CACHE VALLEY ASTRONOMICAL SOCIETY

Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society

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Meeting Announcement

There will be NO MEETINGS for the month of December. Instead, we will be having a Winter Social at Dell Vance's on December 4th. We will send out more information via email.

Hope you all have a safe, clear Holiday Season!!

Upcoming Star Parties and CVAS Events

Dec 4 – Winter Social at Dell Vance's
240 N 100 W Newton, UT

The President's Corner
By Bruce Horrocks – CVAS President

'Tis the season to make that list of all the new toys and gadgets that we want under the tree to make next year great for astronomy. My wife often reminds me that most men are just boys with a larger shoe size. And, like most kids we always want to find a good toy with all those socks under the Christmas tree. I know she is right concerning me. There are so many new developments in astronomy that my list seems to grow longer each year, as new scopes or cameras are advertised. I have always enjoyed astronomy and photography, so combining them was just the natural thing to do for me. At my last current count, I had 8 different telescope and 5 different cameras. When my wife asks me why I need so many since you can only look thru one at time, I inform her that telescopes are like shoes and each has a different fit and feel, and ask her, "So how many different pairs of shoes do you need?"

So, here is my wish list for this year and so we will have to see if I end up on the naughty or nice list to see if it shows up under the tree.

1) **Sky-Watcher Evostar 72mm ED APO** – I think this is a great little telescope with good optics and a large field of view. It has a focal ratio of 5.8 which makes it a relative faster scope for imaging, the OTA weighs less than 5 pounds, and it has a dual-speed 2" Crayford-style focuser. It comes in a nice travel case and since the scope itself is less than 17" long, it should be easier to take a good quality scope on trips using up less cargo space than 2 pairs of shoes. I might even give it a try as a finder scope as well to just see how that works. I have a few other Sky-Watcher telescopes and have been really impressed with the quality. While I have never looked through a Takahashi telescope, the closest one to this size is the 85mm scope costing almost 10 times as much as this one from Sky-Watcher. At my age and with my eyes, I think it would be hard to see the difference, but I know my pocket would for sure feel the difference.

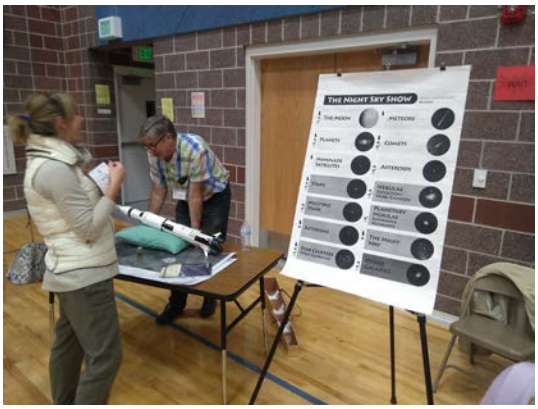
2) **ZWO ASI071 MC-Pro Camera** – This I am sure will be a stretch for Santa to bring me since I haven't been that nice this year. But this is a new camera from the ZWO Company and looks like a great one-shot color camera. It is a Sony 16.2-megapixel sensor that is 23.8mm x 17.7 mm, which should help to produce wider field of views and comes with TEC cooling. I had never heard of ZWO until a few years ago and they have become a renowned manufacturer of dedicated telescope cameras. If you are just getting into astrophotography and are looking for a camera ZWO may be a good place to start. The ASI 290 mini is a great little mono-chrome camera that works great to just pop in like an eyepiece. You can download free software to control the camera and you are up and running taking great pictures of the moon and other larger objects.

3) **PixInsight Software** – If you look at about any astronomy image and read the tools and the process they used to create it; you are generally going to see PixInsight software as one of the tools. I have tried the trial version of this and found it to be both very complicated to use and a great tool to improve the quality of the image. It has so many helpful tools I think it would take years of using this before a good grasp of its abilities would become natural for me. PixInsight is a software program made just for astrophotographers to use for image processing. It has nothing to do with image capture or telescope guiding. I know that to give this a proper review I am going to have to really use this and see how it can help. But, from what I see it has been a big improvement.

Well, that is all that I have on my list for this year and if one of them shows up under the tree that will be more than enough. I find myself feeling so grateful to have the ability and a few tools to be able to look up at the stars at night. I am so grateful for a place where the skies are mostly dark and while there are a few clouds on occasion, we can generally enjoy the beauties of the heavens and mostly be amazed at what is up in that sky. Thanks to all you club members for your help with all our activities this past year and we wish you all a Merry Christmas and a Happy New year.

M51 photo by Bruce Horrocks

Photos from our recent STEM Activity at Summit Elementary School



Photos by Lyle Johnson

Double Vision

By Harvey Brown

It's been another great month of Double star observing for me, with some good clear nights even with the cold and being able to get out early in the evening and be back in at a decent time.

Some of the nights have been cold and a bit hazy but I have been able to get over 130 more Doubles on my list so it makes it hard to choose just a few for this article.

I have decided to give you six doubles this time, with two of them what I call CHALLENGE stars because of either a close split or because averted vision is needed to see the secondary.

All of these Doubles will be visible through the month of December and January.

I first start out with a nice one in Perseus that has a good close split and both are bright magnitude with some nice color to them:

Σ 336 Constellation: Perseus
HIP 14081 SAO 56095 HD 18715
Magnitude Primary: 6.9 Secondary: 8.2
Type: Uncertain
Separation 8.7"
RA. 03h 01m 29.07s DEC. +32° 24' 45.8"
Eyepiece: 14mm

"***A good close one with slight magnitude difference. I see a Gold-Blue color which is good. You can see the split good."***
Color: Yellow-Blue

Σ 471 AB Epsilon 45 Con: Perseus
HIP 18532 SAO 56840 HD 24760
Mag Pri: 2.8 Sec: 8.8 Type: Uncertain
Sep: 9.1"
RA. 03h 57m 51.22s Dec. +40° 00' 36.9"
Eyepiece: 8mm

"This is a cool one, very bright Primary and dim secondary with a small split. But the secondary does pop out, it's not overpowered. You can see the split also"
Color: Blue - White
(On this one I had to use my 8mm eyepiece to bring out the secondary. The part I like about this one is that you could see the secondary without averted vision which made it more special.)

Σ 180 AB 1Gamma 5 Con: Aries
HIP 8832 SAO 92681 HD 11503
Mag Pri: 4.5 Sec: 4.5 Type: Physical
Sep: 7.4”
RA. 01h 53m 31.76s DEC. +19° 17’ 38.6”
Star name: Mesarthim
Eyepiece: 8mm

“Two equal magnitude stars, close but easy split. Stands out great because of the magnitude. Looks like one star with own eyes and has a neat name. Good and Bright.
Color: White –White

Σ 2947 AB Con: Cepheus
HIP 112670 SAO 20259 HD 216172
Mag Pri: 6.9 Sec: 7.0 Type: Physical
Sep: 4.7”
RA. 22h 49m 00.68s Dec. +68° 34’ 12.2”
Eyepiece: 8mm

“A good small Double, very close, but you can see the split and a small difference in magnitude. Two close eyes in space”
Color: Yellow-Yellow

These next two Doubles are the Challenge that I said I would give you.

Σ431 40 o Con: Perseus
HIP 17313 SAO 56646 HD22951
Mag Pri: 4.9 Sec: 10.0 Type: Uncertain
Sep: 19.8”
RA. 03h 42m 22.64s Dec. +33° 57’ 54.1”
Eyepiece: 8mm

“This one is a real challenge, averted vision is definitely needed to see the secondary. It is very dim and overpowered by the Primary, but you can see the split and star after a while. Give it time and it pops out.”
Color: White-White

Σ326 AB Con: Aries
HIP 13642 SAO 75644 HD 18143
Mag Pri: 7.6 Sec: 10.0 Type: Physical
Sep: 5.5”
RA. 02h 55m 39.06s DEC. +26° 52’ 23.6”
Eyepiece: 8mm

“A good challenge double. Not a real bright star but you can just make out the secondary off to the side. It’s dim too, but you can see the split. It looks cool. This is by a triangle of stars. I like this one.”
Color: White-White

I hope you like finding and looking at these Doubles as much as I do. I could easily add another ten to fifteen more stars but we don’t have the space. Remember to use averted vision because that will always help bring out the secondary and take your time too.

Look up to the stars and enjoy them. Remember it’s not your eyes playing tricks on you; it’s really “DOUBLE VISION”

Harvey can be contacted by email at: ngc6720@comcast.net

Special Announcement

The USU Observatory is having a Public Night on Friday, Dec 6 from 6:00 to 8:00 pm.

The USU Observatory is located on the roof of the Science Engineering Research (SER) building. To reach the Observatory, enter the first floor of the SER building and go to the freight elevator at that floor's northwest corner. Select "Roof" from the elevator's choice of floors.

Parking for the Observatory is available in the surface lots near Utah State University's Caine Performance Hall, which is located at approximately 1090 East 675 North in Logan.

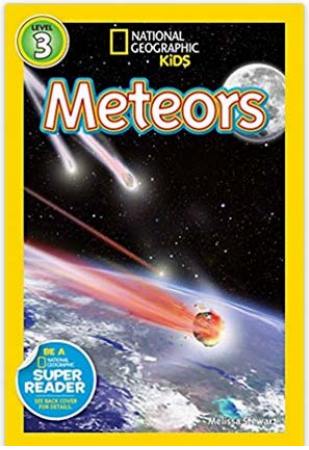
CVAS on Utah Public Radio

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.

Kidstronomy Corner

By Bonnie Schenk-Darrington

There are multiple exciting astronomical events coming up in December. I thought this month I would feature books about two of them.



Stewart, Melissa. 2015. *Meteors*
$3.99 on Amazon.com


(5 out of 5 planets)

There are multiple meteor showers coming up this month, including the Geminids shower, which will peak on Dec. 13 – 14, and the Ursids shower, which will peak on Dec. 21 – 22. If you are planning to stay up late or get up early to watch one of these showers with a child—or even by yourself—why not read this excellent book first, to beef up on all your meteor facts?

What this book does especially well is to explain the difference between meteoroids, meteors, and meteorites. It also explains the difference between meteors and stars, and meteors and comets. My 9-year-old's favorite part of the book was the chapter "Struck from Above!" which showed photos of damage done by meteorites falling to earth. Frequent sidebars explain "Meteor Meanings," "Weird but True" facts, and even meteor jokes.

This is a solid science book with colorful and interesting illustrations and text. My 9-year-old read it with no great difficulty, though I needed to explain a few unfamiliar facts, such as what time-lapse photography is (p. 5), and where Namibia (a site of multiple meteor strikes) is located (p. 14). He also really stumbled over the words *meteoroid* and *meteorite*—which just tells me he was still acquiring these words' meanings. All in all, this book strikes me (pun not intended!) as the perfect read before watching a meteor shower.

Another big astronomical event this month is the upcoming winter solstice.

Jackson, Ellen (author), and Jan Davey Ellis (illustrator). 1997. *The Winter Solstice*
$8.99 on Amazon.com


(2 1/2 out of 5 planets)

I've been looking for a while now for a really good book that explains both the culture and the science behind solstices and equinoxes. Spoiler alert: This is not the book I've been looking for.

The best thing about *The Winter Solstice* is its illustrations. Readers get a visual on how people in the Americas and Europe have historically celebrated the winter solstice throughout the centuries, including in such varied places as Scotland, Rome, South America, and the North American southwest.

Otherwise, the book misses a lot of opportunities to educate kids. There is only one two-page spread about how the earth and sun's interaction causes the solstices—and it explains solstices only from a northern-hemisphere point-of-view. And, oddly, it's in the middle of the book—not at the beginning. And in this case, the illustration leaves much to be desired—it's more of a stylized, cluttered watercolor of shooting stars, random moons and planets, an earth, and a sun that is about 2/3 the size of the earth (even allowing for the perspective I think the artist is trying to achieve).

Weirdly, considering the northern-hemisphere bias of the too-brief scientific explanation, the author discusses the Indians of Peru—who live in the southern hemisphere. Now, I totally get it that people in the southern hemisphere have solstices, too. But why did the author not take this opportunity to discuss the calendrical difference between solstices in the northern and southern hemispheres? Why did the author focus on multiple northern hemisphere peoples, but only one southern hemisphere people?

The book isn't completely devoid of usefulness—it does, as I said, discuss multiple Native American customs, and it also pictures an African American family when it talks about the modern United States and Europe. The author and illustrator did achieve some inclusiveness. Overall, though, the book's organization, content, and science are very poor.

Near Earth Object (162082) 1998 HL1

By Blaine Dickey

On the evening of October 25, 2019 I took a series of images of Potentially Hazardous Asteroid (162082) 1998 HL1. This object is large at about 2000 feet in diameter. The image below was made by stacking ten individual images of the object. Each image was 30 seconds long separated by 60 seconds before taking the next image.

As seen below, this object appears to be moving at a high rate of speed. This image was taken around the time of nearest approach to earth at about 16 lunar distances. The evening was unusually clear with no noticeable wind which helped in the imaging. At the time it was about magnitude 12.8.

Photo by Blaine Dickey

Upcoming Events and Anniversaries

- Dec 01 - 60th Anniversary (1959), 1st Color Photo of Earth Taken From Space (Thor Missile)
- Dec 02 - 45th Anniversary (1974), Pioneer 11, Jupiter Flyby
- Dec 11 - Venus Passes 1.8 Degrees From Saturn
- Dec 11 - 300th Anniversary (1719), 1st Recorded Sighting of the Aurora Borealis
- Dec 13 - Geminids Meteor Shower Peak
- Dec 18 - Gottfried Kirch's 380th Birthday (1639)
- Dec 19 - John Windthrop's 305th Birthday (1714)
- Dec 20 - Mt. Wilson Observatory's 115th Birthday (1904)
- Dec 21 - Francis Bacon's 115th Birthday (1904)
- Dec 22 - Winter Solstice, 04:19 UT
- Dec 22 - Ursids Meteor Shower Peak
- Dec 26 - Annular Solar Eclipse
- Dec 27 - Moon Occults Dwarf Planet Pluto
- Dec 29 - Moon Occults Venus

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)

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	Schrieber 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 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:

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