VAAS Website: vaas.universeii.com/ 2, May 2016

Vandenberg Amateur Astronomical Society presents The Sidereal Times

Messier 92 (see page 5)

Meeting *News:*

The April meeting we discussed support for a Star party at Los Flores ranch that is scheduled for 14 May and an April 23rd Solar Outreach at Los Flores. Jana gave a presentation on Space Shuttle missions and VAFB history. Some members added items and events to Jana's presentation. We welcomed a new member to VAAS, Mark Bumgarner.

Reminder: VAAS club meeting May 13th 7:00PM Manzanita School, teachers lounge.

Lunar Calendar:

New Moon 6th
Full Moon 21st

Notice:

Our Vice President is leaving the area for his new home in Prescott Arizona. Dave Covey has been a great asset to our VAAS. He has served as President, Vice president, Treasurer etc. He is one of the very long time members of VAAS. He was instrumental in the re-work and maintenance of the Observatory and has been a tireless participant in all functions and events of our astronomical society.
He will be missed by the membership, especially by close friends he worked with in VAAS. We wish him good health and good sky's in Arizona. When he has settled in his home I am sure he will be joining the local astronomy club in Prescott and be an asset to them. I will keep in touch with him. Good Luck Dave, your friend Vahan ☺

Presidents Message

The big Breaking News for VAAS is that our former Vice President **Dave Covey** is moving to Prescott, Az in May! He has sold his house and has been planning his retirement relocation move for quite a while. We will certainly miss him and thank him for all the years that he was an officer and helped with our outreach events, who, also was instrumental along with Vahan, in fixing and cleaning up our telescope and the observatory.

Tom Gerald had graciously taken on the duty of our Vice-President, and our club appreciates him stepping up to the plate for us, especially on such short notice. He is considering making a VAAS brochure for us, which we have needed for a long time.

On Earth Day,Sat.4-23 in Santa Maria at the **Los Flores Park,** we had a great turnout of VAAS members bringing their scopes to share in the Solar Viewing ,along with the Santa Barbara , and Central Coast Astronomy Clubs. We had over 15 scopes, and more Astronomers than the public of which eventually about 85 people turned out for this event. **I would like to thank our members Tom Gerald, Vince Tobin, Justin Graves, Mark Bumgarner, and Jon & Margaret Walke** for taking the time to support this event with our club. It was a warm sunny day with some strong winds at times, and we did have one lone small sunspot to focus on, which was still amazing to the people that had never seen one! I feel it was a success, especially the chance they / we all had, to meet and greet the other club members in the daytime. I will be discussing Astronauts, and related subjects for the May meeting- bring any stories that may add to this subject area.

The June Meeting will be a special time for each member to tell their favorite Astronomy events that they enjoyed, or want to forget, or just could not believe that it happened to them! Bring any photos to share !

JPL in Pasadena is having their annual Open House June 4-5 and advance reservations and tickets are required- go online to secure your place. It is really worth it to view and tour that exciting place. We did that as a club several years ago and the trip was enjoyed by all.

Clear Skies for you – (with less wind!) Jana

Events

May 6 & 7th Eta Aquarids Meteor shower is an above average shower capable of producing 30 + meteors per hour. It is produced by dust particles left behind by Comet Halley. The shower runs annually from April 19th to May 7th It peaks on May 6 and 7. Meteors will radiate from the constellation of Aquarius but can appear anywhere in the sky.

May 7th Star Party Figueroa Mountain site 1.5

May 9th A rare transit of Mercury across the Sun. The Red planet will move directly between Earth and Sun. Viewers will be able to observe the dark disk of mercury moving across the face of the Sun. Use proper filtering on equipment, do not look directly at the sun without proper protection. This transit is an extremely rare event. The next transit will occur in 2018 and the next transit in 2039. This years transit (2016) will be visible throughout the USA.

May 14th Star Party at the Observatory.

May 14th Is International Astronomy Day. This is an annual event intended to provide interaction between the Public and various astronomy organizations and clubs. A special event is planned for this event at the Los Flores Ranch where some of us are supposed to participate.

May 22nd Mars at opposition, the planet will be at its closest approach to Earth and will be brighter than any other time of the year. It will be visible all night long and if seeing conditions are favorable, detail can be observed with small telescopes.

May 28th Star Party at the Observatory.

Vince & his 16 " Dob

Star party's and Events

April 2nd Star party at the observatory cancelled due to weather.

Nuts!

April 9th Star party at Figueroa Mtn cancelled due to weather.

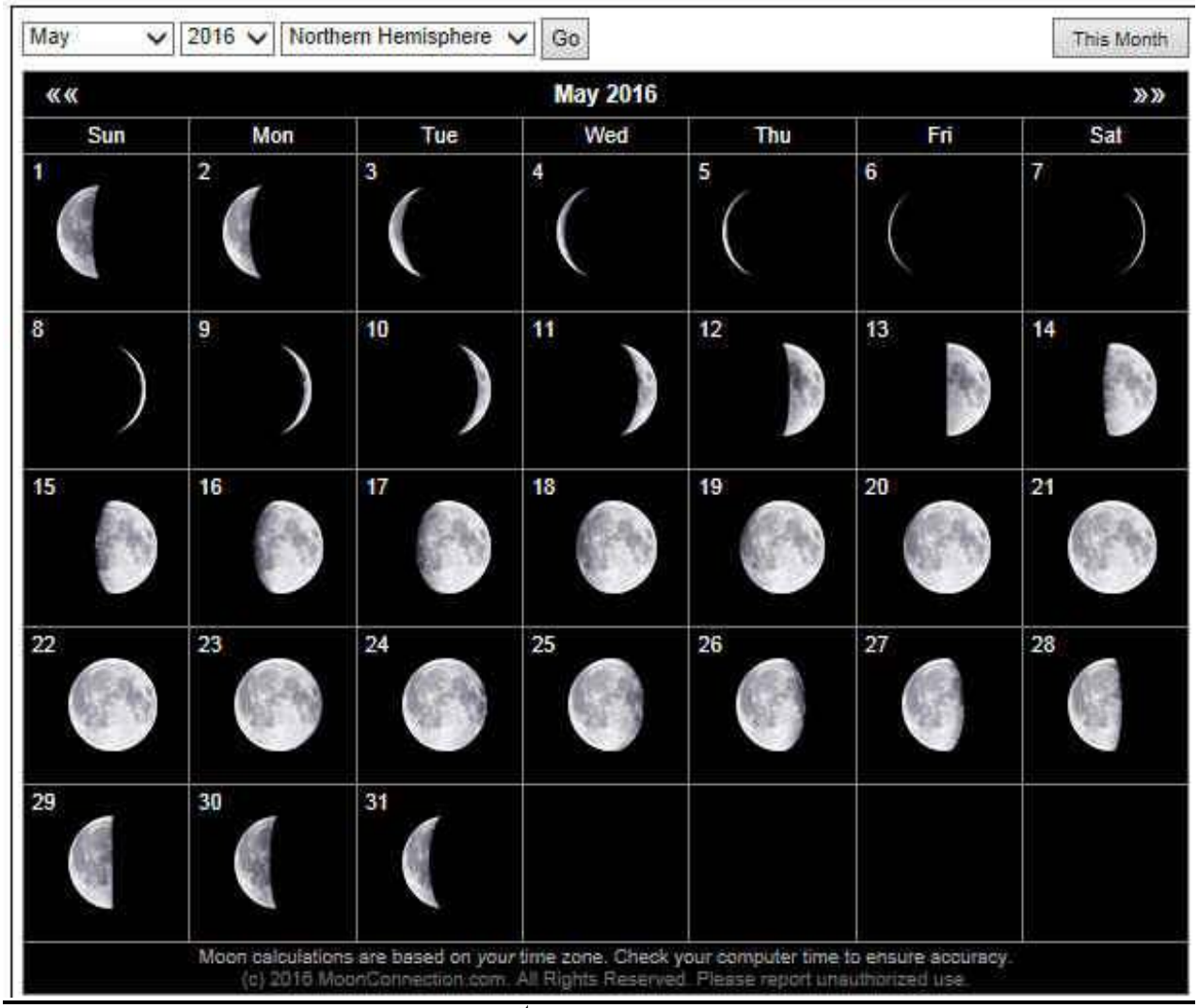
Nuts!

April 16th Star party at the observatory. On site about 7:30 Pm, Vahan, Dave Covey, Justin, Mark, Vince, and two of Vince's guests Mike and Richard one of Vince's students. Sky's were clear the temp was comfortable, very light wind. Seeing was fair. Viewed Mercury with the 14 inch then traversed to Jupiter. Mark, Vince and Mike set up their scopes and started looking at the Moon and Orion nebula. Mike had a beautiful Explore Scientific 6 inch refractor and an automated Orion mount a fine piece of equipment. One highlight of the evening was the high elevation pass of the ISS, very bright estimate it was a magnitude –2. There were many more objects viewed during the evening. Departed about 2Am. It was a good night under the stars.

April 23rd Solar day at Los Flores ranch. VAAS was represented by Jana Hunking,Vince Tobin, Justin Graves, Dave Covey, Jon Walke and his wife, Mark Bumgarner, and Tom Gerald. Also in attendance were the Santa Barbara Astronomical Unit and Central Coast Astronomy Society. There were a variety of telescopes and equipment set up to image the Sun. The weather was very good for this event. Some prominences and a small Sun spot were viewed. I will include photos of the event in the June News Letter.

A VAAS Photo @ Los Flores

May 2016 Moon



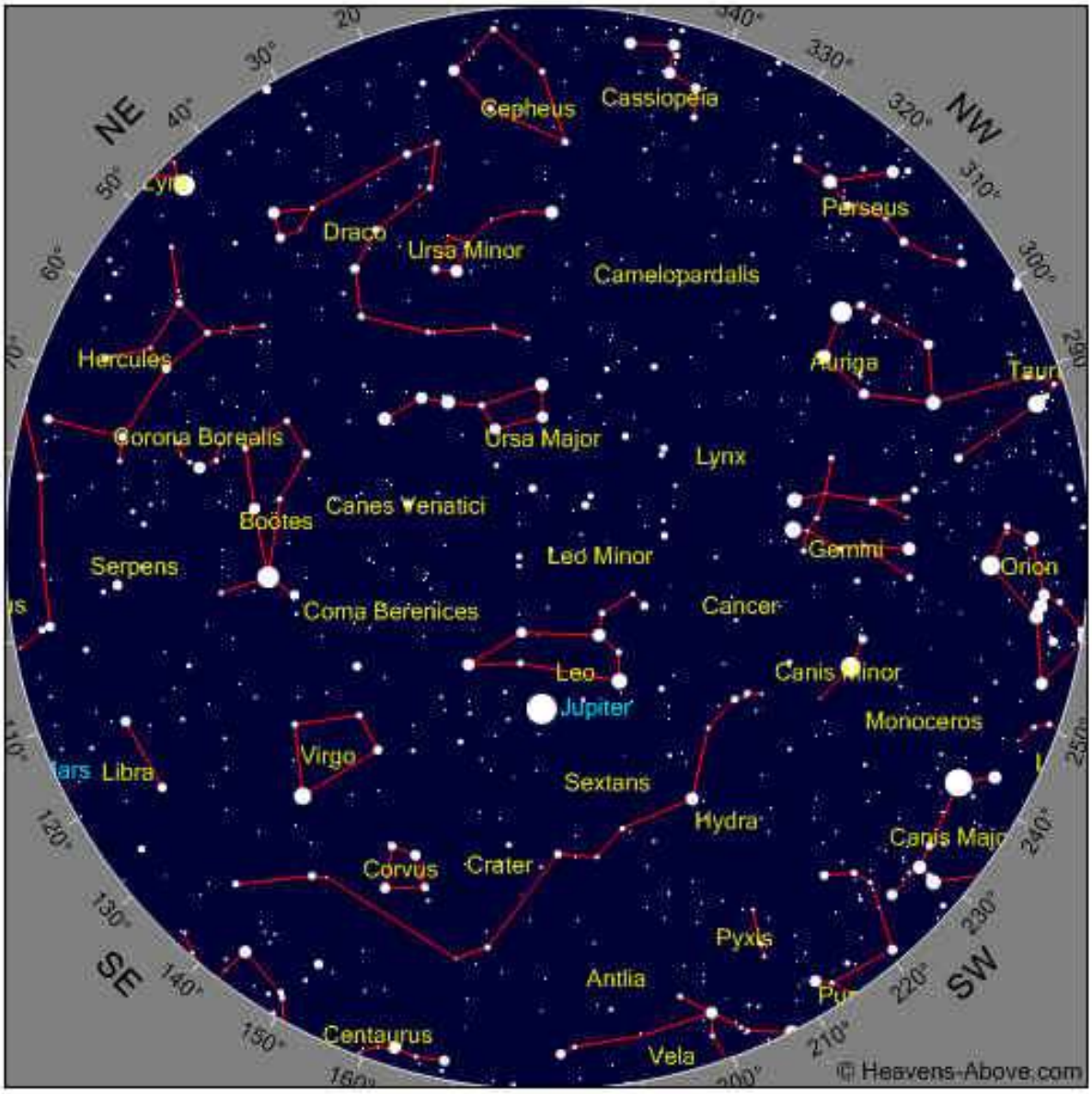
Full 21st, New 6th, 1st Quarter 13th, Last Quarter 29th

Moon Facts

Apollo astronauts used seismometers during their visits to the moon and discovered that the gray orb isn't a totally dead place, geologically speaking. Small moonquakes, originating several miles (kilometers) below the surface, are thought to be caused by the gravitational pull of Earth. Sometimes tiny fractures appear at the surface, and gas escapes.

May 2016 Sky

Some Objects of interest Jupiter, M13, M92, Epislon Lyrae



Time

Year	2016	Month	5	Day	5	Hour	21	Minute	0

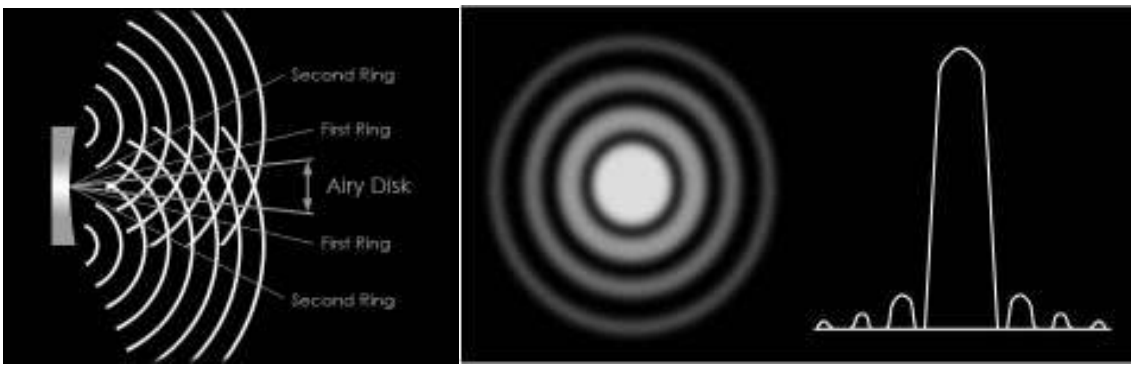
Photo Courtesy Vahan Yeterian

Messier 92, NGC 6341 Globular Cluster is about 26,700 light years distant from Earth and is located in the constellation of Hercules. It was first discovered by Johann Elert Bode on December 27th 1777 and later by Charles Messier. M92 is one of the brightest clusters in the Northern hemisphere (second to M13) in terms of absolute magnitude. M92 occupies an area of 14 arcminutes that corresponds to a linear extention of 109 light years. M92 has a very low abundance of elements other than hydrogen and helium, the iron in the center is only about 0.5 percent of the solar abundance. This puts the estimated age of the cluster at 14.2 billion years, same as the known universe. The cluster is not currently in the state of core collapse. It is an Oosternhoff type cluster meaning it belongs to a group of metal poor clusters with longer period RR Lyrae variable stars. There are 17 known RR Lyrae variables and 10 X-ray sources within the 1.2 arcminutes half radius of the cluster, of which half are candidates for cataclysmic variable stars. The cluster is estimated to contain about 330,000 stars.
Image capture was with a Meade 8" SCT at f/6.3 w/PHD2 guide. DSLR Canon T3 (mod) ISO 800, 8 x 100s lights, 4 darks processed with DSS.

For What its Worth

A telescope, even with theoretically perfect optics, cannot produce a point image of a point source, such as a star. This is because of diffraction that is caused by the wave nature of light. As light passes through the telescope aperture, the waves interfere with each other, diffusing the point source. The aperture causes secondary waves to be created, which then interfere with each other.

Where crests and troughs of waves coincide, destructive interference cancels out the waves.
The effect of this in a telescope is that the light from a star does not drop off smoothly at the edge of the star image, but in a rhythmic pattern of interference. At certain points around the star image, destructive interference causes rings of zero intensity.
Just like the walls in an ocean wave, an aperture, such as the edge of a mirror, causes light waves to interfere. The diagram below shows the two wave patterns that are set up by the edge of a mirror. Where the waves cross, there is constructive interference and the light is amplified, producing the bright rings of the diffraction pattern. Halfway between these spots, waves cancel each other out, causing destructive interference and forming the gaps in the diffraction pattern.



The resulting effect, assuming no other aberrations, is for about 85% of the light from a point source to be located within the bright central spot of the diffraction pattern. This central spot is called the Airy disk. The outer rings are progressively fainter and are difficult to see under normal conditions. The first bright ring outside the Airy disk contains less than 2% of the light from the source, and the rest are dimmer still. The effective resolution of a telescope can then be considered the size of the central disk in the diffraction pattern.
The effect of central obstruction such as that caused by the secondary mirror in a Newtonian or Cassegrain telescope, is to transfer more light from the Airy disk to the outer rings. An extreme example would be a 50% central obstruction. This would cause the first ring to become 4 times brighter while the central disk would drop in brightness by a factor of 2. It also has the interesting effect of reducing the diameter of the Airy disk to about 80% of its unobstructed size. However, instead of the brightness difference between the disk and first ring being a factor of 50, it is reduced to only a factor of 10. Overall the image quality is worse, despite the smaller Airy disk size.
The size of the Airy disk can be determined mathematically. Specifically the angular diameter of the disk is $A = 1.22\lambda/D$ radians, where λ is the wavelength of the light. The human eye is most sensitive to a wavelength of 550 nanometers (nm), in the yellow-green part of the visual spectrum. Converting to the more useful angular measure of arcseconds this gives a simple equation: $A = 5.45/D$, for a telescope diameter in inches. It can be seen that the larger the telescope aperture, the smaller will be the Airy disk and the greater the resolution. As an example, the resolution of an 8" telescope is 0.68 arcseconds. A 12" telescope has a resolution of 0.45 arcseconds. For reference, Jupiter is about 45 arcseconds in diameter.

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

Club Meeting

Reminder Club meeting May 13th 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