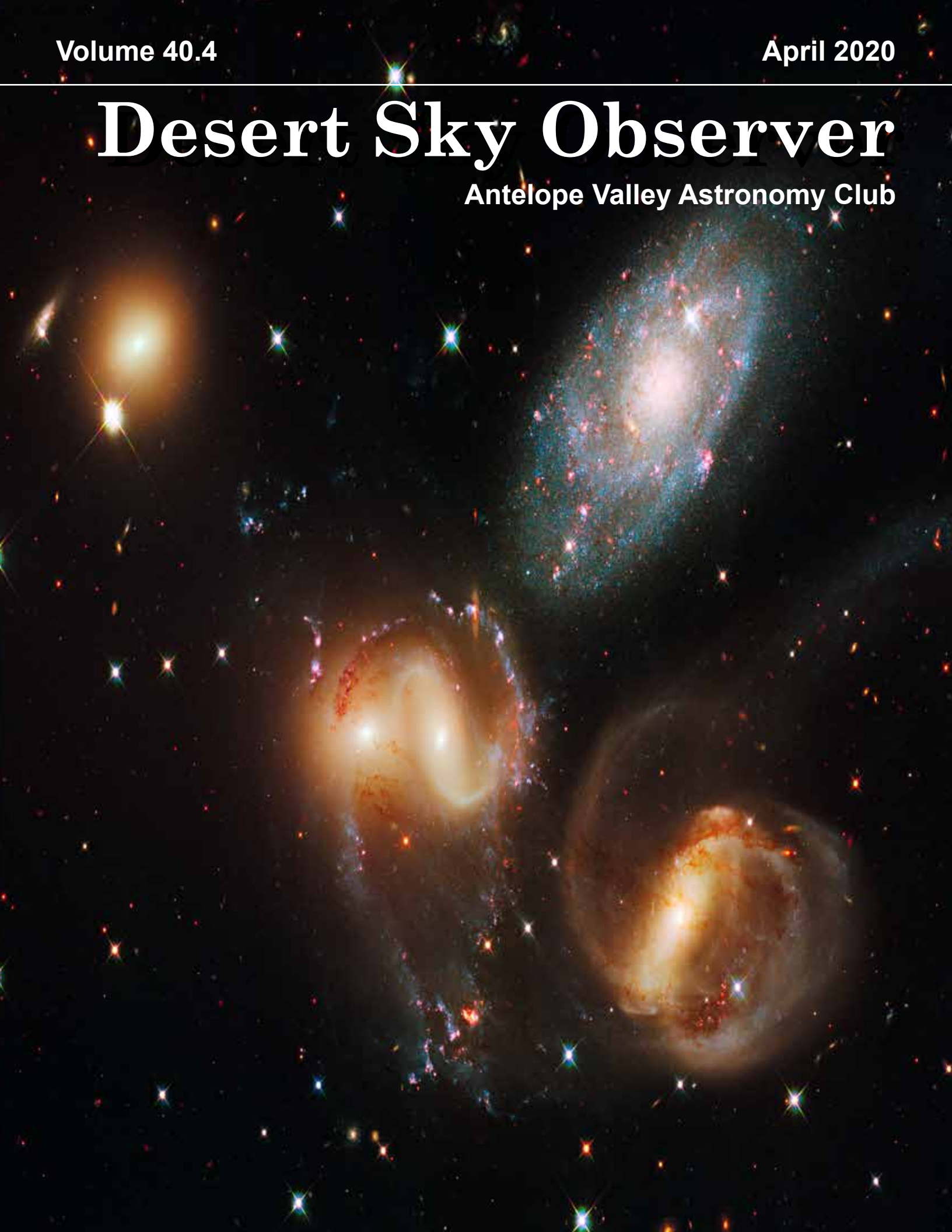


Volume 40.4

April 2020

Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org

April 2020

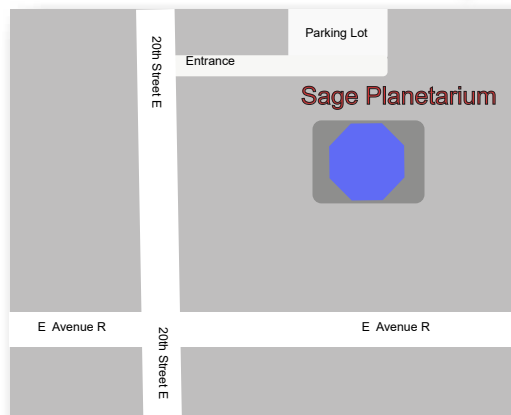
Upcoming Events

April 10: Club Meeting
April 18: ~~PDW Moonwalk~~ Canceled
April 24: ~~College of the Canyons~~
~~Star Party~~ Canceled for now
April 25: DSSP at Red Cliffs, Maybe
Any night without clouds: Personal Star Party

May 8: Club Meeting, Maybe
May 9: PDW Moonwalk, Maybe
May 23/24: DSSP at ...TBA, Maybe



AVAC Calendar



Board Members

President: Darrel Bennet (661) 220-0122
president@avastronomyclub.org

Vice-President: Matt Leone (661) 713-1894
vice-president@avastronomyclub.org

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

Treasurer: Rod Girard (661) 803-7838
treasurer@avastronomyclub.org

Appointed Positions

Newsletter Editor: Phil Wriedt (661) 917-4874
dso@avastronomyclub.org

Equipment & Library:
John VanEvera 661-754-1819
library@avastronomyclub.org

Club Historian: vacant
history@avastronomyclub.org

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

Astronomical League Coordinator:
Frank Moore (661) 972-4775
al@avastronomyclub.org



Monthly Meetings

Monthly meetings are held at the **S.A.G.E. Planetarium** in Palmdale, the second Friday of each month except December. 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.*

Membership

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 ...

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

AVAC

PO Box 8545

Lancaster, CA 93539-8545

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



www.avastronomyclub.org

The Antelope Valley Astronomy Club, Inc. is a §503(c)(3) Non-Profit Corporation.

The AVAC is a Sustaining Member of The Astronomical League and the International Dark-Sky Association

President's Message

By Darrel Bennet

Now that my lobster season is over, I am looking forward to the astronomy observing to start. The weather has not been cooperating with us. The last two Prime Desert Woodland Moonwalks had been bad, too many clouds or too much wind.

Our Messier Marathon has been canceled, due to bad weather. I was looking forward to finding a new comet, c/2019 y4 (Atlas) in Andromeda, not too far from M31.

As all of you know our last club meeting at The SAGE Planetarium was canceled due to the Coronavirus restrictions and the next two Prime Desert Woodland walks and star parties, on March 28th and April 18th are also canceled.

Regarding the next club meeting, we will let you know if it is on or canceled. I have not spoken with Jeremy yet about it.

I just learned that the College of the Canyons star party on April 24th has been canceled.

We also have a date for Mt. Wilson on August 22nd. The Board has not come up with a price yet. We will let you know how much and have a sign-up sheet at our next meeting that we are allowed to attend at the SAGE Planetarium. Until then hope for clear skies and keep looking up.

On The Cover

A clash among members of a famous galaxy quintet reveals an assortment of stars across a wide colour range, from young, blue stars to aging, red stars.

This portrait of Stephan's Quintet, also known as the Hickson Compact Group 92, was taken by the new Wide Field Camera 3 (WFC3) aboard the NASA/ESA Hubble Space Telescope. Stephan's Quintet, as the name implies, is a group of five galaxies. The name, however, is a bit of a misnomer. Studies have shown that group member NGC 7320, at upper left, is actually a foreground galaxy that is about seven times closer to Earth than the rest of the group.

Three of the galaxies have distorted shapes, elongated spiral arms, and long, gaseous tidal tails containing myriad star clusters, proof of their close encounters. These interactions have sparked a frenzy of star birth in the central pair of galaxies. This drama is being played out against a rich backdrop of faraway galaxies.

The image, taken in visible and near-infrared light, showcases WFC3's broad wavelength range. The colours trace the ages of the stellar populations, showing that star birth occurred at different epochs, stretching over hundreds of millions of years. The camera's infrared vision also peers through curtains of dust to see groupings of stars that cannot be seen in visible light.

NGC 7319, at top right, is a barred spiral with distinct spiral arms that follow nearly 180 degrees back to the bar. The blue specks in the spiral arm at the top of NGC 7319 and the red dots just above and to the right of the core are clusters of many thousands of stars. Most of the Quintet is too far away even for Hubble to resolve individual stars.

Continued on next page

From the Secretary

By Rose Moore

I'm hoping all of you are still staying healthy and doing well. While the number of Coronavirus cases is still going up, our country doesn't seem to be exploding its numbers, and so I'm hoping this 'stay-at-home' is helping keep the numbers down. Our hospitals are trying to keep from getting overwhelmed. The US intensive care beds run about 60% capacity normally, depending on where you are in the US. So stay healthy, and don't forget take a walk or be active at home!

We had to cancel all events for March, and it looks like the same might occur for April. Phil found out that the College of the Canyons Star Party for April 24th has already been canceled, as well as our Prime Desert Moon Walk April 18th. Please check the AVAC calendar and your emails for further information on upcoming events. At this time our meeting and dark sky star party are still on the schedule.

Because of our lack of public events at this time, Frank is going to start posting some astronomy articles on our Facebook page for the public to read; So you might want to check that out!

We have the 60 inch telescope at Mt. Wilson reserved for the night of Saturday, August 22nd! Further information to come. Sign up sheets will be starting at the next meeting. If we are not having a meeting next month, I will send out an email to members to start sign ups by email confirmation. We will NOT have a pre tour this time to keep down costs, and because most members have been through one in the last 2 years. Our cost per member will be higher this year, and once the Board figures out what it will be, we'll let you know.

We have the following speakers lined up for the remainder of the year: Tim Thompson (April), Eric Becklin (May), Tom Hames (June), NASA speaker via their Speaker Bureau (July), Geo Somoza (August), Jeremy and a lecture via another planetarium/online (September), Tom Hames (November).

Any questions? Email a Board member! Rose

On The Cover

Continued from previous page

Continuing clockwise, the next galaxy appears to have two cores, but it is actually two galaxies, NGC 7318A and NGC 7318B. Encircling the galaxies are young, bright blue star clusters and pinkish clouds of glowing hydrogen where infant stars are being born. These stars are less than 10 million years old and have not yet blown away their natal cloud. Far away from the galaxies, at right, is a patch of intergalactic space where many star clusters are forming.

NGC 7317, at bottom left, is a normal-looking elliptical galaxy that is less affected by the interactions.

Sharply contrasting with these galaxies is the dwarf galaxy NGC 7320 at upper left. Bursts of star formation are occurring in the galaxy's disc, as seen by the blue and pink dots. In this galaxy, Hubble can resolve individual stars, evidence that NGC 7320 is closer to Earth. NGC 7320 is 40 million light-years from Earth. The other members of the Quintet reside about 300 million light-years away in the constellation Pegasus.

These more distant members are markedly redder than the foreground galaxy, suggesting that older stars reside in their cores. The stars' light also may be further reddened by dust stirred up in the encounters.

Hubble at 30: Three Decades of Cosmic Discovery

David Prosper, NASA Night Sky Network

The Hubble Space Telescope celebrates its 30th birthday in orbit around Earth this month! It's hard to believe how much this telescope has changed the face of astronomy in just three decades. It had a rough start -- an 8-foot mirror just slightly out of focus in the most famous case of spherical aberration of all time. But subsequent repairs and upgrades by space shuttle astronauts made Hubble a symbol of the ingenuity of human spaceflight and one of the most important scientific instruments ever created. Beginning as a twinkle in the eye of the late Nancy Grace Roman, the Hubble Space Telescope's work over the past thirty years changed the way we view the universe, and more is yet to come!

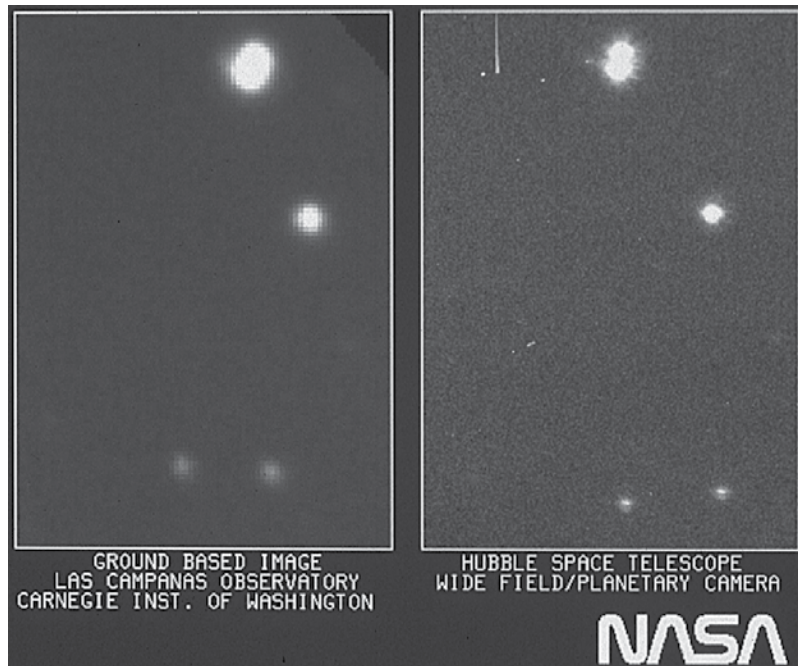
We've all seen the amazing images created by Hubble and its team of scientists, but have you seen Hubble yourself? You actually can! Hubble's orbit -- around 330 miles overhead -- is close enough to Earth that you can see it at night. The best times are within an hour after sunset or before sunrise, when its solar panels are angled best to reflect the light of the Sun back down to Earth. You can't see the structure of the telescope, but you can identify it as a bright star-like point, moving silently across the night sky. It's not as bright as the Space Station, which is much larger and whose orbit is closer to Earth (about 220 miles), but it's still very noticeable as a single steady dot of light, speeding across the sky. Hubble's orbit brings it directly overhead for observers located near tropical latitudes; observers further north and south can see it closer to the horizon. You can find sighting opportunities using satellite tracking apps for your smartphone or tablet, and dedicated satellite tracking websites. These resources can also help you identify other satellites that you may see passing overhead during your stargazing sessions.

NASA has a dedicated site for Hubble's 30th's anniversary at bit.ly/NASAHubble30. The Night Sky Network's "Why Do We Put Telescopes in Space?" activity can help you and your audiences discover why we launch telescopes into orbit, high above the interference of Earth's atmosphere, at bit.ly/TelescopesInSpace. Amateur astronomers may especially enjoy Hubble's images of the beautiful objects found in both the Caldwell and Messier catalogs, at bit.ly/HubbleCaldwell and bit.ly/HubbleMessier. As we celebrate Hubble's legacy, we look forward to the future, as there is another telescope ramping up that promises to further revolutionize our understanding of the early universe: the James Webb Space Telescope!

Discover more about the history and future of Hubble and space telescopes at nasa.gov.

Image Credit: NASA





Hubble's "first light" image. Even with the not-yet-corrected imperfections in its mirror, its images were generally sharper compared to photos taken by ground-based telescopes at the time. Image Credit: NASA

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach.

Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

On The Cover

Continued from page 4

Spied by Edouard M. Stephan in 1877, Stephan's Quintet is the first compact group ever discovered.

WFC3 observed the Quintet in July and August 2009. The composite image was made by using filters that isolate light from the blue, green and infrared portions of the spectrum, as well as emission from ionised hydrogen.

These Hubble observations are part of the Hubble Servicing Mission 4 Early Release Observations. NASA astronauts installed the WFC3 camera during a servicing mission in May to upgrade and repair the 19-year-old Hubble telescope.

Credit:

NASA, ESA and the Hubble SM4 ERO Team

Usage of ESA/Hubble Images and Videos

Are you a journalist? Subscribe to the ESA/Hubble Media Newsletter.

Member Scope for Sale

Member Duane Lewis is selling his 9.25 inch Celestron CGEM OTA with the tripod, CGE mount, counterweights, one 1.25" 20mm Plossl eyepiece, a 1.25" diagonal and a 2" diagonal, telrad mount, and a Denkmeir (unknown model) binocular viewer. The OTA was tuned up by member Don Bryden before he moved. It has not been used since. Price is \$1200. Duane is unable to have this set up for viewing because of lack of space. So arrangements will have to be made for viewing the scope and accessories. For more info please contact Duane by email only: gurba1826@gmail.com -- or contact Rose by email: rmorion@bak.rr.com

Space News

News from around the Net

NASA pauses work on James Webb Space Telescope due to coronavirus, weighs risk to other science missions No mission will be immune, NASA leadership said, not even the James Webb Space Telescope or the Perseverance Mars rover. As many NASA centers switch to mandatory telework to confront the spread of COVID-19, NASA leadership acknowledged that prized science missions may suffer delays and that the agency was prepared to make that trade in order to keep its employees safe. . . . (continued at <https://www.space.com/coronavirus-impact-on-nasa-science-missions.html>)



NASA's Mars rover Perseverance still on track for July launch despite coronavirus outbreak

NASA is determined to get its life-hunting Mars rover off the ground this summer despite the coronavirus outbreak. Space agency officials remain optimistic that the car-size Perseverance rover, the centerpiece of the Mars 2020 mission, will be ready to launch during a three-week window that opens on July 17. . . . (continued at <https://www.space.com/nasa-mars-2020-rover-perseverance-july-launch-coronavirus.html>)



Space science from home: Resources for children and adults

With many people across the world staying at home these days, we have curated a selection of activities for you to pass time and learn more about space science in the meantime.

Armchair astronomy (continued at <https://phys.org/news/2020-03-space-science-home-resources-children.html>)



Solar system acquired current configuration not long after its formation

The hypothesis that the solar system originated from a gigantic cloud of gas and dust was first floated in the second half of the 18th century by German philosopher Immanuel Kant and further developed by French mathematician Pierre-Simon de Laplace. It is now a consensus among astronomers. (continued at <https://phys.org/news/2020-03-solar-current-configuration-formation.html>)



How to explore the universe while you're stuck at home

Spending time at home (whether willingly or not) doesn't mean you can't explore the great wonders that our universe has to offer. Beautiful images and tours of distant galaxies and nebulae can be accessed right from your computer. And in that spirit, here are a few free websites that can deliver the cosmos directly to you — no spaceflight required. (continued at <https://astronomy.com/news/2020/03/how-to-explore-the-universe-while-youre-stuck-at-home>)



Space News

Continued

European ExoMars Mission Delayed to 2022

The European Space Agency and Roscosmos have postponed the launch of their Mars lander and rover to the 2022 window. And then there were three. On March 12th, the European Space Agency (ESA) released a statement that the launch of the ExoMars mission, which will include the rover Rosalind Franklin, is postponed from this summer to the next launch window in 2022. (continued at <https://skyandtelescope.org/astronomy-news/european-exomars-mission-delayed-2022/>)



A Bino Tour of The Big Dog

For observers looking for a quick outing with binoculars, Canis Major offers a set of lovely attractions that includes a trio of open clusters. Bounding over the meridian as twilight fades on March evenings is Canis Major, the Big Dog. For observers looking for a quick outing, the constellation offers a set of lovely binocular attractions. Let's begin with its leading light, Sirius. (continued at <https://skyandtelescope.org/astronomy-news/night-sky-sights/bino-tour-canis-major-big-dog/>)



Hubble dissects a tarantula to study how giant stars form

The Hubble Space Telescope captured this detailed shot of a glowing cosmic cloud, LHA 120-N 150, at the edge of the Tarantula Nebula. Located some 160,000 light-years from Earth in the Large Magellanic Cloud, LHA 120-N 150 is thought to be the home of a mix of young stars and probably some dust clumps. By studying areas like this, astronomers are getting a glimpse into the origins of giant stars. (continued at <https://astronomy.com/news/2020/03/hubble-dissects-a-tarantula-to-study-how-giant-stars-form>)



Mercury's scorching daytime heat may help it make its own ice at caps

It is already hard to believe that there is ice on Mercury, where daytime temperatures reach 400 degrees Celsius, or 750 degrees Fahrenheit. Now an upcoming study says that the Vulcan heat on the planet closest to the sun likely helps make some of that ice. As with Earth, asteroids delivered most of Mercury's water, the scientific consensus holds. But the extreme daytime heat could be combining with the minus 200-degree Celsius cold in nooks of polar craters that never see sunlight to act as a gigantic ice-making chemistry lab, say researchers at the Georgia Institute of Technology. (continued at <https://www.sciencedaily.com/releases/2020/03/200313155329.htm>)



Comet ATLAS may soon be visible to the naked eye

C/2019 Y4 (ATLAS) is racing toward the Sun — and possibly a place in the history books. Like watching the final chapter of a show or movie series, you're almost trembling with excitement — but you don't know whether you'll have the experience of a lifetime, suffer a grand disappointment, or end up with something that's just OK. Right now, odds are that Comet C/2019 Y4 (ATLAS) will be wonderful. Just maybe it will be the most amazing thing you will ever see — a great comet for the history books. Here's what we might be able to expect. (continued at <https://astronomy.com/news/observing/2020/03/comet-atlas-may-soon-be-visible-to-the-naked-eye>)



Dark Sky Observing Sites

The Red Cliffs Natural Area is part of **Red Rock Canyon State Park** is a day use area and is not for use by the public after dark. The Club gets a special permit for a star party and pays a fee.

To get there: Take the CA-14 north 25 miles past Mojave. You will see giant red cliffs on the right side and a small sign that says “Red Cliffs Natural Area” and a dirt road. (If you see the large sign for the Ricardo campground, you drove a mile too far). Follow the road to the large parking lot (that hasn’t been graded in a long time). Elevation is 2410 feet. There is a vault toilet.

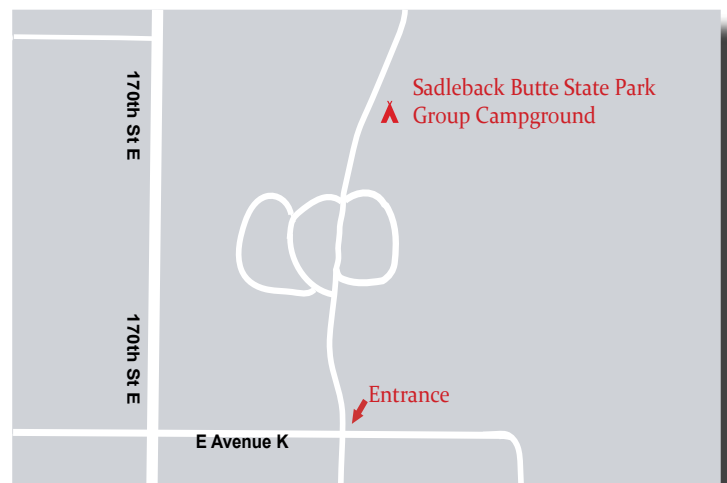


The **Chuchupate** parking lot is a half a mile beyond the Mt. Pinos Ranger Station (on some maps The Chuchupate Ranger Sta., the parking lot is also called Frazier Mountain Trailhead). To get there, take the Frazier Mountain Park Rd east about 7 miles from I-5, to Lake Of The Woods, Turn left on Lockwood Valley Rd. (If you see Mike’s Pizza on your left you missed the turn) In less than a mile there is a road to the left, go past the ranger station, the parking lot is on the right. The Club gathers in the upper end of the lot. The Elevation is 5430 feet. There is a vault toilet.

Saddleback Butte State Park is east of 170th Street East between Avenue I and Avenue K. Elevation 3651 feet. Temperatures in summer average 95° with a high of 115,° winter average lows are 33° with occasional snow. There are 37 individual campsites and one group campsite. When the club has a star party there the group campsite is used. Individual campsites cost \$20 per night. Enter off Avenue K.



Saddleback Butte State Park



Planet Summary

The **Sun** starts the month in Pisces and moves into Aries by the end of the month.

Mercury spends the mornings getting closer to the Sun starting at 26° west and diving toward the Sun about 1° per day.

Venus spends the evenings of the month in Taurus. On the 3rd it is right in the middle of the Pleiades. Venus achieves its greatest illuminated extent on the 27th with an angular size of 38" and phase angle of 27% at mag -4.6.

Mars starts the month less than 1° from Saturn in Capricorn, and spends the rest of the month heading east in Capricorn.

Jupiter is in the morning skies of Sagittarius and on the 1st is 49 arcsec north of Pluto. Jupiter spends the rest of the month moving east toward Saturn

Saturn continues moving eastward through the stars of western Capricorn. The waning crescent Moon slides past on the morning of the 15th.

Uranus will spend 2020 to 2024 in southern Aries at magnitude 5.7. During April it will be too close to the Sun to be seen.

Neptune will spend 2020 to 2022 in northeast Aquarius before it moves into Pisces at mag. 7.93.

Sun and Moon Rise and Set



Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
4/1/2020	12:15	02:12	06:39	19:14
4/5/2020	16:45	05:21	06:33	19:18
4/10/2020	22:45	08:28	06:27	19:21
4/15/2020	02:39	12:49	06:20	19:25
4/20/2020	05:25	17:30	06:14	19:29
4/25/2020	07:52	22:12	06:08	19:33
4/30/2020	12:09	01:51	06:03	19:37

Planet Data*

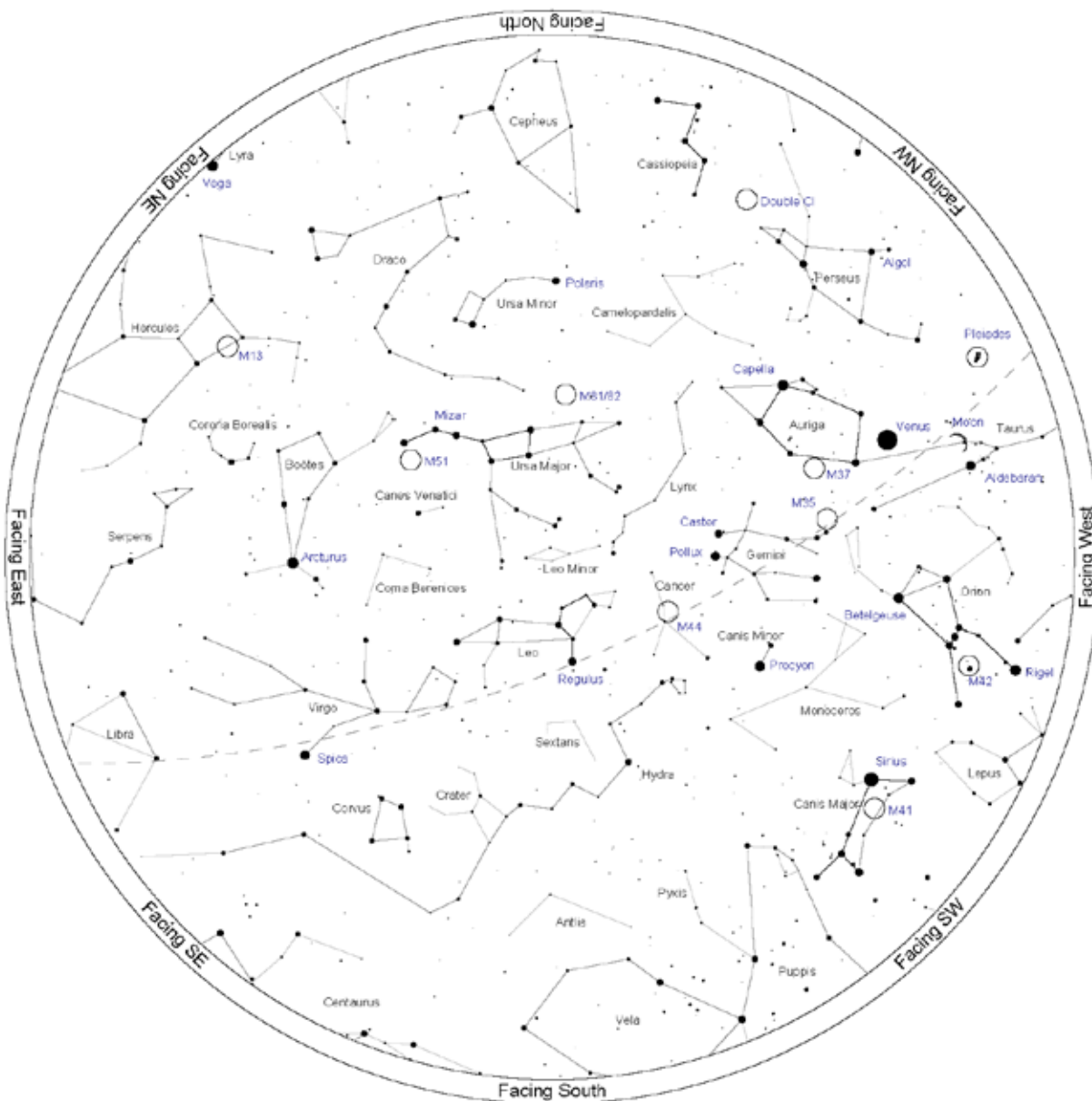
April 1					
	Rise	Transit	Set	Mag	Phase%
Mercury	05:41	11:23	17:06	0.08	63.99
Venus	08:39	15:51	23:04	-4.40	46.88
Mars	03:24	08:26	13:28	0.77	88.32
Jupiter	02:57	07:57	12:57	-2.20	99.77
Saturn	03:19	08:23	13:27	0.66	99.77

April 15					
	Rise	Transit	Set	Mag	Phase%
Mercury	05:42	11:47	17:53	-0.44	81.77
Venus	08:22	15:46	23:09	-4.49	36.99
Mars	03:03	08:11	13:20	0.60	87.28
Jupiter	02:07	07:08	12:09	-2.29	99.06
Saturn	02:27	07:31	12:35	0.63	99.75

April 30					
	Rise	Transit	Set	Mag	Phase%
Mercury	05:53	12:32	19:13	-1.75	98.66
Venus	07:58	15:26	22:54	-4.52	24.73
Mars	02:37	07:54	13:11	0.41	86.27
Jupiter	01:12	06:13	11:14	-2.46	99.11
Saturn	01:29	06:34	11:38	0.58	99.75

*Sun, Moon and Planetary date based on Quartz Hill, CA

Sky Chart



Location: Palmdale, CA 93551

Latitude: 34° 36' N, longitude: 118° 11' W

Time: 2020 April 25, 21:00 (UTC -07:00)

Powered by: Heavens-Above.com

Suggested Observing List

The list below contains objects that will be visible on the night of the AVAC Deep Sky Star Party or the Saturday nearest the New Moon. In this case April 25, 2020. The list is sorted by the transit time of the object.

ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M31	Galaxy	And	00h 42m 44s	+41° 16.1'	4.3	03:15	11:49	20:23
NGC246	P Neb	Cet	00h 47m 00s	-11° 53.0'	10.9	06:24	11:54	17:23
NGC253	S Gal	Scl	00h 47m 36s	-25° 17.0'	7.1	07:07	11:54	16:41
NGC288	Globular	Scl	00h 52m 45s	-26° 35.0'	8.1	07:17	11:59	16:42
NGC584	Galaxy	Cet	01h 31m 21s	-06° 52.0'	10.4	06:54	12:38	18:22
M33	Galaxy	Tri	01h 33m 51s	+30° 39.6'	6.2	05:00	12:40	20:21
M76	P Neb	Per	01h 42m 18s	+51° 34.2'	12.0	02:37	12:49	23:01
NGC663	Open	Cas	01h 46m 00s	+61° 15.0'	7.1	Circum	12:53	Circum
NGC752	Open	And	01h 57m 48s	+37° 41.0'	5.7	04:51	13:04	21:18
NGC869	Open	Per	02h 20m 00s	+57° 08.0'	4.3	Circum	13:27	Circum
NGC884	Open	Per	02h 22m 18s	+57° 08.1'	4.0	Circum	13:29	Circum
NGC908	Galaxy	Cet	02h 23m 05s	-21° 14.0'	10.2	08:29	13:30	18:30
NGC896	Neb	Cas	02h 25m 28s	+62° 01.1'		Circum	13:32	Circum
NGC896	Neb	Cas	02h 25m 28s	+62° 01.1'		Circum	13:32	Circum
NGC1027	Open	Cas	02h 42m 40s	+61° 35.7'	6.7	Circum	13:49	Circum
NGC1097	S Gal	For	02h 46m 18s	-30° 17.0'	9.2	09:25	13:53	18:21
HR963	Dbl	For	03h 12m 04s	-28° 59.2'	3.9	09:45	14:19	18:52
HR963	Dbl	For	03h 12m 04s	-28° 59.2'	3.9	09:45	14:19	18:52
NGC1261	Globular	Hor	03h 12m 18s	-55° 13.0'	8.4	13:26	14:19	15:11
NGC1261	Globular	Hor	03h 12m 18s	-55° 13.0'	8.4	13:26	14:19	15:11
NGC1291	Galaxy	Eri	03h 17m 18s	-41° 06.4'	8.5	10:48	14:24	18:00
NGC1302	Galaxy	For	03h 19m 51s	-26° 03.6'	11.0	09:42	14:26	19:11
NGC1342	Open	Per	03h 31m 38s	+37° 22.6'	6.7	06:27	14:38	22:50
NGC1432	Neb	Tau	03h 45m 50s	+24° 22.1'		07:36	14:52	22:09
NGC1435	Neb	Tau	03h 46m 10s	+23° 45.8'		07:39	14:53	22:07
NGC1435	Neb	Tau	03h 46m 10s	+23° 45.8'		07:39	14:53	22:07
M45	Open	Tau	03h 47m 30s	+24° 07.0'	1.6	07:39	14:54	22:09
NGC1499	Neb	Per	04h 03m 14s	+36° 22.0'		07:03	15:10	23:16
NGC1502	Open	Cam	04h 07m 50s	+62° 19.8'	5.7	Circum	15:14	Circum
NGC1502	Open	Cam	04h 07m 50s	+62° 19.8'	5.7	Circum	15:14	Circum
NGC1514	P Neb	Tau	04h 09m 17s	+30° 46.5'	10.0	07:35	15:16	22:57
NGC1535	P Neb	Eri	04h 14m 16s	-12° 44.3'	10.0	09:54	15:21	20:48
NGC1528	Open	Per	04h 15m 23s	+51° 12.9'	6.4	05:16	15:22	01:28
NGC1579	Neb	Per	04h 30m 14s	+35° 16.7'		07:36	15:37	23:38
NGC1579	Neb	Per	04h 30m 14s	+35° 16.7'		07:36	15:37	23:38
NGC1600	Galaxy	Eri	04h 31m 40s	-05° 05.2'	11.1	09:50	15:38	21:27
NGC1662	Open	Ori	04h 48m 27s	+10° 56.1'	6.4	09:21	15:55	22:29
NGC1664	Open	Aur	04h 51m 06s	+43° 40.4'	7.6	07:07	15:58	00:48
NGC1784	Galaxy	Lep	05h 05m 27s	-11° 52.3'	11.8	10:43	16:12	21:41

Desert Sky Observer

www.avastronomyclub.org

April 2020

ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC1778	Open	Aur	05h 08m 04s	+37° 01.4'	7.7	08:05	16:15	00:24
NGC1807	Open	Tau	05h 10m 43s	+16° 31.3'	7.0	09:27	16:17	23:08
NGC1851	Globular	Col	05h 14m 06s	-40° 03.0'	7.3	12:38	16:21	20:03
C31	BrNeb	Aur	05h 16m 12s	+34° 16.0'		08:27	16:23	00:19
C31	BrNeb	Aur	05h 16m 12s	+34° 16.0'		08:27	16:23	00:19
NGC1893	Open	Aur	05h 22m 45s	+33° 24.7'	7.5	08:37	16:29	00:22
M79	Globular	Lep	05h 24m 11s	-24° 31.4'	8.5	11:41	16:31	21:20
M38	Open	Aur	05h 28m 40s	+35° 50.8'	7.0	08:31	16:35	00:39
NGC1981	Open	Ori	05h 35m 09s	-04° 25.9'	4.6	10:51	16:42	22:32
NGC1977	Neb	Ori	05h 35m 16s	-04° 49.2'		10:52	16:42	22:31
NGC1977	Neb	Ori	05h 35m 16s	-04° 49.2'		10:52	16:42	22:31
M42	Open+D Neb	Ori	05h 35m 16s	-05° 23.4'	4.0	10:54	16:42	22:30
NGC1976	Neb	Ori	05h 35m 16s	-05° 23.4'	4.0	10:54	16:42	22:30
NGC1975	Neb	Ori	05h 35m 18s	-04° 41.0'		10:52	16:42	22:32
NGC1975	Neb	Ori	05h 35m 18s	-04° 41.0'		10:52	16:42	22:32
NGC1980	Neb	Ori	05h 35m 25s	-05° 54.9'		10:56	16:42	22:28
NGC1980	Neb	Ori	05h 35m 25s	-05° 54.9'		10:56	16:42	22:28
M43	D Neb	Ori	05h 35m 31s	-05° 16.0'	9.0	10:54	16:42	22:30
NGC1990	Neb	Ori	05h 36m 13s	-01° 12.1'		10:43	16:43	22:42
M36	Open	Aur	05h 36m 18s	+34° 08.3'	6.5	08:47	16:43	00:38
NGC1999	Neb	Ori	05h 36m 25s	-06° 43.0'		10:59	16:43	22:27
NGC2023	Neb	Ori	05h 41m 38s	-02° 15.5'		10:52	16:48	22:45
NGC2023	Neb	Ori	05h 41m 38s	-02° 15.5'		10:52	16:48	22:45
NGC2024	Neb	Ori	05h 41m 42s	-01° 51.4'		10:51	16:48	22:46
NGC2024	Neb	Ori	05h 41m 42s	-01° 51.4'		10:51	16:48	22:46
NGC2022	P Neb	Ori	05h 42m 06s	+09° 05.2'	12.0	10:20	16:49	23:17
NGC2064	Neb	Ori	05h 46m 18s	+00° 00.3'		10:50	16:53	22:56
M37	Open	Aur	05h 52m 18s	+32° 33.1'	6.0	09:10	16:59	00:47
NGC2169	Open	Ori	06h 08m 24s	+13° 57.9'	5.9	10:33	17:15	23:57
M35	Open	Gem	06h 09m 00s	+24° 21.0'	5.5	09:59	17:16	00:32
NGC2174	Neb	Ori	06h 09m 24s	+20° 39.5'		10:12	17:16	00:19
NGC2174	Neb	Ori	06h 09m 24s	+20° 39.5'		10:12	17:16	00:19
NGC2175	Open	Ori	06h 09m 40s	+20° 29.2'	6.8	10:13	17:16	00:19
NGC2217	Galaxy	CMa	06h 21m 40s	-27° 14.0'	10.4	12:48	17:28	22:08
NGC2232	Open	Mon	06h 28m 01s	-04° 50.8'	3.9	11:45	17:35	23:24
NGC2237	BrNeb	Mon	06h 32m 18s	+05° 03.0'		11:22	17:39	23:56
NGC2244	Open	Mon	06h 32m 24s	+04° 52.0'	4.8	11:23	17:39	23:55
NGC2264	Open	Mon	06h 40m 58s	+09° 53.7'	3.9	11:17	17:48	00:18
M41	Open	CMa	06h 46m 01s	-20° 45.3'	5.0	12:50	17:53	22:55
NGC2281	Open	Aur	06h 48m 17s	+41° 04.7'	5.4	09:22	17:55	02:28
NGC2298	Globular	Pup	06h 48m 59s	-36° 00.2'	9.4	13:52	17:56	21:59

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ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC2298	Globular	Pup	06h 48m 59s	-36° 00.2'	9.4	13:52	17:56	21:59
M50	Open	Mon	07h 02m 42s	-08° 23.0'	7.0	12:30	18:09	23:49
NGC2343	Open	Mon	07h 08m 06s	-10° 37.0'	6.7	12:42	18:15	23:48
NGC2362	Open	CMa	07h 18m 48s	-24° 57.0'	4.1	13:37	18:25	23:14
NGC2384	Open	CMa	07h 25m 10s	-21° 01.3'	7.4	13:30	18:32	23:33
NGC2396	Open	Pup	07h 28m 00s	-11° 43.0'	7.0	13:05	18:35	00:04
NGC2392	P Neb	Gem	07h 29m 12s	+20° 55.0'	9.2	11:31	18:36	01:40
NGC2414	Open	Pup	07h 33m 12s	-15° 27.1'	7.9	13:21	18:40	23:59
M47	Open	Pup	07h 36m 35s	-14° 29.0'	4.5	13:21	18:43	00:05
NGC2438	P Neb	Pup	07h 41m 50s	-14° 44.1'	10.0	13:27	18:48	00:09
NGC2440	P Neb	Pup	07h 41m 55s	-18° 12.5'	11.0	13:38	18:49	23:59
NGC2451	Open	Pup	07h 45m 15s	-37° 58.0'	2.8	14:58	18:52	22:45
NGC2477	Open	Pup	07h 52m 18s	-38° 33.0'	5.8	15:08	18:59	22:49
NGC2527	Open	Pup	08h 04m 58s	-28° 08.8'	6.5	14:35	19:12	23:48
NGC2547	Open	Vel	08h 10m 09s	-49° 12.9'	4.7	16:43	19:17	21:51
NGC2539	Open	Pup	08h 10m 37s	-12° 49.1'	6.5	13:51	19:17	00:44
NGC2546	Open	Pup	08h 12m 15s	-37° 35.7'	6.3	15:23	19:19	23:14
M48	Open	Hya	08h 13m 43s	-05° 45.0'	5.5	13:33	19:20	01:07
NGC2541	Galaxy	Lyn	08h 14m 40s	+49° 03.7'	11.8	09:43	19:21	05:00
NGC2567	Open	Pup	08h 18m 32s	-30° 38.3'	7.4	14:58	19:25	23:52
C85	Open	Vel	08h 40m 12s	-53° 04.0'	2.5	18:03	19:47	21:30
M44	Open	Cnc	08h 40m 24s	+19° 40.0'	4.0	12:47	19:47	02:47
NGC2781	Galaxy	Hya	09h 11m 28s	-14° 49.0'	11.5	14:57	20:18	01:39
NGC2768	Galaxy	UMa	09h 11m 37s	+60° 02.2'	10.0	Circum	20:18	Circum
NGC2910	Open	Vel	09h 30m 30s	-52° 55.1'	7.2	18:51	20:37	22:23
NGC2968	Galaxy	Leo	09h 43m 12s	+31° 55.7'	11.8	13:04	20:50	04:35
NGC2986	Galaxy	Hya	09h 44m 16s	-21° 16.7'	10.9	15:50	20:51	01:51
NGC3132	P Neb	Vel	10h 07m 42s	-40° 26.0'	9.4	17:34	21:14	00:54
NGC3201	Globular	Vel	10h 17m 36s	-46° 25.0'	6.7	18:25	21:24	00:24
NGC3242	P Neb	Hya	10h 24m 48s	-18° 38.0'	7.8	16:22	21:31	02:40
NGC3277	Galaxy	LMi	10h 32m 55s	+28° 30.6'	11.7	14:08	21:40	05:11
NGC3330	Open	Vel	10h 38m 46s	-54° 07.3'	7.4	20:22	21:45	23:08
NGC3448	Galaxy	UMa	10h 54m 39s	+54° 18.3'	11.7	10:44	22:01	09:18
M97	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circum	22:21	Circum
NGC3599	Galaxy	Leo	11h 15m 27s	+18° 06.5'	11.9	15:27	22:22	05:17
NGC3607	Galaxy	Leo	11h 16m 55s	+18° 03.0'	10.0	15:28	22:23	05:19
NGC3610	Galaxy	UMa	11h 18m 25s	+58° 47.1'	10.8	Circum	22:25	Circum
NGC3672	Galaxy	Crt	11h 25m 02s	-09° 47.7'	11.0	16:56	22:32	04:07
NGC3705	Galaxy	Leo	11h 30m 07s	+09° 16.5'	11.0	16:08	22:37	05:05
NGC3953	Galaxy	UMa	11h 53m 49s	+52° 19.6'	10.1	12:36	23:00	09:25
NGC4036	Galaxy	UMa	12h 01m 27s	+61° 53.7'	10.6	Circum	23:08	Circum
NGC4147	Globular	Com	12h 10m 06s	+18° 32.5'	10.3	16:20	23:17	06:13
NGC4236	S Gal	Dra	12h 16m 42s	+69° 28.0'	9.7	Circum	23:23	Circum

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ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC4233	Galaxy	Vir	12h 17m 08s	+07° 37.4'	11.9	17:00	23:24	05:48
M106	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	14:05	23:26	08:46
NGC4274	Galaxy	Com	12h 19m 51s	+29° 36.8'	10.4	15:50	23:26	07:02
M100	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	16:41	23:29	06:18
NGC4340	Galaxy	Com	12h 23m 35s	+16° 43.3'	11.0	16:39	23:30	06:21
NGC4361	P Neb	Crv	12h 24m 31s	-18° 47.0'	10.0	18:22	23:31	04:40
M86	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	16:53	23:33	06:12
M87	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	17:00	23:37	06:15
NGC4528	Galaxy	Vir	12h 34m 06s	+11° 19.2'	11.7	17:06	23:41	06:15
M91	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	16:58	23:42	06:26
NGC4546	Galaxy	Vir	12h 35m 29s	-03° 47.5'	10.3	17:50	23:42	05:34
M68	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	19:04	23:46	04:28
NGC4691	Galaxy	Vir	12h 48m 14s	-03° 20.0'	11.2	18:01	23:55	05:48
NGC4753	Galaxy	Vir	12h 52m 22s	-01° 12.0'	9.9	18:00	23:59	05:58
NGC4762	Galaxy	Vir	12h 52m 56s	+11° 13.8'	10.2	17:25	00:00	06:34
NGC4936	Galaxy	Cen	13h 04m 17s	-30° 31.5'	11.3	19:44	00:11	04:38
M53	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	17:24	00:20	07:15
M53	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	17:24	00:20	07:15
NGC5018	Galaxy	Vir	13h 13m 01s	-19° 31.1'	10.8	19:13	00:20	05:26
NGC5053	Globular	Com	13h 16m 27s	+17° 41.8'	9.8	17:29	00:23	07:17
NGC5053	Globular	Com	13h 16m 27s	+17° 41.8'	9.8	17:29	00:23	07:17
NGC5139	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	21:43	00:33	03:24
HR5144	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	17:46	00:47	07:48
HR5144	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	17:46	00:47	07:48
M3	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	17:18	00:49	08:20
NGC5286	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	22:44	00:53	03:02
NGC5307	P Neb	Cen	13h 51m 03s	-51° 12.3'	12.0	22:46	00:58	03:09
NGC5354	Galaxy	CVn	13h 53m 27s	+40° 18.1'	11.5	16:32	01:00	09:28
NGC5427	Galaxy	Vir	14h 03m 26s	-06° 01.8'	11.4	19:24	01:10	06:56
NGC5474	Galaxy	UMa	14h 05m 02s	+53° 39.7'	10.9	14:17	01:12	12:06
NGC5466	Globular	Boo	14h 05m 28s	+28° 31.9'	9.1	17:40	01:12	08:44
NGC5466	Globular	Boo	14h 05m 28s	+28° 31.9'	9.1	17:40	01:12	08:44
NGC5460	Open	Cen	14h 07m 27s	-48° 20.6'	5.6	22:31	01:14	03:57
HR5362	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	22:03	01:27	04:51
HR5362	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	22:03	01:27	04:51
HR5409	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	19:38	01:35	07:31
HR5409	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	19:38	01:35	07:31
NGC5634	Globular	Vir	14h 29m 37s	-05° 58.6'	9.6	19:50	01:36	07:22
NGC5660	Galaxy	Boo	14h 29m 50s	+49° 37.3'	11.8	15:51	01:36	11:21
NGC5668	Galaxy	Vir	14h 33m 24s	+04° 27.0'	11.5	19:25	01:40	07:55
NGC5694	Globular	Hya	14h 39m 36s	-26° 32.0'	10.2	21:04	01:46	06:29
NGC5713	Galaxy	Vir	14h 40m 11s	-00° 17.4'	11.4	19:45	01:47	07:49

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