ANTELOPE VALLEY ASTRONOMY CLUB, INC.

# Desert Sky Observer

**Volume 34** *Antelope Valley Astronomy Club Newsletter* **January 2014**

## *Up-Coming Events*

**January 10:** Club Meeting*
**January 25:** Prime Desert Moon Walk

* Monthly meetings are held at the S.A.G.E. Planetarium on the Cactus School campus in Palmdale, the second Friday of each month. The meeting location is at the northeast corner of Avenue R and 20th Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium*

## President

### Frank Moore

As our friend and fellow member Duane Lewis would say, "Hello fellow astronuts."

2013 has wound down and we're looking toward 2014 as a new year of Astronomical Adventures, opportunities for learning, and public outreach events where we can share our knowledge and love for the cosmos with others.

As most of you know, the "New Board" will be the same as the "Old Board", only we've played musical chairs and a few of us landed in new spots when the music stopped. I'll be serving as your President, my wife Rose Moore will be serving as Vice-President, Virginia Reed will still be Treasurer, Pam Grove will remain at Secretary, and Don Bryden will be moving into the Director of Community Development position.

Because it is usually too cold or wet in January for star parties, and because we had such a busy year in 2013, we decided to take a break and not try to have a Dark Sky Star Party this month. However, if this high pressure and unseasonably warm weather persists I may reconsider and try to have something close in to Lancaster/Palmdale. Stay tuned. As the schedule currently stands our only January outreach event will be the monthly Prime Desert Woodland Moonwalk, with Jeremy Amarant, at 6:00 PM on Saturday January 25th.

We have several events already on the calendar. Our annual Messier Marathon will be held on Saturday March 29th. A location will be decided in the near future though the most likely locations are either Saddleback Butte State Park or the Poppy Reserve.

There is a total lunar eclipse the night of Monday April 14th into the morning of Tuesday April 15th. Jeremy will be having an event at the SAGE Planetarium so put it on your calendar and get your taxes done early so you can come out to the eclipse party and support him.

I hope to see everyone at the monthly meeting at 7:00 PM on Friday January 10th at the SAGE Planetarium. The speaker will be Gary Peterson, Professor Emeritus from San Diego State University, speaking on the satellites and ring system of Saturn. Gary has been a regular supporter and speaker at AVAC meetings over the years and I encourage everyone to come out to support him and show our appreciation.

Just a reminder. Memberships are due for renewal with the start of the New Year. Old hands are used to this but new members, who first signed up throughout 2013, might forget that memberships are for the calendar year, that your initial membership was "pro-rated", and that your full-year renewal is due at this time. Renewal and payment can be made via PayPal on the club website, by mailing your renewal to the club's PO Box, or by paying the Treasurer at the monthly meeting. To renew your membership online first log into your membership via the "Member" tab on the AVAC home page. Once you have logged in, go to your account via the "Profile" button under the "Member" tab, then click the "Membership" tab on your profile page, and click the "Renew now" button.

I look forward to seeing everyone at events and star parties throughout the coming year.

## Vice President

### Rose Moore

Thank you all for attending the Christmas Party! Many thanks to those who helped out setting up items beforehand. I'm sure Frank will have some comments, so check out his submission for this month.

We will have a guest speaker for our January meeting. Dr. Gary Peterson will be returning and giving a presentation on 'Satellites and Ring System of Saturn'.

He's come to speak to the club before, and always has a wonderful presentation! Dr. Peterson is Professor Emeritus, Geology, from San Diego State University. He comes quite a distance to speak, so come on out and give him a warm welcome!

I'll be searching for more speakers for the coming year. If anyone has suggestions, please let me know. I do have Chris Butler as a possible speaker for sometime this year. I'll keep you all posted!

Please come to our meetings, and our public outreach events, and support your club! We can not be successful without you!

## Director of Community Development

### Don Bryden

Our first Prime Desert Moonwalk for 2014 will be on January 25th at 6pm. We need members with scopes to share their view of the heavens with the public. But what to look at? Read on…

Take a good look at Venus while you can! By the 9th it'll be lost in the glare of the Sun. Not to worry, it'll be back rising before the Sun around the 20th or so. The ancients supposed Venus was two distinct objects – the Morningstar and the Eveningstar! If you're hungry for planets then watch for Jupiter. It'll reach opposition on the 5th, rising at sunset and staying up all night. Shortly before midnight Mars will rise too. Uranus and Neptune will be in Pisces and Aquarius all month (see the link for a current star chart: http://media.skyandtelescope.com/documents/Uranus-Neptune-2013.pdf)

For you comet hunters it looks like you'll be rising early to get a look at Lovejoy or ISON. Lovejoy is your best bet, rising as early as 3:30am and bright enough for binos or most scopes. Just kidding about

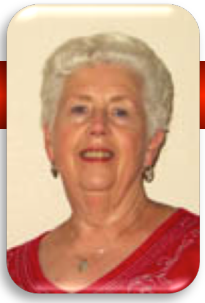
ISON, though. Back on December 18th when ISON was supposed to be far enough from the Sun for Hubble to look at it, they found nothing! Scanning down to mag. 25 (that's 100 million times fainter than any star visible to the naked eye!) means there is nothing bigger than a few hundred feet in diameter left of poor overhyped ISON!

Brush up on your Messier Marathoning or work on that Messier list – there are a number of great not-so-faint fuzzies this month too. Look to the West after dark to catch M2, M15 or M72 before they set then work your way to the East. M31, M32 and M110 are high overhead and of course as Orion climbs higher we can see M42, M45, M1 and a slew of nice open clusters in M35, M36, M37 and M38.

One nice gem that's not on Messier's list is one of my favorites: Hind's Crimson Star (R Lepus). It's a variable carbon star with a period of about 14 months. When it is at or near minimum it appears most red – like a drop of blood in a sea of black! The cool thing is that when you look around the field of view, all the stars seem white but when you finally zero in on it and let your cones have a look it just suddenly seems to turn red. It's currently near minimum, located just below Rigel and in the constellation Lepus.

Lastly, get ready for Zero G Day! (http://news-hound.net/january-4th-2014-planetary-alignment-decreases-gravity-float-for-5-minutes/). Originally an April Fool's prank by Sir Patrick Moore, this urban myth seems to pop up every year. Currently the alignment is set for January 4th: "At exactly 9:47 am, the planet Pluto will pass directly behind Jupiter, in relation to the Earth. This rare alignment will mean that the combined gravitational force of the two planets would exert a stronger tidal pull, temporarily counteracting the Earth's own gravity and making people weigh less. Moore calls this the Jovian-Plutonian Gravitational Effect."

Well Pluto is currently behind the Sun and Jupiter is nearing opposition so, so much for that! Of course even if all the planets lined up in opposition the effect would be negligible. The moon and sun have far more effect on our tides and no effect on the gravity we feel on the earth. Plus, if this really worked wouldn't it be pulling us INTO the earth at 9:47 in the morning? Still, I'm not taking any chances – the article says to jump into the air and you will take several seconds to return to the ground and I'm going to try it! Of course I'm going to take a high-speed elevator to the top floor, hit the Lobby button and JUMP!



## Secretary

### Pam Grove

I wish everyone a Healthy and Prosperous New Year! Hopefully everyone had a Joyous Holiday Season.

Our Christmas Party was a success, even though space was limited. I would like to thank those that were able to come out and support your club. For those of you that donated items for the silent auction, or raffle and need a donation letter please let me know.

Last year was a busy year with all the Outreach Star Parties, and I am sure this years plans will be the same. Thanks again to Don, Frank and Rose for all their hard work planning, and organizing to make all these events possible and a big success! We hope to see more of you joining us this year. It is a lot of fun and we need more people for support.

See you under the stars!

## Space Place

# The Big Picture: GOES-R and the Advanced Baseline Imager

By Kieran Mulvaney

The ability to watch the development of storm systems – ideally in real time, or as close as possible – has been an invaluable benefit of the Geostationary Operational Environmental Satellites (GOES) system, now entering its fortieth year in service. But it has sometimes come with a trade-off: when the equipment on the satellite is focused on such storms, it isn't always able to monitor weather elsewhere.

"Right now, we have this kind of conflict," explains Tim Schmit of NOAA's National Environmental Satellite, Data, and Information Service (NESDIS). "Should we look at the broad scale, or look at the storm scale?" That should change with the upcoming launch of the first of the latest generation of GOES satellites, dubbed the GOES-R series, which will carry aloft a piece of equipment called the Advanced Baseline Imager (ABI).

*The Advanced Baseline Imager. Credit: NOAA/NASA.*

According to Schmit, who has been working on its development since 1999, the ABI will provide images more frequently, at greater resolution and across more spectral bands (16, compared to five on existing GOES satellites). Perhaps most excitingly, it will also allow simultaneous scanning of both the broader view and not one but two concurrent storm systems or other small-scale patterns, such as wildfires, over areas of 1000km x 1000km.

Although the *spatial* resolution will not be any greater in the smaller areas than in the wider field of view, the significantly greater *temporal* resolution on the smaller scale (providing one image a minute) will allow meteorologists to see weather events unfold almost as if they were watching a movie.

So, for example, the ABI could be pointed at an area of Oklahoma where conditions seem primed for the formation of tornadoes. "And now you start getting one-minute data, so you can see small-scale clouds form, the convergence and growth," says Schmit.

In August, Schmit and colleagues enjoyed a brief taste of how that might look when they turned on the GOES-14 satellite, which serves as an orbiting backup for the existing generation of satellites.

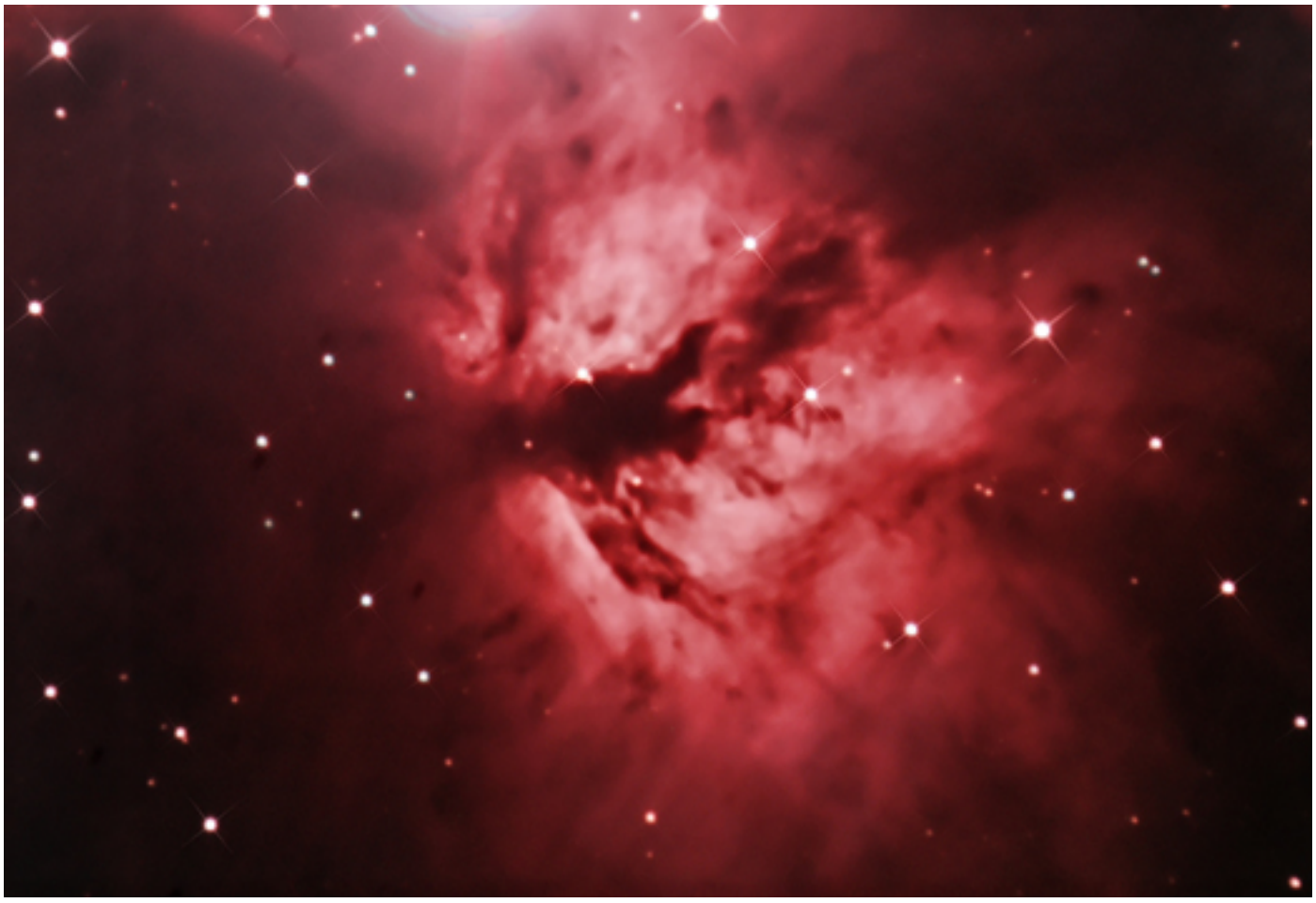
"We were allowed to do some experimental imaging with this one-minute imagery," Schmit explains. "So we were able to simulate the temporal component of what we will get with ABI when it's launched."

The result was some imagery of cloud formation that, while not of the same resolution as the upcoming ABI images, unfolded on the same time scale. You can compare the difference between it and the existing GOES-13 imagery here: http://cimss.ssec.wisc.edu/goes/blog/wp-content/uploads/2013/08/GOES1314_VIS_21AUG2013loop.gif

*Learn more about the GOES-R series of satellites here: http://www.goes-r.gov.*

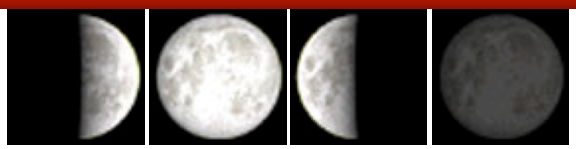
*Kids should be sure to check out a new online game that's all about ABI! It's as exciting as it is educational. Check it out at http://scijinks.gov/abi*

## Astrophoto of The Month



**NGC 2024 (Flame) By Don Bryden**
Taken at his house with a Stellarvue SV-105 and SBIG AT10-XME

# January Sky Data




**Best time for deep sky observing this month:**
**January 18 through January 31**

**Mercury** passed behind the Sun (superior conjunction) on December 29th and so will not be visible low in the west southwest until mid to late January. It reaches its greatest elongation (that is, furthest in angular separation) of 18 degrees on January 31st when it will lies about 10 degrees above the horizon 45 minutes after sunset lying near a slender crescent Moon.

**Venus** will pass between the Earth and the Sun on the 11th of January so will only be seen either at the very beginning of the month low in the south-western sky after sunset or, at month's end, low above the eastern horizon before dawn.

**Mars**, lying in Virgo, rises around midnight at the start of the month and about one hour earlier at month's end. Its magnitude increases from +0.8 to +0.2 during the month with its angular size increasing from 6.9 to 8.8 arc seconds. So, given good seeing, it is possible to see markings on its salmon-pink surface such as the polar caps and Syrtis Major.

This month **Jupiter** is visible all night long and dominates the south-eastern sky in the evening. At opposition on the 5th January, it will then be due south around midnight shining at magnitude -2.7 with a disk ~47 arc seconds across.

**Saturn** is now visible in the pre-dawn sky. Lying in Libra, it is shining with a magnitude of +0.6 and its disk has a diameter of ~16 arc seconds. The really good news is that the rings have now opened to around 22 degrees from the line of sight so presenting a magnificant view.

The Quadrantid **meteor-shower** produces a good display of meteors every year during the first week of January. This year, the peak is expected around 11:30AM PST on January 3rd. There is a chance you can catch a few of them in the early moring hours.

## Sun and Moon Rise and Set

| Date | Moonrise | Moonset | Sunrise | Sunset |
|---|---|---|---|---|
| 1/1/2014 | 06:55 | 17:39 | 06:59 | 16:52 |
| 1/5/2014 | 09:56 | 22:13 | 06:59 | 16:55 |
| 1/10/2014 | 13:03 | 02:14 | 06:59 | 16:59 |
| 1/15/2014 | 17:04 | 06:19 | 06:58 | 17:04 |
| 1/20/2014 | 21:36 | 09:11 | 06:56 | 17:09 |
| 1/25/2014 | 01:31 | 12:17 | 06:54 | 17:14 |
| 1/31/2014 | 07:08 | 18:44 | 06:50 | 17:20 |

## Planet Data

**Jan 1**

| | Rise | Transit | Set | Mag |
|---|---|---|---|---|
| Mercury | 07:12 | 12:05 | 17:01 | -1.1 |
| Venus | 07:36 | 12:58 | 18:13 | -4.3 |
| Mars | 23:52 | 05:52 | 11:51 | 0.8 |
| Jupiter | 16:58 | 00:13 | 07:28 | -2.7 |
| Saturn | 02:55 | 08:17 | 13:43 | 0.6 |

**Jan 15**

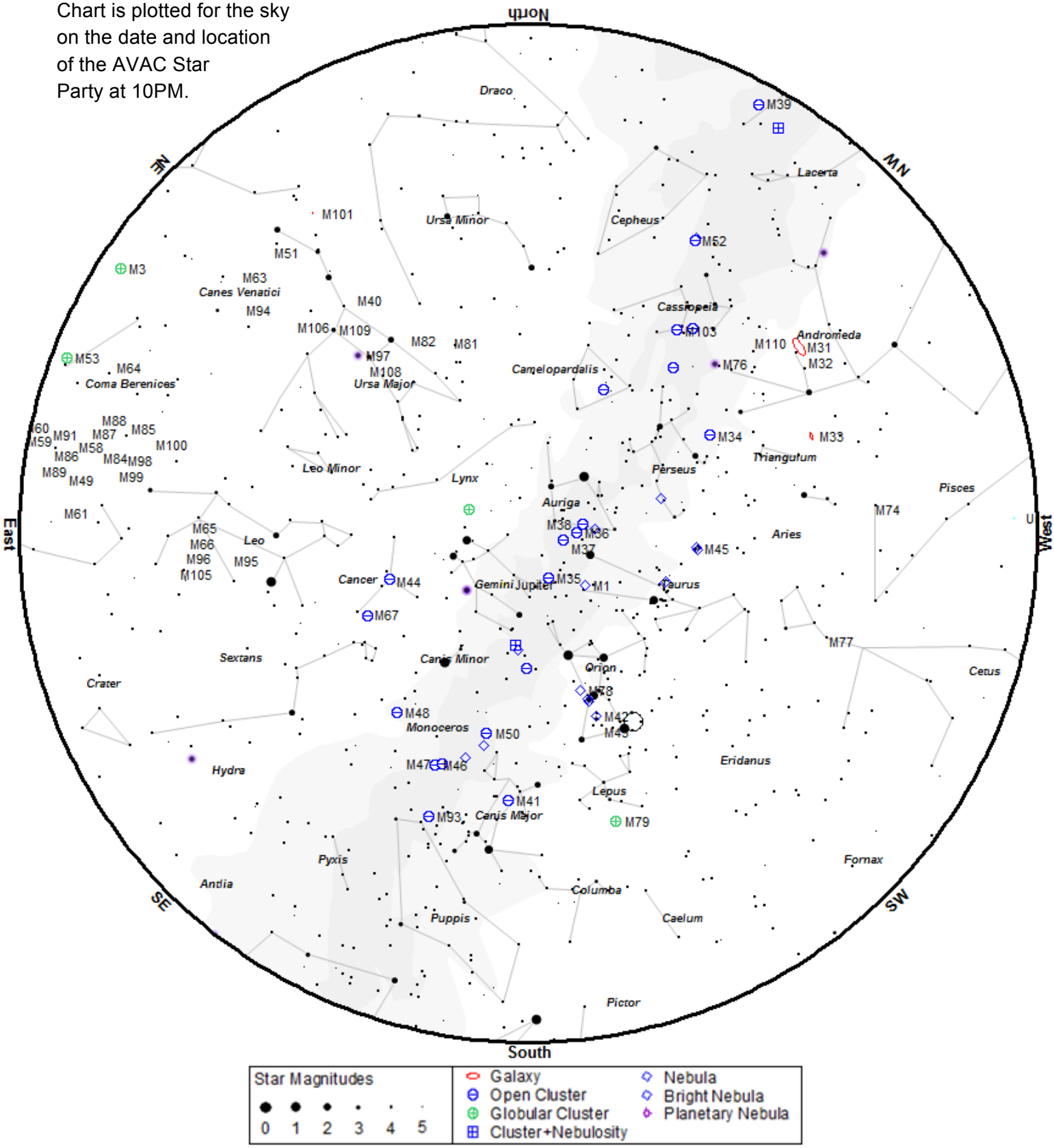
| | Rise | Transit | Set | Mag |
|---|---|---|---|---|
| Mercury | 07:41 | 12:49 | 17:58 | -1.0 |
| Venus | 06:01 | 11:22 | 16:48 | -4.2 |
| Mars | 23:24 | 05:18 | 11:12 | 0.6 |
| Jupiter | 15:54 | 23:10 | 06:25 | -2.7 |
| Saturn | 02:05 | 07:27 | 12:52 | 0.6 |

**Jan 31**

| | Rise | Transit | Set | Mag |
|---|---|---|---|---|
| Mercury | 07:37 | 13:16 | 18:53 | -0.5 |
| Venus | 04:38 | 10:00 | 15:26 | -4.6 |
| Mars | 22:46 | 04:35 | 10:23 | 0.2 |
| Jupiter | 14:43 | 21:59 | 05:15 | -2.6 |
| Saturn | 01:06 | 06:28 | 11:49 | 0.5 |

Planet, Sun, and Moon data calculated for local time at Lancaster, CA

Chart is plotted for the sky on the date and location of the AVAC Star Party at 10PM.




| Star Magnitudes | | |
|---|---|---|
| 0 1 2 3 4 5 | Galaxy | Nebula |
| | Open Cluster | Bright Nebula |
| | Globular Cluster | Planetary Nebula |
| | Cluster+Nebulosity | |

To use the chart, go outside within an hour or so of the time listed and hold it up to the sky. Turn the chart so the direction you are looking is at the bottom of the chart. If you are looking to the south then have 'South horizon' at the lower edge.

## Suggested Observing List

The list below contains objects that will be visible on the night January 25th. The list is sorted by the best time to observe the object. The difficulty column describes how difficult it is to observe the object from the current location on a perfect night in a 6 inch Newtonian telescope.

| ID | Cls | Con | RA 2000 | Dec 2000 | Mag | Begin | Best | End | Difficulty |
|---|---|---|---|---|---|---|---|---|---|
| NGC 253 | Gal | Scl | 00h47m33.1s | -25°17'20" | 7.9 | 18:27 | 18:41 | 19:16 | detectable |
| NGC 288 | Glob | Scl | 00h52m45.0s | -26°35'00" | 8.1 | 18:23 | 18:41 | 19:36 | challenging |
| NGC 7243 | Open | Lac | 22h15m08.0s | +49°53'54" | 6.7 | 18:28 | 18:44 | 19:19 | detectable |
| NGC 7160 | Open | Cep | 21h53m40.0s | +62°36'12" | 6.4 | 18:19 | 18:45 | 19:29 | obvious |
| M 52 | Open | Cas | 23h24m48.0s | +61°35'36" | 8.2 | 18:30 | 18:47 | 20:20 | detectable |
| NGC 7790 | Open | Cas | 23h58m24.0s | +61°12'30" | 7.2 | 18:20 | 18:48 | 21:30 | easy |
| NGC 7789 | Open | Cas | 23h57m24.0s | +56°42'30" | 7.5 | 18:30 | 18:48 | 20:24 | detectable |
| M 110 | Gal | And | 00h40m22.3s | +41°41'09" | 8.9 | 18:28 | 18:48 | 20:36 | detectable |
| M 32 | Gal | And | 00h42m41.8s | +40°51'58" | 8.9 | 18:25 | 18:48 | 21:17 | easy |
| M 31 | Gal | And | 00h42m44.3s | +41°16'07" | 4.3 | 18:24 | 18:49 | 21:18 | easy |
| NGC 457 | Open | Cas | 01h19m35.0s | +58°17'12" | 5.1 | 18:21 | 18:50 | 22:43 | obvious |
| M 33 | Gal | Tri | 01h33m50.9s | +30°39'36" | 6.4 | 18:27 | 18:50 | 21:12 | detectable |
| M 76 | PNe | Per | 01h42m19.9s | +51°34'31" | 10.1 | 18:25 | 18:51 | 21:46 | detectable |
| NGC 559 | Open | Cas | 01h29m31.0s | +63°18'24" | 7.4 | 18:22 | 18:51 | 23:07 | easy |
| M 103 | Open | Cas | 01h33m23.0s | +60°39'00" | 6.9 | 18:20 | 18:51 | 23:03 | obvious |
| NGC 752 | Open | And | 01h57m41.0s | +37°47'06" | 6.6 | 18:33 | 18:51 | 20:09 | challenging |
| NGC 637 | Open | Cas | 01h43m04.0s | +64°02'24" | 7.3 | 18:19 | 18:52 | 23:23 | obvious |
| NGC 663 | Open | Cas | 01h46m09.0s | +61°14'06" | 6.4 | 18:23 | 18:52 | 23:18 | easy |
| M 77 | Gal | Cet | 02h42m40.8s | -00°00'48" | 9.7 | 18:27 | 18:52 | 21:25 | detectable |
| NGC 884 | Open | Per | 02h22m18.0s | +57°08'12" | 4.4 | 18:19 | 18:53 | 23:43 | obvious |
| NGC 869 | Open | Per | 02h19m00.0s | +57°07'42" | 4.3 | 18:19 | 18:53 | 23:39 | obvious |
| NGC 957 | Open | Per | 02h33m21.0s | +57°33'36" | 7.2 | 18:22 | 18:55 | 23:43 | easy |
| M 34 | Open | Per | 02h42m05.0s | +42°45'42" | 5.8 | 18:24 | 18:55 | 22:41 | easy |
| NGC 1027 | Open | Cas | 02h42m40.0s | +61°35'42" | 7.4 | 18:26 | 18:56 | 22:58 | detectable |
| Heart Neb | Neb | Cas | 02h33m52.0s | +61°26'50" | 6.5 | 18:32 | 18:56 | 21:10 | challenging |
| NGC 1245 | Open | Per | 03h14m42.0s | +47°14'12" | 7.7 | 18:35 | 19:00 | 21:05 | challenging |
| NGC 1342 | Open | Per | 03h31m38.0s | +37°22'36" | 7.2 | 18:24 | 19:07 | 23:21 | detectable |
| M 45 | Open | Tau | 03h47m00.0s | +24°07'00" | 1.5 | 18:19 | 19:18 | 23:55 | obvious |
| NGC 1444 | Open | Per | 03h49m25.0s | +52°39'30" | 6.4 | 18:18 | 19:21 | 00:59 | obvious |
| NGC 1502 | Open | Cam | 04h07m50.0s | +62°19'54" | 4.1 | 18:15 | 19:39 | 01:42 | obvious |
| NGC 1528 | Open | Per | 04h15m23.0s | +51°12'54" | 6.4 | 18:23 | 19:47 | 01:03 | easy |
| Hyades | Open | Tau | 04h26m54.0s | +15°52'00" | 0.8 | 18:22 | 19:58 | 00:12 | obvious |
| NGC 1647 | Open | Tau | 04h45m55.0s | +19°06'54" | 6.2 | 18:27 | 20:17 | 23:38 | detectable |
| NGC 1664 | Open | Aur | 04h51m06.0s | +43°40'30" | 7.2 | 18:21 | 20:22 | 01:25 | easy |
| NGC 1746 | Open | Tau | 05h03m50.0s | +23°46'12" | 6.1 | 18:28 | 20:34 | 00:03 | detectable |
| NGC 1851 | Glob | Col | 05h14m06.0s | -40°02'48" | 7.1 | 19:30 | 20:45 | 21:59 | difficult |
| M 38 | Open | Aur | 05h28m40.0s | +35°50'54" | 6.8 | 18:26 | 20:59 | 01:17 | detectable |
| M 36 | Open | Aur | 05h36m18.0s | +34°08'24" | 6.5 | 18:22 | 21:04 | 02:05 | easy |

| ID | Cls | Con | RA 2000 | Dec 2000 | Mag | Begin | Best | End | Difficulty |
|---|---|---|---|---|---|---|---|---|---|
| M 43 | Neb | Ori | 05h35m30.0s | -05°16'00" | 9.0 | 18:57 | 21:06 | 23:14 | difficult |
| M 1 | Neb | Tau | 05h34m30.0s | +22°01'00" | 8.4 | 18:38 | 21:06 | 23:48 | difficult |
| M 42 | Neb | Ori | 05h35m18.0s | -05°23'00" | 4.0 | 18:27 | 21:06 | 00:16 | easy |
| M 78 | Neb | Ori | 05h46m48.0s | +00°05'00" | 8.0 | 19:06 | 21:17 | 23:27 | difficult |
| M 37 | Open | Aur | 05h52m18.0s | +32°33'12" | 6.2 | 18:24 | 21:23 | 02:11 | easy |
| NGC 2129 | Open | Gem | 06h01m07.0s | +23°19'20" | 7.0 | 18:21 | 21:32 | 02:06 | obvious |
| NGC 2169 | Open | Ori | 06h08m24.0s | +13°57'54" | 7.0 | 18:23 | 21:39 | 01:51 | obvious |
| M 35 | Open | Gem | 06h09m00.0s | +24°21'00" | 5.6 | 18:25 | 21:39 | 02:03 | easy |
| NGC 2175 | Open | Ori | 06h09m39.0s | +20°29'12" | 6.8 | 18:30 | 21:40 | 01:26 | detectable |
| NGC 2237 | Neb | Mon | 06h32m02.0s | +04°59'10" | 5.5 | 20:05 | 22:02 | 23:59 | challenging |
| NGC 2264 | Open | Mon | 06h40m58.0s | +09°53'42" | 4.1 | 18:27 | 22:11 | 02:12 | easy |
| M 41 | Open | CMa | 06h46m01.0s | -20°45'24" | 5.0 | 20:39 | 22:16 | 23:54 | easy |
| NGC 2301 | Open | Mon | 06h51m45.0s | +00°27'36" | 6.3 | 18:51 | 22:22 | 01:55 | easy |
| M 50 | Open | Mon | 07h02m42.0s | -08°23'00" | 7.2 | 19:35 | 22:32 | 01:30 | detectable |
| NGC 2353 | Open | Mon | 07h14m30.0s | -10°16'00" | 5.2 | 19:57 | 22:45 | 01:32 | easy |
| NGC 2360 | Open | CMa | 07h17m43.0s | -15°38'30" | 9.1 | 21:18 | 22:47 | 00:16 | challenging |
| NGC 2355 | Open | Gem | 07h16m59.0s | +13°45'00" | 9.7 | 20:02 | 22:48 | 01:32 | difficult |
| NGC 2392 | PNe | Gem | 07h29m10.8s | +20°54'42" | 8.6 | 18:30 | 22:59 | 03:28 | obvious |
| NGC 2423 | Open | Pup | 07h37m06.0s | -13°52'18" | 7.0 | 20:38 | 23:07 | 01:36 | easy |
| M 47 | Open | Pup | 07h36m35.0s | -14°29'00" | 4.3 | 20:42 | 23:07 | 01:32 | obvious |
| NGC 2439 | Open | Pup | 07h40m45.0s | -31°41'36" | 7.1 | 20:58 | 23:10 | 01:25 | detectable |
| M 46 | Open | Pup | 07h41m46.0s | -14°48'36" | 6.6 | 20:49 | 23:12 | 01:36 | detectable |
| NGC 2440 | PNe | Pup | 07h41m55.4s | -18°12'31" | 11.5 | 21:13 | 23:12 | 01:11 | detectable |
| M 93 | Open | Pup | 07h44m30.0s | -23°51'24" | 6.5 | 22:17 | 23:14 | 00:11 | easy |
| NGC 2451 | Open | Pup | 07h45m23.0s | -37°57'21" | 3.7 | 21:16 | 23:15 | 01:14 | easy |
| NGC 2477 | Open | Pup | 07h52m10.0s | -38°31'48" | 5.7 | 21:30 | 23:22 | 01:13 | easy |
| NGC 2506 | Open | Mon | 08h00m01.0s | -10°46'12" | 8.9 | 21:31 | 23:30 | 01:29 | difficult |
| NGC 2547 | Open | Vel | 08h10m09.0s | -49°12'54" | 5.0 | 23:07 | 23:40 | 00:13 | challenging |
| NGC 2546 | Open | Pup | 08h12m15.0s | -37°35'42" | 5.2 | 22:28 | 23:42 | 00:56 | difficult |
| NGC 2571 | Open | Pup | 08h18m56.0s | -29°45'00" | 7.4 | 21:31 | 23:48 | 02:06 | detectable |
| M 44 | Open | Cnc | 08h40m24.0s | +19°40'00" | 3.9 | 20:00 | 00:10 | 04:04 | easy |
| M 67 | Open | Cnc | 08h51m18.0s | +11°48'00" | 7.4 | 21:22 | 00:21 | 02:46 | detectable |
| M 82 | Gal | UMa | 09h55m52.4s | +69°40'47" | 9.0 | 19:11 | 01:26 | 05:40 | detectable |
| M 81 | Gal | UMa | 09h55m33.1s | +69°03'56" | 7.8 | 19:30 | 01:26 | 05:38 | detectable |
| NGC 3227 | Gal | Leo | 10h23m30.6s | +19°51'54" | 11.5 | 22:43 | 01:53 | 04:39 | difficult |
| NGC 3242 | PNe | Hya | 10h24m46.1s | -18°38'32" | 8.6 | 23:59 | 01:54 | 03:51 | obvious |
| NGC 4565 | Gal | Com | 12h36m20.8s | +25°59'15" | 10.1 | 00:32 | 02:29 | 05:39 | difficult |
| M 97 | PNe | UMa | 11h14m47.7s | +55°01'09" | 9.7 | 22:13 | 02:29 | 05:38 | detectable |
| M 94 | Gal | CVn | 12h50m53.1s | +41°07'12" | 8.7 | 23:35 | 02:29 | 05:45 | detectable |
| M 106 | Gal | CVn | 12h18m57.6s | +47°18'13" | 9.1 | 23:34 | 02:29 | 05:40 | detectable |
| Col 256 | Open | Com | 12h25m06.0s | +26°06'00" | 2.9 | 23:23 | 02:29 | 05:45 | easy |
| M 65 | Gal | Leo | 11h18m55.7s | +13°05'32" | 10.1 | 23:19 | 02:29 | 05:36 | detectable |
| M 66 | Gal | Leo | 11h20m14.9s | +12°59'30" | 9.7 | 23:21 | 02:29 | 05:36 | detectable |
| M 51 | Gal | CVn | 13h29m52.3s | +47°11'40" | 8.7 | 23:55 | 05:04 | 05:44 | easy |
| NGC 5195 | Gal | CVn | 13h29m59.6s | +47°15'58" | 10.5 | 00:35 | 05:04 | 05:43 | detectable |

## A.V.A.C. Information

Membership in the Antelope Valley Astronomy Club is open to any individual or family.

The Club has three categories of membership.

- Family membership at $30.00 per year.
- Individual membership at $25.00 per year.
- Junior membership at $15.00 per year.

Membership entitles you to…

- Desert Sky Observer–monthly newsletter.
- The Reflector – the publication of the Astronomical League.
- The A.V.A.C. Membership Manual.
- To borrow club equipment, books, videos and other items.

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Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/

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