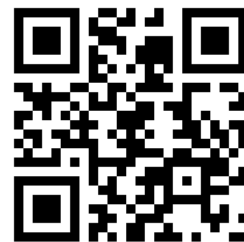




## Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society



### CVAS Executive Committee

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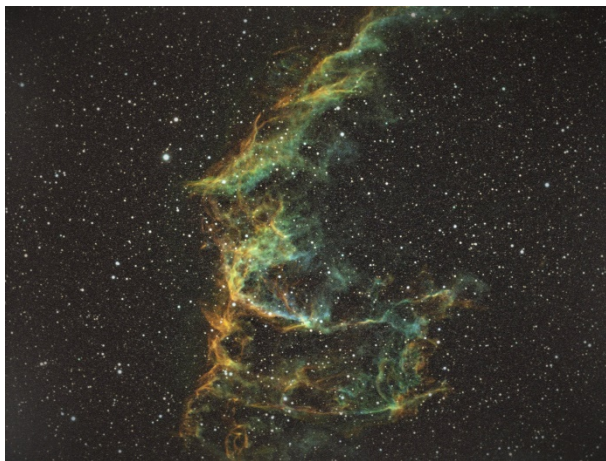
[www.cvas-utahskies.org](http://www.cvas-utahskies.org)

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### 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



Eastern Veil photo by Bruce Horrocks

### The President's Corner By Bruce Horrocks – CVAS President

I am not sure why it is that some months seem to last forever, and others just fly by. This past month went by so fast for me that I still think we should be just starting June. But here we are in July and so the days are warm and so are the nights. It is a good time to get out and use that telescope and just enjoy some relaxing time under the stars.

This past month I tried a bit of an experiment with my telescopes. For Christmas last year I got a 72mm Sky-Watcher Evostar telescope. It is small and weighs less than 5 lbs. It is very portable and as my wife would say, “a cute telescope”. It is easy to mount up and in fact my mount doesn't even need a counterweight when I use it. So, I was curious to see what kind of image I can get with this \$465 dollar telescope as compared to my 150mm super large, super heavy, and super expensive \$6,500, Sky-Watcher Esprit triplet telescope. I must first clarify I got this telescoped used at a super bargain price

I picked the target of M16 – The Eagle Nebula as a reference image to try this out on. I used the same mount and the same camera for each attempt and tried to keep things somewhat on a level playing field.

I went with the 72mm scope first. On the night I went out the conditions were good to start and then it got all cloudy. I was only able to get 1 image for 300 seconds with each of the narrow band filters I was using. My final image then was only a combination of these 3 images. I did not use any guiding to just see how this would come out. You can see how this looks below.



I had to wait a few weeks before the weather cleared up enough to try the larger 150mm telescope. When I tried the first time, I attempted to do this without any guiding and that was a disaster. I then went out another night and using a guide telescope and camera was able to get 3 images of each filter for 300 seconds. Now the color looks just a bit different, I am not sure how to make them the same, but here is the same object with a 150mm telescope and with guiding.



If you look closely you can see a bit more detail and the stars look a bit rounder and overall, just a bit nicer of an image. But I had to ask myself is the cost difference really worth it? I know that this isn't a truly fair comparison, but it kind of goes with what I was once told. If you want to spend money in astronomy go in this order; 1) Mount, 2) Camera, and 3) Telescope.

I am sure you have people ask you all the time what kind of telescope to buy. The first answer is the one that you will use, but after that I tell them first get a good mount. Then if you still have some money, go for a good camera and telescope combination. This is where it can get a bit tricky, so let me share a simple rule of thumb with you. For a small telescope < 100mm aperture you want a camera with small pixels. For a larger telescope you want a camera with larger pixels. A good rough approximation is,  $\text{Camera Pixel Size} = \text{Telescope Focal Length (mm)} / 150$ . This will give you a suitable starting size of the pixel you will want in your camera.

I was also surprised on how the smaller scope image was comparatively good without any guiding. This was an aspect of astrophotography that I tried to avoid for years. The thought of having to buy a guide scope and a guide camera, not to mention all that added complexity, was just something I preferred not to do. Unfortunately, if you really get into this part of astronomy it is not an option unless you are using the Hyperstar lens on your SCT.

If you are a visual astronomer than all of this just applies to someone else and you get to just go out and enjoy a night of looking at stars and avoiding all this complicated stuff. Either way astronomy is a fun and challenging hobby. I must admit some of my most enjoyable nights are just to lie on the ground under the stars with only a pair of binoculars and watch the occasional falling star.

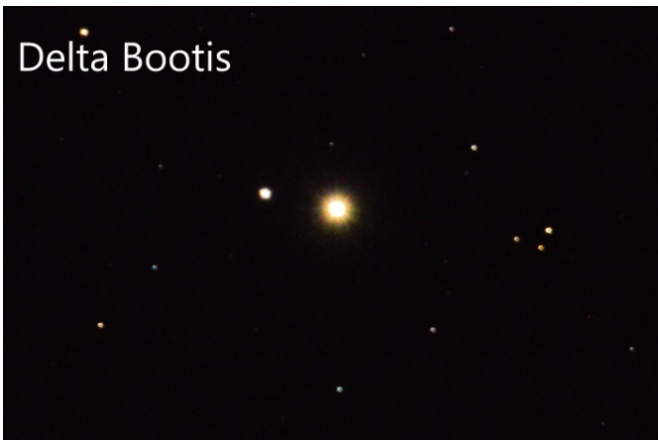
Well as a member of the executive committee we hope you are all doing well and staying safe. We would love to have some star parties and be able to see each other but we will need to continue to follow the state guidelines with this current virus pandemic. We will be sure to keep you posted if we are able to put together some type of star parties where we can maintain a social distance, and all be safe. We would like also to welcome a few new members to our club, and we hope to meet you all soon.

Clear skies and clean hands – Bruce Horrocks

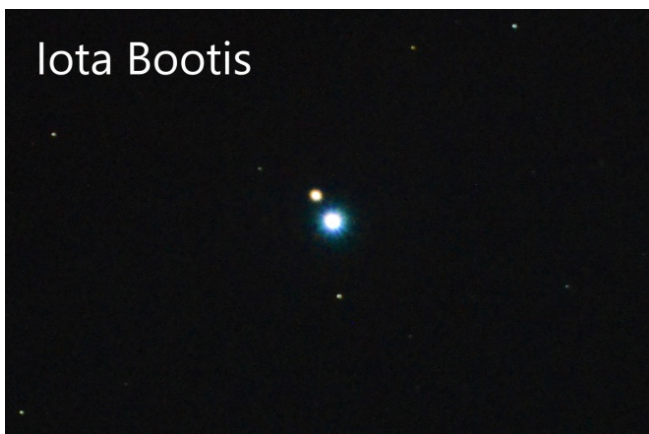
## A stroll through Bootis and Serpens by Blaine Dickey

Every constellation has a treasure trove of beautiful celestial objects. They are there just waiting for us to discover them. The constellation Bootis and Serpens is no exception. Here are a few I have imaged recently.

First of all let's consider Delta Bootis. It is a colorful double star widely separated by  $109''$ . The brightest star of magnitude 3.6 is a brilliant yellow. The secondary star is a pale yellow of magnitude 7.9 as shown in the image.



Another double Iota Bootis consists of a 4.8 magnitude bluish white primary star and a 7.4 secondary yellow-orange star separated by  $39.9''$ .



Kappa Bootis is a much closer pair separated by  $13.7''$ . The primary is 4.5 magnitude and the secondary 6.6. The main star is white and the secondary a slightly yellowish.

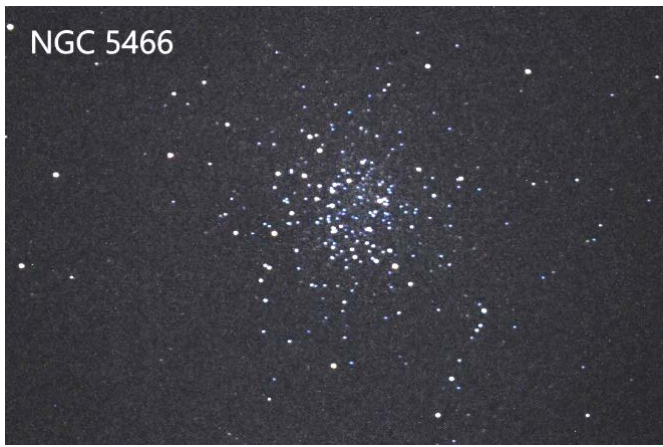


An outstanding globular cluster is located in the constellation Serpens bordering Bootis is Messier 5. It looks almost as impressive in a telescope as Messier 13. This globular should be just visible to the naked eye in really dark skies at magnitude 5.65. It is easily visible in binoculars and is resolved into many stars in a telescope. William Herschel was the first astronomer to resolve it into stars. The cluster is located at a distance of about 24,000 light years.



NGC 5466 is a 9.0 magnitude globular in the constellation Bootis and quite loose and open. It is at a distance of about 51,800 light years. It is gradually losing its stars due to forces applied to it in our galaxy.





## 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

Finally NGC 5529 is an 11.8 magnitude spiral Galaxy in Bootis with a distance of 145 million light years from our solar system. It is seen edgewise to us and is receding from us at 1% of the speed of light.



## 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](http://www.upr.org).

## **Double Vision**

By Harvey Brown

So here it is the start of July and summer and we're still stuck inside because of the Covid - 19 virus. But the bright side is that more clear nights are coming and I see by e-mails that a lot of you have been out taking photos of the deep sky objects. So for this month I decided to make things more interesting and challenging.

I have included some great Doubles that I have recorded this past month that will test your Averted vision and two that right beside the other just for fun. Most of these are close in distance (yeah, we're all getting tired of staying 6 feet or more away) and more on the dimmer side of magnitude. Have fun looking at these and be sure to use the right eyepiece to pull them in, I use my ES 6.5mm to help really split these close Doubles.

### **Σ 2162 Con: Hercules**

HIP 85133 SAO 66003 HD 157807

Mag: Pri: 9.3 Sec: 9.5

Sep: 1.3"

Type: Uncertain

RA 17h 23m 54.44s DEC: +36° 27' 28.0"

Eyepiece: 6.5mm

*"A good close one, you do see the split and the slight magnitude difference. Out in the open so it stands out."*

Color: White-White

### **Σ 2072 Con: Hercules**

HIP 81242 SAO 46178

Mag: Pri: 9.8 Sec: 10.5

Sep: 5"

Type: Physical

RA 16h 35m 33.34s DEC +47° 40' 59.1"

Eyepiece: 6.5mm

*"What a challenge! Very small and close. Averted vision helps split them. Just a slight magnitude difference."*

Color: white-White

### **Σ 2743 AB 59 fl Con: Cygnus**

HIP 103632 SAO 50335 HD 200120

Mag: Pri: 4.7 Sec: 9.4

Sep: 21"

Type: Uncertain

RA 20h 59m 49.55s DEC +47° 31' 15.4"

Eyepiece: 6.5mm

*"Very hard to see. Averted vision is needed, then you see something to the side in the shine of the Primary. Close Separation but you do see it."*

Color: White-White

This next one is a challenge not in separation but how many stars of this multi-star system can you see? I was able to pull 6 out of 10 of them.

### **Σ 2472 AB Con: Lyra**

HIP 94024 SAO 67865 HD 178848

Mag: Pri: 8.3 (A) Sec: 10.4 (B) 10.2 (C) 10.4 (D)

12.9 (E) 11.5 (F)

Sep: 22.6" (AB) 75.5" (AC) 79.3" (AD) 53.2" (AE)

120.0" (AF)

Type: Visual

RA 19h 08m 33.73s DEC +37° 54' 36.8"

Eyepiece: 6.5mm

*"Good multi system. B, C & D are easy to pull out. All three close in magnitude and wide enough split. F is way out so you see it. E is the hard one, Averted vision was the only way to pull it out, it's in between B, C & D."*

Color: Yellow-All White

You will notice on this one that I only have a Tyco number because of what the star is, you can use the RA-DEC for coordinance.

### **BU 359 AB Con: Vulpecula**

Tyco2 2122-00465-1

Mag: Pri: 8.8 Sec: 9.7 11.1 (C)

Sep: 4.7" 38.9" (AC)

Type Visual

RA 19h 05m 09.69s DEC+23° 25' 57.0"

Eyepiece: 6.5mm

*"Wow, talk about a challenge! Averted vision is the only way to bring out B and C is very dim so it pops out along with B also. B is close but you see the split."*

Color: Yellow-White-White

### Σ 1746 Con: Virgo

HIP 65697 SAO 119941 HD 117114

Mag: Pri: 7.7 Sep: 10.7

Sep: 22.8"

Type: Uncertain

RA 13h 28m 09.72s DEC +09° 27' 40.1"

Eyepiece: 6.5mm

*"Averted vision helps pull out the secondary. Good split. Lots of magnitude difference because the Secondary is dim. A good Challenge!"*

Color: White-White

These last two are in the same eyepiece together so it makes it more interesting, especially when one of them is more obvious than the other as a Double.

### S 786 Con: Cygnus

HIP 105298 SAO 33323 HD 203320

Mag: Pri: 6.9 Sec: 9.1

Sep: 47.8"

Type: Uncertain

RA 21h 19m 40.77s DEC +53° 03' 29.2"

Eyepiece: 6.5mm

*"A nice double, easy split. You see the magnitude difference. Stands out good with a bright primary. Good Double star just to the side of this also."*

Color: Yellow-White

### Σ 2789 AB Con: Cygnus

Tyco2 3953-01414-1

Mag: Pri: 7.7 Sec: 7.8

Sep" 6.9"

Type: Physical

RA 21h 19m 58.84s DEC +52° 58' 44.1"

Eyepiece: 6.5mm

*"A great double. Just the type I like, close, but you see the split and close in magnitude. Really stands out just to the side of S 786, in the same eyepiece."*

Color: White-White

So have fun with these challenges and enjoy your summer nights. Keep looking up!





I would like some feedback on these articles, what you like or dislike and what you would want to see in the future. . . Someday we'll all get back together again and compare notes about our quarantined time.

Thank you H. Brown ngc6720@comcast.net

## Upcoming Events and Anniversaries

- Jul 04 - [Earth At Aphelion](#) (1.017 AU From Sun)
- Jul 07 - [Yuji Hyakutake's](#) 70th Birthday (1950)
- Jul 14 - [Jupiter At Opposition](#)
- Jul 14 - 5th Anniversary (2015), [New Horizons](#), Pluto Flyby
- Jul 14 - 55th Anniversary (1965), [Mariner 4](#), Mars Flyby
- Jul 16 - [Moon Occults Asteroid 16 Psyche](#)
- Jul 17 - 45th Anniversary (1975), [Apollo-Soyuz Handshake](#)
- Jul 17 - 170th Anniversary (1850), [Harvard Observatory Takes 1st Photograph of a Star \(Vega\)](#)
- Jul 18 - 20th Anniversary (2000), Discovery of Jupiter Moon [Callirrhoe](#)
- Jul 18 - 55th Anniversary (1965), [Zond 3](#) Launch (USSR Moon Flyby)
- Jul 20 - [Saturn At Opposition](#)
- Jul 21 - [Jean Picard's](#) 400th Birthday (1620) (Mars Rover Perseverance)
- Jul 22 - [Mercury](#) At Its Greatest Western [Elongation](#) (20 Degrees)
- Jul 23 - 25th Anniversary (1995), [Discovery of Comet Hale-Bopp by Alan Hale and Tom Bopp](#)
- Jul 23 - [Etienne-Louis Malus'](#) 245th Birthday (1775)
- Jul 24 - 70th Anniversary (1950), [1st Rocket Launch from Cape Canaveral \(Bumper/V-2 Rocket\)](#)
- Jul 25 - [Christoph Scheiner's](#) 445th Birthday (1575)
- Jul 27 - 150th Anniversary (1870), [1st Observations of the South Delta-Aquarids Meteor Shower by G.L. Tupman](#)
- Jul 30 - 410th Anniversary (1610), [Galileo Observes Saturn's Rings](#)

## 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.

\_\_\_\_\_

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By signing this application, I acknowledge I have access to the CVAS website, [cvas-utahskies.org](http://cvas-utahskies.org), and the CVAS Constitution. I agree to abide by the constitution.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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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](mailto:lojbrads@yahoo.com)  
or our Secretary Wendell Waters at [wendellw57@comcast.net](mailto:wendellw57@comcast.net)