



Desert Sky Observer

Volume 34

Antelope Valley Astronomy Club Newsletter

December 2014

Up-Coming Events

December 06: Christmas Party @ [Julianni's](#)

December 10: Board Meeting

December 13: Prime Desert Moon Walk @ [Prime Desert Woodlands](#)

December 20: Dark Sky Star Party @ TBA Check the club website for details as the date approaches.

* 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

Winter is approaching, and time for those cold, crisp, clear nights. If you can stand the cold, the clouds don't move in, and the dew doesn't soak your equipment, you can get some awesome views of celestial wonders this time of year.

As you are all no doubt aware, we lost a valuable club member this month when our friend Bob Kemp passed away unexpectedly on Sunday November 9. Memorial Services were held on Sunday November 23 and Graveside Services on Wednesday November 26 at Forest Lawn Memorial Park in Covina Hills. Rose, myself, Darrell Bennett, Jeff Murdoch, and Sam and Maria Sweis were in attendance at the Memorial Service. You may have noticed that I did not schedule a Dark Sky Star Party in November. With Bob Kemp's memorial service on November 23, I felt that a Star Party, which had tentatively been scheduled for November 22, just would have been too much. Bob's friends and family are planning a more informal "Celebration of Bob's Life" in January. I will keep you informed of the date.

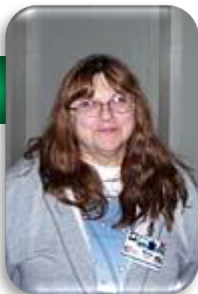
If you would like to see a joyful remembrance of Bob Kemp's life, check out his YouTube videos, which can be found here, <http://www.youtube.com/user/FieldOneVideo>. Bob worked at NBC-Burbank for 28 years as a technician, cameraman, and producer of news helicopter footage. This was followed by a stint with Angel City Air, which leases telecopters and provides aerial news services to all of the Los Angeles area television stations. There's something for everyone on Bob's YouTube page, from beautiful telecopter footage of the LA area, to remote control hexacopter footage of a "ghost".

As you know, Bob had taken over as the Editor of this newsletter, the Desert Sky Observer, in July. With Bob's passing, Steve Trotta has graciously taken those duties on again. Please join me in thanking him!

I attended the Arizona Science and Astronomy Expo in Tucson on November 1st and 2nd. It was bigger and better than ever with well over a hundred manufacturers and vendors, educational organizations, and world-class speakers. Producer Alan Traino is planning to make it even bigger and better next year. As soon as the date is set, I'll let you know so folks can put it on their calendars. You've got to attend this show at least once.

Don Bryden, Bob Ayres, and myself supported Jeremy Amarant at the Prime Desert Woodland Moonwalk on Saturday November 15. In spite of a chill in the air, some scattered clouds, and VERY gusty winds, we had 86 hardy and curious visitors in attendance. Our next Prime Desert Woodland event will be held on Saturday December 13, at 7:00 PM, weather permitting. Bundle up, come on out, and share our hobby and passion with the public. You don't have to bring a telescope, just come out and join the fun.

Finally, I look forward to seeing as many of you as possible at the Christmas Party. I think we've got a great venue at Julianni's in the Lancaster Marketplace, a great menu, great raffle prizes and silent auction items, and I look forward to having a great time. See you there!!



Vice President

Rose Moore

Our upcoming Christmas Party is at Julianni's, in the Lancaster Marketplace, on Saturday Dec. 6th at 6pm. There will be a buffet dinner, and a raffle and silent auction. Dress is casual. If you have any items to donate, please bring them with you to the party.

We will have silent auction sheets available to fill out for any donations, and Pam will be taking donors info so that she can get the tax letter out to you (if you wish to claim the donation).

As of 11/22, there were a few available spaces left for the dinner. If anyone still wishes to attend, please get in contact with me asap via email or voicemail. And I'll let you know if space is still available. (email: RMO Orion1@bak.rr.com -or- phone: 661-972-1953)

A reminder that club dues for next year will be due by January 31st.

Have a Merry Christmas and a wonderful Holiday season!

Rose



Director of Community Development

Don Bryden

Some folks hate winter for observing 'cause of the cold. Others love that it gets dark so early. Some miss the globulars of summer while others have been waiting all year for Orion and his nebula. For me, it's looking forward to a long night's imaging – the scope out in the cold with me snug as a bug on the couch! As I dozed off a few years ago I started writing this (mostly fictitious) story about taking astrophotos one cold dark night and like most of my pictures, after months of effort, it's finally done!

A Visit from St. Nick

'Twas the night before Christmas, when all through the dome

Not a creature was stirring, I was observing alone;

The cables were hung by the camera with care,

In hopes that the Horsehead soon would be there;

The eyepieces were nestled all snug in their case,
 While images from CCD's glowed in their place;
 And I in my cap at the computer control station,
 Had just settled down for a long integration;
 When out on the lawn there arose such a clatter,
 I sprang from the mount to see what was the matter.
 Away to the dome slit I flew like a flash,
 Tore open the shutters and threw up the sash.

The red l.e.d. of my brand-new flashlight,
 Gave the luster of mid-day to objects in sight,
 When, what to my dark-adapted eyes should appear,
 But a miniature sleigh, and eight tiny reindeer,
 With headlights a blazing, he hadn't a clue,
 I knew in a moment that my session was through.

More rapid than Geminids his coursers they came,
 And he whistled, and shouted, and called them by name:
 "Now, Dasher! now, Dancer! now Prancer and Vixen!
 We'll load it in Photoshop and there do some fixin'!

A click of the mouse and a tweak of the stack
 Soon gave me to know I was an imaging hack;
 He spoke not a word, but went straight to his work,
 And aligned all the images with a magical jerk,
 And laying his finger aside of his head,
 He added H-alpha to beef up the red;
 He sprang to his sleigh, to his team gave a whistle,
 And away they all flew like a Vandenberg missile.
 But I heard him exclaim, as he drove out of sight—
 "Happy imaging to all, and to all a dark night!"

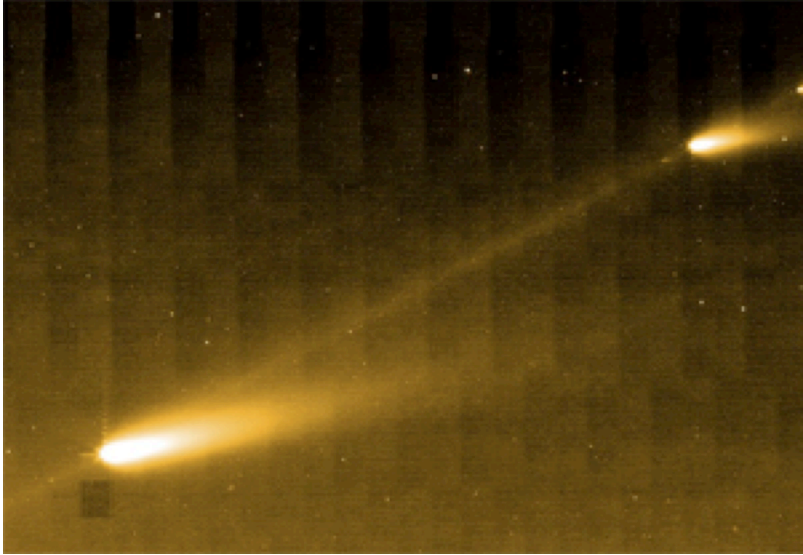
Space Place

Where the Heavenliest of Showers Come From

By Dr. Ethan Siegel

You might think that, so long as Earth can successfully dodge the paths of rogue asteroids and comets that hurtle our way, it's going to be smooth, unimpeded sailing in our annual orbit around the sun. But the meteor showers that illuminate the night sky periodically throughout the year not only put on spectacular shows for us, they're direct evidence that interplanetary space isn't so empty after all!

When comets (or even asteroids) enter the inner solar system, they heat up, develop tails, and experience much larger tidal forces than they usually experience. Small pieces of the original object—often multiple kilometers in diameter—break off with each pass near the sun, continuing in an *almost* identical orbit, either slightly ahead-or-behind the object's main nucleus. While both the dust and ion tails are blown well off of the main orbit, the small pieces that break off are stretched, over time, into a diffuse ellipse following the same orbit as the comet or asteroid it arose from. And each time the Earth crosses the path of that orbit, the potential for a meteor shower is there, *even after* the parent comet or asteroid is completely gone!



NASA / JPL-Caltech / W. Reach (SSC/Caltech), of Comet 73P/Schwassman-Wachmann 3, via NASA's Spitzer Space Telescope, 2006.

Desert Sky Observer

This relationship was first uncovered by the British astronomer John Couch Adams, who found that the Leonid dust trail must have an orbital period of 33.25 years, and that the contemporaneously discovered comet Tempel-Tuttle shared its orbit. The most famous meteor showers in the night sky all have parent bodies identified with them, including the Lyrids (comet Thatcher), the Perseids (comet Swift-Tuttle), and what promises to be the best meteor shower of 2014: the Geminids (asteroid 3200 Phaethon). With an orbit of *only* 1.4 years, the Geminids have increased in strength since they first appeared in the mid-1800s, from only 10-to-20 meteors per hour up to *more than* 100 per hour at their peak today! Your best

bet to catch the most is the night of December 13th, when they ought to be at maximum, before the Moon rises at about midnight.

The cometary (or asteroidal) dust density is always greatest around the parent body itself, so whenever it enters the inner solar system and the Earth passes near to it, there's a chance for a **meteor storm**, where observers at dark sky sites might see *thousands* of meteors an hour! The Leonids are well known for this, having presented spectacular shows in 1833, 1866, 1966 and a longer-period storm in the years 1998-2002. No meteor storms are anticipated for the immediate future, but the heavenliest of showers will continue to delight skywatchers for all the foreseeable years to come!

What's the best way to see a meteor shower? Check out this article to find out: <http://www.nasa.gov/jpl/asteroids/best-meteor-showers>.

Kids can learn all about meteor showers at NASA's Space Place: <http://spaceplace.nasa.gov/meteor-shower>.

December Sky Data

Full
Dec 6Last Qtr
Dec 14New
Dec 21First Qtr
Dec 28

Best time for deep sky observing this month:
December 9 through December 27

Mercury passes in front of the Sun on December the 8th, so will not be visible until its very end when it might just be glimpsed low in the south-west after Sunset. It will be seen down to the lower right of Venus on New Year's Eve its magnitude will be -0.8 and be 3.5 degrees away from Venus so they will be seen in the field of a pair of low power binoculars.

Venus is now an evening object setting 45 minutes after the Sun as the month begins and increasing to 75 minutes at its end. Towards the New Year it should be easy to spot low above the southwestern horizon

Mars is moving eastwards relative to the stars and crosses from Sagittarius into Capricornus on the 4th. On the evening of the 3rd it will lie less than 1/3 of a degree from M75. It is best observed as darkness falls, low above the south western horizon. Given its low elevation, no details will be seen on its salmon-pink surface.

Jupiter rises at around 22:00 at the beginning of the month lying around 10 degrees up to the right of Regulus in Leo. By the end of the month it rises at ~20:00 with a slight increase in magnitude to -2.5. It will then be due south and so highest in the sky at an elevation of 53 degrees at around 05:30.

Saturn, having passed behind the Sun on the 18th of November, is now a morning object, rising an hour before sunrise as the month begins but three hours before at its end. It is lying in Libra moving eastwards above Antares and the stars that mark the head of Scorpius. It will be shining at magnitude +0.5 and be high enough in the south-east before dawn to make out the beautiful ring system which has now opened out to ~24 degrees.

The Geminid **meteor shower** should peak on the night of December 13-14. The night before (December 12-13) may offer a decent sprinkling of meteors as well.

Geminid meteors tend to be few and far between at early evening, but intensify in number as evening deepens into late night. A last quarter moon will rise around midnight, but Geminid meteors are bright!

Sun and Moon Rise and Set

Date	Moonrise	Moonset	Sunrise	Sunset
12/1/2014	13:38	01:34	06:40	16:40
12/5/2014	16:28	05:44	06:44	16:40
12/10/2014	20:53	09:47	06:48	16:40
12/15/2014	00:28	12:31	06:51	16:42
12/20/2014	05:18	15:56	06:54	16:44
12/25/2014	09:42	21:16	06:56	16:46
12/31/2014	13:40	02:36	06:58	16:51

Planet Data

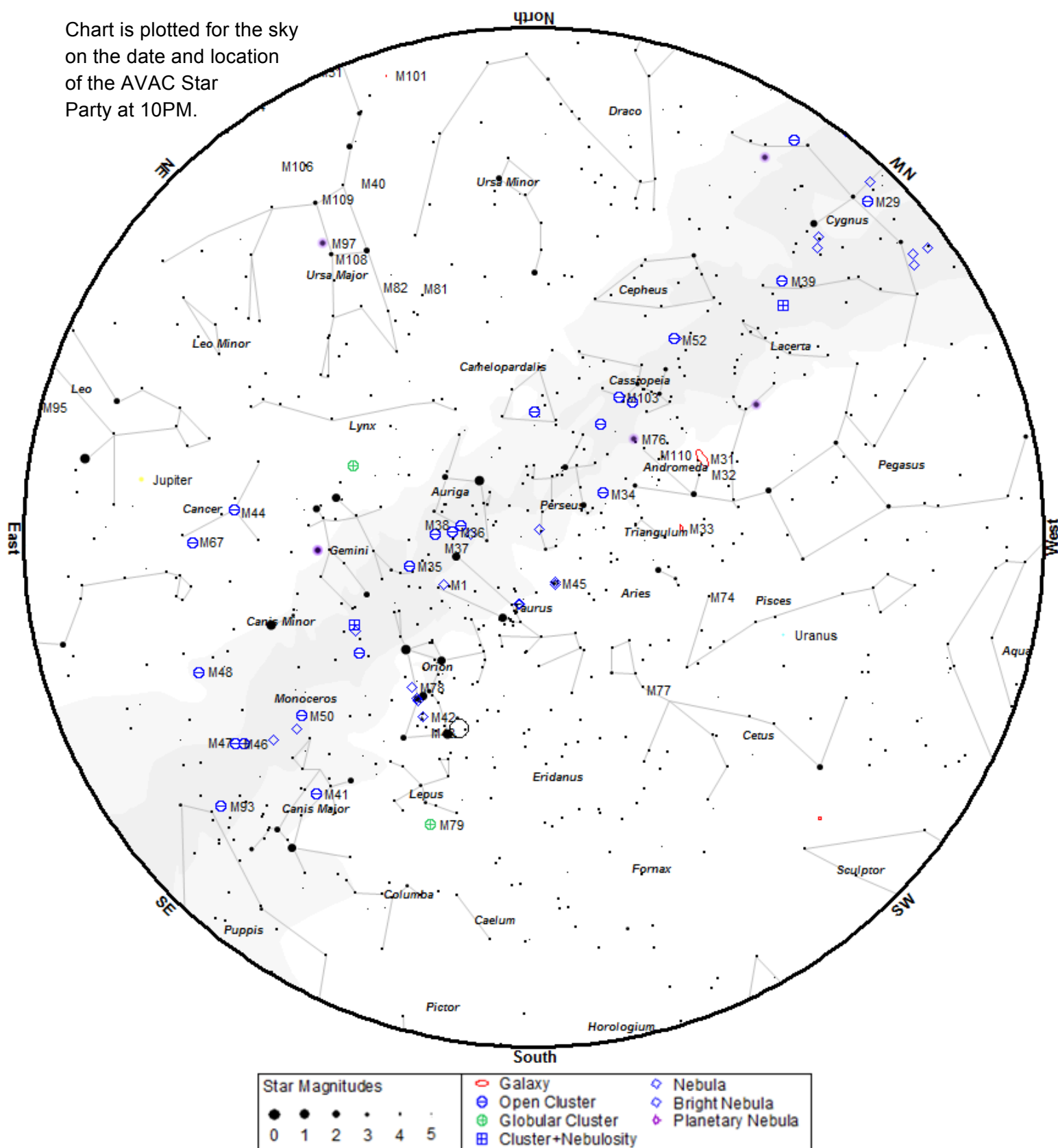
Dec 1				
	Rise	Transit	Set	Mag
Mercury	06:22	11:27	16:30	-1.0
Venus	07:22	12:20	17:20	-3.9
Mars	10:03	15:08	20:12	1.0
Jupiter	21:58	04:47	11:36	-2.3
Saturn	05:32	10:48	16:08	0.5

Dec 15				
	Rise	Transit	Set	Mag
Mercury	07:14	12:04	16:59	-1.0
Venus	07:46	12:42	17:39	-3.9
Mars	09:45	14:58	20:11	1.1
Jupiter	21:02	03:52	10:41	-2.4
Saturn	04:44	10:00	15:19	0.5

Dec 31				
	Rise	Transit	Set	Mag
Mercury	07:56	12:53	17:53	-0.8
Venus	08:03	13:06	18:10	-3.9
Mars	09:20	14:45	20:09	1.1
Jupiter	19:56	02:46	09:36	-2.5
Saturn	03:50	09:04	14:22	0.6

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.



Suggested Observing List

The list below contains objects that will be visible on the night of the AVAC star party. 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 7009	PNe	Aqr	21h04m10.9s	-11°21'48"	8.3	17:52	18:14	19:22	obvious
M 30	Glob	Cap	21h40m22.0s	-23°10'42"	6.9	18:00	18:14	18:49	detectable
NGC 6543	PNe	Dra	17h58m33.4s	+66°37'59"	8.3	17:48	18:16	22:11	obvious
M 27	PNe	Vul	19h59m36.3s	+22°43'16"	7.3	18:00	18:16	18:28	easy
NGC 6871	Open	Cyg	20h05m59.0s	+35°46'36"	5.8	17:58	18:18	19:02	easy
NGC 6910	Open	Cyg	20h23m12.0s	+40°46'42"	7.3	17:56	18:18	19:30	easy
M 29	Open	Cyg	20h23m57.0s	+38°30'30"	7.5	17:58	18:18	19:26	easy
NGC 7293	PNe	Aqr	22h29m38.5s	-20°50'14"	6.3	18:00	18:18	19:25	detectable
M 2	Glob	Aqr	21h33m27.0s	-00°49'24"	6.6	18:01	18:18	18:55	detectable
M 15	Glob	Peg	21h29m58.0s	+12°10'00"	6.3	17:59	18:19	19:31	easy
M 39	Open	Cyg	21h31m48.0s	+48°26'00"	5.3	17:56	18:21	20:54	easy
IC 5146	Neb	Cyg	21h53m24.0s	+47°16'00"	10.0	17:56	18:22	21:13	very challenging
NGC 7160	Open	Cep	21h53m40.0s	+62°36'12"	6.4	17:51	18:22	21:51	obvious
IC 1396	Neb	Cep	21h39m06.0s	+57°30'00"		17:57	18:22	21:23	very challenging
NGC 7243	Open	Lac	22h15m08.0s	+49°53'54"	6.7	17:59	18:22	20:53	detectable
NGC 55	Gal	Scl	00h15m08.4s	-39°13'13"	8.5	18:04	18:23	19:19	challenging
M 52	Open	Cas	23h24m48.0s	+61°35'36"	8.2	18:01	18:27	21:37	detectable
NGC 7789	Open	Cas	23h57m24.0s	+56°42'30"	7.5	18:00	18:29	21:54	detectable
NGC 7790	Open	Cas	23h58m24.0s	+61°12'30"	7.2	17:52	18:30	23:52	easy
M 110	Gal	And	00h40m22.3s	+41°41'09"	8.9	17:59	18:39	22:27	detectable
M 31	Gal	And	00h42m44.3s	+41°16'07"	4.3	17:56	18:40	23:15	easy
M 32	Gal	And	00h42m41.8s	+40°51'58"	8.9	17:56	18:40	23:18	easy
NGC 253	Gal	Scl	00h47m33.1s	-25°17'20"	7.9	18:19	18:42	19:04	detectable
NGC 288	Glob	Scl	00h52m45.0s	-26°35'00"	8.1	18:07	18:47	20:18	challenging
NGC 457	Open	Cas	01h19m35.0s	+58°17'12"	5.1	17:54	19:13	01:05	obvious
NGC 559	Open	Cas	01h29m31.0s	+63°18'24"	7.4	17:54	19:23	01:30	easy
M 103	Open	Cas	01h33m23.0s	+60°39'00"	6.9	17:52	19:27	01:26	obvious
M 33	Gal	Tri	01h33m50.9s	+30°39'36"	6.4	17:58	19:27	23:19	detectable
M 76	PNe	Per	01h42m19.9s	+51°34'31"	10.1	17:59	19:36	23:59	detectable
NGC 637	Open	Cas	01h43m04.0s	+64°02'24"	7.3	17:51	19:37	01:45	obvious
NGC 663	Open	Cas	01h46m09.0s	+61°14'06"	6.4	17:54	19:40	01:39	easy
NGC 752	Open	And	01h57m41.0s	+37°47'06"	6.6	18:09	19:51	22:13	challenging
NGC 869	Open	Per	02h19m00.0s	+57°07'42"	4.3	17:51	20:12	02:02	obvious
NGC 884	Open	Per	02h22m18.0s	+57°08'12"	4.4	17:52	20:16	02:05	obvious
NGC 957	Open	Per	02h33m21.0s	+57°33'36"	7.2	17:56	20:27	02:03	easy
Heart Neb	Neb	Cas	02h33m52.0s	+61°26'50"	6.5	18:10	20:28	23:27	challenging
M 34	Open	Per	02h42m05.0s	+42°45'42"	5.8	17:59	20:36	01:03	easy
M 77	Gal	Cet	02h42m40.8s	-00°00'48"	9.7	18:03	20:36	23:46	detectable

ID	Cls	Con	RA 2000	Dec 2000	Mag	Begin	Best	End	Difficulty
NGC 1027	Open	Cas	02h42m40.0s	+61°35'42"	7.4	18:00	20:37	01:19	detectable
NGC 1245	Open	Per	03h14m42.0s	+47°14'12"	7.7	18:51	21:08	23:26	challenging
NGC 1342	Open	Per	03h31m38.0s	+37°22'36"	7.2	18:00	21:25	01:45	detectable
M 45	Open	Tau	03h47m00.0s	+24°07'00"	1.5	17:56	21:40	02:17	obvious
NGC 1444	Open	Per	03h49m25.0s	+52°39'30"	6.4	17:52	21:43	03:22	obvious
NGC 1502	Open	Cam	04h07m50.0s	+62°19'54"	4.1	17:50	22:02	04:05	obvious
NGC 1528	Open	Per	04h15m23.0s	+51°12'54"	6.4	18:00	22:09	03:25	easy
NGC 1647	Open	Tau	04h45m55.0s	+19°06'54"	6.2	19:16	22:39	02:01	detectable
NGC 1664	Open	Aur	04h51m06.0s	+43°40'30"	7.2	18:04	22:44	03:49	easy
NGC 1746	Open	Tau	05h03m50.0s	+23°46'12"	6.1	19:28	22:57	02:28	detectable
NGC 1851	Glob	Col	05h14m06.0s	-40°02'48"	7.1	21:51	23:07	00:23	difficult
M 38	Open	Aur	05h28m40.0s	+35°50'54"	6.8	19:04	23:22	03:41	detectable
M 36	Open	Aur	05h36m18.0s	+34°08'24"	6.5	18:31	23:27	04:28	easy
M 43	Neb	Ori	05h35m30.0s	-05°16'00"	9.0	21:18	23:28	01:38	difficult
M 1	Neb	Tau	05h34m30.0s	+22°01'00"	8.4	20:44	23:28	02:10	difficult
M 42	Neb	Ori	05h35m18.0s	-05°23'00"	4.0	20:18	23:28	02:39	easy
IC 434	Neb	Ori	05h41m00.0s	-02°27'00"	11.0	20:12	23:34	02:55	very challenging
M 78	Neb	Ori	05h46m48.0s	+00°05'00"	8.0	21:29	23:39	01:51	difficult
M 37	Open	Aur	05h52m18.0s	+32°33'12"	6.2	18:58	23:46	04:33	easy
NGC 2129	Open	Gem	06h01m07.0s	+23°19'20"	7.0	19:19	23:54	04:29	obvious
NGC 2169	Open	Ori	06h08m24.0s	+13°57'54"	7.0	19:49	00:01	04:13	obvious
M 35	Open	Gem	06h09m00.0s	+24°21'00"	5.6	19:37	00:02	04:27	easy
NGC 2175	Open	Ori	06h09m39.0s	+20°29'12"	6.8	20:15	00:03	03:51	detectable
NGC 2237	Neb	Mon	06h32m02.0s	+04°59'10"	5.5	22:26	00:25	02:24	challenging
NGC 2264	Open	Mon	06h40m58.0s	+09°53'42"	4.1	20:33	00:34	04:35	easy
M 41	Open	CMa	06h46m01.0s	-20°45'24"	5.0	23:02	00:38	02:17	easy
NGC 2301	Open	Mon	06h51m45.0s	+00°27'36"	6.3	21:13	00:44	04:17	easy
M 50	Open	Mon	07h02m42.0s	-08°23'00"	7.2	21:58	00:55	03:52	detectable
NGC 2353	Open	Mon	07h14m30.0s	-10°16'00"	5.2	22:19	01:07	03:55	easy
NGC 2360	Open	CMa	07h17m43.0s	-15°38'30"	9.1	23:41	01:10	02:41	challenging
NGC 2355	Open	Gem	07h16m59.0s	+13°45'00"	9.7	22:24	01:10	03:56	difficult
NGC 2392	PNe	Gem	07h29m10.8s	+20°54'42"	8.6	20:53	01:22	05:42	obvious
NGC 2393	Gal	Gem	07h30m04.6s	+34°01'40"	14.6	20:24	01:23	05:41	not visible
NGC 2423	Open	Pup	07h37m06.0s	-13°52'18"	7.0	23:01	01:30	03:59	easy
M 47	Open	Pup	07h36m35.0s	-14°29'00"	4.3	23:04	01:30	03:55	obvious
NGC 2439	Open	Pup	07h40m45.0s	-31°41'36"	7.1	23:19	01:33	03:47	detectable
M 46	Open	Pup	07h41m46.0s	-14°48'36"	6.6	23:11	01:35	03:58	detectable
NGC 2440	PNe	Pup	07h41m55.4s	-18°12'31"	11.5	23:35	01:35	03:34	detectable
M 93	Open	Pup	07h44m30.0s	-23°51'24"	6.5	00:40	01:37	02:34	easy
NGC 2451	Open	Pup	07h45m23.0s	-37°57'21"	3.7	23:38	01:37	03:36	easy
NGC 2477	Open	Pup	07h52m10.0s	-38°31'48"	5.7	23:51	01:44	03:38	easy
NGC 2506	Open	Mon	08h00m01.0s	-10°46'12"	8.9	23:51	01:52	03:53	difficult
NGC 2547	Open	Vel	08h10m09.0s	-49°12'54"	5.0	01:28	02:03	02:37	challenging
NGC 2546	Open	Pup	08h12m15.0s	-37°35'42"	5.2	00:49	02:05	03:19	difficult
NGC 2571	Open	Pup	08h18m56.0s	-29°45'00"	7.4	23:51	02:11	04:31	detectable

ID	Cls	Con	RA 2000	Dec 2000	Mag	Begin	Best	End	Difficulty
M 44	Open	Cnc	08h40m24.0s	+19°40'00"	3.9	22:23	02:33	05:40	easy
M 67	Open	Cnc	08h51m18.0s	+11°48'00"	7.4	23:43	02:44	05:29	detectable
M 81	Gal	UMa	09h55m33.1s	+69°03'56"	7.8	21:51	03:48	05:41	detectable
M 82	Gal	UMa	09h55m52.4s	+69°40'47"	9.0	21:31	03:49	05:42	detectable
NGC 3227	Gal	Leo	10h23m30.6s	+19°51'54"	11.5	01:06	04:16	05:38	difficult
M 97	PNe	UMa	11h14m47.7s	+55°01'09"	9.7	00:35	05:00	05:40	detectable

Astrophoto of The Month



M31 by Don Bryden

Taken from his driveway in Leona Valley using a SBIG ST10-XME camera, Stellarvue SV105 scope. 141 minutes of luminance and 45 minutes each of RGB

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.

AVAC

**P.O. BOX 8545,
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Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/

The Antelope Valley Astronomy Club, Inc. is a 501(c)(3) Non-Profit Corporation.

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Board Members

President:

Frank Moore (661) 972-4775
president@avastronomyclub.org

Vice-President:

Rose Moore (661) 972-1953
vice-president@avastronomyclub.org

Secretary:

Pam Grove
secretary@avastronomyclub.org

Treasurer:

Virgina Reed (661) 824-3932
treasurer@avastronomyclub.org

Director of Community Development:

Don Bryden (661) 270-0627
community@avastronomyclub.org

Appointed Positions

Newsletter Editor:

Steve Trotta (661) 269-5428
dso@avastronomyclub.org

Equipment & Library:

Bill Grove
library@avastronomyclub.org

Club Historian:

Tom Koonce (661) 943-8200
history@avastronomyclub.org

Webmaster:

Steve Trotta (661) 269-5428
webmaster@avastronomyclub.org

Astronomical League Coordinator:

Don Bryden (661) 270-0627
al@avastronomyclub.org

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