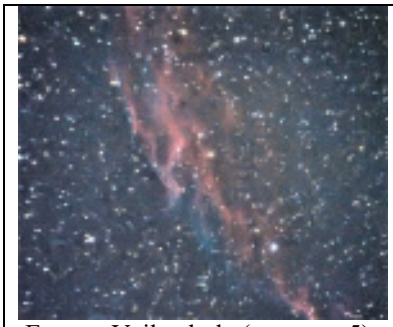
Website: http://acl.universeii.com 2, October 2019

Astronomy Club of Lompoc
Presents
The Sidereal Times



Eastern Veil nebula (see page 5)

Meeting *News:*

At the September meeting we discussed some general ACL business and events supported. Discussed the events for the October picnic Saturday October 12th 11 AM Thompson Park between R and S streets on College Ave.

Reminder: ACL club meeting Friday October 11th Manzanita school teachers lounge 7:00 PM.

Lunar Calendar:

New Moon 28th

Full Moon 13th

July VAFB display

Presidents Message

Hello, Friends,

Finally, the Universe took pity on our little group and kept the clouds away on Saturday night, September 21. For the first time in literally months we were able to gather at the Observatory and have a true Star Party! There were ten members in attendance, including, and this made the gathering all the more memorable, Dave Covey. Many of you know Dave as a longtime member and former VAAS club president. Dave relocated to Prescott Valley, Arizona, where he continues his love of astronomy in his own backyard observatory and with the Prescott Astronomy Club. In fact, Dave left Lompoc The next day, meeting up with members of the Prescott club and they went on to tour Mt. Wlison where they had a half night's access to the 60" telescope, the next day they toured Mount Palomar.

Incidentally, while I was at the Star Party, Vince steered the big scope to give us beautiful images of Jupiter, Saturn, and the Lagoon Nebula; a memorable night, indeed.

Be sure to block out time Saturday, the 12th, to attend our annual club picnic at Thompson Park. Vahan has again agreed to apply his expertise to the grill and cook up his amazing tri-tip! The sides and desserts are potluck and you will receive a follow-up email this week about what to bring. Those in attendance at the September meeting have already signed up for various items and will receive a reminder in that email. Hope to see as many of us there as possible, always to relaxing time to catch up with each other and even to get to know one another better. Maybe we will even get in some solar viewing?

Skyward,

Tom

Events

Oct 4th ***Star Party at Figueroa Mt. and / or Observatory***.

Yes!

Oct 8th Draconids Meteor shower is a minor shower producing only About 10 meteors per hour. It is produced by dust grains left behind by comet 21P Giacobini Zimmer. It is best viewed in the early evening. The shower radiates from the constellation of Draco but can appear anywhere in the sky.

Oct 11th ***Star Party at the Observatory***.

Yes!

Oct 20th Mercury at greatest elongation of 24.6 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the Western horizon just after sunset.

Oct 21st Orionids Meteor shower is an average shower producing up to 20 meteors per hour at its peak. It is produced grains left over from comet Halley. It peaks this year on the night of the 21st and morning of the 22nd. Meteors will radiate from the constellation of Orion but can appear anywhere in the sky.

Oct 25th ***Star Party at the Observatory.***

Yes!

Oct 27th Uranus at opposition, the blue green planet will be at Its closest approach to the Sun. It will be brighter than any other time of the year and will be visible all night long.

July VAFB Display

Star parties and Events

Sept 7th Star Party @ observatory. Vince on site, slight scattered clouds. Powered up the observatory. Looked outside sky was totally overcast. Secured and departed another star party cancelled.

Nuts!

Sept 21st Star Party @ the Observatory. On site were Vince Dave Covey, Dave McNally, Rick, Vahan, Tom, Craig, Jana, Danny, and a guest. Sky was clear no wind or bugs. Long time member of our club, Dave Covey, was visiting from Arizona we all had a nice time visiting with him. Looked at several celestial objects with the 14". Vahan and Rick were working Rick's telescope but had problems with sky alignment function. Suspect it was the built in battery pack making intermittent contact when the scope slews to an object. A good night under the stars.

Yes!

Sept 28th Star Party at Observatory and/or Figueroa Mt. Overcast sky and high winds cancelled Star party at the Observatory. Vince, Danny some friends and Bob Karl at site 1.5 Figueroa Mountain. Sky clear slight wind a bit cold but a good night under the stars. Departed about 1:00 AM.

Nuts!

July VAFB Display

October 2019 Moon

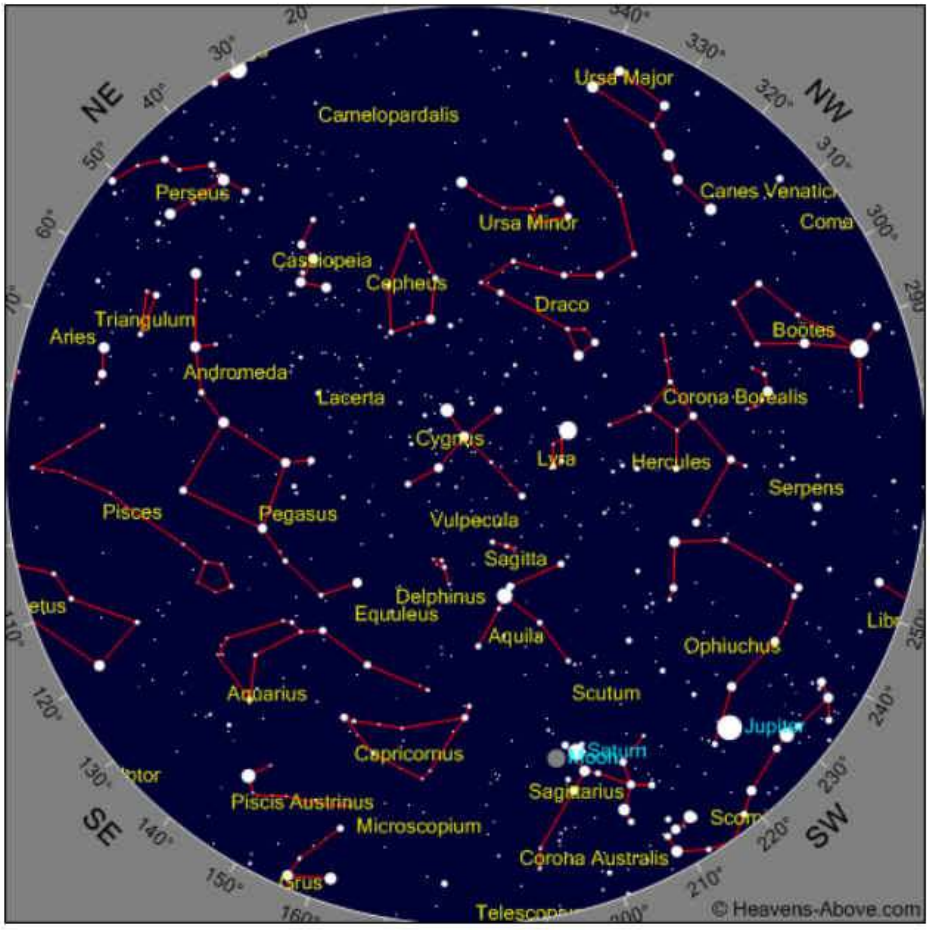
Full 13th, New 28th, Last Quarter 21st, First Quarter 5th.

Moon Facts and Folklore

After World War 2 rumors circulated that German astronauts had traveled to the Moon and established a top-secret facility there. Some even speculated that Adolf Hitler faked his own death, fled the planet and lived out the rest of his days in an underground lunar hideout.

October 2019 Sky

Some Objects of interest, M13, M27, M31



Time

Year	2019	Month	10	Day	5	Hour	20	Minute	24

July VAFB Display

Photo Courtesy Vahan Yeterian

The Eastern Veil Nebula NGC6992 (Caldwell 33) is a diffuse nebula located in the northern constellation of Cygnus, the Swan. It is also known as Witches Broom Nebula, Bridal Veil Nebula, Cirrus nebula and several others. It constitutes the visible part of the Cygnus Loop, a supernova remnant in Cygnus. It is approximately 1470 light years distant from Earth. The source supernova was a star 20 times more massive than the Sun that exploded around 8000 years ago. The remnants have since expanded to cover an area of the sky 3 degrees in diameter. The distance to the nebula is not precisely known But 1470 Ly is supported by Far Ultraviolet spectroscopics. Analysis of emissions from the nebula indicate a presence of Oxygen, sulfur and hydrogen. When finely resolved some parts of the image appear to be rope like filaments. The standard explanation is that the shock waves are so thin, less than one part in 50,000 of the radius that the shell is visible only when viewed exactly on edge giving the shell the appearance of a filament. The radius of the entire nebula is 38.5 light years. Even though the nebula has a relatively bright integrated magnitude of 7, it is spread over so large an area that the surface brightness is quite low and is notorious as being difficult to see. An observer can see the nebula clearly in a telescope using an 0lll filter (isolating the wavelength of light from doubly ionized oxygen) as almost all light from this nebula is emitted at this wavelength. Some say that with an 0lll filter just held up to the eye one can see the nebula. Image capture was using an 8 inch SCT, Meade DSI 2 CCD camera, unguided system, 3 minute exposure. Image processed using PSP 9.

For What its Worth

The VLA a Brief Account

The Very large Array is a centimeter-wavelength radio astronomy observatory located in central New Mexico on the plains of San Agustin between the towns of Magdalena and Datil, 50 miles west of Socorro. The VLA comprises twenty eight 25 meter radio telescopes (27 of which are operational while one is always rotating through maintenance) deployed in a Y shaped array and all the equipment, instrumentation and computing power to function as an interferometer. Each of the massive telescopes is mounted on double parallel railroad tracks so the radius and density of the array can be transformed to adjust the balance between its angular resolution and its surface brightness sensitivity. Astronomers using the VLA have made key observations of black holes and protoplanetary disks around young stars, discovered magnetic filaments and traced complex gas motions at the Milky Way's center, probed the Universe's cosmological parameters, and provided new knowledge about the physical mechanisms that produce radio emission.

The VLA stands at an elevation of 6970 feet above sea level. It is a component of the National Radio Astronomy Observatory (NRAO). The NRAO is a facility of the National Science Foundation operated under cooperative agreement by Associate Universities Inc.

The 27 independent antennas, each with a dish diameter of 82 feet and weighs 230 short tons. The antennas are distributed along the three arms of a track shaped in a wye (Y) configuration measuring 13 miles long. Using a specially designed locomotive the antennas can be physically relocated to a number of prepared positions allowing aperture synthesis interferometry with up to 351 independent baselines, in essence the array acts as a single antenna with a variable diameter. The angular resolution that can be reached is between 0.2 and 0.04 arcseconds.

There are four commonly used configurations, designated A (the largest) through D (the tightest, when all dishes are within 600 meters of the center point). The observatory normally cycles through all the various possible configurations every 16 months. The antennas are moved every there to four months. Moves to smaller configurations are done in two stages, first shrotening the east and west arms and later shortening the north arm. This allows for a short period of improved imaging of extremely northerly or southerly sources. The frequency coverage is 74MHz to 50 GHz.

The operations center (DSOC) for the VLA is located on the campus of the New Mexico Institute of Mining and Technology in Socorro New Mexico. The DSOC also serves as the control center for the Very Long Baseline Array (VLBA) a VLBI array of ten 25 meter dishes located from Hawaii in the west to the U.S. Virgin Islands in the east constitutes the world's largest dedicated full time instrument.

The VLA is a multi-purpose instrument designed to allow investigation of many astronomical objects including radio galaxies, quasers, pulsars, supernova remnants, gamma-ray bursts, radio-emitting stars, the Sun and planets, astrophysical masers, black holes and the hydrogen gas that constitutes the large portion of the Milky Way galaxy as well as external galaxies. In 1989 the VLA was used to receive radio communications from the Voyager 2 spacecraft as it flew past Neptune. A search of the galaxies M31 and M32 was conducted in December 2014 through September 2015 with the intent of quickly searching trillions of systems for extremely powerful signals from advanced civilizations. It has been used to carry out several large surveys of radio sources including the NRAO VLA Sky Survey and Faint Images of the Radio Sky at twenty centimeters. In September 2017 the VLA Sky Survey (VLASS) began. This survey covers the entire sky visible to the VLA (80% of the Earth's sky) in three full scans. Astronomers expect to find about 10 million new objects with the survey - four times more than what is previously known.

Club Officers

President
Tom Gerald

Vice president
& Treasurer
Jana Hunking

News Letter Editor
Vahan Yeterian

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

Possible New Club Logo

Club Meeting

Reminder **ACL** Club meeting October 11th 7:00Pm Manzanita School Teachers lounge.

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/

ACL "Astronomy Club of Lompoc"

Dave McNally is the ACL Web Site Serf/Minion

Dave