6.2"
Type: Physical
RA 20h 39m 13.04s DEC +10° 58' 42.0"
Eyepiece: 5mm
"Good and close but the secondary shows up good. You see the magnitude difference. A bit of Averted vision helps bring out the secondary."
Color: Yellow-White

FRM 1 Con: Aquila
Tyco 2 5727-02160-1
Mag: Pri: 9.5 Sec: 10.7
Sep: 10.7"
Type: Physical
RA 19h 35m 25.65s DEC -10° 46' 13.2"
Eyepiece: 5mm
"Small dim and close but both show with a bit of Averted vision. You see the split good and the Magnitude difference. Out in the open."
Color: White-White

Σ 2636 Con: Aquila
HIP 99508 HD 191750 Tyco 2 5169-02185-1
Mag: Pri: 9.4 Sec: 10.3
Sep: 12.5"
Type: Visible
RA 20h 11m 39.98s DEC -04° 35' 24.4"
Eyepiece: 5mm
"Both stars stand out. Close split but seen. You see the Magnitude difference also. Out in the open."
Color: White-White

HJ 2633 Con: Draco
Tyco 2 4407-00797-1
Mag: Pri: 10.0 Sec: 10.1
Sep: 4.5"
Type: Physical
RA 13h 00m 42.81s DEC +73° 41' 0.90"
Eyepiece: 5mm
Nice, close both in magnitude and separation. A bit of averted vision helps bring them more out. In the open. I don't see any magnitude difference."
Color: White-White

Hope you enjoy these doubles and if you want more of the challenging ones just write to me and I can send you a great list to look up.

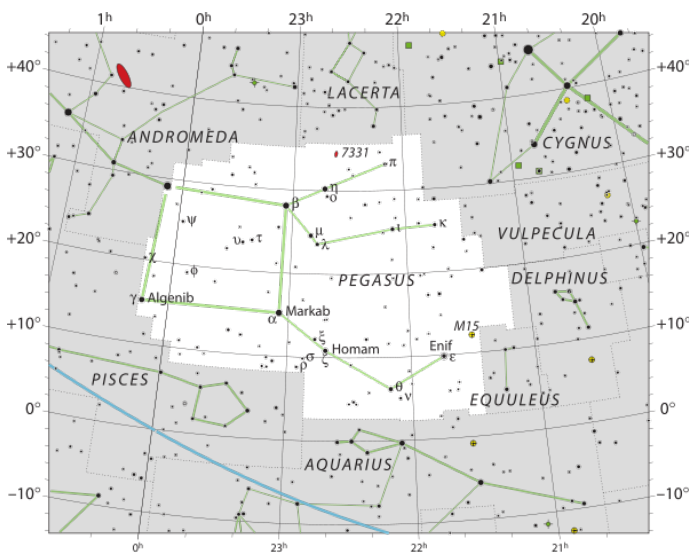
STAY SAFE and KEEP LOOKING UP!

Harvey Brown ngc6720@comcast.net

Spotlight on Pegasus, the Winged Horse

- Submitted by Dale Hooper

Pegasus is a big constellation and the great square is easy to recognize. It is also a great jumping off point that can be used for locating M31 (the Andromeda galaxy). One of my favorite globular clusters, M15 is located at the western end of Pegasus. It is also the home for several fine multiple stars, several great looking galaxies and several galaxy clusters. The October issue of *Sky and Telescope* has a great article, “A Few of My Favorite Things”, on pages 32 – 38 about galaxy clusters in Pegasus.



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

One of the galaxy groups is Stephan’s Quintet which is too faint to include in our table below, but if you have at least a ten inch scope (with dark skies) you may see two or three of the galaxies. The coordinates for the brightest member, NGC 7320 (mag 12.6) are Right Ascension 22h36.1m and Declination +33°57’.

Most of the objects that I’ve listed rate at least four stars in *The Night Sky Observer’s Guide* (Pegasus is in Volume 1), however I have also included several additional galaxies which rate three stars. All of the double and multiple stars rate four stars. As usual, the table is organized according to increasing Right Ascension values (as long as you consider wrapping around to zero increasing).

Object	R.A.	Dec.
Messier 15 (Globular Cluster)	21h30.0m	+12°10’
NGC 7177 (Galaxy mag 11.2)	22h00.7m	+17°44’
NGC 7217 (Galaxy mag 10.1)	22h07.9m	+31°22’
Σ2887 (Double star)	22h14.3m	+17°11’
NGC 7339 (Galaxy mag 12.2)	22h37.8m	+23°47’
44 Pegasi (Multiple star)	22h43.0m	+30°13’
NGC 7448 (Galaxy mag 12.6)	23h00.1m	+15°59’
NGC 7457 (Galaxy mag 11.2)	23h01.0m	+30°09’
NGC 7454 (Galaxy mag 11.8)	23h01.1m	+16°23’
NGC 7479 (Galaxy mag 10.8)	23h04.9m	+12°19’
57 Pegasi (Double star)	23h09.5m	+08°41’
NGC 7619 (Galaxy mag 11.1)	23h20.2m	+08°12’
NGC 7626 (Galaxy mag 11.1)	23h20.7m	+08°13’
Σ3007 (Double star)	23h22.8m	+20°34’
NGC 7678 (Galaxy mag 11.8)	23h28.5m	+22°25’
NGC 7741 (Galaxy mag 11.3)	23h43.9m	+26°05’
NGC 7742 (Galaxy mag 11.6)	23h44.3m	+10°46’
NGC 7743 (Galaxy mag 11.5)	23h44.4m	+09°56’
NGC 7769 (Galaxy mag 12.0)	23h51.1m	+20°09’
NGC 7814 (Galaxy mag 10.6)	00h03.3m	+16°09’

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

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

- Aug 02 - 140th Anniversary (1880), [Greenwich Mean Time \(GMT\)](#) Officially Adopted in Great Britain
- Aug 05 - [Neil Armstrong's](#) 90th Birthday (1930)
- Aug 06 - [Southern Iota Aquarids Meteor Shower](#) Peak
- Aug 09 - [Moon Occults Mars](#)
- Aug 12 - [Perseids Meteor Shower](#) Peak
- Aug 12 - 15th Anniversary (2005), [Mars Reconnaissance Orbiter](#) Launch
- Aug 12 - 60th Anniversary (1960), [Echo 1](#) Launch
- Aug 13 - [Venus](#) At Its Greatest Western [Elongation](#) (46 Degrees)
- Aug 13 - [Rasmus Bartholin's](#) 395th Birthday (1625)
- Aug 19 - 60th Anniversary (1960), [Korabl-Sputnik 2](#) Launch (Carried [Dogs Belka & Strelka](#))
- Aug 20 - 45th Anniversary (1975), [Viking 1](#) Launch (Mars Lander/Orbiter)
- Aug 20 - 135th Anniversary (1885), [Ernst Hartwig's](#) Discovery of [S Andromedae Supernova](#)
- Aug 22 - [Ray Bradbury's](#) 100th Birthday (1920)
- Aug 25 - [Northern Iota Aquarids Meteor Shower](#) Peak
- Aug 29 - [Moon Occults Dwarf Planet Pluto](#)

Library Loaner Telescope Program Status

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
Cache County Library (Providence)	INOVAR & CVAS Members	3/1/2019	5/22/2019	Holds on telescope
Lewiston Library	Schreiber Food's 	Last Week of June (Tentative)		Telescope was placed and they are in the process of setting it up.
Richmond Library				Received Telescope
Preston Library	Idaho NASA Space Grant Consortium			Telescope placed. They plan to start loan out with Preston Jr. High Star Party
Mendon Library	Campbell Scientific 	4/8/2019	5/30/2019	Loaning out
Newton Library				Ready for check 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