ANTELOPE VALLEY ASTRONOMY CLUB, INC.

Desert Sky Observer

Volume 35 *Antelope Valley Astronomy Club Newsletter* **May 2015**

Up-Coming Events

May 8: Club Meeting*
May 9: Prime Desert Moon Walk
May 16: Devil´s Punchbowl Telescope Night
May 21-25: Riverside Telescope Makers Conference
May 27: Acton Library Star Party

* Monthly meetings are held at the S.A.G.E. Planetarium 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

Gosh folks. Have we been busy? It seems like we've hardly stopped running since our last newsletter.

Our first April event was the near total lunar eclipse in the early morning hours of April 4. We had half a dozen telescopes, and an awesome pair of Oberwerk binoculars, set up in the parking lot of the SAGE Planetarium. There were about a dozen AVAC members who stayed throughout most of the event and approximately 20 members of the public drifted in and out. Between Darrell Bennett, and Rose and I, we had three "YumYum dozen" donuts (which really means 45). Jeremy Amarant had tea and hot cocoa in the lobby of the SAGE and we consumed most of a 42-cup percolator of coffee. As usual, Matt Leone whipped up his famous bacon and breakfast burritos. For those who missed it, the moon was quite striking as it set with red hue and still partially eclipsed.

On April 11 Jeremy Amarant and Darrell Bennett conducted a Beginner's Class at the SAGE Planetarium. This was followed by the monthly Moon Walk at Prime Desert Woodland Preserve. In spite of high winds, we shared some great planetary views with around 120 members of the public before the walk. Unfortunately, clouds rolled in during the walk which limited what we were able to share with the public afterward.

Then, the big weekend! We had our booth at the annual California Poppy Festival on the weekend of Saturday April 18 and Sunday April 19. For those of us setting up, the weekend started at 7:30 am on Saturday when we met to exchange to badges and parking passes in the Costco parking lot. I think our booth looked better than ever and the volunteers did an outstanding job of sharing information about the club and astronomy with the public. We had a great crop of telescopes sharing views of the sun in both white light and with hydrogen-alpha filters and we were also able to share daytime views of Venus and Jupiter. I want to offer my heartfelt thanks to my wife Rose, Don Bryden, Darrell Bennett, Bob Ayres, Judy Fuentes, Robert Lynch Jr., Bill Schebeck, Bill and Pam Grove, Ann Coleal, Jim Pendleton, Kennedy Carr, and Matt Leone for all of their help. We couldn't have done it without all of you.

Finally, our last event of April of was the Star Party for the youth at Edwards Air Force Base on the night of Friday April 24. This was part of their annual "Youth Lock In" and it was attended by youth from Edwards AFB, Los Angeles Air Force Base, and Nellis Air Force Base in Las Vegas. Though wind and clouds threatened the event, we still managed to share views of some objects through the holes in the clouds. Kevin Reilly barbequed brats and peppers and steaks to fortify us for the blustery night and we were also able to snack on the spaghetti feed and other goodies they had for the teens. We had the display board set up inside the Edwards Youth Center, and Rose Moore and Ann Coleal were available to answer questions and hand out literature. Meanwhile, Keven Reilly, Jim Pendleton, Bob Ayres and I braved the cold and wind to man the telescopes outside. Though the weather was sketchy, I think we did a good job and we laid the groundwork for some other events, maybe a day of solar observing, at the Edwards Youth Center in the future.

Events coming up in May include the College of the Canyons Spring Star Party on Friday May 1, the club meeting on Friday May 8, a Prime Desert Woodland Moonwalk on Saturday May 9, and the Riverside Telescope Makers Conference (RTMC), at YMCA Camp Oakes from Thursday May 21 through Sunday May 25.

Some members are going up to Big Bear for RTMC but the club is not sponsoring, having a booth, or having an organized presence at RTMC this year. Don Bryden and Matt Leone are attending but are staying at the cabins of friends or family in Big Bear City rather than at Camp Oakes. I believe Darrell Bennett will be camping at Camp Oakes. If you are planning on attending, for just a day or to spend multiple nights, you may want to contact them to have a possible "meet up". Rose and I are unable to attend since our daughter Hannah graduates from the University of Arizona on May 16 and then starts a job with the Oregon Department of Environmental Quality on May 25. We will be busy attending her graduation and helping her get moved to Oregon.

Due to RTMC, we usually don't attempt to schedule a Dark Sky Star Party in May. For those who might want to attend organized astronomy events on the new moon weekend, The Local Group Astronomy Club of Santa Clarita Valley (LGSCV) will be having their monthly star party at Chuchupate (Lockwood Valley) on Saturday May 16 and the rangers at Devils Punchbowl County Park will be also be having their telescope night on Saturday May 16.

Mark your calendars. Our first big multi-night star party of the year will be held at Chuchupate in the Lockwood Valley the weekend of June 20. Some of us are planning on going up as early as Thursday June 18 and possibly staying as late as Monday June 22. We're making plans for big group meals as is the custom of the Antelope Valley "Gastronomy" Club. Everyone who wants to enjoy at least a night or two of truly dark sky astronomy, and the friendship and fellowship of other AVAC members, should plan on attending for at least one night. I hope to see many of you there.

I wish you clear…and dark…skies.

Vice President

Don Bryden

Our speaker this month is Dr. David Lynch. David has spoken to the club on several occasions on such topics as Asteroid Impacts, Color & Light in Nature and Intelligent Life in the universe.

During one meeting, he gave us a sneak peak of his talk on the San Andreas Fault. Entitled, “Field Guide to the San Andreas Fault” the presentation will ask and answer many questions about our ubiquitous crack such as what is the San Andreas Fault? Where is it? How can I see? What does it do to the landscape? Will an earthquake make California fall into the ocean? What risks does it pose? Should I worry about it? What towns lie on the fault? When is the "big one" coming?

So come out and support your club and check out Dave’s talk! Remember, too, that the meeting will be your last chance to sign up for our Mt. Wilson trip. This is our first chance to view through the 100” Hooker Telescope. We’ll be heading up the mountain on Saturday, October 10th but you must sign up by the meeting on the 8th and pay before the June meeting. Because of the high cost of this trip, you must pay in full by June or your slot will be given away. The fee is $150 and the club has decided not to defray any of the cost since only eighteen of us will get to go, so sign up fast!

Finally, the annual Summer Star-B-Que is fast approaching. We will be heading up to Brite Lake in Tehachapi on Saturday, July 11th for our picnic and star party. Start thinking about donating to the club for the silent auction and raffle. Items need not be astronomy related so clean out those attics and garages and lets have a great Star-B-Cue!

Secretary

Rose Moore

Just a reminder, that the deadline for placing your name on the list for the Mt. Wilson trip is Friday, May 8th (our next meeting). You may call me, or email me, to place your name on the list. You do not have to be present at the meeting. If we have too many names, then we will draw names for the trip later in May. The trip is open to members, age 12 and older, and costs $150 per person. Payment will be due in June. The trip is scheduled for Saturday, Oct. 10th. If you have any questions please contact me.

Many thanks to all that came out to help at the Poppy Festival. Those who manned the telescopes deserve a special thank you! The weather was warm and sunny, so people got pretty 'toasty'! A special thanks to Judy Fuentes who came early in the morning, and stayed till the end for both days. I greatly appreciated this, as I couldn't stay for the whole day, either day. Thanks to all for bringing drinks, muffins, donuts, breakfast burritos, cake, and other snacks to help us get through the long days.

I would like to thank those that came out and attended the Teen Star Party at Edwards this past Friday. We were unsure if we should cancel due to the weather, but decided to head on out and see how things developed. Two large RV's were set up to help block the wind, and Jim P., Kevin, Bob A., Bill S., and

Frank set up telescopes. Thanks to Kevin for providing us with some delicious BBQ! Frank's large educational board, books, handouts, charts, etc. were set up on a table in the Youth Center's computer room. We did not have many visit us there, but did talk to a few of the students and a few handouts were given. See other's notes above.

Space Place

Is the Most Massive Star Still Alive?

By Ethan Siegel

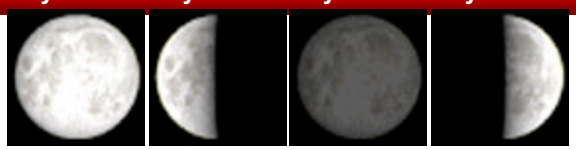
The brilliant specks of light twinkling in the night sky, with more and more visible under darker skies and with larger telescope apertures, each have their own story to tell. In general, a star's color correlates very well with its mass and its total lifetime, with the bluest stars representing the hottest, most massive and shortest-lived stars in the universe. Even though they contain the most fuel overall, their cores achieve incredibly high temperatures, meaning they burn through their fuel the fastest, in only a few million years instead of roughly ten billion like our sun.

Because of this, it's only the youngest of all star clusters that contain the hottest, bluest stars, and so if we want to find the most massive stars in the universe, we have to look to the largest regions of space that are actively forming them right now. In our local group of galaxies, that region doesn't belong to the giants, the Milky Way or Andromeda, but to the Large Magellanic Cloud (LMC), a small, satellite galaxy (and fourth-largest in the local group) located 170,000 light years distant.

Despite containing only one percent of the mass of our galaxy, the LMC contains the Tarantula Nebula (30 Doradus), a star-forming nebula approximately 1,000 light years in size, or roughly seven percent of the galaxy itself. You'll have to be south of the Tropic of Cancer to observe it, but if you can locate it, its center contains the super star cluster NGC 2070, holding more than 500,000 unique stars, including many hundreds of spectacular, bright blue ones. With a maximum age of two million years, the stars in this cluster are some of the youngest and most massive ever found.

At the center of NGC 2070 is a very compact concentration of stars known as R136, which is responsible for most of the light illuminating the entire Tarantula Nebula. Consisting of no less than 72 O-class and Wolf-Rayet stars within just 20 arc seconds of one another, the most massive is R136a1, with 260 times the sun's mass and a luminosity that outshines us by a factor of seven million. Since the light has to travel 170,000 light years to reach us, it's quite possible that this star has already died in a spectacular supernova, and might not even exist any longer! The next time you get a good glimpse of the southern skies, look for the most massive star in the universe, and ponder that it might not even still be alive.

May Sky Data



Best time for deep sky observing this month:
May 8 through May 21

Mercury can be seen about an hour after sunset a few degrees west of the Pleiades Cluster It will gradually rise higher in the sky until the 7th of May when it reaches its greatest elongation east of ~22 degrees - the highest it will have been all spring.

Venus starts the month in Taurus, but climbs up into Gemini passing the star Epsilon Geminorum on the 16th. It will reach greatest elongation from the Sun on June 6th. It brightens from -4.1 to -4.3 during the month and as it does so, its angular size increases from 16 to 22 arc seconds while its illuminated phase shrinks from 67% to 53%.

Mars, having graced our evening skies for many months is now finally sinking down into the Sun's glare. It may just be glimpsed around the 1st of the month lying about 9 degrees below the Pleides cluster shining at magnitude +1.4. With an angular size of just 3.8 arc seconds, no details will be seen on its, fully illuminated, salmon pink surface.

Jupiter is now somewhat past its best, but still stands out in the South to South-west at nightfall Its brightness falls slightly from magnitude -2.2 to -2.0 while its angular size drops from 38 to 35 arc seconds. It reaches eastern quadrature (90 degrees east of the Sun) on May 4th giving rise to excellent views of the eclipses of the Galilean satellites.

Saturn reaches opposition on the 23rd of May, so it will be visible for most of the hours of darkness. The beautiful ring system has now opened out to ~24 degrees - virtually as open as they ever become. Saturn brightens to magnitude 0.1, Its globe spans 18.5 arc seconds across and the ring system 42 arc seconds.

The Eta Aquarids are one of the finest **meteor showers** that can be seen from the southern hemisphere, but may be glimpsed in the pre-dawn sky in the south-east around 90 minutes before dawn. They are expected to peak on the morning of the 6th. A waning gibbous Moon will hinder our view somewhat so only the brighter meteors will be seen.

Sun and Moon Rise and Set

Date	Moonrise	Moonset	Sunrise	Sunset
5/1/2015	18:35	05:42	07:01	20:36
5/5/2015	22:20	08:12	06:57	20:40
5/10/2015	01:46	12:50	06:53	20:44
5/15/2015	05:10	18:20	06:49	20:47
5/20/2015	09:10	23:24	06:45	20:51
5/25/2015	13:45	02:07	06:43	20:55
5/31/2015	19:13	05:26	06:40	20:59

Planet Data

May 1

	Rise	Transit	Set	Mag
Mercury	06:51	14:07	21:25	-0.2
Venus	08:17	15:43	23:11	-4.1
Mars	06:31	13:34	20:37	1.4
Jupiter	12:19	19:17	02:16	-2.2
Saturn	21:04	02:18	07:31	0.1

May 15

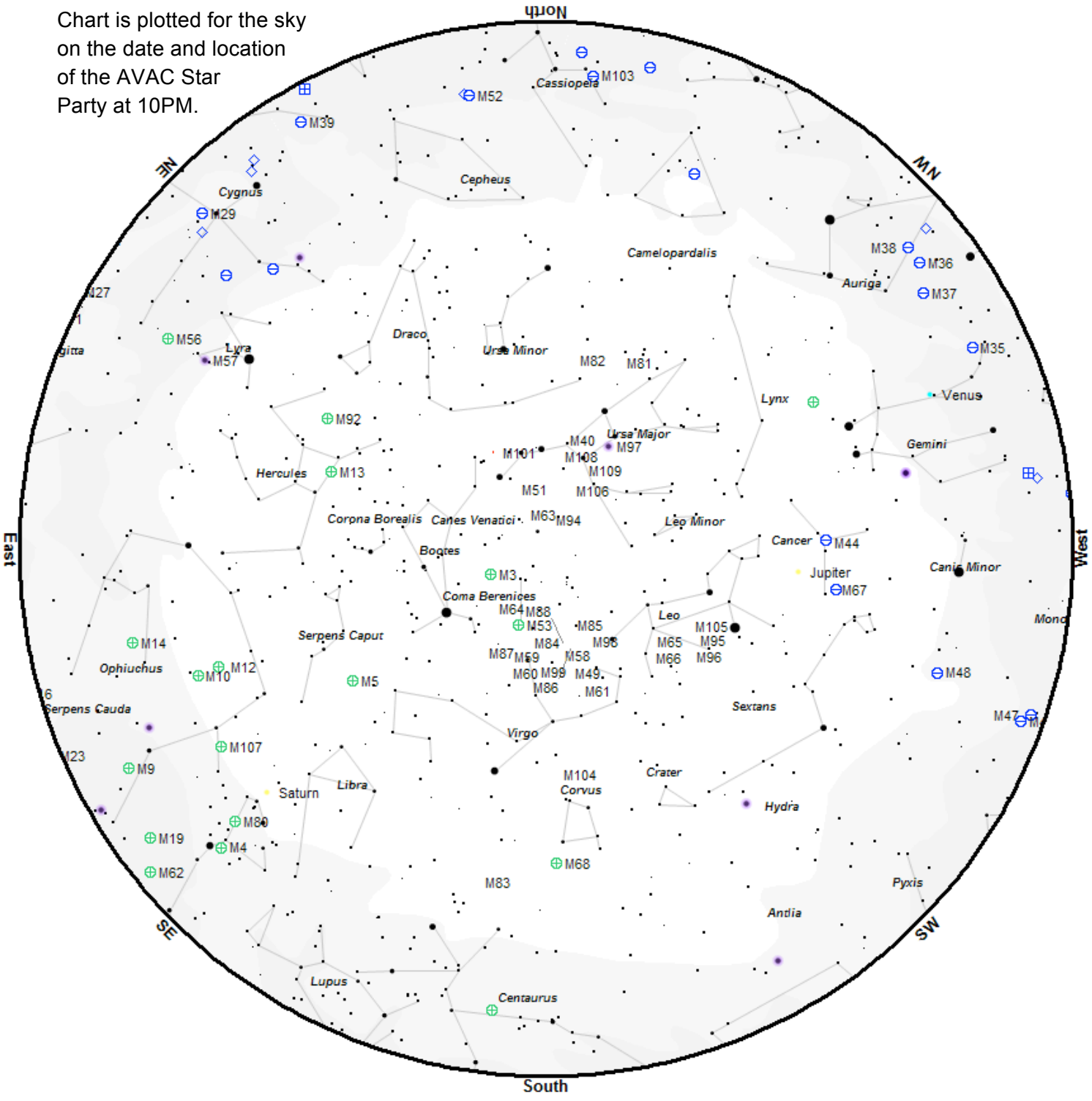
	Rise	Transit	Set	Mag
Mercury	06:40	14:02	21:23	1.8
Venus	08:30	15:57	23:25	-4.2
Mars	06:09	13:20	20:31	1.5
Jupiter	11:26	18:27	01:24	-2.1
Saturn	20:04	01:18	06:33	0.1

May 31

	Rise	Transit	Set	Mag
Mercury	05:35	12:43	19:46	5.5
Venus	08:47	16:06	23:26	-4.3
Mars	05:47	13:05	20:22	1.5
Jupiter	10:33	17:32	00:27	-2.0
Saturn	18:56	00:11	05:26	0.1

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						Galaxy	Nebula
0	1	2	3	4	5	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 of the May 16. 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 3132	PNe	Vel	10h07m01.8s	-40°26'11"	8.2	20:57	21:13	21:38	easy
NGC 3132	PNe	Vel	10h07m01.8s	-40°26'11"	8.2	20:57	21:13	21:38	easy
NGC 3242	PNe	Hya	10h24m46.1s	-18°38'32"	8.6	20:58	21:25	21:36	obvious
M 67	Open	Cnc	08h51m18.0s	+11°48'00"	7.4	21:12	21:28	22:07	detectable
M 44	Open	Cnc	08h40m24.0s	+19°40'00"	3.9	21:05	21:29	22:20	easy
NGC 3227	Gal	Leo	10h23m30.6s	+19°51'54"	11.5	21:10	21:33	23:03	difficult
M 65	Gal	Leo	11h18m55.7s	+13°05'32"	10.1	21:07	21:36	00:00	detectable
M 66	Gal	Leo	11h20m14.9s	+12°59'30"	9.7	21:08	21:37	00:01	detectable
M 82	Gal	UMa	09h55m52.4s	+69°40'47"	9.0	21:08	21:39	01:30	detectable
M 81	Gal	UMa	09h55m33.1s	+69°03'56"	7.8	21:09	21:40	01:15	detectable
M 97	PNe	UMa	11h14m47.7s	+55°01'09"	9.7	21:10	21:41	00:55	detectable
3C 273.0	QSO	Vir	12h29m06.7s	+02°03'08"	12.8	21:00	21:48	01:02	difficult
3C 273.0	QSO	Vir	12h29m06.7s	+02°03'08"	12.8	21:00	21:48	01:02	difficult
M 84	Gal	Vir	12h25m03.9s	+12°53'12"	10.1	21:09	21:49	00:52	detectable
M 106	Gal	CVn	12h18m57.6s	+47°18'13"	9.1	21:10	21:50	01:30	detectable
M 86	Gal	Vir	12h26m12.2s	+12°56'44"	9.8	21:10	21:50	00:36	detectable
Col 256	Open	Com	12h25m06.0s	+26°06'00"	2.9	21:05	21:51	01:52	easy
M 49	Gal	Vir	12h29m46.8s	+08°00'01"	9.3	21:07	21:51	00:54	detectable
M 87	Gal	Vir	12h30m49.2s	+12°23'29"	9.6	21:08	21:52	00:58	detectable
M 68	Glob	Hya	12h39m28.0s	-26°44'36"	7.3	21:09	21:55	23:52	detectable
NGC 4565	Gal	Com	12h36m20.8s	+25°59'15"	10.1	21:10	21:56	01:00	difficult
M 104	Gal	Vir	12h39m59.3s	-11°37'22"	9.1	21:06	21:56	00:35	detectable
M 94	Gal	CVn	12h50m53.1s	+41°07'12"	8.7	21:06	22:07	02:26	detectable
M 64	Gal	Com	12h56m43.8s	+21°41'00"	9.3	21:07	22:11	01:50	detectable
NGC 5128	Gal	Cen	13h25m27.7s	-43°01'07"	7.8	21:16	22:40	00:09	challenging
NGC 5139	Glob	Cen	13h26m46.0s	-47°28'36"	3.9	22:11	22:40	23:10	challenging
NGC 5195	Gal	CVn	13h29m59.6s	+47°15'58"	10.5	21:11	22:43	02:39	detectable
M 51	Gal	CVn	13h29m52.3s	+47°11'40"	8.7	21:07	22:44	03:21	easy
M 83	Gal	Hya	13h37m00.8s	-29°51'56"	7.8	21:13	22:51	00:52	detectable
M 3	Glob	CVn	13h42m11.0s	+28°22'42"	6.3	21:07	22:55	03:00	easy
M 101	Gal	UMa	14h03m12.4s	+54°20'53"	8.4	21:14	23:17	03:16	detectable
M 5	Glob	Ser	15h18m34.0s	+02°05'00"	5.7	21:19	00:32	03:55	easy
NGC 5897	Glob	Lib	15h17m24.0s	-21°00'36"	8.4	22:57	00:31	02:06	challenging
NGC 5986	Glob	Lup	15h46m03.0s	-37°47'12"	7.6	23:47	00:59	02:12	difficult
M 80	Glob	Sco	16h17m02.0s	-22°58'30"	7.3	00:18	01:31	02:41	detectable
NGC 6124	Open	Sco	16h25m20.0s	-40°39'12"	6.3	23:57	01:39	03:21	challenging
NGC 6167	Open	Nor	16h34m34.0s	-49°46'18"	6.6	01:23	01:48	02:13	challenging
NGC 6178	Open	Sco	16h35m47.0s	-45°38'36"	7.2	00:48	01:49	02:50	detectable

ID	Cls	Con	RA 2000	Dec 2000	Mag	Begin	Best	End	Difficulty
M 13	Glob	Her	16h41m41.0s	+36°27'36"	5.8	21:29	01:55	04:28	easy
NGC 6193	Open	Ara	16h41m20.0s	-48°45'48"	5.4	01:17	01:55	02:32	difficult
M 12	Glob	Oph	16h47m14.0s	-01°56'48"	6.1	22:41	02:00	04:27	easy
M 10	Glob	Oph	16h57m09.0s	-04°06'00"	6.6	23:19	02:10	04:22	detectable
M 62	Glob	Oph	17h01m13.0s	-30°06'48"	6.4	00:17	02:14	04:10	detectable
M 19	Glob	Oph	17h02m38.0s	-26°16'06"	6.8	00:19	02:16	04:10	detectable
M 92	Glob	Her	17h17m07.0s	+43°08'12"	6.5	21:53	02:30	04:29	easy
M 9	Glob	Oph	17h19m12.0s	-18°31'00"	7.8	00:35	02:32	04:18	difficult
NGC 6322	Open	Sco	17h18m25.0s	-42°56'00"	6.5	01:01	02:32	04:01	easy
NGC 6383	Open	Sco	17h34m48.0s	-32°34'00"	5.4	00:41	02:48	04:26	easy
M 14	Glob	Oph	17h37m36.0s	-03°14'48"	7.6	00:03	02:51	04:25	detectable
M 6	Open	Sco	17h40m20.0s	-32°15'12"	4.6	00:33	02:53	04:30	easy
IC 4665	Open	Oph	17h46m18.0s	+05°43'00"	5.3	00:06	03:00	04:25	detectable
M 7	Open	Sco	17h53m51.0s	-34°47'36"	3.3	01:10	03:07	04:29	detectable
M 23	Open	Sgr	17h57m04.0s	-18°59'06"	5.9	01:16	03:10	04:27	detectable
NGC 6543	PNe	Dra	17h58m33.4s	+66°37'59"	8.3	21:03	03:10	04:39	obvious
M 20	Open	Sgr	18h02m42.0s	-22°58'18"	5.2	02:04	03:16	04:28	easy
M 21	Open	Sgr	18h04m13.0s	-22°29'24"	7.2	01:59	03:17	04:27	detectable
M 8	Neb	Sgr	18h04m02.0s	-24°23'14"	5.0	02:30	03:17	04:05	easy
NGC 6572	PNe	Oph	18h12m06.4s	+06°51'12"	8.0	23:33	03:24	04:42	obvious
M 16	Open	Ser	18h18m48.0s	-13°48'24"	6.5	01:02	03:31	04:34	obvious
M 17	Open	Sgr	18h20m47.0s	-16°10'18"	7.3	01:32	03:32	04:24	difficult
M 18	Open	Sgr	18h19m58.0s	-17°06'06"	7.5	01:24	03:32	04:33	easy
NGC 6633	Open	Oph	18h27m15.0s	+06°30'30"	5.6	23:49	03:37	04:32	easy
IC 4756	Open	Ser	18h39m00.0s	+05°27'00"	5.4	00:30	03:44	04:30	easy
M 57	PNe	Lyr	18h53m35.1s	+33°01'45"	9.4	23:24	03:48	04:32	easy
M 56	Glob	Lyr	19h16m36.0s	+30°11'06"	8.4	01:02	03:52	04:25	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.

AVAC
P.O. BOX 8545,
LANCASTER, CA 93539-8545

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.

The A.V.A.C. is a Sustaining Member of The Astronomical League and the International Dark-Sky Association.

Board Members

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

Vice-President:
Don Bryden (661) 270-0627
vice-president@avastronomyclub.org

Secretary:
Rose Moore (661) 972-1953
secretary@avastronomyclub.org

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

Director of Community Development:
Robert Lynch, Jr.
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

Our Sponsors

Thank you to our sponsors for your generous support!

Cosmos Level Sponsors

LOCKHEED MARTIN
We never forget who we're working for™

Woodland Hills Camera
5348 Topanga Canyon Blvd., Woodland Hills
888-427-8766.
www.telescopes.net

Universe Level Sponsors

Galaxy Level Sponsors

ASTRO-TOM.COM

ActonAstro

Al's Vacuum and Sewing
904 West Lancaster Blvd., Lancaster
(661) 948-1521