CACHE VALLEY ASTRONOMICAL SOCIETY

Cache Valley Clear Skies

The Journal of the Cache Valley Astronomical Society

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Meeting Announcement

Our monthly meeting will be held on Wednesday, January 20, 2016 at 7:00pm in the Bonneville Room at the Logan Library. **Please note that this is a new date, time and location.**

Our featured speaker will be club member Dale Hooper. He will be speaking about Hubble's Law of Cosmic Expansion. This will be a hands-on activity. We will be computing galactic red-shift values to calculate the Hubble constant (H_0). The calculations we will make will be fairly straightforward but some of the numbers will be rather large so please bring a calculator that can work with scientific notation (if possible). Most smart phones have apps that can handle this. If you are afraid of math – don't worry, you can work as a team.

The President's Corner
By Dell Vance, CVAS President

It is a great time of year. I hope you have had a festive holiday season. We had a very interesting presentation from Dr. Johnson about the Bethlehem Star at our December Meeting. It got me thinking what did the wise men see? Would I have been out

there looking at the skies or would I have missed the event like King Herod?

The weather has been very unpredictable this December. However, I did have some opportunities do some visual observations. The skies cleared up while I was in the Seattle area between Christmas and New Year's. I love that the skies are consistent between one region and another (as long as you are in the same hemisphere). Orion was high in the sky right where I knew it would be. However, I am thankful that we have much less light pollution here in the Cache Valley. We live in an exceptional area

for astronomy. I hope each of us is taking time to enjoy this area.

I hope to be able to see the Catalina Comet this month. With the cold weather, it will take some planning to accomplish this task. Anyway I'll give it a shot.

This month's meeting will be at the Logan City Library on Wednesday, January 20th, at 7:00 PM in the Bonneville Room. Be sure to note the change in time and location. We hope to see you there and bring a friend.

Clear Skies.

Introducing our new VP, Layne Pedersen

Hello! My name is Layne Pedersen and I've lived in Cache Valley for 5 years now. I'm originally from Salt Lake City where, when I was young, my parents would take me to star parties put on by the Salt Lake Astronomical Society.

I remember the first time I saw Saturn (as most people do) and I think I was forever changed. For many years after, I would take friends and eventually my wife to do the same. I have always been interested in science, especially astronomy, since I was a child and went on to graduate in Physics at university.

I currently have an 8-inch Dobsonian and have been getting to know the skies around me but I have so much to learn still. One of my favorite objects to observe is Jupiter because of its indelible mark in the history of our collective understanding of how the heavens are organized and the universe around us. I love observing the skies and I look forward to learning so much more.

Comet January Observing Highlights

By Tom Westre

During December Comet c/2013 US 10 Catalina continued its journey north at about magnitude 6. As it moved north it passed through Virgo and on January 1 2016 it passed ½ degree from Arcturus in the constellation Bootes. During January 2016 Catalina continues north through Canes Venatici, Ursa Major and Draco.

The comet presents itself as a fine visual and photographic object. All you need is a pair of binoculars to see it.

In early December I began to make plans to image Catalina on January 1. But the pre-dawn skies in Logan were of very poor quality as December wore on. Fortunately we had planned a trip to San Diego to see my son and his family. I hoped that would present a better opportunity to observe and image the comet. So I decided to take my 8" Meade with me.

The first two days were rainy, but on December 22 it began to clear. I set up my telescope before retiring for the night. At 4 am the eastern sky looked clear. I aimed to telescope at the comets location and bingo there it was. I was ready to image the comet but realized I have forgotten my 1 ¼ inch adapter back in Logan. So much for a telescope image.

After returning to Logan on Dec 27th I again planned to image the comet. The skies looked good on the morning of December 31 and January 1 when the comet was ½ degree from Arcturus. Both images were with my Canon T3i and a 75-300 mm telephoto on a tripod. The temp on December 31 was -8 and on January 31 -11, just too cold for setting up my telescope. But I was happy with the images I got.

The image I am including with my article was taken January 1 2016 when Catalina was ½ degree from Arcturus. I have placed a mark on the image to show where the comet was on December 31.

There are several more chances to image the comet in January. The comet passes closest to Earth at 0.72 a.u. on January 12th, then buzzes by Alkaid and Mizar in the Big Dipper's handle on January 14-17. It moves at about 2 degrees a day or 5' per hour—fast enough to easily detect motion in 30 minutes or less. After mid-month it is expected to fade quickly.

For more information go to: http://www.skyandtelescope.com/observing/comet-catalina-sails-into-northern-skies111120151111/#sthash.qy9L4XTY.dpuf.

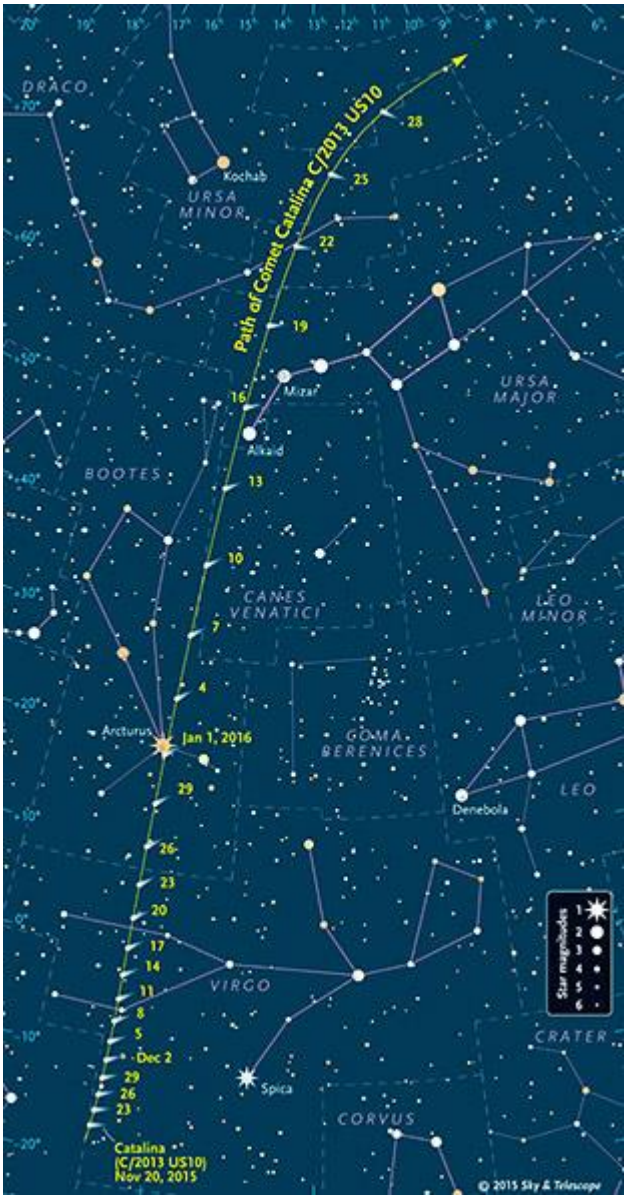
Comet Catalina imaged near Arcturus January 1 also its location on December 31, 2015. Canon T3i, 1.3 seconds, ISO 6400 with the Moon at 40%. Image by Tom Westre

If you get a chance to observe or image the comet send me your results at twestre45@aol.com.
Two other comets, although not as bright are still easy telescopic objects, should be on your target list for January.

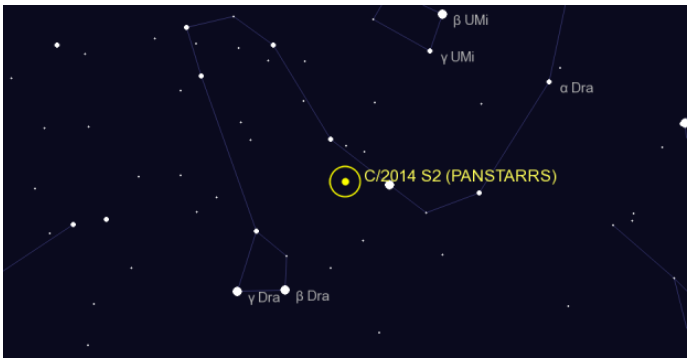
Comet C/2014 S2 PanSTARRS is the comet you most likely aren't watching, but should be. Comet S2 PanSTARRS reached perihelion 2.1 astronomical units (AU) from the Sun December 9th, 2015. Discovered on September 22nd, 2014 by the prolific PanSTARRS 1 survey based atop mount Haleakala on Maui in Hawaii, S2 PanSTARRS is on an estimated 2,217 year orbit, inclined at a steep angle of 65 degrees relative to the ecliptic and the general plane of the solar system.

It now is an easy circumpolar comet currently in the constellation Draco, but by the middle of February will be in Ursa Minor. It is about mag. 10.

And now for the wow factor: the last time comet S2 PanSTARRS passed Earth in the 3rd century BC, Carthage was battling an upstart Rome during the first Punic Wars. The comet very likely passed through the inner solar system unnoticed and unrecorded, as it was never a naked eye object. The comet's next pass through the inner solar system is out around 4232 AD, give or take a year…



Path of Comet Catalina Dec & Jan, Credit: Sky & Telescope (Image from referenced article)



S2 Panstarrs in Draco as of Jan 2. Image from The Sky Live.

The other comet to watch is Comet C/2013 X1 PANSTARRS. Currently at mag 10, it lies in in Pegasus just in the eastern side of the great square midway between to two eastern corner stars.

Comet C/2013 X1 Panstarrs in Pegasus as of Jan 2. Image from The Sky Live.

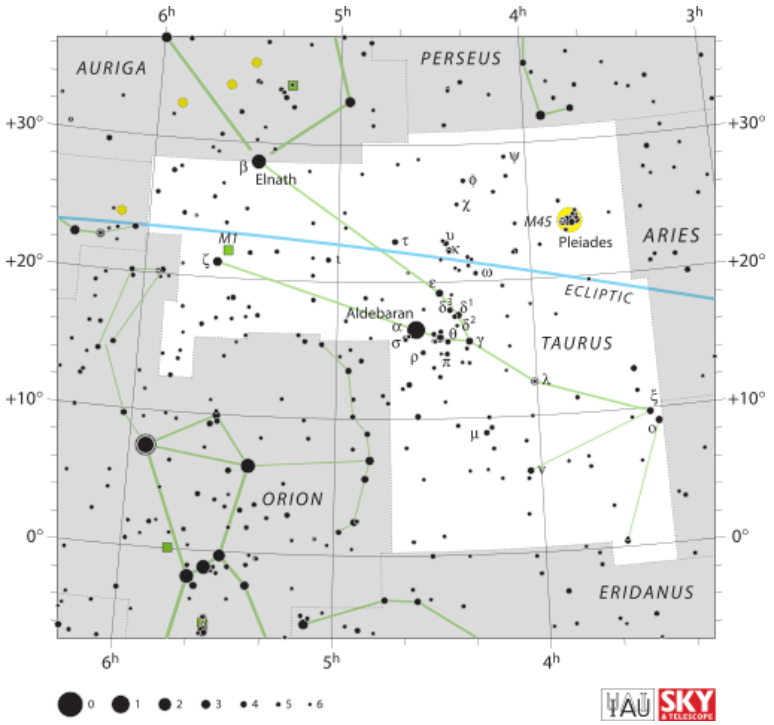
Spotlight on Taurus, the Bull

By Dale Hooper

Taurus is the home to the first magnitude star Aldebaran (the Follower). It is also home to two of the most recognizable naked eye open clusters namely the Hyades and the Pleiades. The Pleiades figured prominently in many ancient societies. We also know it as Messier 45 or the Seven Sisters. It is called Subaru by the Japanese.

Next time you are following a Subaru, take a look at the emblem on the car – because it represents the Pleiades. Another important object in Taurus is the Crab Nebula (Messier 1). This is a supernova remnant from a supernova which was observed by the Chinese and Native Americans in 1054 A.D. The supernova was so bright that it was observable during the daytime for several months. We now know that the progenitor star collapsed into a pulsar.

I am listing objects which rate at least three stars in *The Night Sky Observer's Guide* (Taurus is in Volume 1). As usual, the table is organized according to increasing Right Ascension values.



IAU and Sky & Tel - Roger Sinnott & Rick Fienberg

Object	R.A.	Dec.
Σ422 (Double star)	03h36.8m	+00°35'
Messier 45 (Open Cluster)	03h47.0m	+24°07'
Σ452 (Double star)	03h48.3m	+11°09'
λ Tauri (Variable star)	04h00.7m	+12°29'
RW Tauri (Variable star)	04h03.9m	+28°08'
Σ495 (Double star)	04h07.7m	+15°10'
47 Tauri (Double star)	04h13.9m	+09°16'
52 Tauri (Double star)	04h20.4m	+27°21'
T Tauri (Variable star)	04h22.0m	+19°32'
β87 (Double star)	04h22.4m	+20°49'
NGC 1647 (Open cluster)	04h46.0m	+19°04'
Hyades (Open cluster)	04h23m	+16°
NGC 1746 (Open cluster)	05h03.6m	+23°49'
NGC 1802 (Open cluster)	05h10.2m	+24°06'
NGC 1807 (Open cluster)	05h10.7m	+16°32'
NGC 1817 (Open cluster)	05h12.1m	+16°42'
Dolidze-Dzimselejsvili 3 (Open cluster)	05h33.7m	+26°29'
Messier 1 (Supernova Rem.)	05h34.5m	+22°01'
Dolidze-Dzimselejsvili 4 (Open cluster)	05h35.9m	+25°57'
NGC 1996 (Open cluster)	05h38.2m	+25°49'

CVAS Minutes – December 2015

The meeting began with a discussion of the current night sky highlights including Comet Catalina, configurations of Venus and the Moon, the Geminid meteor shower and Mercury.

The time was then turned over to our featured speaker, Dr. Hollis Johnson for a talk about the Star of Bethlehem. Dr. Johnson was able also speak about this subject in Copenhagen Denmark. He discussed the accounts of Jesus' birth in both Mathew and Luke. The star is discussed in Mathew but not in Luke.

The wise men saw the star and came from the east. They had to be concerned about robbers so they needed to travel as a large group. It would take a significant amount of time to assemble everything and everyone needed for the journey.

Dr. Johnson discussed possibilities of who the wise men were and how the star was connected to Judah. He also discussed the various possibilities of what the star was and when it appeared. Most scholars feel that it occurred around 4 B.C.

Upcoming Star Parties

Currently there are no organized club star parties planned for January.

Upcoming Events

1 Jan	New Year's Day Giuseppe Piazzi discovers Ceres (1801)
2. Jan	Luna 1, first craft to leave Earth's gravity (1959) Last Quarter Moon
3 Jan	Mars rover Spirit lands on Mars (2004) Quadrantid meteors
4 Jan	Quadrantid meteors
6 Jan	Venus 6° north of Antares Venus 3° south of Moon Saturn 3° south of Moon
8 Jan	Venus and Saturn are less than 0.5° apart.
9 Jan	New Moon
12 Jan	Comet Catalina passes closest to Earth (0.72 A.U)
13 Jan	Galileo discovers Jupiter's moon Ganymede (1610)
14 Jan	Huygens lands on Saturn's moon Titan (2005)
16 Jan	First Quarter Moon
18 Jan	Martin Luther King Day
19 Jan	Waxing gibbous Moon occults Aldebaran
23 Jan	Full Moon
24 Jan	Voyager 2 flies past Uranus (1986)
25 Jan	Mars rover Opportunity lands on Mars (2004)
27 Jan	Fire on launch pad kills Apollo 1 crew of three astronauts (1967)
28 Jan	Space shuttle Challenger explodes 73 seconds after launch killing the crew of seven astronauts (1986) Johannes Hevelius born (1611)
31 Jan	Last Quarter Moon