VAAS Website: vaas.universeii.com September 2nd 2016

Vandenberg Amateur Astronomical Society presents The Sidereal Times

Trifid nebula NGC 6514 (see page 5)

Meeting *News:*

The June meeting we discussed the brochure content, star Parties, and had a round table of strange encounters that one has experienced and a reminder about summer break and a general open discussion on any topic of interest.

Reminder: VAAS club meeting September 9th 7:00 Pm Manzanita School, teachers lounge.

Lunar Calendar:

New Moon September 1st
Full Moon September 16th

Figueroa Mt. Vince, Jon & Geza

Presidents Message

Welcome back VAAS Members from our summer break ! We hope your summer activities went well, and many did enjoy the clear nights, and some star parties at the beginning of summer….not so much now with our usual marine layer coming in daily. My cruise ship through the inland passage of southeastern Alaska was a wonderful trip with my sister. We enjoyed cool weather, some light rain, and were thrilled to see breaching humpback whales, bald eagles, glaciers and of course the gorgeous scenery of Alaska. Astronomy was not really an option as it did not get dark enough in June until near midnight .

We will be having several potential members showing up at our **Meeting on Friday Sept. 9th,** so please help welcome them into our club. I will introduce them to all at our meeting. Our agenda for Sept. will be to finalize our plans for our new VAAS brochure that Tom Gerald, our VP is working on now. Also, we could begin our plans for our annual Picnic that we hold at River Park usually in October. I suggest Oct. 1st on that Sat. for our get together. It is always a relaxing time to get to know new members and connect with each other. Bring ideas in Sept. for topics and presentations that we could discuss at our meetings.

Summer excitement in **Astronomy:** How about that spacecraft Juno finally reaching Jupiter in July, after a 1.8 billion mile journey to our solar system's largest planet ?! It is very exciting that we are now getting close-up photos of the planet and its atmosphere near the pole regions. More information about Juno at our meetings. See you at the Meeting Sept. 9th!

Wishing you Clear night skies with no fog or smoke from fires! Jana

Events

Sept 3rd Neptune at opposition. The blue giant will be at its closest approach to Earth and will be brighter than any other time of the year and will be visible all night long. Due to its extreme distance it will appear as a tiny blue dot in all but the most powerful telescopes.

Sept 3rd ***Star party at Figueroa Mountain site 1.5.***

.Sept 10th ***Star Party at the observatory.***

Sept 16th Penumbral Lunar eclipse. This occurs when the Moon passes through Earth's partial shadow. During this type of eclipse the Moon will darken slightly but not completely. The eclipse will be visible in most of eastern Europe, eastern Africa, Asia and Western Australia.

Sept 22nd September equinox occurs at 14:21 UTC. The Sun will shine directly over the Equator and there will be nearly equal amounts of day and night throughout the world. It is the first day of Fall in the Northern hemisphere and the first day of Spring in the southern hemisphere.

Sept 24th ***Star Party at the Observatory.***

Sept 28th Mercury at greatest Western elongation. The planet reaches greatest elongation of 17.9 degrees from the Sun. This is the best time to view the planet since it will be at the highest point above the horizon in the morning sky. Look low in the Eastern sky just before sunrise.

Star Party and Events

4 June Star party at Figueroa Mt. Jon Walke and Craig Fair attending. Spent most of the night in astrophotography.
Sky was clear seeing good and had a good night under the stars.

25 June Star party at the observatory. Vahan, Dave, Tom, Ken and Louise and Mark attending. Vahan was running First Light on his new 12" Dob and Tom set up his 8" SCT. Dave and Mark helped Tom with set up of the Meade SCT because it was a new system unfamiliar to him. Good sky all night lots of fun and camaradare. One factor in setting up a new scope is to RTFM. Secured at 11 pm.

July 2nd Star Party Figueroa Mt. Craig and Vince on site. Jay from VAFB Museum visiting. Some roadside visitors arrived and spent much time viewing and star hopping with Vince's scope, Jay assisted. Craig was doing his astrophotography and photographed the Ring, the Lagoon and the Swan nebulas. The sky was clear and a light breeze kept the bugs away. All in all it was a good night under the stars. Departed at 2:30 Am.

July 9th Star party at the Observatory Dave, Justin and Mark on site. Dave worked first light on his hand crafted Dob, affectionately referred to as Franken-Dob. Worked very well on various objects of interest such as the Ring Nebula. Seeing was good, Justin and Mark worked several objects with their scopes. Was a good night under the Stars.

Star Party and Events Cont.

July 23rd Star party at the Observatory. Jana, Vahan, Dave, Vince and Alex and two of Jana's guests on site. Dave, Vahan and Alex set up their scopes and Vince worked the Observatory. The seeing was fair with occasional stable periods. Most of the evening was spent looking at planets and a nebula or two. The guests enjoyed the viewing. It was another good night under the stars.

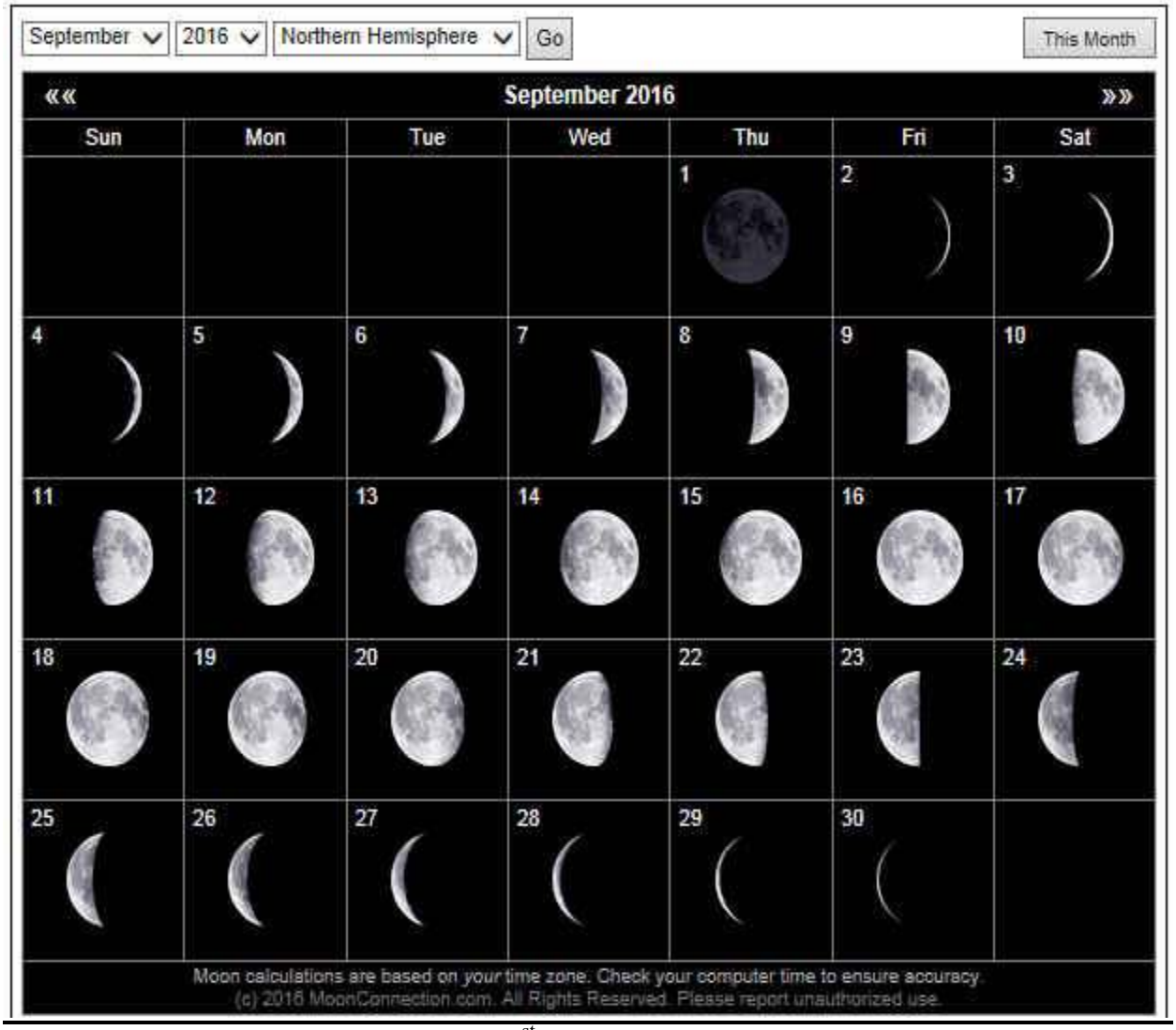
July 30th Star party at Figueroa Mt.
Vince and Jon Walke from VAAS, and Géza Kurczveil on site. Jon and Geza got right to their astrophotography, Vince set up his old 8" SCT and the more recently acquired Celestron Comet Catcher. The seeing was very good. Through the SCT Vince saw excellent images of Mars and Saturn and also looked at Venus and Jupiter. Played a lot with the smaller telescope, a short-tube (hence wide field) Schmidt Newtonian. Could see both the Lagoon and Trifid Nebulas at the same time. Although not very bright, you could see the entire arc of either the Western or Eastern Veil Nebula. With a 26 mm Plossel eyepiece installed, the field of view was about 3°. A nice object suggested to us by Geza was NGC 7789, an open cluster in Cassiopeia. A good night under the stars.

August 6th Star party at Figueroa Mt. Vince and Craig on site along with Geza and several visitors from the local area. Vince brought his 16 " Dob but decided to use his smaller 4 inch scope for imaging. Geza was at his astro photography routines. Craig set up for astro photography as usual but the wind was shaking the mount causing blurred stars. He switched to taking photos of the Milky Way with his DSLR ccd camera. It was a bit windy in the 12 to 15mph region and the seeing was not as good as usual. Several objects such as the Ring nebula were viewed. Packed it in for the night about 12:30Am. Fair night under the stars.

August 13th Star party at Sunburst Sanctuary. Vince, Jon and Vahan on site to support the star party. Vince and Jon had their 8" SCTs and Vahan his 12" Dobsonian. One other attended named Steve with his 4"Mak-Cas who was from the Sunburst group. The night was clear and the atmosphere fairly stable. Seeing was very good. The primary objects viewed were Moon, Mars, and Saturn. Later in the evening M57, M13 and the double cluster were viewed. Moon was very bright so most deep space objects were washed out. We had quite a group of people that took pleasure viewing through our scopes. Secured around 10:45. It was a good night under the stars.

August 27th Star party at the Observatory. Vince Tobin Dave McNally and Vahan Yeterian on site. Vince brought his 4 inch Schmidt Newtonian and we looked at the conjunction of Venus and Jupiter low in the Western horizon. They looked to be about 1 degree or less apart. Could not see Mercury cause it was lower and hidden by the trees. Looked at Saturn and Mars also. Seeing conditions were not ideal, too much haze caused by smoke and ash in the sky from all the fires in the local area.

September 2016 Moon

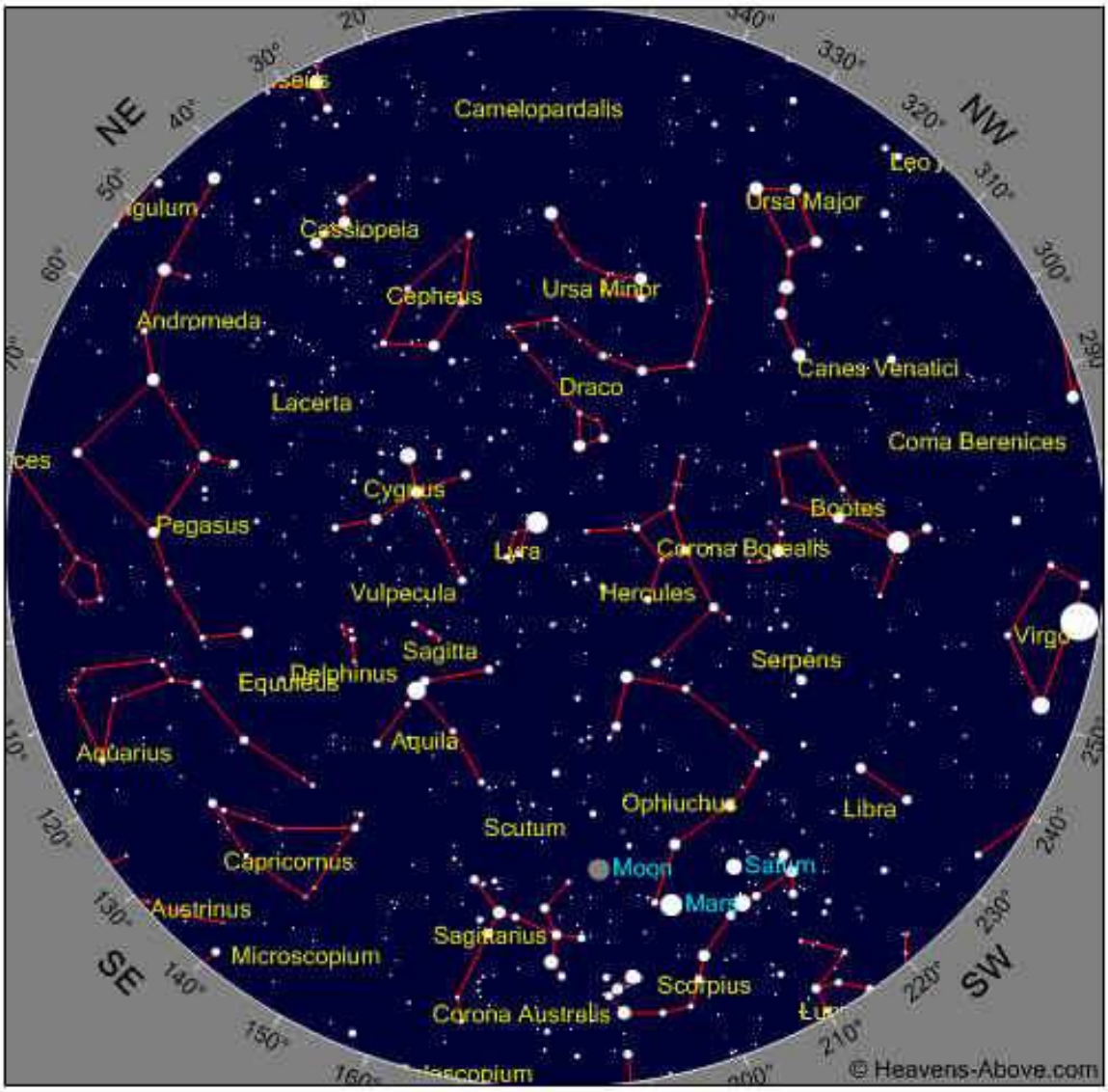


Full 16th, New 1st, 1st Quarter 9th, Last Quarter 23rd

Moon Facts

Moon Facts about Planet Mars moons. The moons of Mars are Phobos and Deimos. Both moons were discovered in 1877 by Asaph Hall and are named after characters Phobos (panic and fear) and Deimos (terror and dread) who in Greek mythology accompanied their father Ares (god of war) into battle.

September 2016 Sky



Time

Year	2016	Month	9	Day	10	Hour	4	Minute	0

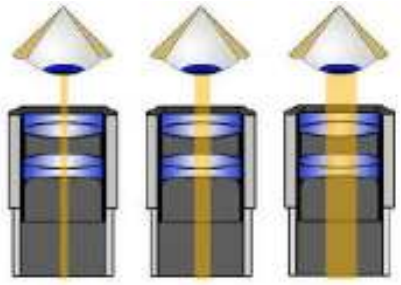
Photo Courtesy Craig Fair

Messier 20 the Trifid nebula NGC 6514 is located in constellation of Sagittarius and is 5200 light years from Earth. The name means divided in to three lobes. It is an unusual combination of open cluster stars, an emission nebula, and a reflection nebula and a dark nebula that are the gaps between. The apparent gaps within the emission nebula cause the truncated appearance, it is also designated Bernard 85. The nebula is a star forming region in the Scutum spiral arm of the Milky Way. The most massive star that has formed in this region is HD164492A an 07.5lll star with a mass 20 times greater than the Sun. The star is surrounded by a cluster of approximately 3100 young stars. The nebula was the subject of an investigation using the Hubble telescope using filters that isolate emission from hydrogen atoms, ionized sulfur atoms and doubly ionized oxygen atom. The combined images provided a false color composite picture suggesting how the nebula might look to the eye. The dense cloud of gas and dust is full of embryonic stars and is about 8 light years away from the nebula's central star. A jet protrudes from the head of the cloud and is about 0.75 light years long. Jets are the exhaust gasses of star formation and radiation from the nebulas central star makes the jet glow. The images also showed a finger like stalk that points directly toward the star that powers the Trifid nebula.

Image capture was with A Celestron 9.25 inch SCT, CGEM mount, and a Celestron Nightscape 8300 camera. 3 minute exposures: 10 lights 10 darks, and 10 bias files stacked in Celestron Astro FX program with additional processing with Lightroom and Topaz Detail3 & DeNoise.

For What its Worth

There is a lowest useable magnification on a telescope. This is determined by the exit pupil of the optical system and the size of the observer's pupil. The exit pupil is the diameter of the beam of light produced by the telescope and eyepiece combination. The lower the magnification, the larger the exit pupil. Exit pupil is calculated easily by dividing the telescope's aperture (in millimeters) by the magnification. Thus, an 8" (200mm) telescope operating at 50x has an exit pupil of 4mm. At 100x on the same telescope, the exit pupil shrinks to 2mm. The minimum magnification is limited by the size of the observer's eye. If the observer's pupil is smaller than the exit pupil of the telescope, the beam of light is cut off and the effective aperture of the telescope is reduced.



Decreasing magnification (or increasing aperture) increases exit pupil size. If the exit pupil is too large (right), the observer's pupil will restrict the effective aperture of the telescope.

On average, the pupil of the eye will open to a maximum of 7mm. This is age-dependent, so observers in their teens and twenties may have pupils as large as 7-8mm, while middle aged observers will have pupils in the 6-7mm range. By age 80 the pupil opens only to 3.5-5mm. In general, a 7mm exit pupil is assumed. To determine minimum magnification, calculate the magnification that yields a 7mm exit pupil. This is simply the telescope's aperture in millimeters divided by 7. The table below gives minimum useable magnifications for different apertures.

Aperture	Minimum Magnification
4"	15x
5"	18x
6"	22x
8"	29x
10"	36x
12"	44x

This calculation assumes that the telescope is capable of a magnification this low. There are a couple restrictions that might prevent this. A telescope with a very long focal length may require a longer-focal-length eyepiece than is possible. For example, an 8" SCT with a focal length of 2032mm requires a 70mm eyepiece to reach 29x. Eyepieces longer than 55mm are very uncommon. Additionally, even if such an eyepiece were available, telescopes with large central obstructions, such as SCTs, suffer from an effect where very low magnifications allow the central obstruction to be seen in the image. Refractors, having no central obstruction, do not suffer from this effect and make excellent low-power, wide-field instruments.

"Astronomy compels the soul to look upward, and leads us from this world to another". (Plato)

Club Meeting

Reminder Club meeting Sept 9th at 7:00Pm Manzanita charter School.

Star Parties (as always weather permitting)

Other Astronomy Club Meetings

Central Coast Astronomical Society
Link to web site…
http://www.centralcoastastronomy.org/

Santa Barbara Astronomical Unit
Link to web site…
http:// www.sbau.org/#AU_EVENTS_Calendar

Night Time Bright Objects (no scope required)

Link to "Heavens Above" web site
http:// www.heavens-above.com/
(Iridium Satellite)
(ISS Visible Pass)
Be sure to set the nearest location from their pull-down menu.

The web site link below will take you to some Great Milky Way interactive images and how It was developed. (Type it in the search box.)
http://skysurvey.org/
VAAS.

Dave McNally is the VAAS Web Site Serf/Minion

Dave