

# Vandenberg Amateur Astronomical Society presents The Sidereal Times



Messier 45(see page 5)

### Meeting News:

At the May meeting we talked about the Solar eclipse event in August and where totality will be best viewed. Solar viewing Glasses were handed out and Jana explained how they should safely be used. A new member was accepted into the VAAS Welcome Amber Wayman.

**Reminder: VAAS club meeting June 9th 7:00PM  
Manzanita School Teachers Lounge.**



### Lunar Calendar:

New Moon June 23rd

Full Moon June 9th

Tom



**Note:** Summer break is upon us. No meetings during the Months of July and August and no news letters. I will still provide notices for events in July and Aug.

### Presidents Message

Hello, All!

Well, I got some great news this past weekend: A friend in Corvallis, OR, posted on Facebook that their guestroom was available for anyone who wanted to come visit for the solar eclipse in August, first come, first served basis. Looks like I am now on my way to witness my first total solar eclipse! I know: it's Western Oregon, known for rain and fog; but that sort of weather is not the norm in August in Corvallis, so chances of clear weather are, hopefully, on my side. A few of our VAAS members are making eclipse pilgrimages of their own, so we should have some exciting reports at our September meeting.

Speaking of VAAS and The Eclipse: we need to get very serious at our June meeting about hosting the public in viewing our area's partial eclipse. We need to get a clear idea of which members plan to assist and what sort of programming we will have available. I would think a table at one of the Old Town Lompoc Friday events in August prior to the "Big Day" would be a good idea. Bring your thoughts to the meeting and let's hash 'em out.

Now is the time of the year when we take a break from meetings, so June will be our last until September. Star parties will continue, and any needed business will be conducted through emails or phone calls. And I will be reading Neil deGrasse Tyson's newest: ASTROPHYSICS FOR PEOPLE IN A HURRY, along with some other titles. The man is sharp as a tack, speaks the common language, rolls out an irreverent but enlightening wit; his chapter titles alone are worth picking the book up and giving a peek inside! Until our next visit, thank you for all of the support across our winter session.

Keep the eyes skyward,

Tom



## Events

**June 3rd** Venus at greatest Western elongation of  $45.9^\circ$  from the Sun. It is the best time to view Venus since it will be at its highest point above the Eastern horizon in the morning sky. Look low in the Eastern sky.

**June 3rd** *Star party at the observatory.*



**June 15<sup>th</sup>** Saturn at opposition and the ringed 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. This is the best time to view or photograph the planet.

**June 17<sup>th</sup>** *Star Party at the observatory*



**June 21<sup>st</sup>** June Solstice occurs at 04:24 UTC. The North pole of Earth will be tilted toward the Sun which will have reached its North most position in the sky and will be directly over the Tropic of Cancer at  $23.44^\circ$  North latitude. First day of summer in the Northern hemisphere and the first day of Winter in the Southern hemisphere.

**June 24th** *Star Party at Figueroa Mt site 1.5*



Dave



Vince & Vahan



## Star party's and Events

**May 5<sup>th</sup>** Alan Hancock JC Science Event. VAAS participated in AHC's Friday Night Science. About a hundred science demos, most with hands-on participation, a stage show, and an open house at the Industrial Technology building all at the same time. Astronomically, there were telescopes and a scale model of the solar system. VAAS participated in this event as follows;

Vince and Craig setup scopes. Vince had a 6" SCT and Craig had his 9.25" scope. Dave a friend of Vince and Vince's wife Elaine manned 6" scope watching the Moon. Craig was also on the Moon until Jupiter cleared the trees. Clouds played a small role in viewing time but it was mostly clear skies. Vince spent most of the evening monitoring the scale model of the solar system spread over 0.14 mile and rubber-stamping cards for kids when they found Saturn because a student missed his shift. There were about 250 people at the event. They all had a great time. Many said the scopes were their favorite exhibit.

Yea!

**May 6<sup>th</sup>** Star Party at the Observatory. Star Party cancelled due to weather.



Nuts!

**May 20<sup>th</sup>** Star Party at the Observatory. The weather was good and we had a lot of visitors from Andrew's church group, Parents and children about 18 in all. Vahan, Vince, Tom, Andrew, Ken & Louise and Jon on site. Tom, Andrew, Vince and Jon had their scopes set up and imaged Jupiter and several other celestial objects. Ken had his big binoculars mounted on a swing arm. Vahan ran the observatory and imaged Jupiter for the group. Occasionally the Red spot was visible when atmospheric briefly stabilized. It was a very successful event and all seemed to enjoy viewing the various celestial objects.

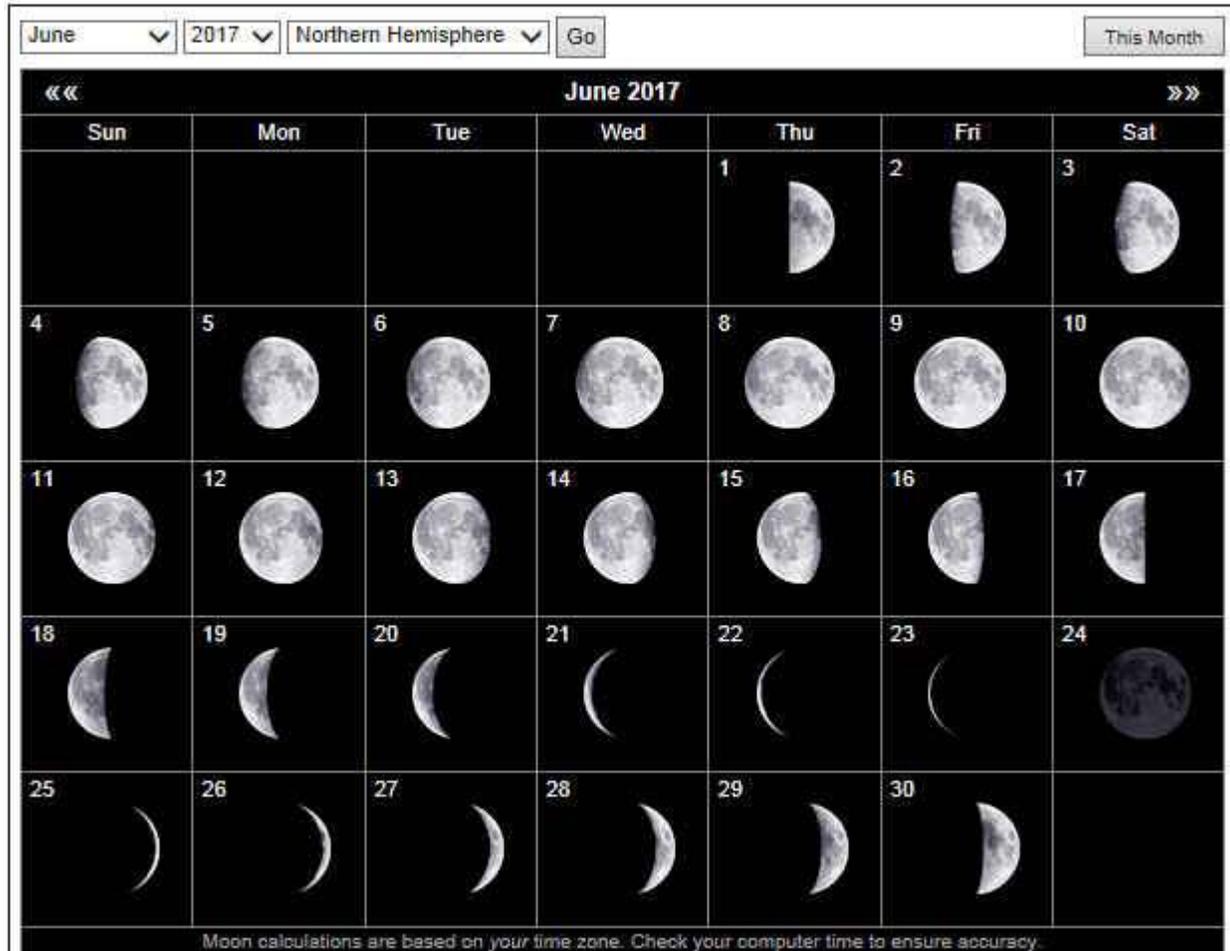
Yea!

**May 27<sup>th</sup>** Star Party at Figueroa Mtn. Craig Fair, Vince Tobin and a friend Geza from SB on site. Craig with his 9.25 inch SCT and Vince with his 16 inch Dob. Geza had a new piece of equipment, a low light level image intensifier that plugs into the telescope focuser. Craig set up for astrophotography and Vince and Geza started star hopping with the low light level equipment on the 16 inch Dob. They spent much time imaging objects in Virgo and Sagittarius also the butterfly, Cat's Paw, and the Crescent nebulas to name a few. Craig was trying out his new Camera on M51 with some good images viewed on his laptop. The weather was good but with some gusty winds.

It was a good night under the stars Craig and Vince departed at 2:00Am.

Yea!

## June 2017 Moon



Full 9th, New 24th, 1<sup>st</sup> Quarter 1st, Last Quarter 17<sup>th</sup>.

### Moon Facts

The Moon has quakes that are caused by Earth's gravitational pull. Lunar astronauts used seismographs on their visits to the Moon and found that small Moon Quakes occurred several kilometers below the surface causing eruptions and cracks. Scientists think the moon has a molten core just like Earth.

First man to walk on the Moon was Neil Armstrong (1969). Last man to walk on the Moon was Gene Cernan 1972

Louise, Ken & Vahan



Vince and the 16 inch Dob

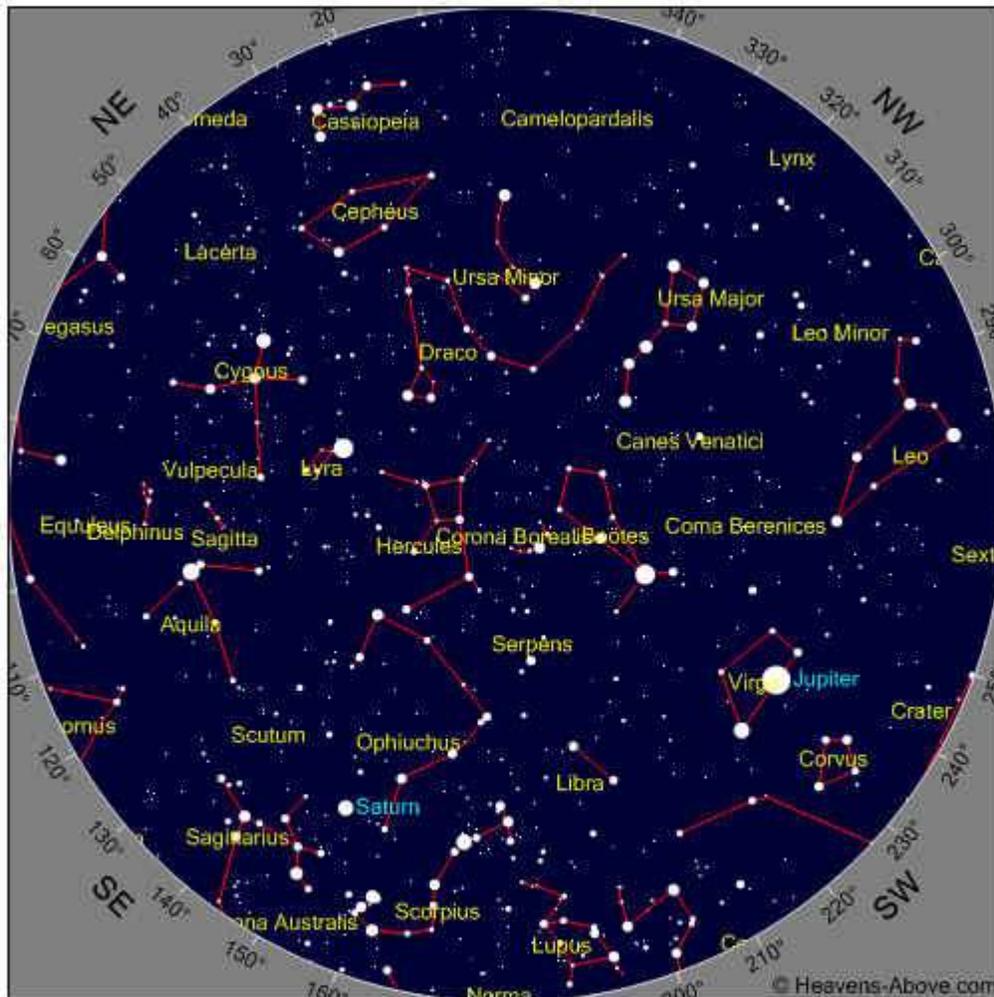


Winery Field Trip



## June 2017 Sky

Some Objects of interest M13, M 92, M57, M27, Jupiter, M92.



### Time

Year	2017	Month	6	Day	8	Hour	2	Minute	29
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Solar day field trip



Manzanita solar day at the observatory



Teacher at observatory



Photo Courtesy David McNally



Messier 45 The Pleiades or seven sisters is an open star cluster containing middle-aged hot B-type stars located in the constellation of Taurus. It is among the nearest star clusters to Earth (approximately 445 light years) and is the cluster most obvious to the eye in the night sky. The cluster is dominated by hot blue and extremely luminous stars that have formed within the last few hundred million years. Dust that forms a faint reflection nebulosity around the brightest stars was thought at first to be left over from the formation of the cluster (hence the alternative name Maia nebula after the star Maia) but is now known to be an unrelated dust cloud in the interstellar medium through which the stars are currently passing. Computer simulations have shown that the Pleiades was probably formed from a compact configuration that resembled the Orion Nebula. Astronomers estimate that the cluster will survive for about another 250 million years after which it will disperse due to gravitational interactions with its galactic neighborhood. The cluster core radius is about 8 light years and tidal radius is about 43 light years. The cluster contains over 1,000 statistically confirmed members, although this figure excludes unresolved binary stars. It is dominated by young, hot blue stars, up to 14 of which can be seen with the naked eye depending on local observing conditions. The total mass contained in the cluster is estimated to be about 800 solar masses. The cluster contains many brown dwarf's, which are objects with less than about 8% of the Sun's mass, not heavy enough for Nuclear fusion reactions to start in their cores and become proper stars. They may constitute up to 25% of the total population of the cluster, although they contribute less than 2% of the total mass. Astronomers have made great efforts to find and analyse brown dwarfs in the Pleiades and other young clusters, because they are still relatively bright and observable, while brown dwarfs in older clusters have faded and are much more difficult to study. The primary stars of the Pleiades are known as the 7 sisters. Their names are; Maia, Electra, Alcyone, Taygete, Asterope, Celaeno and Merope. Their parents were Atlas who held up the sky and the oceanid Pleione the protectress of sailing.

Image capture Sigma 170-500 f/5.6 telephoto lens. Canon T3i Baader modified DSLR and Celestron CGEM hypertuned mount. Frames 20x120", .7 hours integration.

## **For what its Worth**

### **Ice deposit on Mars is bigger than Lake Superior**

A massive ice deposit spanning a region the size of New Mexico was discovered in Mars' mid-northern latitudes. The deposit lies between 3 and 33 feet (1 to 10 meters) below the Red Planet's surface, it's between 50 and 85 percent water (the rest is dirt), and its total volume is about the same as that of Lake Superior, which holds about 2,900 cubic miles (12,100 cubic kilometers) of water. The ice deposit could be useful if humans eventually settle on Mars. The region where the deposit was found, called Utopia Planitia, could be easily accessible by spacecraft because it is relatively flat and low-lying. The ice deposit was discovered using the Shallow Radar (SHARAD) instrument aboard the Mars Reconnaissance Orbiter.

### **Dark-matter search comes up empty**

Four studies released this year came up empty in a search for a particle that could possibly compose the mysterious substance known as dark matter. Although dark matter does not radiate, reflect or block light (and is thus invisible in the traditional sense), dark matter's gravity can bend light, giving scientists the opportunity to detect it. There are various other bits of evidence that indicate dark matter not only exists but is five times more common in the universe than "regular" matter (the stuff that makes up stars, planets and people). The first study came from the incredibly sensitive Large underground Xenon dark matter experiment, which failed to detect signs of a hypothetical particle called a weakly interacting massive particle (WIMP). The negative results don't rule out WIMPs, but they do put new restraints on the potential characteristics of a WIMP dark matter particle. Two additional searches for WIMPs were conducted using data from the Fermi Gamma-ray Space Telescope, which collects high-energy particles from the universe. Those searches also came up empty. A final study looked for signs of another hypothetical particle, called an axion, using Fermi data from one particular galaxy, but it turned up no such evidence.

### **A planet around the nearest star to Earth's sun**

The star Proxima Centauri lies just 4.2 light-years from Earth's sun — a stone's throw, cosmologically speaking. In August, scientists discovered a planet orbiting in Proxima Centauri's habitable zone, or the region where liquid water might exist on the planet's surface (and thus boosting the odds that life might have evolved there). This newly discovered planet, dubbed Proxima b, has a minimum mass of about 1.27 times Earth's mass, further increasing the possibility that this planet could be habitable. Shortly after the discovery was announced, a group called Project Blue started fundraising to build a space telescope with the targeted mission of studying Proxima b and looking for signs of life there. In April, the Breakthrough Foundation — whose board members include physicist Stephen Hawking, Facebook founder Mark Zuckerberg and entrepreneur Yuri Milner — announced an initiative called Breakthrough Starshot, which will aim to send a microchip-size spacecraft to another star. With the discovery of Proxima b, the Starshot project organizers announced that they would target this newfound planet, and potentially search for signs of life. The spacecraft would be accelerated with a massive (and expensive) laser system, and would still take about 20 to 25 years to reach Proxima b.

### **What are cosmic Rays**

We know today that galactic cosmic rays are atom fragments such as protons (positively charged particles), electrons (negatively charged particles) and atomic nuclei. While we know now they can be created in supernovas, there may be other sources available for cosmic ray creation. It also isn't clear exactly how supernovas are able to make these cosmic rays so fast. Cosmic rays constantly rain down on Earth, and while the high-energy "primary" rays collide with atoms in the Earth's upper atmosphere and rarely make it through to the ground, "secondary" particles are ejected from this collision and do reach us on the ground. But by the time these cosmic rays get to Earth, it's impossible to trace where they came from. That's because their path has been changed as they traveled through multiple magnetic fields (the galaxy's, the solar system's and Earth's itself.)

## *Club Officers*



**President  
Tom Gerald**



**Vice President  
Jana Hunking**



**Treasurer  
Vince Tobin**



**News Letter Editor  
Vahan Yeterian**

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



## Club Meeting

**Reminder** Club meeting June 9th at 7:00Pm  
Manzanita 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](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/](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

