ANTELOPE VALLEY ASTRONOMY CLUB, INC.

Desert Sky Observer

Volume 31 *Antelope Valley Astronomy Club Newsletter* **February 2011**

Up-Coming Events

February 5: Dark Sky Star Party @ Two Goats Observatory
February 11: Club Meeting*
February 14: Board meeting @ Don's house
February 23: Acton Library Astronomy Lecture and Star Party @ Acton Library

* 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

Don Bryden

I hope this reaches everyone in time for the star party on the 5th. We'll have a lunar/Messier challenge with a prize going to the observer who bags the most objects and lunar features. Additionally, I hope to have a working prototype of the 20" AINA scope with the dob conversion. If all works as planned, we'll have an easily transportable set up for the 20" scope. We'll be able to take it to all star parties and outreach events.

If not it should definitely be ready for the March star party at Devil's Punchbowl. The Punchbowl rangers will be hosting another telescope night so come out and join them for an evening of stars and hot chocolate. Of course, even if the 20" is ready for March, there's no way I'm lugging it up and down those steps to the observing pad! So maybe we'll see it at…

The Messier Marathon! Mark your calendar 'cause we'll be at Saddleback Butte for a cookout and star party. Just enjoy the dark skies and good company or grab a log sheet and test your star-hopping skills. Come early 'cause the club will be cooking burgers and hotdogs.

Let's not forget the outreach events. This Wednesday we'll start things off at the Acton library at 6:30 then in March the Prime Desert Moonwalks return with Jeremy and the gang. Come out to the PDW parking lot around sunset on the 26th for our first moonwalk and sidewalk astronomy session of the year.

Finally, now's the time to start planning for RTMC. This year RTMC returns to Memorial Day weekend and we'll have the usual enclave for club members and friends starting on Wednesday, May 25th all the way through Monday, May 30th. Come see the vendors, manufacturers and swap meters as well as the excellent talks, classes and of course dark skies. Mark your calendar and I hope to see you among the stars!

Vice President

Rose Moore

Come on out to our club meetings and enjoy a night of wonderful presentations, and the company of your fellow club members!

Our speaker for Friday, February 11th, is Al Bowers, from NASA Dryden. He will be speaking on 'The Aeronautics Missions at NASA Dryden'. Mr. Bowers is Project Manager at NASA's Aeronautics Research Mission Directorate's Integrated Systems Research Program at Edwards.

For the month of March, we have our own Jeremy Amarant speaking on the Messier objects. This presentation will be in preparation for our club Messier Marathon scheduled for April 2nd at Saddleback Butte. (Please note that our location for this club star party was changed from the Poppy Reserve.)

Our speaker for Friday, April 8th will be Dr. David Lynch who is a Senior Scientist at The Aerospace Corporation where he specializes in infrared spectroscopy of comets, novae, supernovae, young and very old stars. He also works for the USGS on plate tectonics with a focus on the San Andreas Fault. He will be speaking on 'Asteroid Impacts On Earth'!

For May's meeting we will have Dick Hague, Shane and Karole Barker showing us the new NSN kit: 'Space Rocks, Asteroids and Meteorites'. This is the kit that Shane and Karole went to NSN to test out, and they are preparing a presentation for us at the May meeting!

A reminder for our members that we give a fee to our speakers for their presentations. Some of them come a long way, and take time out of their very busy schedules to come and speak to the club. If you are able, please stop by Virginia at the entrance table and give a small donation towards the speaker. It would be greatly appreciated!

Another item of interest: we will be having our club summer picnic at Steve and Kate's home in Acton. They have graciously agreed for us to have it at their new home. The date will be June 4th, Saturday at 3pm. There will be a sign up sheet at February's meeting for the potluck. Also consider donating any astronomy/other items of interest for the raffle and/or silent auction. Further information to come!

We also have booked Mt. Wilson for Saturday, July 2nd! Further information and a signup sheet will be at February's meeting. Please sign up at the meetings or call me AFTER February 11th. There is room for 25 people, no children under 12, and will be approximately $36 per person.

Stay warm and clear skies!
Rose

Director of Community Development

Robert Lynch

For the month of February, we have one public outreach event which will be held Wednesday the 23rd, at 6:30 pm at the Acton Library there will be a Lecture by Jeremy and a Star Party. We will need members with telescopes to sign up for this event to help out.

The monthly club Star party and Lunar club meeting is coming up on Saturday, February 5.at Two Goats Observatory

March 3, is the Leona Valley Science Fair and Star Party. We will be need members for Judging from 2:00 to 3:30 pm and at 5:30 to 7.00 pm to bring telescopes for the Star party.

March also brings us the first Prime Desert Woodlands Moon Walk with Jeremy. This is scheduled for Saturday, March 26th. The Moon will be last quarter. Our event starts at 6:30pm, and we need members with telescopes to sign up for this event to help out. Please come out with and show the public the night sky!

Next month's club star party coming up at Devil's Punchbowl on Saturday, March 5. Let's hope for some clear, dry, and less chilly weather!

Space Place

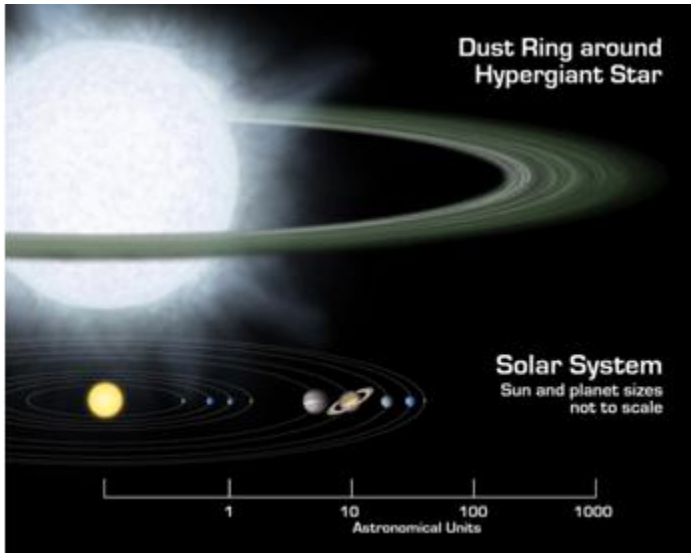
Planets in Strange Places

By Trudy E. Bell

Red star, blue star, big star, small star—planets may form around virtually any type or size of star throughout the universe, not just around mid-sized middle-aged yellow stars like the Sun. That's the surprising implication of two discoveries in 2006 from the 0.85-meter-diameter Spitzer Space Telescope, which is exploring the universe from orbit at infrared (heat) wavelengths blocked by the Earth's atmosphere.

At one extreme are two blazing, blue "hypergiant" stars 180,000 light-years away in the Large Magellanic Cloud, one of the two companion galaxies to our Milky Way. The stars, called R 66 and R 126, are respectively 30 and 70 times the mass of the Sun, "about as massive as stars can get," said Joel Kastner, professor of imaging science at the Rochester Institute of Technology in New York. R 126 is so luminous that if it were placed 10 parsecs (32.6 light-years) away—a distance at which the Sun would be one of the dimmest stars visible in the sky—the hypergiant would be as bright as the full moon, "definitely a daytime object," Kastner remarked.

Such hot stars have fierce solar winds, so Kastner and his team are mystified why any dust in the neighborhood hasn't long since been blown away. But there it is: an unmistakable spectral signature that both hypergiants are surrounded by mammoth disks of what might be planet-forming dust and even sand.



Artist's rendering compares size of a hypothetical hypergiant star and its surrounding dusty disk to that of our solar system.

At the other extreme is a tiny brown dwarf star called Cha 110913-773444, relatively nearby (500 light-years) in the Milky Way. One of the smallest brown dwarfs known, it has less than 1 percent the mass of the Sun. It's not even massive enough to kindle thermonuclear reactions for fusing hydrogen into helium. Yet this miniature "failed star," as brown dwarfs are often called, is also surrounded by a flat disk of dust that may eventually clump into planets. (This brown dwarf discovery was made by a group led by Kevin Luhman of Pennsylvania State University.)

Although actual planets have not been detected (in part because of the stars' great distances), the spectra of the hypergiants show that their dust is composed of forsterite, olivine, aromatic hydrocarbons, and other geological substances found on Earth.

These newfound disks represent "extremes of the environments in which planets might form," Kastner said. "Not what you'd expect if you think our solar system is the rule."

Hypergiants and dwarfs? The Milky Way could be crowded with worlds circling every kind of star imaginable—very strange, indeed.

Astrophoto of The Month

Object:
NGC 1566 - Seyfert Spiral Galaxy in Dorado

Equipment:
Telescope: 16" f/4.5 Newtonian

Camera:
SBIG XMC 4000 single shot color CCD

Location:
Wiruna, NSW - December 2009

AstroImager:
Joe Cauchi

News Headlines

NASA reports first rocky planet outside our solar system
NASA astronomers reported the first undoubtedly rocky planet outside our solar system at an astronomy meeting Monday, lifting expectations that planets with rocky cores like Earth fill many alien solar systems. The planet identified by the Kepler space telescope, announced by mission team member Natalie Batalha of San Jose State University, crowns a recent series of discoveries of "exoplanets" close in size to Earth.
http://www.usatoday.com/tech/science/discoveries/2011-01-10-nasa-rocky-planet_N.htm

A Black Hole "Too Big" For Its Galaxy
One of the most interesting and important discoveries among galaxies in the last couple decades is that nearly all of them have a supermassive black hole in their centers. Moreover, the mass of the hole is tied very closely to the size and characteristics of the galaxy's central bulge of old, yellow stars (especially to the stars' range of velocities).
http://www.skyandtelescope.com/community/skyblog/newsblog/113356079.html

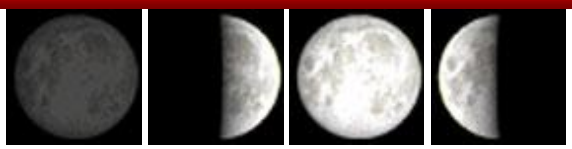
High-Energy Surprises In Constant Crab Nebula
The combined data from several NASA satellites has astonished astronomers by revealing unexpected changes in X-ray emission from the Crab Nebula, once thought to be the steadiest high-energy source in the sky.
http://www.spacedaily.com/reports/High_Energy_Surprises_In_Constant_Crab_Nebula_999.html

Astronomers Release the Largest Color Image of the Sky Ever Made
Today, the Sloan Digital Sky Survey-III (SDSS-III) released the largest digital color image of the sky ever made, and it's free to all. The image has been put together over the past decade from millions of 2.8-megapixel images, creating a color image of more than a trillion pixels. This terapixel image is so big and detailed that one would need 500,000 high-definition TVs to view it at its full resolution.
http://www.astronomy.com/~/link.aspx?_id=3a79f9e7-5c9c-412c-a0ea-0dd0eab29e98

NASA Spacecraft Prepares for Valentine's Day Comet Rendezvous
NASA's Stardust-NExT spacecraft is nearing a celestial date with comet Tempel 1 at approximately 8:37 p.m. PST (11:37 p.m. EST), on Feb. 14. The mission will allow scientists for the first time to look for changes on a comet's surface that occurred following an orbit around the sun.
http://www.jpl.nasa.gov/asteroidwatch/newsfeatures.cfm?release=2011-019&rn=asteroid.xml&rst=2011-019

Hubble Zooms in on a Space Oddity
One of the strangest space objects ever seen is being scrutinized by the penetrating vision of NASA's Hubble Space Telescope. A mysterious, glowing green blob of gas is floating in space near a spiral galaxy. Hubble uncovered delicate filaments of gas and a pocket of young star clusters in the giant object, which is the size of our Milky Way galaxy.
http://hubblesite.org/newscenter/archive/releases/2011/01/full/

February Sky Data



Best time for deep sky observing this month:
Feb 1 through Feb 6 and Feb 22 through Feb 28

At the start of February, **Mercury** is rising only minutes before the Sun, and by February 25th it's in superior conjunction (almost directly behind the Sun). So we won't be able to see this elusive little planet this month.

Venus is still visible this month as a brilliant "Morning Star", very low in the south-eastern sky before sunrise, but it's getting increasingly difficult to see. Relative to the stars, Venus is moving rapidly across the far-southern constellation of Sagittarius – but by the time Venus rises, the sky is too bright to see any of the stars.

Mars is in conjunction (almost directly behind the Sun) on February 4th, so we won't be seeing the "Red Planet" this month.

Jupiter is low in the western sky at dusk, and sets around 9 pm. The giant planet is moving slowly north-eastwards in Pisces, crossing briefly into a corner of Cetus on February 25th. On the evening of Monday February 7th, the crescent Moon will appear directly above Jupiter.

Saturn is rising in the east in the late evening, and it's high in the southern sky in the early hours of the morning. Relative to the stars, Saturn is moving very slowly north-westwards in the constellation of Virgo. Saturn is a little above and to the right of Spica, and of similar brightness, though it shines with a steadier light. At dawn on Monday February 21st, our own waning gibbous Moon will be below Saturn.

There are no significant **meteor-showers** in February, and it is generally a quiet time for sporadic meteors too.

Sun and Moon Rise and Set

Date	Moonrise	Moonset	Sunrise	Sunset
2/1/2011	05:48	16:21	06:50	17:21
2/5/2011	07:50	20:08	06:46	17:25
2/10/2011	10:19	------	06:42	17:30
2/15/2011	14:54	04:26	06:37	17:35
2/20/2011	20:53	07:40	06:31	17:39
2/25/2011	01:23	11:21	06:25	17:44
2/28/2011	03:49	14:15	06:22	17:46

Planet Data

Feb 1

	Rise	Transit	Set	Mag
Mercury	06:01	11:05	16:06	-0.4
Venus	03:48	08:56	14:02	-4.3
Mars	06:53	12:11	17:27	1.1
Jupiter	09:06	15:15	21:21	-2.2
Saturn	22:17	04:11	10:05	0.6

Feb 15

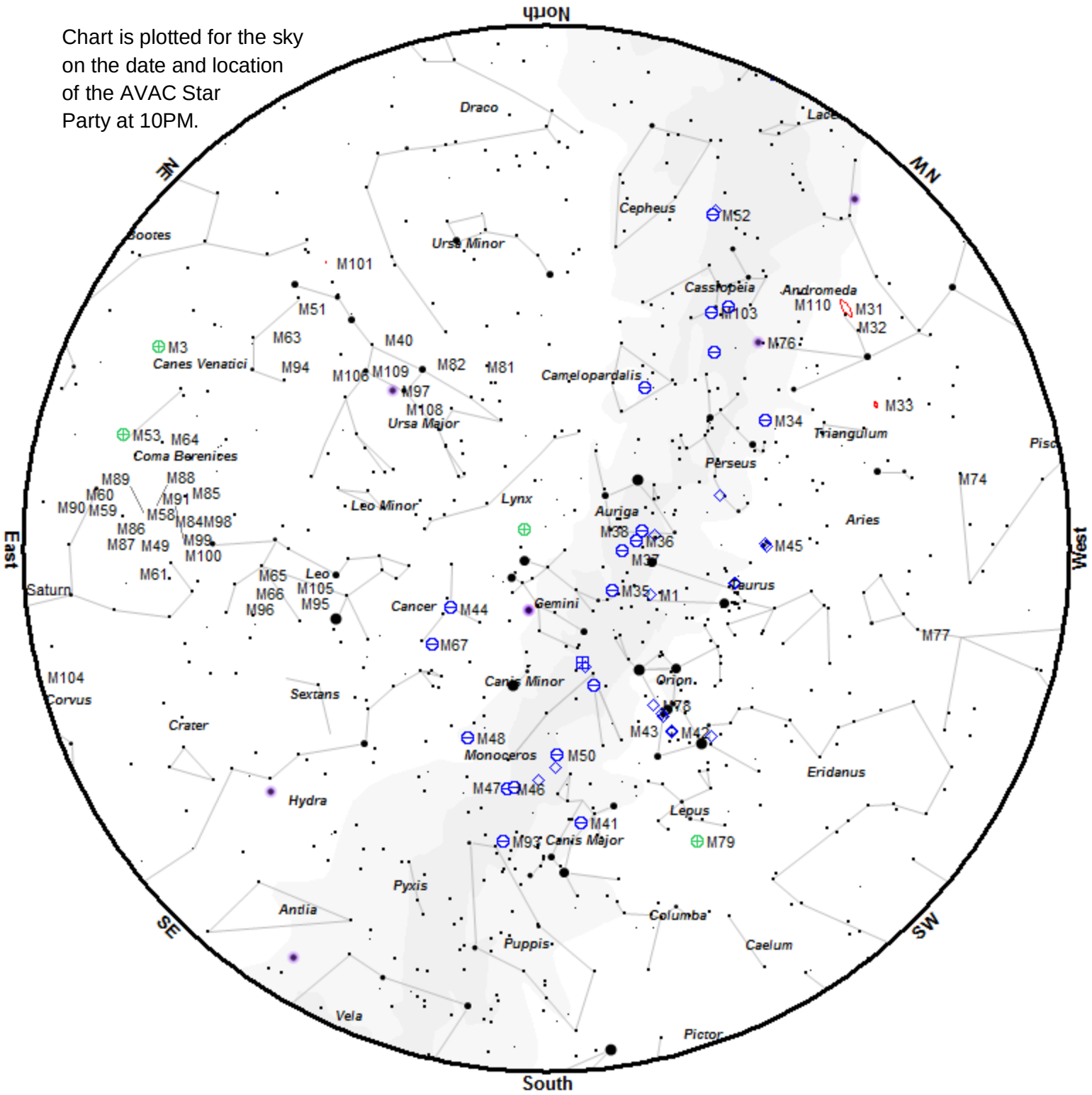
	Rise	Transit	Set	Mag
Mercury	06:23	11:44	17:01	-1.0
Venus	04:02	09:09	14:15	-4.2
Mars	06:31	11:58	17:26	1.1
Jupiter	08:18	14:30	20:40	-2.1
Saturn	21:20	03:15	09:10	0.6

Feb 28

	Rise	Transit	Set	Mag
Mercury	06:35	12:19	18:05	-1.6
Venus	04:11	09:23	14:33	-4.1
Mars	06:09	11:46	17:24	1.1
Jupiter	07:34	13:50	20:02	-2.1
Saturn	20:26	02:22	08:17	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.



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 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	Mag	Con	RA 2000	Dec 2000	Begin	Best	End	Difficulty
M 33	Gal	6.4	Tri	01h33m50.9s	+30°39'36"	18:35	18:54	20:33	detectable
NGC 559	Open	7.4	Cas	01h29m31.0s	+63°18'24"	18:30	18:56	22:25	easy
M 103	Open	6.9	Cas	01h33m23.0s	+60°39'00"	18:28	18:56	22:21	obvious
NGC 457	Open	5.1	Cas	01h19m35.0s	+58°17'12"	18:30	18:56	22:02	obvious
M 76	PNe	10.1	Per	01h42m19.9s	+51°34'31"	18:34	18:56	21:11	detectable
NGC 637	Open	7.3	Cas	01h43m04.0s	+64°02'24"	18:28	18:57	22:41	obvious
NGC 663	Open	6.4	Cas	01h46m09.0s	+61°14'06"	18:31	18:57	22:26	easy
NGC 884	Open	4.4	Per	02h22m18.0s	+57°08'12"	18:28	18:57	23:02	obvious
NGC 869	Open	4.3	Per	02h19m00.0s	+57°07'42"	18:28	18:57	22:58	obvious
M 34	Open	5.8	Per	02h42m05.0s	+42°45'42"	18:32	18:57	21:47	easy
NGC 957	Open	7.2	Per	02h33m21.0s	+57°33'36"	18:31	18:58	22:40	easy
NGC 1027	Open	7.4	Cas	02h42m40.0s	+61°35'42"	18:35	18:59	21:47	detectable
NGC 1342	Open	7.2	Per	03h31m38.0s	+37°22'36"	18:33	19:00	22:20	easy
M 45	Open	1.5	Tau	03h47m00.0s	+24°07'00"	18:28	19:02	23:13	obvious
NGC 1444	Open	6.4	Per	03h49m25.0s	+52°39'30"	18:27	19:03	00:17	obvious
NGC 1502	Open	4.1	Cam	04h07m50.0s	+62°19'54"	18:24	19:08	01:01	obvious
NGC 1528	Open	6.4	Per	04h15m23.0s	+51°12'54"	18:32	19:10	23:56	easy
NGC 1664	Open	7.2	Aur	04h51m06.0s	+43°40'30"	18:30	20:09	00:19	easy
NGC 1746	Open	6.1	Tau	05h03m50.0s	+23°46'12"	18:36	20:09	23:04	detectable
NGC 1647	Open	6.2	Tau	04h45m55.0s	+19°06'54"	18:36	20:09	22:40	detectable
NGC 1851	Glob	7.1	Col	05h14m06.0s	-40°02'48"	18:57	20:09	21:12	detectable
M 38	Open	6.8	Aur	05h28m40.0s	+35°50'54"	18:33	20:19	00:07	detectable
M 42	Neb	4.0	Ori	05h35m18.0s	-05°23'00"	18:30	20:25	23:34	easy
M 36	Open	6.5	Aur	05h36m18.0s	+34°08'24"	18:29	20:26	01:03	easy
M 37	Open	6.2	Aur	05h52m18.0s	+32°33'12"	18:30	20:42	01:08	easy
NGC 2129	Open	7.0	Gem	06h01m07.0s	+23°19'20"	18:29	20:51	01:23	obvious
NGC 2169	Open	7.0	Ori	06h08m24.0s	+13°57'54"	18:29	20:58	01:09	obvious
M 35	Open	5.6	Gem	06h09m00.0s	+24°21'00"	18:32	20:59	01:00	easy
NGC 2175	Open	6.8	Ori	06h09m39.0s	+20°29'12"	18:36	21:00	00:17	detectable
NGC 2264	Open	4.1	Mon	06h40m58.0s	+09°53'42"	18:33	21:31	01:22	obvious
M 41	Open	5.0	CMa	06h46m01.0s	-20°45'24"	20:01	21:36	23:11	easy
NGC 2301	Open	6.3	Mon	06h51m45.0s	+00°27'36"	18:39	21:41	01:07	easy
M 50	Open	7.2	Mon	07h02m42.0s	-08°23'00"	19:14	21:53	00:33	detectable
NGC 2353	Open	5.2	Mon	07h14m30.0s	-10°16'00"	19:16	22:04	00:52	easy
NGC 2355	Open	9.7	Gem	07h16m59.0s	+13°45'00"	20:00	22:06	00:19	difficult
NGC 2392	PNe	8.6	Gem	07h29m10.8s	+20°54'42"	18:28	22:19	02:46	obvious
M 47	Open	4.3	Pup	07h36m35.0s	-14°29'00"	20:03	22:26	00:50	obvious
NGC 2423	Open	7.0	Pup	07h37m06.0s	-13°52'18"	19:59	22:27	00:54	easy

ID	Cls	Mag	Con	RA 2000	Dec 2000	Begin	Best	End	Difficulty
NGC 2439	Open	7.1	Pup	07h40m45.0s	-31°41'36"	20:33	22:30	00:27	easy
M 46	Open	6.6	Pup	07h41m46.0s	-14°48'36"	20:10	22:31	00:53	detectable
NGC 2440	PNe	11.5	Pup	07h41m55.4s	-18°12'31"	20:34	22:31	00:29	detectable
NGC 2451	Open	3.7	Pup	07h45m23.0s	-37°57'21"	20:54	22:34	00:15	easy
M 93	Open	6.5	Pup	07h44m30.0s	-23°51'24"	21:41	22:34	23:28	easy
NGC 2477	Open	5.7	Pup	07h52m10.0s	-38°31'48"	21:03	22:42	00:20	easy
NGC 2506	Open	8.9	Mon	08h00m01.0s	-10°46'12"	21:23	22:50	00:17	difficult
NGC 2547	Open	5.0	Vel	08h10m09.0s	-49°12'54"	21:57	23:00	00:02	detectable
NGC 2546	Open	5.2	Pup	08h12m15.0s	-37°35'42"	21:08	23:02	00:53	difficult
M 44	Open	3.9	Cnc	08h40m24.0s	+19°40'00"	19:42	23:30	03:21	easy
M 67	Open	7.4	Cnc	08h51m18.0s	+11°48'00"	21:15	23:41	02:06	detectable
M 82	Gal	9.0	UMa	09h55m52.4s	+69°40'47"	19:13	00:46	05:35	easy
M 81	Gal	7.8	UMa	09h55m33.1s	+69°03'56"	19:30	00:46	05:33	detectable
NGC 3132	PNe	8.2	Vel	10h07m01.8s	-40°26'11"	23:10	00:56	02:43	easy
NGC 3227	Gal	11.5	Leo	10h23m30.6s	+19°51'54"	22:31	01:13	03:53	difficult
NGC 3242	PNe	8.6	Hya	10h24m46.1s	-18°38'32"	23:19	01:14	03:08	obvious
M 97	PNe	11.0	UMa	11h14m47.7s	+55°01'09"	23:29	02:03	04:38	challenging
M 65	Gal	10.1	Leo	11h18m55.7s	+13°05'32"	23:03	02:08	05:14	detectable
M 66	Gal	9.7	Leo	11h20m14.9s	+12°59'30"	23:03	02:09	05:16	detectable
M 106	Gal	9.1	CVn	12h18m57.6s	+47°18'13"	23:27	03:08	05:37	detectable
M 84	Gal	10.1	Vir	12h25m03.9s	+12°53'12"	00:15	03:14	05:36	detectable
M 86	Gal	9.8	Vir	12h26m12.2s	+12°56'44"	00:35	03:15	05:33	detectable
M 49	Gal	9.3	Vir	12h29m46.8s	+08°00'01"	00:20	03:19	05:36	detectable
M 87	Gal	9.6	Vir	12h30m49.2s	+12°23'29"	00:17	03:20	05:36	detectable
NGC 4565	Gal	10.1	Com	12h36m20.8s	+25°59'15"	00:37	03:25	05:34	difficult
M 68	Glob	7.3	Hya	12h39m28.0s	-26°44'36"	01:27	03:28	05:27	detectable
M 104	Gal	9.1	Vir	12h39m59.3s	-11°37'22"	00:54	03:28	05:37	detectable
M 94	Gal	8.7	CVn	12h50m53.1s	+41°07'12"	23:29	03:39	05:42	easy
M 64	Gal	9.3	Com	12h56m43.8s	+21°41'00"	00:18	03:45	05:41	detectable
NGC 5139	Glob	3.9	Cen	13h26m46.0s	-47°28'36"	03:41	04:16	04:51	detectable
NGC 5195	Gal	10.5	CVn	13h29m59.6s	+47°15'58"	00:42	04:18	05:40	detectable
M 51	Gal	8.7	CVn	13h29m52.3s	+47°11'40"	23:54	04:19	05:42	easy
M 83	Gal	7.8	Hya	13h37m00.8s	-29°51'56"	02:32	04:26	05:38	detectable
M 3	Glob	6.3	CVn	13h42m11.0s	+28°22'42"	00:29	04:30	05:42	easy
M 101	Gal	8.4	UMa	14h03m12.4s	+54°20'53"	01:18	04:51	05:38	detectable
M 5	Glob	5.7	Ser	15h18m34.0s	+02°05'00"	02:41	05:16	05:41	easy
M 13	Glob	5.8	Her	16h41m41.0s	+36°27'36"	02:44	05:19	05:42	easy
NGC 5897	Glob	8.4	Lib	15h17m24.0s	-21°00'36"	04:33	05:19	05:37	difficult
M 92	Glob	6.5	Her	17h17m07.0s	+43°08'12"	03:00	05:20	05:42	easy
NGC 6543	PNe	8.3	Dra	17h58m33.4s	+66°37'59"	02:29	05:21	05:52	obvious
M 12	Glob	6.1	Oph	16h47m14.0s	-01°56'48"	04:13	05:21	05:41	easy
M 10	Glob	6.6	Oph	16h57m09.0s	-04°06'00"	04:31	05:22	05:38	detectable
M 57	PNe	9.4	Lyr	18h53m35.1s	+33°01'45"	04:45	05:23	05:43	easy
M 80	Glob	7.3	Sco	16h17m02.0s	-22°58'30"	04:24	05:23	05:41	detectable
NGC 5986	Glob	7.6	Lup	15h46m03.0s	-37°47'12"	04:56	05:27	05:39	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
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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.

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

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