

Vandenberg Amateur Astronomical Society  
presents  
**The Sidereal Times**



The M74 galaxy image on page 5.

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Meeting News:

The December meeting started at 7:00PM at the Manzanita School. No election of officers. Discussed The Christmas party to be held in January. Updated Star party list and Time Capsule of VAAS.

**Reminder: VAAS meeting 11 January at Mi Amore Pizza in Lompoc 6:00 PM see you there.**



Lunar Calendar:

Last  $\frac{1}{4}$  5 Jan  
New 11 Jan  
First  $\frac{1}{4}$  18 Jan  
Full 27 Jan

Presidents Message

Happy New Year!

The next Membership meeting will be pizza night on Friday 11 January starting around 6PM. *Details are in page 7* of this Newsletter. Please do come, we're kind-of bribing the membership to show up because the only VAAS business is the election of the officers for 2013. Otherwise, let's have a good time talking up a storm and stuffing our faces with food.

When the skies have been mostly clear at night, Jupiter and the Moon have been putting on a bright light show in the early evenings with the star, Capella, just to the North of Jupiter. I could locate them easily from the Phoenix, Arizona area. I couldn't locate many constellations that same night but I could definitely locate those three bright objects in the night sky with unaided vision.

Dave



## Special Events

**January 3, 4** Quadrantids Meteor Shower are an above average meteor shower with up to 40 meteors per hour at their peak. They usually peak on January 3 and 4 but some can be visible from 1 to 5 January. The near last quarter Moon will hide many of the fainter meteors with its glare. Best viewing will be from a dark location after midnight. Look for meteors radiating from the constellation of Bootes.

**January 5<sup>th</sup> 3<sup>rd</sup> quarter** Star Party at Observatory weather permitting.

**January 11<sup>th</sup>** New Moon, it will be located directly Between Earth and Sun and will not be visible from Earth. This phase occurs at 19:44 UTC.

**January 12 New Moon** Star party at observatory weather permitting.

**January 19<sup>th</sup> 1<sup>st</sup> quarter** Star party at Observatory weather permitting.

**January 27<sup>th</sup>** Full Moon, the Moon will be directly Opposite Earth from the Sun and will be fully Illuminated as seen from Earth. This phase occurs at 04:38 UTC.

## Double Cluster



## Special Topics

**Time Capsule:** VAAS formed in October 1985 with about 10 members from VAFB and 5 members from the public. The total VAAS membership varied between 15 and 20 over the years.

1986 VAAS joined with Western Spaceport Museum and submitted Private Organization forms for Base review.

1990 Western Spaceport Museum dedicated the observatory and the 14 inch telescope at what is now Ken Adams Park. VAAS constitution was adopted.

1990 to 1998 VAAS was primary operator of the observatory.

1996 Western Spaceport Museum was disbanded.

1998 the observatory and telescope ownership was transferred to the Endeavour Center and relocated to Maple High School on VAFB (current location).

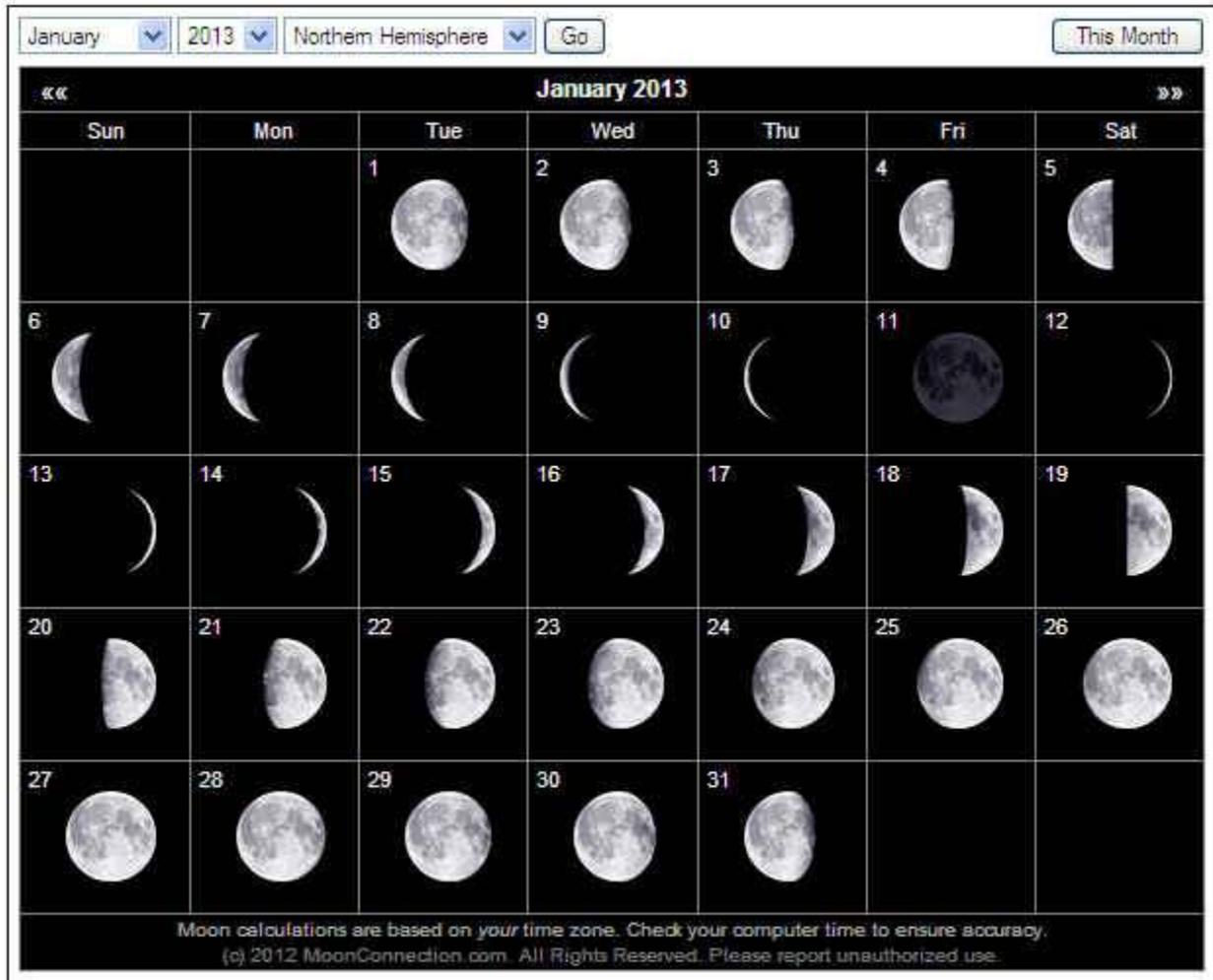
1999 to 2008 VAAS continued to operate the observatory and continued to support the Endeavour Center.

2007 Endeavour Center relocates to Manzanita Charter school location. Observatory remains at Maple High school. Endeavour Center temporarily stops the summer camp program.

2009 Endeavour Center relocates to VAFB Middle school. VAAS continues meetings at Manzanita Charter school location.

2010 The observatory has been maintained after a few years of neglect. To date VAAS is still the primary operator and maintainer of the observatory.

## January Moon



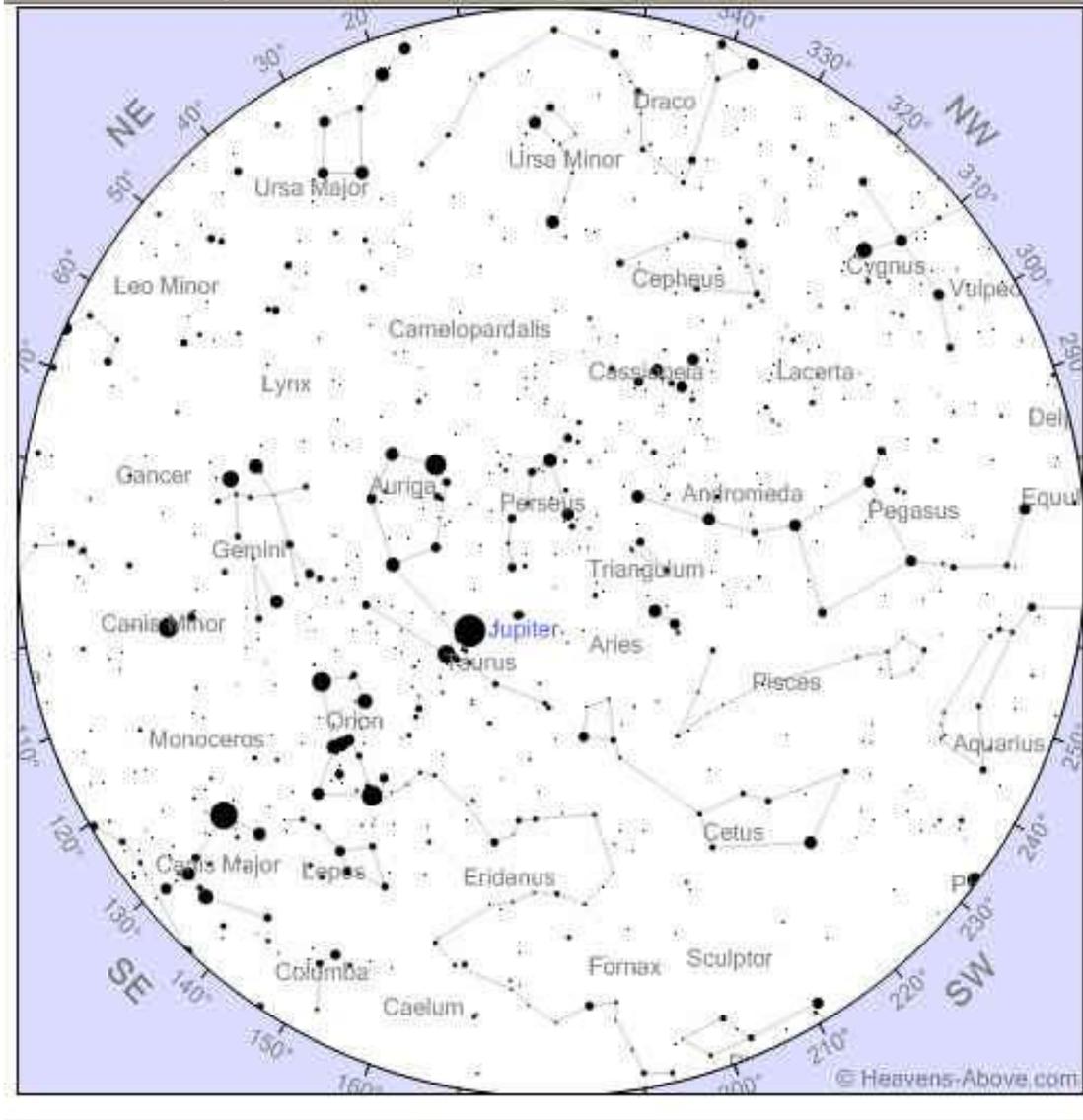
**Moon Phase:**

5<sup>th</sup> Last quarter, 11<sup>th</sup> New Moon, 18<sup>th</sup> First Quarter, 27<sup>th</sup> Full Moon



## January Sky

Objects of interest: M42, Jupiter, Double cluster, M31,



Date/Time (Local Time)

Year: 2013	Month: 01	Day: 5	Hour: 20	Minute: 21
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**Messier 74 Courtesy Gary Satterfield.**

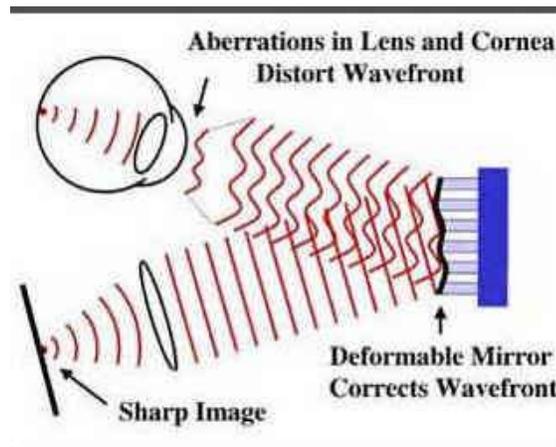


Messier 74 NGC 628 is an example of a grand design spiral galaxy that is viewed by Earth observers as nearly face-on. Bright knots of glowing gas light up the spiral arms indicating a rich environment for star formation. Its perfectly symmetrical arms emanate from the central nucleus and are dotted with clusters of young blue stars and glowing pink regions of ionized hydrogen (hydrogen atoms that have lost their electrons). These regions of star formation show an excess of light at the Ultra-violet wavelengths. Tracing along the spiral arms are winding dust lanes that also begin near the galaxy's nucleus and follow along the length of the spiral arms. M74 is located roughly 32 million light years away in the direction of the constellation of Pisces, the fish. It is the dominant member of a small group of about a half dozen galaxies, M74 galaxy group. In its entirety it is estimated that M74 is home to about 100 billion stars making it slightly smaller than our Milky Way galaxy.

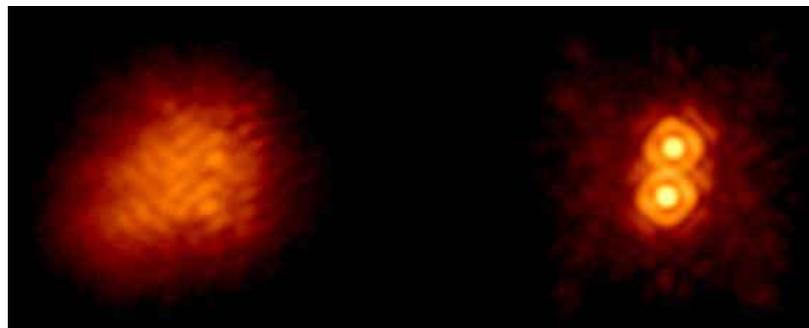
The image was captured using an AT8RC, a Canon 500D (modified) DSLR and a hyper tuned CGEM mount guided ISO 800 Darks, flats and bias calibration frames were also included in image processing using Images Plus 4.0 and CS2.

## For What it's Worth

**Adaptive Optics:** An optical system that enables rapid fluctuations in a telescope image quality, caused by atmospheric turbulence, to be corrected in fractions of a second. These fluctuations are measured by a wave front sensor that uses a reference star to measure the distortions that are taking place. The reference star is typically a reasonably bright star close in the sky to the object under study but may also be the object itself or a reflected laser beam that serves as a artificial star. The measured distortions are then removed with a phase-corrector typically a very thin mirror in the light path of the telescope that can be rapidly deformed by actuators to the equivalent shape of the wave front which must be subtracted to produce a sharp image. Unlike Active Optics Adaptive optics produces real-time response and allows image quality of ground based instruments to rival that of telescopes operating in space. It is used in conjunction with many new telescopes including the Very Large Telescope, the Large Binocular Telescope, and the Keck Telescope. Adaptive optics was pioneered by the Center for Astronomical Adaptive Optics and will be used extensively with another new technique known as Nulling Interferometry, in search of extra solar planets and circumstellar dust disks. (See Fig below)



Ground based telescope.....Left image, without adaptive optics correction.  
Right image, corrections reveal a binary Star.



## *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 and Holiday party, 11 January 2013 at 6:00 PM at the Mi Amore Pizza in Lompoc, Central Ave and H street Sponsored by VAAS club Treasury....hope to see you there.

Star Parties scheduled for Jan 5, 12 and 19 at the Observatory 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 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/>