VAAS Website: home.comcast.net/~vaas/ Volume 24 Edition 16 September 2, 2012

Vandenberg Amateur Astronomical Society presents The Sidereal Times

Lunar image Courtesy Vahan Yeterian See page 6.

Meeting ***News:***

The June meeting started at 7:00PM at the Manzanita School. Discussed the observatory Power Distribution system fix and Star party schedule for 2012. Reminded every one that we will be on summer break until Sept. Also that there will be a call for volunteers to do some much needed maintenance on the observatory during summer break.

Lunar Calendar:

Full Moon: 30 Sept.
Last quarter: 8 Sept
New Moon: 16 Sept
First quarter: 22 Sept

Presidents Message

Welcome back from the VAAS summer break! I hope everyone had a chance to either attend one of the star parties or some night viewing on your own. Either way, I hope you had a great night under the night sky. During the "break" we still held the star parties and tried out either new equipment or tried finding different deep sky objects. On some nights just finding the familiar deep sky objects was a challenge because of the weather.

We had some major astronomical events recently in May and June with the partial eclipse of the sun and the Venus transit of the sun. Some of the results were in the June newsletter and the special July edition.

Future events in October to consider are the Astronomy Day Part 2 on 20 October and the Orionids meteor shower on 20 and 21 October.

Another "missing-in-action" event is the VAAS picnic which, in the past, was held in September. A suggestion was made to hold the picnic at Cachuma Lake recreation area. Let's discuss this at the September meeting and try to make the picnic happen this year. The main purpose of the VAAS picnic is to gather with family/friends and have fun.

Lastly, we have a few individuals who have expressed interest in becoming VAAS members. I look forward to greeting them at the September meeting and encourage helping them have a fun time with astronomy.

Dave

Scheduled Events

September 15th Star party at Figueroa Mountain try and be there by 7:30 pm to set up. (weather permitting)

September 22nd, the September equinox occurs at 14:19 UTC. The Sun will shine directly on the equator and There will be nearly equal amounts of day and night throughout the world. This is also the first day of fall (Autumnal Equinox) in the Northern hemisphere and the first day of Spring in the Southern Hemisphere, (Vernal Equinox).

September 29th Uranus at opposition. The blue-green Planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. This is the best time to view Uranus. Due to its distance it will only appear as a tiny blue-green dot in all but the most powerful telescopes.

Special Topics

16 June Figueroa Mt site 1.5 Star Party:

Weather was good, mostly clear skies, light wind and warm. There was some smoke/clouds but luckily mostly low in the South and West. On the way to site 1.5 Vahan and Dave Covey came across John Law who was just setting up his telescope at site1.0. John was a former VAAS member from about 1997, he had a Celestron NexStar 8" scope. He followed us to site 1.5. We arrived at about 8 PM. Morrie and Steve Cobb were already there and set up for the nights viewing session. Dave McNalley joined us about 9 PM to complete the star party. Vahan had his 4" Celestron XLT 102ED refractor. Dave Covey had his Meade LX90 8" SCT and Morrie his Orion 12" Dob. Vahan captured some images of M13 and M92 with his setup. John Law Morrie Cobb and his son worked their scopes visually. Dave worked visually for awhile and later captured some images of M13. Most of us did not need a jacket well past midnight. Most complaints were from Dave and Vahan about the various flying bugs that were attracted by their lap top screens.

Special Topics Cont.

At least there were no Mosquito's. Oh well we can't complain too loudly because we still enjoyed the night under good dark skies. The Star Party broke up around 1 AM. In summary a great star party was had by all.

23 June Endeavour Center Star Party:

Started gathering around 7:30PM at the observatory. Dave Covey, Vahan Yeterian, Vince Tobin, Liberty Partridge attended this event. Edmund Burke, his son and daughter along with their friends arrived about 8:30PM. All of the Endeavour Center guests from the STEM seminars arrived about 9PM. In total we had about 12 individuals in attendance. The sky cooperated and remained mostly clear but windy all night. Vahan and Dave brought their small telescopes in support of the main attraction – the observatory's 14" telescope. We started with the quarter Moon, Saturn, Mars and Mercury. Later we tried a few deep sky objects before most of the guest departed around 11PM. After all had left, Vince and Dave took the opportunity to fully align the 14" scope to the stars. It has been a long time since the scope had been aligned and able to function in the "go-to" mode. After we were finished with the alignment, we tested the "go-to" on a few deep sky objects such as the Trifid nebula, Swan nebula and part of the Veil nebula. The alignment was good enough to have the objects in the field of view of a 35 mm eyepiece (relatively low power) every time. Vince and Dave called it a night and shut down the observatory sometime after 12:30AM. In all, a good star party! (Photos on page 6 & 7)

July 21 Star Party:

There were four telescopes set up at the July 21 star party at Site 1.5, attended by Morrie and Stephen Cobb, Cal Cluff and sons, Vince Tobin, and astrophotographer Geza Kurczveil. The weather was just the way we like it, with little in the way of wind or clouds. The summer skies are loaded with visual targets for observing, and the two Dobsonian telescopes went from one to another for hours. Vince was working on climbing the learning curve of the Meade DSI II camera, taking inspiration and advice from Geza (You can see some of his work at http://geza.zenfolio.com/.) It was a very nice summer

night to be up in the mountains and away from city lights. (Vince's photos on page 8).

August 11 Star Party:

The evening started with a robotic telescope exercise and later featured the Perseid meteor shower.

Tom Dougherty has a new Celestron SkyProdigy 130 with StarSense technology, and we gave it a workout. Celestron came out with SkyAlign a few years ago, where you don't need to know the names of the stars you are aligning to. I've never seen that feature in action, but now I've seen what you might call its successor, StarSense. The mount has a built-in camera that automatically takes a few shots of the sky and determines its alignment from them! Tip for this scope: Watch the cables to make sure they don't wrap too tightly, especially if you've cycled power more than once!

After Tom left, I settled into a folding chair to watch for meteors, and there were quite a few. The Perseids did not disappoint this year. I was joined by a family of four that had chosen the volleyball courts at old Maple High to watch the shower, not knowing that there was an observatory in the corner of the lot. We spent most of the time looking for 'shooting stars', but also looked through the observatory telescope at the Andromeda Galaxy and Neptune. My count for meteors was 30, and about half of those were bright enough to have smoke trails! I don't know what was keeping the fog at bay, but we were happy to have clear skies overhead.

18 August Star Party:

Morrie, Steve, Vince, Dave and John gathered at site 1.5. The weather was not completely cooperating with mostly broken clouds and moderate winds throughout the night. It caused various "challenges" across the group. Those that used the star hopping method had to fill-in the missing gaps before locating the many deep sky objects. Those that used the "go to" method had to figure out where Polaris was located before - starting the alignment process. All were successful in finding most of the deep sky objects they wanted providing there was no interference from clouds. Most of us did not need jackets during the night. It seems that temperatures on top of the mountain were warmer than the Valley by 15 to 20 degrees. The star party started to break up about midnight with the last person leaving after 12:30 am. (See page 9 pictures)

Observatory Activities

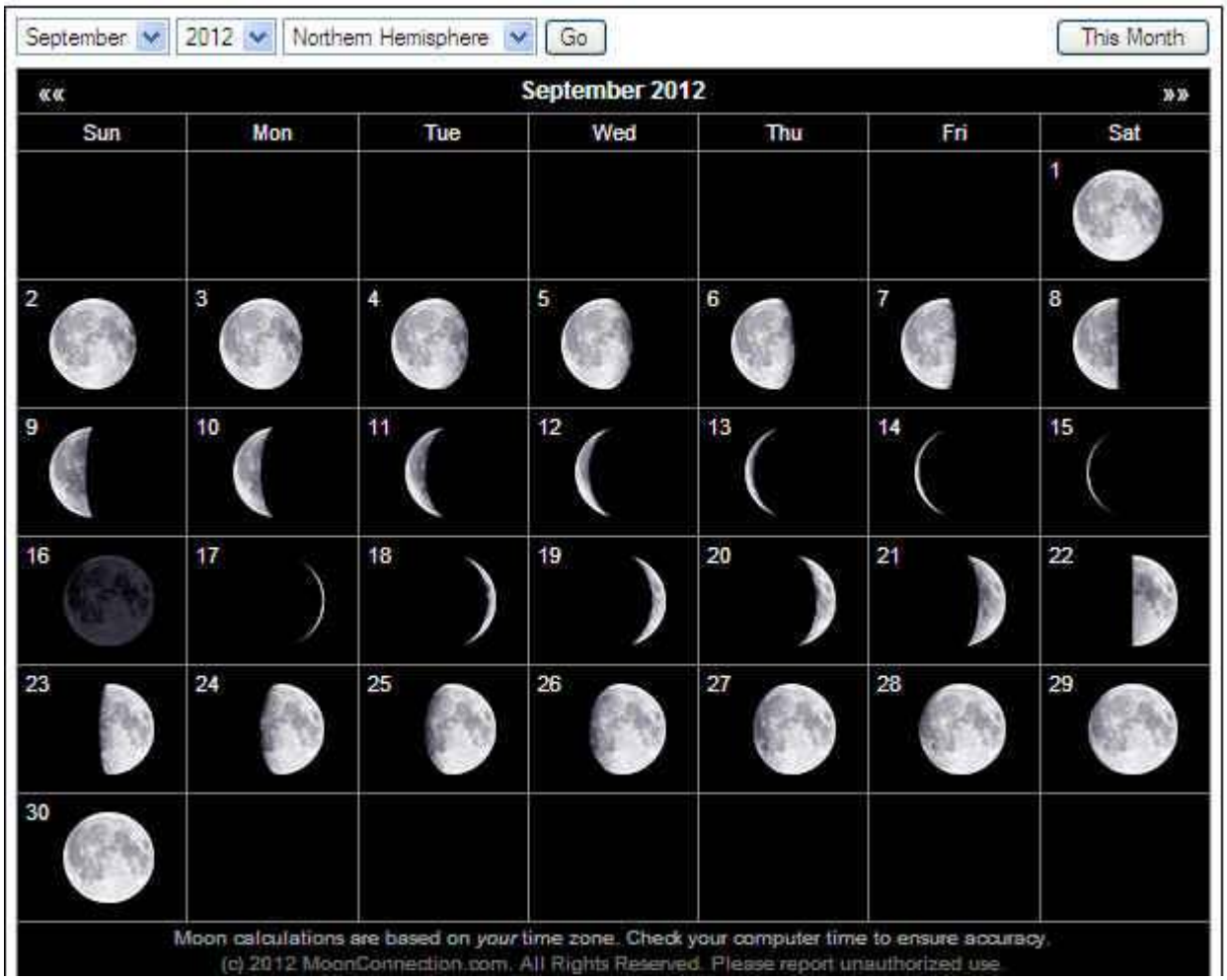
On Aug 6th Vahan and Dave covey tried to clear the weeds around the observatory and battery power station. They also did some light clean up inside the facility.

On Aug 12th Vahan and Dave did some significant cleaning inside the observatory by vacuuming / sweeping and eliminating numerous bugs, spider webs and nests. Vahan also tidied up the electrical power cords and wiring in the area of the computer. Lastly we inventoried the boxes and cases to verify their contents and condition. Also re-arranged the storage of the various items.

August 23rd Vahan on site to finish touch up painting of the interior walls. Also the base concrete and the pedestal base concrete were coated with a light grey paint. The telescope base mount was also given a fresh coat of paint. Now all that is needed is a new carpet, preferably an inexpensive indoor out door type. There is now a stainless steel eye bolt installed outside the observatory door and a bungee attached to the inside door knob. Hook the bungee to the eye bolt to hold the door open.

August 24th Vahan and Dave McNalley worked on the observatory shutter system. The track, bearings and races were lubricated with bearing grease and Slick 50 lubricant. The center drive gear was also lubed. The shutter was run up and down several times to ensure the lube spread evenly. It appears the shutter assembly is operating almost squeak free and smoothly. All that was done while balancing on an 8 foot ladder. It is not much fun working mostly over your head perched on a ladder. Scary at times! Fearless Dave did most of the work.

September Moon



Moon Phase:
30 Sept full, 8 Sept last ¼, 16 Sept New, 22 Sept first1/4

Moon Folklore

In some countries it is said that Female reproductive cycles respond to the Lunar cycle.

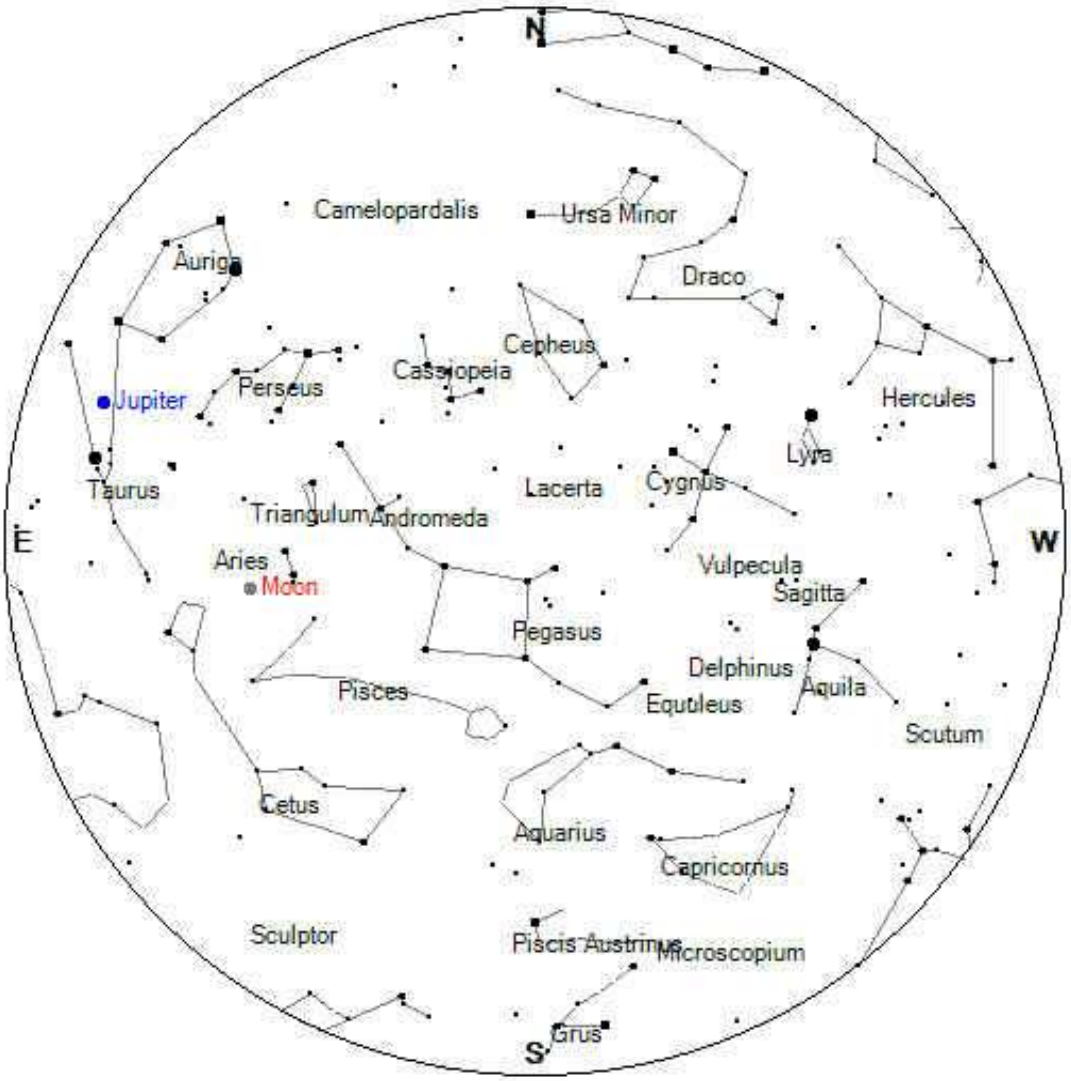
In Britain the 1824 Lunacy Act stated that people were liable to go mad when the Moon was full.

The Egyptians saw the lunar eclipse as the swallowing of the Moon for a short time by a mythical Sow.

Well Dave, perhaps the Economy just looks like it's Shrinking Because the Universe is expanding….

September Sky

Objects of interest: Jupiter, M31, M27, M57.



Date/Time (Local Time)

Year: 2012 Month: 9 Day: 5 Hour: 10 Minute: 00

Lunar Image Courtesy V. Yeterian

The Northeastern section of Mare Nubium (lower left) dominates the region with large craters Ptolemaeus (A-153 Km), Alphonsus (B-108 Km) and Arzachel (C-97 Km) that form a chain starting at the left middle of the photograph. Within crater Hipparchus is crater Horrocks (E) located near its northern eastern rim. Fault line Rupes Recta (F). Picture was taken on June 27 2012 using a Celestron OMNI XLT 102ED (4 inch) Refractor and a Canon 450D DSLR CCD Camera. Exposure time 1 second at ISO 100.

For What its Worth

The physical size of a CCD determines Field Of View (FOV) with any given focal length telescope. The larger the CCD the wider the FOV.
The following calculation will determine the FOV of a given CCD:
FOV in arc minutes = 3438 x CCD size in mm / telescope focal length in mm.
Example:
CCD size = 9mm, Scope 80mm F#6 refractor.
3438 x 9 / 480 = 64.4 arc minutes. (a little over 1 degree)
The resolution per pixel on a CCD is known as the sampling rate and is in arc seconds.
To determine the sampling rate we shall assume that the camera in question has a pixel size of 6.45 micrometers (0.00645). Telescope is same as above, 80mm F#6 refractor.
Sampling Rate = 206265 x 0.00645 / 480 = 2.77 arc seconds.
Cameras with small pixels and lots of them produce high sampling rates and give better overall performance with most small telescopes in amateur inventory.
Where:
3438 is the radian constant in terms of arc minutes.

206265 is the number of arc seconds per radian.

How old is light from the Sun

Inside the Sun the nuclei of hydrogen atoms are compressed together so hard that they fuse to form helium atoms, fusion to helium is the end result. This releases a tiny bit of energy. At least tiny when you do it only once, but the Sun converts millions of tons of hydrogen into helium, in its core, every second so a lot of energy is released. This energy is in the form of photons, in other words light.
These photons have to work their way out from the core of the Sun to the surface, a distance of about 700,000 km so one might expect this to take a while. The center of the Sun is extremely dense and a photon can travel only a tiny distance before running into another hydrogen nucleus. It gets absorbed by that nucleus and then re-emitted in a random direction. If that direction is back towards the center of the Sun then the photon has lost ground. It will get re-absorbed and re-emitted, over and over, millions of times. The path it follows is called a "Random Walk". Eventually it will make its way to the surface but it takes a long time. The average photon may bounce around inside the Sun from 17,000 to 40,000 years (more or less) before making it to the surface. So the light you see from the Sun is very old…..long before our civilization began……..

Endeavour Center Outreach on 23 June 2012 VAAS Observatory. Vince, Dave, Vahan and Liberty.

Some of Vince Tobin's photos from The July 21st Star Party and 18 Aug star party (good work)
M22 Globular cluster and M17 Swan Nebula , Alberio and M57 Ring Nebula

Star Party Figueroa Mtn. Site 1.5 18 Aug

Morrie Cobb & Son Steve,Vince Tobin, Cal Cuff, John Law and Dave Covey.

Club Officers

President
Dave Covey

Treasurer
Liberty Partridge

Vice President
Vince Tobin

Newsletter Editor
Vahan Yeterian

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

Club Meeting

Club meeting 14 September 2012 7:00 PM
Hope to see you there…….

Star Parties (as always weather permitting)

(Observatory around 7 pm)

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 web site that includes a discussion group. Vince Tobin runs the web site and sends reminders to those that have registered into the discussion group.
http://tech.groups.yahoo.com/group/vaastronomy/