

Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society



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Vol. 4 Number 12

August 2017

www.cvas-utahskies.org

**Total Solar Eclipse Countdown:
This is it! Our time in the Moon's
shadow is almost here! Are you
ready?**



Total Solar Eclipse Image courtesy NASA

If you are traveling to Idaho or Wyoming on eclipse day, here are a couple websites that may be helpful with highway information:

Idaho: <https://hb.511.idaho.gov>

Wyoming:
http://www.dot.state.wy.us/home/news_info/road--travel-information.html

Please send me your experiences with the eclipse (dchooper5@gmail.com) short or long, pictures or no pictures, etc. by the end of the month. **I would**

like to include your experiences in the newsletter next month. This will be a great thing for posterity.

Elections for Officers in September

At the September annual meeting we will again have the opportunity to elect club officers. All of the

positions are open. In addition, there are appointed positions which you can volunteer for. Please consider running for one of the officer positions or volunteering for an appointed position.



WE WANT YOU!

No Meeting This Month

There is no club meeting scheduled for August. During the spring and summer months we will instead hold club (private) as well as public star parties. Most of the public star parties will be held

around first quarter moon and most of the private star parties will be held around new moon. The main location for public star parties this year will be **Heritage Park** which is located at 2456 South 800 W, Nibley. Please see the club website, the **Upcoming Star Parties** section of this newsletter or contact a member of the executive committee for more information. Our next scheduled meeting is the Annual General Meeting in September.

The President's Corner **By Dell Vance, CVAS President**



July was a very busy month for all of us. It seems everybody is out on activities or vacations. We held a Club Star Party here at my house. We had a total of 3 people at the event. Blaine Dickey and Janice Bradshaw, joined me for a fairly nice night of observing. The sky had a bit of smoke in it from the California fires, but the Milky Way was still very visible and the stars were bright. Blaine gave us some great targets to observe. Particularly, some nice globular clusters and double stars.

We have some events coming up this month that should be great as well. We are working with a group of Young Woman at their summer Camp on August 9th. Tentatively we are planning to have a public star party on August 11th probably at Macey's in Providence. On August 14th, we have been invited to give a presentation at the Logan Library on the topic of eclipses. Of course the highlight will be the Great American Eclipse on August 21st. I

hope everyone has worked out where they plan to observe this great event. To finish off the month, we plan to have a Solar Party at the Logan Library, Saturday, August 26th.

We also have several opportunities already in the works for September. We have been working with the American West Heritage Center for a public star party on September 22nd as part of their Harvest Festival. We are working with a couple of elementary schools to provide lectures and star parties. Our annual CVAS club meeting is scheduled for September 27th, where we will hold elections for the club officers and describe what we plan to do for the coming year. We will also have short presentation that night as well.

As you can see we are very active and in high demand. We appreciate all the support that you provide to the club and hope you will continue to work together to enhance everyone's astronomy experience. Be sure to come out to our events and to check the website for updates on times and locations. Clear Skies!

Planetary Imaging with the Celestron NextImage 5 Camera

By Tom Westre

After talking with Dell about his Celestron NextImage 5 planetary camera I ordered mine and got it a few days ago. I have been using my DSLR for a few years and I am happy with the results I get on deep sky objects. My images of the Planets are just ok. So I decided to purchase the NextImage 5. This little camera is for planets and the Moon only. I haven't tried it on the Sun yet.



This is a 5 MP web camera that takes video through the telescope using the included ICap software that captures the images, and Registax software which is used to process the frames by stacking the many frames of the recorded image into one single high quality more detailed image. The capture software gives you a real-time image on your computer screen where here you center, focus and record the planet. . The image is similar to a 5 mm eyepiece.



Saturn's rings including the Cassini Division and bands of the planet's surface come in clear. A single image from a stack of 600 frames from the Celestron NextImage 5 planetary camera. Image by Tom Westre

Although it comes with a small instruction booklet, I spent a few hours on Youtube learning how to use the camera. There is a learning curve but with patience you can start getting detailed images of the planets and moon.

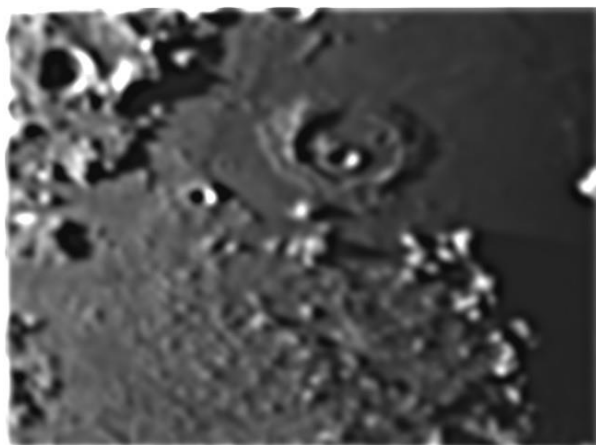


Image of the 35 mile wide crater Cassini upper right and the 20 mile wide crater Calippus upper left. Image by Tom Westre

I took the camera out the same night I got the camera and attached the camera to my 8 inch Celestron. I imaged Jupiter, Saturn and the moon. I wasn't happy with the Jupiter image, that wasn't the camera's fault it was my inexperience with the camera. I next imaged Saturn several times at different settings (gain, exposure). After processing with Registax I was very pleased. Finally I imaged the moon a number of times. The key is to image the object using a number of different settings.

The ICap video software has a viewing mode and a recording mode. There are several options for viewing. You have to be sure to get the planet centered first. In viewing mode you then focus by viewing the image on the computer screen. I suggest you use a Bahtinov mask for best results.

Even though the NextImage 5 can image in color and monochrome. My first results with Saturn are in black and white.

The second night out I imaged Jupiter and the moon. However, the atmosphere was very turbulent and my results were not what I was hoping. Seeing conditions are 60% when it comes to image quality.

There is a learning curve to get the results you want but if you are patient and willing to take the time to read or view Youtube video's you will gain a lot of knowledge from people who have traveled that path before.

I highly recommend this little camera if you are starting out in planetary imaging. The \$150 price won't break your bank either.

CVAS Lending Library

By Tom Westre

One of the great benefits of being a member of CVAS is being able to check out various items from the CVAS library.

We have a wide selection of astronomy books that cover everything from building your own telescope to the entire universe, and everything in between.

We have a selection of videos in VHS and DVD format. Add to that, various types of star charts for

beginners as well as advanced observers.

To check out a book or other item, come to a lecture meeting or contact Tom Westre (435-787-6380). The book will be loaned out for one month. You can print a list of books by going to the CVAS website, cvas-utahskies.org and clicking on Join CVAS.

CVAS Loaner Telescope

CVAS provides a 10 inch Dobsonian telescope to club members. Contact Brad Kropp to make arrangements to use this telescope. Brad can be contacted by email at brad.kropp@usu.edu.

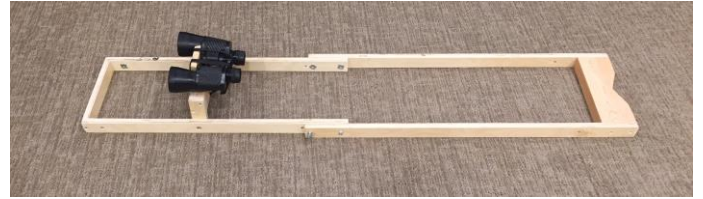


Binocular Supports

The club now has available a number of mostly completed binocular supports. These supports are being sold to club members at cost. These supports just need the binocular attachment – which is tailored to the type of binocular being mounted.

Please contact Ned Miller or Dell Vance if you are interested in purchasing a binocular support. The images below show what they look like with

binoculars attached as well as an image showing them folded for storage.



Completed Binocular Support (with binos attached) - Courtesy Ned Miller



Binocular support (folded for storage) - Courtesy Ned Miller

Spotlight on Scorpius, the Scorpion

By Dale Hooper

Scorpius is certainly a constellation which really looks like what it represents (that is assuming your southern horizon lets you trace out the stinger). With its position in and near the Milky Way, there are many beautiful objects to be found in this constellation. I was actually surprised when I realized that I hadn't included a spotlight of Scorpius in our newsletter before now. Like Sagittarius it is a shame for us that this constellation is so low in our sky. From the beautiful red supergiant Antares to globular clusters, planetary nebulae, emission nebulae, open clusters and dark nebulae there is much to see.

The name Antares means "rival of Mars" and I confess – a few years ago I mistook it for Mars. Antares is also known as the heart of the Scorpion. This is a huge star! If it was placed in the center of our solar system, its outer atmosphere would lie between the orbits of Mars and Jupiter. Scorpius hold four Messier objects, two are globular clusters (M80 and M4) and the other two are open clusters (M6 and M7).

Objects which rank at least four stars in *The Night Sky Observer's Guide* (Scorpius is in Volume 2) which can be observed with an eight inch scope, have been included. As usual, the table is organized according to increasing Right Ascension values.

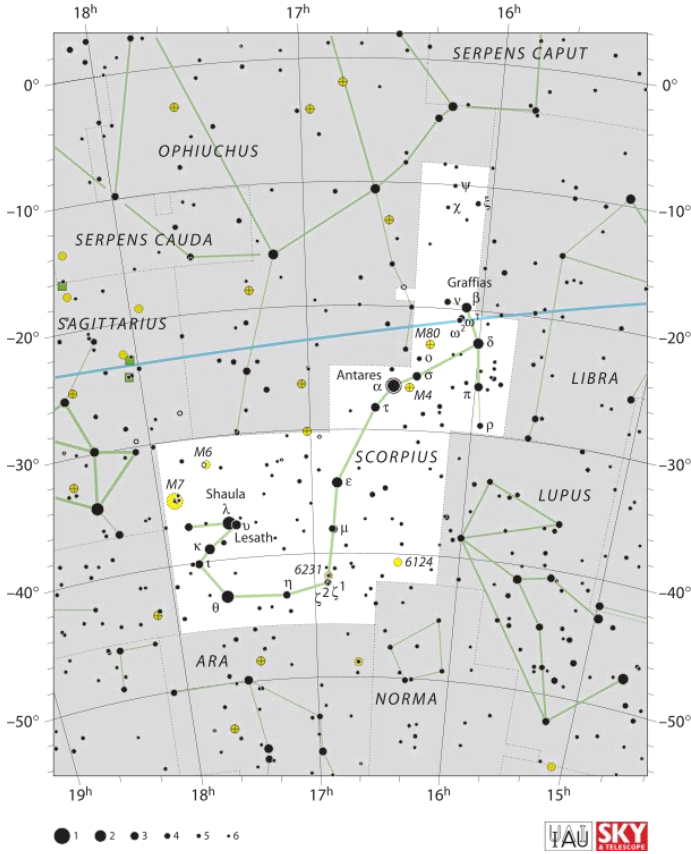
Barnard 56 (Dark Nebula)	17h09.1m	-32°06'
NGC 6302 (Planetary Nebula)	17h13.7m	-37°06'
NGC 6337 (Planetary Nebula)	17h22.3m	-38°29'
Messier 6 (Open Cluster)	17h40.1m	-32°13'
Messier 7 (Open Cluster)	17h53.9m	-34°49'

CVAS Minutes – July 2017

There was no meeting in June.

Upcoming Star Parties

- 5 Aug Solar Party – Logan Library, 10:30am - noon
- 9 Aug Young Women summer camp star party
- 11 Aug Public Star Party – Macey's in Providence
- 14 Aug Eclipse Presentation – Logan Library, 7pm
- 21 Aug Total Solar Eclipse – various locations (there is no central location for the club). The sun will be 96% obscured from Cache Valley, which is a deep partial eclipse.
- 26 Aug Solar Party – Logan Library, 10:30am - noon
- 15 Sep Club Star Party at Gary Bracken's home – Petersboro
- 22 Sep Public Star Party – American West Heritage Center



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

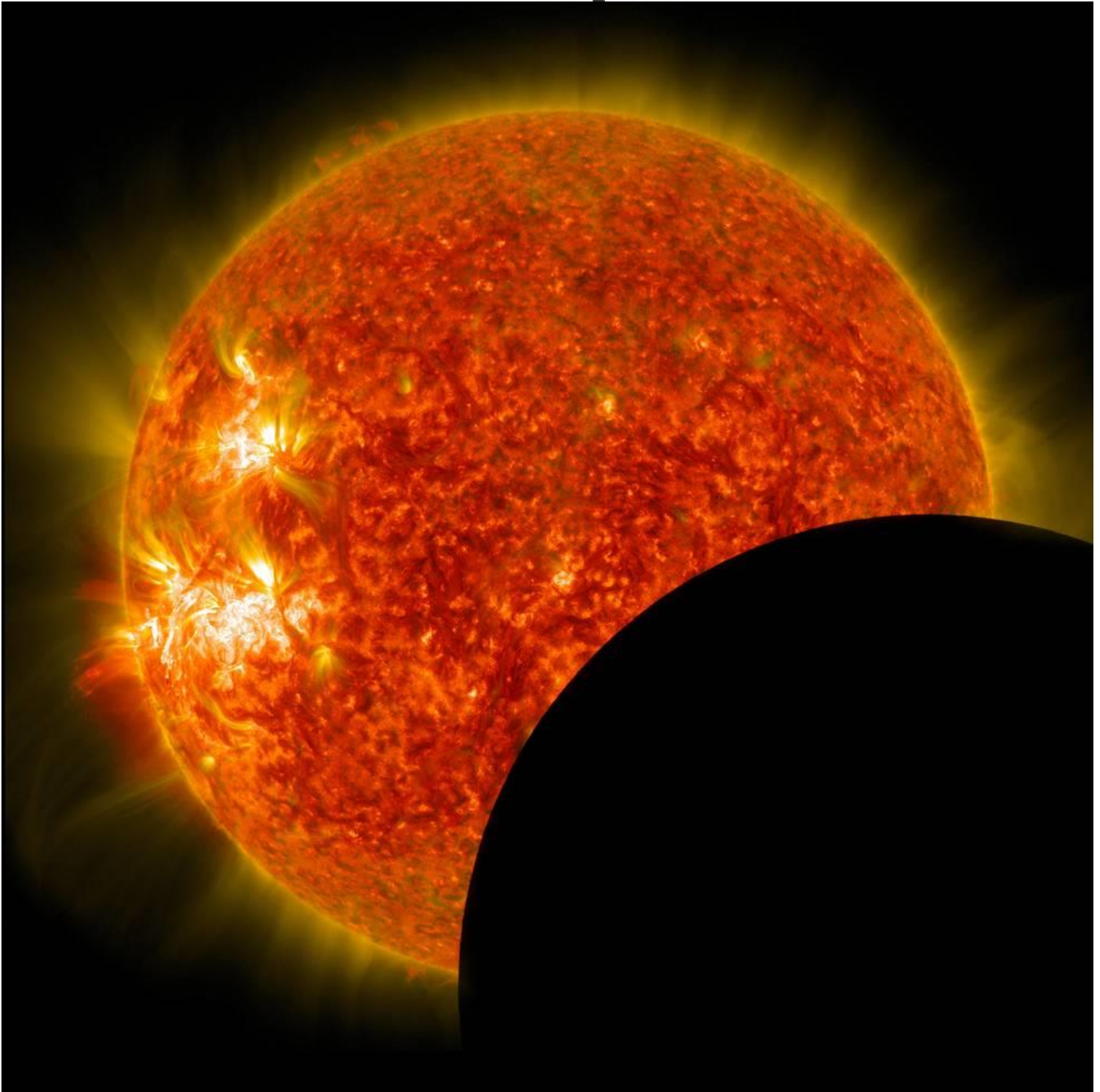
Object	R.A.	Dec.
Σ 1998 (Triple Star)	16h04.4m	-11°22'
B Scorpii (Double Star)	16h05.4m	-19°48'
ν Scorpii (Double-Double)	16h12.0m	-19°28'
12 Scorpii (Double Star)	16h12.3m	-28°25'
NGC 6072 (Planetary Nebula)	16h16.0m	-36°14'
Messier 80 (Globular Cluster)	16h17.0m	-22°59'
Messier 4 (Globular Cluster)	16h23.6m	-26°32'
NGC 6124 (Open Cluster)	16h25.6m	-40°40'
Antares (Double Star)	16h29.4m	-26°26'
NGC 6153 (Planetary Nebula)	16h31.5m	-40°15'
NGC 6231 (Open Cluster)	16h54.0m	-41°48'
Trumpler 24 (Open Cluster)	16h57.0m	-40°40'
NGC 6259 (Open Cluster)	16h57.0m	-40°40'
Barnard 50 (Dark Nebula)	17h02.9m	-34°24'
Barnard 55 (Dark Nebula)	17h06.6m	-32°00'

Upcoming Events

- 01 Aug Maria Mitchell born (1818)
- 03 Aug Saturn 3° south of Moon
- 06 Aug Curiosity rover lands on Mars (2012)
- 07 Aug Full Moon
- 09 Aug Neptune 0.9° north of Moon
- 10 Aug Magellan orbits Venus (1990)
- 11 Aug Asaph Hall discovers Mars' moon Deimos (1877)
- Perseid meteors
- 12 Aug Perseid meteors
- 13 Aug Uranus 4° north of Moon
- Perseid meteors
- 14 Aug Last quarter Moon
- Perseid meteors

16 Aug Aldebaran 0.4° south of Moon
17 Aug Asaph Hall discovers Mars' moon
Phobos (1877)
19 Aug Venus 2° north of Moon
John Flamsteed born (1646)
21 Aug New Moon
**Total Solar Eclipse, first on
continental US since 1979. First to
cross entire continental US since
1918.**
Deep partial eclipse from Cache
Valley
24 Aug Voyager 2 flies past Neptune (1989)
25 Aug Jupiter 3° south of Moon
Voyager 2 flies past Saturn (1981)
Spitzer Space Telescope launched
(2003)
26 Aug Mercury in inferior conjunction
28 Aug William Herschel discovers Saturn's
moon Enceladus (1789)
29 Aug First Quarter Moon
30 Aug Saturn 4° south of Moon

NASA Recommends Safety Tips to View the August Solar Eclipse



A total solar eclipse, which is when the Moon completely covers the Sun, will occur across 14 states in the continental U.S. on Aug 21, 2017.
Credits: NASA

More than 300 million people in the United States potentially could directly view the Aug. 21 total solar eclipse, and NASA wants everyone who will witness this celestial phenomenon to do so safely.

That Monday, a partial eclipse will be visible in every state. A total solar eclipse, which is when the Moon completely covers the Sun, will occur across 14 states in the continental U.S. along a 70-mile-wide (112-kilometer-wide) swath of the country.

It's common sense not to stare directly at the Sun with your naked eyes or risk damaging your vision, and that advice holds true for a partially eclipsed Sun. But, only with special-purpose solar filters, such as eclipse glasses or a handheld solar viewer, you can safely look directly at the Sun.

NASA recommends that people who plan to view the eclipse should check the safety authenticity of viewing glasses to ensure they meet basic proper safety viewing standards.

Eclipse viewing glasses and handheld solar viewers should meet all the following criteria:

- Have certification information with a designated ISO 12312-2 international standard
- Have the manufacturer's name and address printed somewhere on the product
- Not be used if they are older than three years, or have scratched or wrinkled lenses
- Not use homemade filters
- Ordinary sunglasses -- even very dark ones -- should not be used as a replacement for eclipse viewing glasses or handheld solar viewers

"While NASA isn't trying to be the eclipse safety glasses 'police,' it's our duty to inform the public about safe ways to view what should be a spectacular sky show for the entire continental United States," said Alex Young, associate director for science in the Heliophysics Science Division at NASA's Goddard Space Flight Center in Greenbelt, Maryland. "It's important that individuals take the responsibility to check they have the proper solar eclipse viewing glasses. With the eclipse a month away today, it's prudent to practice ahead of time."

An alternative method for safe viewing of the partially-eclipsed Sun is with a pinhole projector. With this method, sunlight streams through a small hole – such as a pencil hole in a piece of paper, or even the space between your fingers – onto a makeshift screen, such as a piece of paper or the ground. It's important to only watch the screen, not the Sun. Never look at the Sun through the pinhole -- it is not safe.

NASA has coordinated with medical and science professionals to provide additional safety information. For details, visit:

<https://eclipse2017.nasa.gov/safety>

More than 6,800 libraries across the U.S. are distributing safety-certified glasses. Many are working with scientists to hold viewing events and activities before and during the eclipse. For a listing of participating libraries, visit:

<https://www.starnetlibraries.org/2017eclipse>

NASA Television is offering a special live program, “Eclipse Across America: Through the Eyes of NASA” with real-time coverage of the event from coast to coast. The nearly four-hour program will include unprecedented images of the Aug. 21 eclipse from numerous spacecraft -- including the International Space Station – high-altitude aircraft and balloons, and ground observations. Each will offer a unique vantage point for the eclipse. Additionally, the broadcast will include live coverage of activities in parks, libraries, stadiums, festivals and museums across the nation, and on social media. To watch the Aug. 21 NASA TV eclipse broadcast online and access interactive web content and views of the eclipse from these assets, visit:

<https://www.nasa.gov/eclipselive>

“We like to think of this study as classifying planets in the same way that biologists identify new species of animals,” said Benjamin Fulton, doctoral candidate at the University of Hawaii in Manoa, and lead author of the second study. “Finding two distinct groups of exoplanets is like discovering mammals and lizards make up distinct branches of a family tree.”

It seems that nature commonly makes rocky planets up to about 75 percent bigger than Earth. For reasons scientists don't yet understand, about half of those planets take on a small amount of hydrogen and helium that dramatically swells their size, allowing them to "jump the gap" and join the population closer to Neptune's size.

The Kepler spacecraft continues to make observations in new patches of sky in its extended mission, searching for planets and studying a variety of interesting astronomical objects, from distant star clusters to objects such as the [TRAPPIST-1](#) system of seven Earth-size planets, closer to home.

Ames manages the Kepler missions for NASA's Science Mission Directorate. NASA's Jet Propulsion Laboratory in Pasadena, California, managed Kepler mission development. Ball Aerospace & Technologies Corporation operates the flight system with support from the Laboratory for Atmospheric and Space Physics at the University of Colorado in Boulder.

For more information on this catalog release, to include briefing materials, audio and video, go to:

<https://www.nasa.gov/ames/kepler/briefing-materials-final-kepler-survey-catalog-of-planet-candidates-in-the-cygnus-field>

For more information about the Kepler mission, visit:

<https://www.nasa.gov/kepler>

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:

Ned Miller, CVAS Treasurer
480 N 400 E
Providence, Utah 84332

For any questions contact our Treasurer at nedmiller2008@gmail.com or our Secretary Dale Hooper at dchooper5@gmail.com.