



Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society



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www.cvas-utahskies.org

Annual General Meeting This Month

Our annual general meeting will be held on **Wednesday, September 26, 2018 at 7pm in room 840 of the main Bridgerland Technical College (BTC) campus.** Enter on the east side of the building located at 1301 North 600 West.

This month we will have our elections followed by a great video about the journey of Apollo 8.

Elections for Officers in September



WE WANT YOU!

At the September annual meeting we again have the opportunity to elect club officers. Every member in good standing can run for any officer position.

The Secretary position currently has no accepted nominations and is open for any member to run for. Please consider running for one of the officer positions. See Dell's article from last month about what is involved.

This is also the time that we pay our annual \$20 membership dues.

We have two star parties before our monthly meeting. The first will be September 7th at **Gary Bracken's house at 129 N 820 E in Hyde Park.** Gary hosted us before at his previous home and it was lots of fun – this one should be just as fun. We also have a solar party planned for Sep 8th from 10:30am to noon at the Logan Library.

The second star party will be Sep. 14 and will probably be in Macey's parking lot in Providence.

The President's Corner By Dell Vance, CVAS President



School kids are back in school, the sun is going down before 8:00 PM, and the weather is great. It must be September! There is a lot of activity going on in CVAS. We have received several requests for star parties and presentations. We have 5 star parties in the next 8 weeks. Some of the dates are getting crowded. Hopefully, we can support all of these requested events. We have received the following requests:

- 9/27 – Preston Jr. High School Star Party for students and parents
- 10/11 - Cache Valley South Adult Special Needs Mutual Star Party held in Logan
- 10/11 – Brigham City USU Extension Event with Dr. Johnson speaking and a Star Party
- 10/15 – North Park Elementary School Star Party in North Logan
- 10/26 – River Heights Elementary School Presentation and Star Party

August was also a very good month. Considering all the smoke in the air, we still had some good opportunities to share our hobby. I was very impressed with the turnout we had for our Star Party for the Occipital, Inc. Retreat in Smithfield. We had 7 CVAS Telescopes there and 11 of our members and friends. The Occipital people have agreed to provide a telescope to our Library Loaner Telescope Program. This is the first corporate donation for the program. We certainly thank them for their generosity. We also had a club Star Party up at Beaver Mountain. We were skeptical about the haze in the air and the distance of the drive. For the few that attended it was a great night for stargazing. I took this nightscape shot from our observation location.



CVAS Star Party - Beaver Mtn
8/10/2018 10:13 PM MDT
Canon T3i Camera
F-Stop f/3.5 FL 18 mm
Exposure 20 Sec ISO 3200

Milky Way - Beaver Mtn, Aug 10th - courtesy Dell Vance

This month we will have our club elections. I hope each of you is considering how you can serve CVAS and the people of Cache Valley. CVAS can use your talents. Remember as I explained in last month's Newsletter, the positions are not difficult or too time consuming. Please let us know if you are interested in running for one of the positions. All four positions are up for election each year. Also, we have other committees that we would like to staff as well. There are plenty of opportunities to serve.

Be sure to get out and participate in the club activities this month, especially the elections. We want to hear what you want for CVAS. Thanks again for your support.
Clear Skies!

A Bit of Club History & Trivia By Dale Hooper

I thought that it would be a good idea to capture some of the club history and trivia before I turn over the reins of newsletter editor. The origin of the current club dates back to mid-2009 and it was organized by Dr. Shane Larson. At the time, Shane was a professor of astronomy and physics in the Physics Department at Utah State (He is now at Northwestern University). He is a professional astronomer and is also a **very** avid "amateur" astronomer. He could speak about gravitational waves but was just as enthusiastic speaking about star hopping.

It was any club's dream to have someone like Shane, he organized the club, organized the meetings and spoke at many of them, he organized

the star parties and he also did much of the public relations work. There were a few club members like Lyle Johnson, Tom Westre, Kendell Dutson and Heather Smith and a few others that did some of the work, but the bulk of it was done by Shane.

But, our dream became somewhat of a nightmare when Shane's wife Michelle (an outstanding astronomer in her own right) was offered the position of director of the Adler Planetarium in May 2013. So we were left as a rather rudderless club at that point with no real organization.

Things started to look pretty bleak for the club and it probably would have disbanded if it weren't for the efforts of Tom Westre. Tom made several attempts to have organizational meetings but only a few people would show up. He finally decided to give it one more try and set up a meeting for October 9, 2013.

Finally, at that meeting we had a pretty good turnout of twelve people and it became apparent that we could make a go of it. It was decided to change the name of the club from Cache Valley Stargazers to the Cache Valley Astronomical Society. There were four officers elected that night: Tom Westre – President, Dell Vance – Vice President, Dale Hooper – Secretary and Ned Miller – Treasurer. The officers became the executive committee and agreed to come up with a club constitution.

Dave Hansen was our point of contact at USU which made it so that it was possible to still meet in room 244 of the Science Engineering Research (SER) building on campus on the second Wednesday of each month.

In January 2014 we had our new club constitution and I thought that it might be a good idea for us to have a club newsletter, so in January 2014 we published volume 1, #1 of Cache Valley Clear Skies, The Journal of the Cache Valley Astronomical Society, which consisted of two pages. Clear skies, of course is a common email "signoff" amongst amateur astronomers, so I thought Cache Valley Clear Skies would make a reasonable name for the newsletter, and the rest of the executive committee agreed.

The format for our newsletter is based on the format used by the Ogden Astronomical Society. Dave Dunn who was then the Secretary of the OAS graciously gave me a word document of the OAS Star Diagonal which I then transformed into our newsletter.

Tom felt that we needed to add a bit more content to the newsletter so in September 2014 (volume 2, number 1) we added the first installment of the constellation spotlight column. As of September 2018 we have spotlighted (which makes no sense if you are trying to observe them) forty-three constellations.

In September 2015, Tom Westre decided not to run for President again. Unfortunately, no one else did at our annual meeting which meant we were left without a President. So when the executive committee later met, Dell Vance was appointed President. Layne Pedersen later replaced Dell as Vice President in December 2015.

In early fall of 2015, I thought that it might be nice for the club to have its own logo. My initial idea was to have Scorpius setting over the Wellsville's with the name of the club appearing on the Wellsville's. I asked my son-in-law to draw up something of that nature for me. He didn't like the idea and said mountains were used in too many logos. I shared his drawings with the rest of the executive committee, but none of us really liked any of them. So in October 2015 I sent an email to the executive committee and jokingly said, "I was just trying to come up with something that says 'Cache Valley'. Perhaps a cow with a telescope. <g>"

Then on October 21, 2015 Lyle Johnson wrote back, "Hey, I quickly mocked up your "cow with a telescope" idea. I know that it was a joke, but I like it!" Lyle included a PDF of his idea. I absolutely loved it and I believe most of the club members also loved it (there are a few that don't). So we soon adopted it as our official club logo and it was added to the banner of Cache Valley Clear Skies in December 2015 to volume 3, number 4.

Because of continued problems with access to parking the club meetings were moved to the Logan Library in January 2016. But, it became increasingly difficult to get one of the large meeting rooms on a consistent basis. So, Dell Vance was

able to arrange for us to meet in great facilities on the BATC (now Bridgerland Technical College) campus beginning in February 2017 and we have been meeting there ever since.

2017 was, of course, the year of the Great American Eclipse. The club had a meeting presentation about it, gave a lecture at the Logan Library about it and it and club members explained it at a number of solar parties that were held at the Logan Library leading up to it. The September issue (volume 5, number 1) of Cache Valley Clear Skies had a lot of **great** eclipse images that were taken by club members. We really have a very talented group. In September 2017, Brad Kropp replaced Ned Miller as Club Treasurer.

The club has seen steady growth and we now have over thirty members. We have seen great participation by club members at many star parties, especially over the past year. We have also seen regular contributions by club members to our newsletter, especially from Tom Westre, Blaine Dickey and Bonnie Schenk-Darrington. Bonnie has created a fairly regular **Kidstronomy Corner** column which has greatly added to our newsletter.

Like most astronomy clubs we have seen somewhat of a “graying” of the hobby. In 2018, Dell Vance spearheaded the club’s library loaner telescope program. The first telescope was delivered to the Logan Library and a second (Orion 4.5 inch Starblast) telescope is ready to go to another library. The club is also making greater public outreach efforts such as solar parties, public star parties and “sidewalk astronomy” at the Macey’s parking lot. These give me hope that we can somewhat buck the trend and see more young astronomers in our midst.

This December it will be the 50th anniversary of Apollo 8 orbiting the Moon and next July it will be the 50th Anniversary of Apollo 11 astronauts landing on the Moon. It won’t be as big of an event as a Moon landing and I won’t live to see it, but with luck and clear skies, hopefully in mid-2059 or October 9, 2063 the Cache Valley Astronomical Society will celebrate its 50th anniversary.

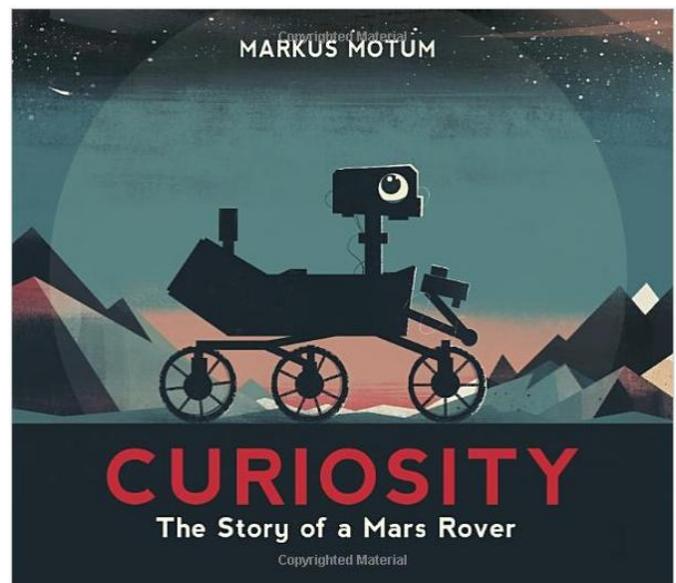
Clear skies!

Kidstronomy Corner

By Bonnie Schenk-Darrington

I’m still learning the ropes with this column. I really liked the books I chose this month, but I also had really positive reviews in August. I’m afraid that if I review too many books too positively in a row, that you’ll think I’m not critical enough. On the other hand, I’m not any use to you if the books I review are consistently awful (see the July 2018 issue). My goal is to give you recommendations for books and toys you *should* buy—not tell you every item in the universe that you *shouldn’t* buy. . . .

Well. However you feel about that, I picked some great books this month. I chose a topic near and dear to my heart this month: Mars. I first got interested in Mars when, as a high schooler, I attended a weeklong camp about space travel to Mars, sponsored by the Rocky Mountain Space Grant Consortium. I spent a week doing and learning cool aerospace stuff, all centered on the idea of ultimately sending people to Mars. Ever since then, I have been quite excited about Mars. It feels like my planet, and I love seeing it in the night sky.



Motum, Markus. 2018. *Curiosity: The Story of a Mars Rover*. Somerville, MA: Candlewick Press. Ages 8 – 12 years \$15.83 on Amazon.com

https://www.amazon.com/gp/product/0763695041/ref=oh_aui_detailpage_o02_s00?ie=UTF8&psc=1



(5 out of 5 planets)

So, when I attended Pathway to Mars Camp in 1993, Mars rovers were big news. *Sojourner*, the first robotic rover on Mars, launched in 1996. Before then, there had only been orbiters, probes, and landers. So, it was exciting to have a robot that could drive around and check things out. At camp, we watched a computer simulation video of it multiple times—almost every day, in fact—and it never got old.

I was so excited to find this beautiful picture book about *Curiosity*. The first thing that surprised me about this book is that it is written by a British author. The United States has the most advanced space program in the world, and it's easy for us to forget that we're not the only ones interested in space. This book was originally published in Britain last year, but wasn't released in this country until 2018. And the fact is that the author wrote this book for a worldwide audience, as evidenced by the first two sentences of the book: "Wherever you are in the world right now, I'm a very long way away. I'm not even on the same planet as you."

This charming book describes *Curiosity* from *Curiosity*'s point of view. Even if you're a hardnosed scientist who does not find the personification of robots amusing, I think Motum has a good chance of winning you over. Who better to tell about this robot's adventures than *Curiosity* itself? The illustrations also imply that *Curiosity* is an intelligent life form; as the cover of the book shows, *Curiosity* is shaped roughly like a car, but the camera mount looks a bit like a head and neck, and the camera lens looks a lot like an eye in many of the illustrations. The pictures leap from the page and practically come to life. I had an easy time imagining *Curiosity* driving thoughtfully along, checking out the terrain, drilling into the rocks and soil, and scooping up samples with its arm and analyzing them in its onboard mini-lab.

Curiosity's story begins right at the beginning, with the questions "Why Mars?" and "Why a robot instead of a human?" *Curiosity* introduces NASA, its first home at the Jet Propulsion Laboratory in California, the engineers in white coveralls who built it, and how it got its name. An illustration shows explanations of *Curiosity*'s various parts, such as, "My body carries the onboard chemistry lab where I run all my science experiments," and "Just like you, I have a shoulder, elbow, and wrist—

so I can be as flexible as possible." But if personifying sentences like that are putting you off, rest assured that the science of it all is explained step-by-step, such as when *Curiosity* explains why a robot built in California needed to be flown to Florida to be launched; the size and mechanism of *Atlas V*, the rocket that launched *Curiosity* into space; and the optimal launch window.

One of my favorite illustrations showed the phases of *Curiosity*'s landing on Mars. It was trickier than I had imagined. My favorite parts of the book were where *Curiosity* explains its everyday work, exploring, taking samples, and analyzing.

This book's illustrations occasionally have the feel of books from the 1970s and 1980s. Part of it might be the color scheme—a book about space and Mars would undoubtedly feature a lot of reds, oranges, and blacks. I was surprised, though, how colorful some of the illustrations of earth life really were. The end of the book has a brief history of Mars rovers, a timeline of Mars missions, and a glossary. There's no index, but it's a picture book, so it makes sense that there wouldn't be. It's a good book for reading by oneself, and also for cuddling up to read together. Very young children will, I think, struggle to understand the science, though they will probably enjoy the pictures. It's a lot of complex text to read in one sitting, so if your child may need to put a bookmark in it and come back to it later. I agree with the age range listed by the publisher. Eight years old is probably the bare minimum age for being able to really enjoy the book on one's own.

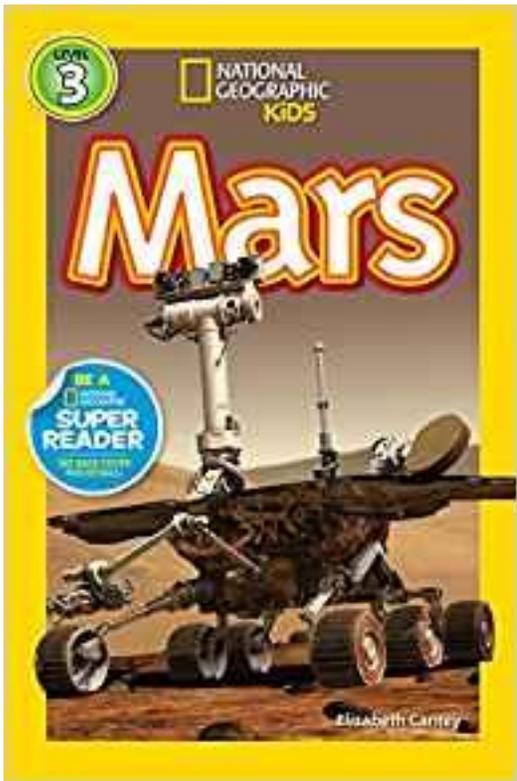
Really, the only possible downside of this book that I can see is the personification—if that sort of thing irritates you. And that didn't irritate me, so I still give the book five planets.

Carney, Elizabeth. 2014. *Mars* (National Geographic Kids, Level 3). Washington, D.C.: National Geographic.
Ages 6 – 9 years
\$3.99 on Amazon.com

https://www.amazon.com/gp/product/1426317476/ref=oh_aui_detailpage_o02_s00?ie=UTF8&psc=1



(5 out of 5 planets)



I feel that National Geographic publications are always a pleasure to read, so I was disposed to like this book from the outset. *Spirit* (another Mars rover) is on the cover of this book, and it's interesting to see what a rover really looks like, compared to the stylized illustrations of *Curiosity* in the Motum book reviewed above.

The National Geographic Kids series is one of the best science series available for kids these days. The photographs, illustrations, and text are always engaging and up-to-date, and the facts are presented in a fun format. For example, each two-page spread in this book has multiple sidebars telling you “weird but true” facts, “Mars Meanings,” or space jokes. (And all the “Mars Meaning” words are in a photo/text glossary on pp. 46 – 47—so, double win!) And yet, the illustrations do not feel cluttered or overstimulating.

Highlights of this book include the explanation of why Mars is red (pp. 10 – 11); a photograph of *Curiosity* showing its size (it's bigger than you think! p. 25); scientists performing a training mission in Hanksville, UT (pp. 30 – 31); a beautifully illustrated timeline of what a terraformed Mars' phases might look like (pp. 36 – 39); and Martians in popular culture (pp. 40 – 43).

This book even brings it home for kids; it tells the story of the family of flight director David Oh, as they lived on “Mars time” for three months so their dad could sync his work hours with *Curiosity*'s explorations (pp. 26 – 27). I found the story interesting. It also has cool facts about what astronauts might be able to grow and eat on Mars, and explains how a 3-D printer could make a fresh pizza for an astronaut's dinner (pp. 32 – 33)!

This book has a table of contents at the beginning, and a quiz, glossary, and index at the end. The age and reading level seem spot on. Dane read this book and coped well with it. Hard words include names like *Mariner*, *Curiosity*, and *Gusev Crater*, and science words like *terraform* and *nitrogen*. None of those words are in the glossary; the less advanced reader will probably need some help. But the pictures are engaging and support the text well. This is a terrific book and I really can't recommend it highly enough.

Cheers until next month!

A Handy Chart to Help Plan Observing Sessions in the Month of September

By Blaine Dickey

Looking at the chart below I have estimated that there are about 107 hours in September when the moon is not in the night sky. Knowing when the sky is moonless can be important if your observing plans include deep sky objects at the eyepiece of the telescope or imaging them with your camera and telescope set up. Without knowing when the sky is not lit up by moonlight, you could easily miss some great opportunities to observe that you might otherwise not think about. Below is a chart I created using Celestron's free app “Sky Portal” which shows when the moon is visible or not visible in Cache Valley during the month of September 2018.

Date	No moon visible	Date	No moon visible
1-Sep	9:38 PM - 11:36 PM	16-Sep	12:01 AM to Dawn
2-Sep	9:36 PM - 12:00 PM	17-Sep	12:14 AM to Dawn
3-Sep	9:35 PM - 12:17 AM	18-Sep	1:00 AM to Dawn
4-Sep	9:32 PM - 1:05 AM	19-Sep	1:51 AM to Dawn
5-Sep	9:30 PM - 2:02 AM	20-Sep	2:44 AM to Dawn
6-Sep	9:28 PM - 3:06 AM	21-Sep	3:41 AM to Dawn
7-Sep	9:26 PM - 4:18 AM	22-Sep	4:39 AM to Dawn
8-Sep	No moonlight tonight	23-Sep	Moonlight all night
9-Sep	No moonlight tonight	24-Sep	Moonlight all night
10-Sep	No moonlight tonight	25-Sep	Moonlight all night
11-Sep	No moonlight tonight	26-Sep	Moonlight all night
12-Sep	9:47 PM to Dawn	27-Sep	8:48 PM to 9:03 PM
13-Sep	10:19 PM to Dawn	28-Sep	8:46 PM to 9:37 PM
14-Sep	10:54 PM to Dawn	29-Sep	8:44 PM to 10:16 PM
15-Sep	11:32 PM to Dawn	30-Sep	8:42 PM to 11:01 PM

If you are a deep sky observer then you will notice from the chart above that the moon will not be visible at all on the nights from September 8th to 11th in Cache Valley. But if you examine the chart more closely you will notice that in the month of September the only dates when the moon is visible all night long is between the dates of September 23rd and 26th. All the other nights have some time when the moon is not visible. If you are into imaging deep sky objects the chart will help you know when the sky will be dark without moonlight.

The times listed above start after Astronomical night has begun and before dusk begins the next morning. Other ways this chart could be useful for example is if you wanted to see the winter deep sky objects when it's not so cold outside. You could get up early in the morning during September and see all the winter objects when the temperatures are much friendlier than they will be in the months of November and December.



Messier 22 - courtesy Blaine Dickey

You could also make plans to observe when there *is* moonlight in the sky. For example you could observe double stars, variable stars, occultation's of stars by the moon, planets, nova, and asteroids. You may also choose to observe the moon, asteroids, planets, comets, open star clusters, meteors, and lunar eclipses during moonlit nights. Moonlight need not be an excuse not to observe. If you own a DSLR you can take some amazing landscape pictures in moonlight. In other words there are many observing opportunities on almost any night of the year.

September Observing Ideas

By Tom Westre

Last month I wrote about the summer of the planets Jupiter, Saturn and Mars. Now that the skies are clearing this is a great time to view the planets.

The Martian dust storm is clearing up. Can we see the different surface markings on the planet? But don't wait as the planet is moving away fast and its brightness is dropping fast by month's end.

Saturn with its rings is always a great view. On September 10 it begins in slow prograde motion eastward in Sagittarius. It is now two months past opposition but remains a great sight in your telescope. I was able to image Saturn Aug 8, 2018.



Saturn with a Celestron 8 - by Tom Westre

Jupiter's Galilean moons are always a treat watching from night to night as they orbit the planet. Jupiter is still visible but sets early. On September 7, Neptune reaches opposition at magnitude 7.8 and has a size of 2.7" in Aquarius.

Comet 21P/Giacobini-Zinner

Don't miss the close approach of comet 21P in September. It's responsible for the Draconid meteor shower. Comet 21P is a periodic comet with a period of 6.6 years and was discovered in 1900 by Michel Giacobini in France and seen again in 1913 by Ernst Zinner in Germany. 21P will come closer to the earth than it has for the past 72 years. It is approaching earth at high speeds of 14 miles per second or about 50,000 mph relative to the earth. Its closest approach to both earth and Sun takes place on September 10, 2018 at a distance of 36 million miles. About the distance of Mars. This

should be a good binocular object in early September. It is predicted to reach magnitude 6.5 to 7 as it passes through Auriga and Gemini from September 1 to the 16th. Its nucleus is thought to be only a mile wide, while the Sun has heated it up so its coma atmosphere is about 180,000 miles in diameter. On September 9th 21P will pass close to Messier 35 and across Messier 37 in Gemini in the morning of September 15th. According to Sky and Telescope the comet will travel about 4.4' per hour and anyone with a small telescope can watch as the comet crosses the open cluster. Look for the comet to occult some of the stars as it passes through the cluster.

Other observing targets

Galaxies: M31 in Andromeda, M 33 in Triangulum, M 74 in Pisces, M51 off the handle of the Big Dipper. M51 is getting lower in the sky, so September is the last time until late winter or spring before you will get a good view of this great galaxy.

Globular Clusters: M15 in Pegasus, M2 in Aquarius, M30 in Capricorn. One of my favorite targets is the "Double Cluster" in Perseus. It lies between Cassiopeia and Perseus. Use a wide angle eyepiece to get both these beauties into your field of view.

Planetary Nebulae: Ring Nebula M 57 in Lyra, Dumbell Nebula M27 in Vulpecula, Blinking Nebula NGC 6826 in Cygnus, and the small planetary nebula NGC 6572 in Ophiuchus. I took an image of M 27 in June of 2018. This is always a favorite and easy target to image.

Now, if you want interesting challenges let me recommend three of my favorite **galaxy clusters**. The mutual gravitation of galaxies draws them together in groups. The Milky Way is part of what is called the Local Group which consists of our Milky Way Galaxy, Andromeda (M31), Messier 33, and several other smaller galaxies. The farther we look into deep space the more galaxy groups we see. It's a challenge to push our telescopes and our visual abilities to see these distant galaxies. The first of my three favorite galaxy clusters for the summer/fall season is Abell 2151 also known as the Hercules Cluster. This always interests me due to the remoteness of the grouping, some 500 MILLION LIGHT YEARS away.

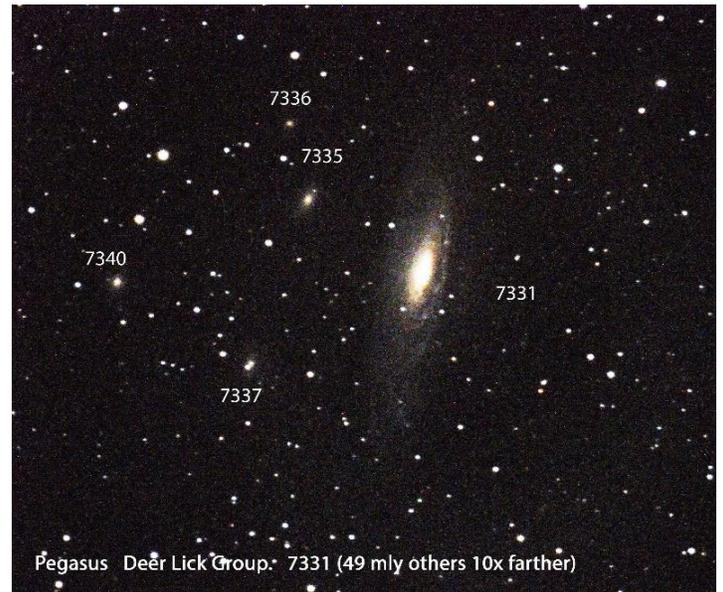


Hercules Cluster with a Celestron 8 - by Tom Westre

This is pretty much at the far limit of what most amateur telescopes in the 6-12 inch size can detect visually. With a computerized telescope locate the brightest member of this cluster, NGC 6047 at magnitude 13.5. About 20 members can be seen in an 8" in dark skies with patience. The magnitude range of this group is from 13.5 to 15.6. I am going to include an image I took August 31, 2018 with my Celestron 8 and Canon T3i. The smudges are faint but unmistakable. I am amazed when we consider the light has been traveling 500 million years to reach our eyes or cameras. Amazing!!! The bright dots are stars, look for the faint smudges.

My next two galaxy groupings are called the Deer Lick Group and the nearby Stephans Quintet in Pegasus. The Deer Lick group can be found by locating NGC 7331 in Pegasus. NGC 7331 is about 50 million light years away. Very close to 7331 is another group of five galaxies called Stephans Quintet. This small group consists of five galaxies, NGC 7320 is much closer to us, while the other four (7319, 7318 A and B, 7317) are gravitationally bound together and are part of HCG 92 (Hickson Compact Group)

If you manage to visually observe or image any planets, or these galaxy clusters this month send me your results at twestre45@aol.com Happy Observing!!!!



Deer Lick Group with a Meade 12 - by Blaine Dickey



Stephans Quintet with a Celestron 11 - by Tom Westre

CVAS Loaner Telescope

CVAS provides a 10 inch Dobsonian telescope to club members. Contact Garrett Smith to make arrangements to use this telescope. Garrett can be contacted by email at GarrettGillSmith@gmail.com.

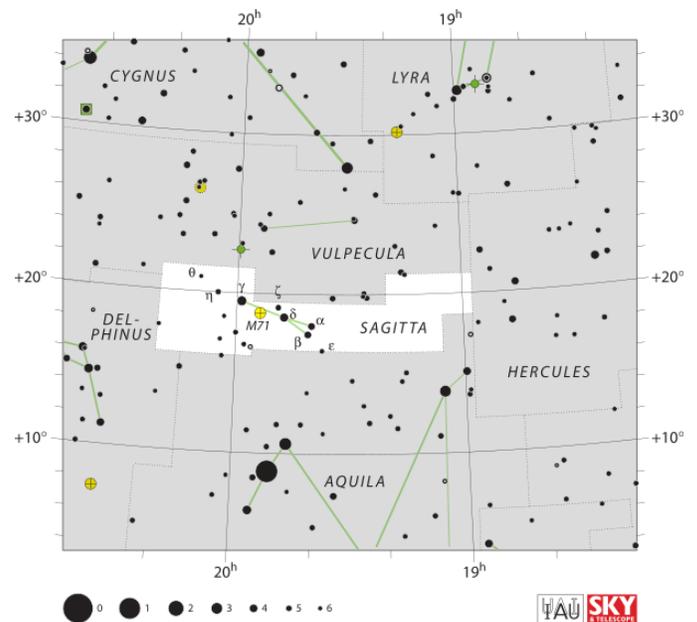


Spotlight on Sagitta, the Arrow

By Dale Hooper

Sagitta is a small summer constellation located just to the north of Aquila and to the south of Cygnus and Vulpecula. Even though it is small, its shape (a small arrow) is pretty distinctive and easily recognizable. It is the home to the globular cluster Messier 71 as well as a couple decent open clusters and some nice multiple star systems.

Objects which rank at least three stars in *The Night Sky Observer's Guide* (Sagitta is in Volume 2) have been included. As usual, the table is organized according to increasing Right Ascension values.



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

Binocular Supports

The club still 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

Object	R.A.	Dec.
U Sagittae (Eclipsing binary mag 6.6 to 9.2)	19h18.8m	+19°37'
H N 84 (Double star)	19h39.4m	+16°34'
ζ Sagittae (Multiple star)	19h49.0m	+19°09'
Harvard 20 (Open cluster)	19h53.1m	+18°20'
Messier 71 (Globular cluster)	19h53.8m	+18°47'
NGC 6873 (Open cluster)	20h08.3m	+21°06'
θ Sagittae (Triple star)	20h09.9m	+20°55'



The constellation Sagitta as it can be seen with the unaided eye. © T. Credner & S. Kohle, AlltheSky.com - used with permission

CVAS Minutes – August 2018

There was no CVAS meeting in August.

Upcoming Star Parties

- 7 Sep CVAS Star Party
- 8 Sep Solar Party, 10:30am – Noon Logan Library
- 14 Sep Public Star Party – Nibley Heritage Park or Macey's parking lot in Providence
- 27 Sep Preston Jr High School Star Party for students and parents
- 11 Oct Cache Valley South, Adult Special Needs Mutual Star Party – held in Logan
- 11 Oct Brigham City USU Extension Event with Dr. Johnson speaking and a star party
- 15 Oct North Park Elementary School star party in North Logan
- 26 Oct River Heights Elementary School presentation and star party

Upcoming Events

- 01 Sep Karl Harding discovers asteroid Juno (1804)
Pioneer 11, first flyby of Saturn (1979)
- 02 Sep Last Quarter Moon

- Venus 1.4° south of Spica
- Aldebaran 1.2° south of Moon
- 03 Sep Labor Day
Viking 2 lands on Mars (1976)
- 05 Sep Mercury 1° north of Regulus
- 07 Sep Neptune at opposition
- 09 Sep New Moon
E.E. Barnard discovers Jupiter's moon Amalthea (1892)
- 10 Sep Rosh Hashanah begins
- 11 Sep Patriot Day
ICE probe flies past Comet Giacobini-Zinner (1985)
Rosh Hashanah ends
- 13 Sep Jupiter 4° south of Moon
Luna 2, first craft to impace Moon (1959)
- 16 Sep First Quarter Moon
- 17 Sep Saturn 4° south of Moon
- 19 Sep Yom Kippur
William Bond discovers Saturn's moon Hyperion (1848)
- 20 Sep Mercury in superior conjunction
- 21 Sep Venus at greatest brilliancy, mag. -4.6
- 22 Sep Autumnal Equinox, 7:54pm MDT
- 23 Sep Neptune 2° north of Moon
Neptune discovered (1846)
- 24 Sep Full Moon
- 26 Sep Annual General CVAS Meeting
- 27 Sep Uranus 5° north of Moon
- 29 Sep Aldebaran 1° south of Moon

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:

Brad Kropp, CVAS Treasurer
1573 E 1425 N
Logan, UT 84341

For any questions contact our Treasurer at brad.kropp@usu.edu or our Secretary Dale Hooper at dchooper5@gmail.com