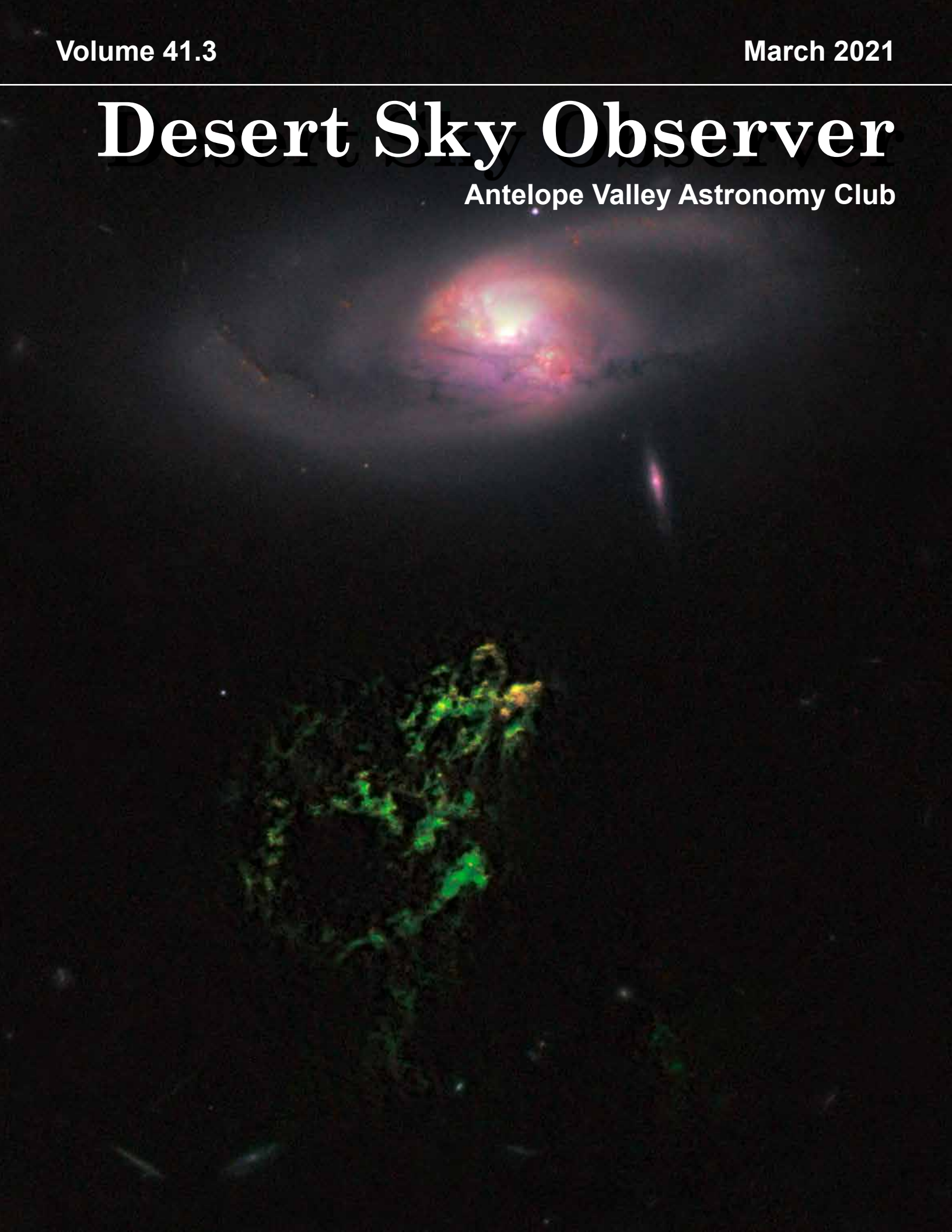


Volume 41.3

March 2021

Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org March 2021

Upcoming Events

March 12: Club Meeting . . Via Zoom
March 14: Daylight Saving Time begins

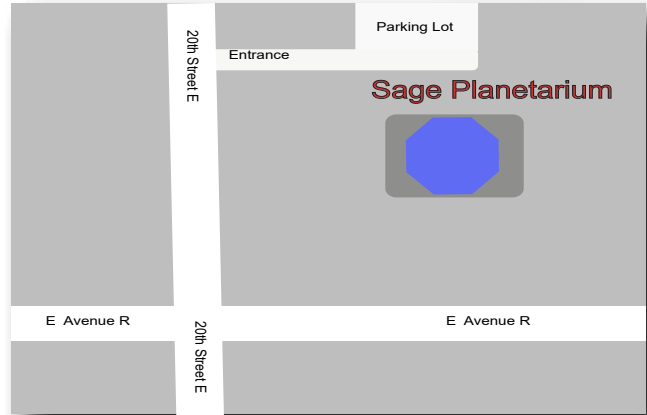
March 20 09:37 UT: Spring Equinox



AVAC Calendar

Any clear night: Personal Star Party

April 10: Messier Marathon -- Chuchupate



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 Van Evera 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/.

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



www.avastronomyclub.org



President's Message

By Darrel Bennet

Hello everyone. I am hoping we are seeing the light at the end of the tunnel on the Corona Virus, so everything can get back to normal soon.

On April 10th we will be holding our annual Messier Marathon, it was supposed to be at Saddleback Butte State Park but the ranger emailed me and said the group campsites were still closed. I called our Vice President Matt and decided to hold it at Chuchupate parking lot instead. We usually setup on the east side of the parking lot.

As usual, you do not need a telescope to attend. Come and look through one of the member's scopes. Dress warmly because it can get a little cold there at night. If you would like to come and see some of us that you have not seen in a year that would be great.

At the last board meeting we discussed having the club picnic party at Saddleback Butte State Park, June 12th if the group campsites are open by then.

I missed the last month online club meeting with Jeremy because the club did not have my new email address. I hope that it will be straightened out before the next one; I haven't even received the newsletter. My new email is darrell195367@yahoo.com, if you need to reach me.

I do hope everyone stays safe and well and hope to see all of you at the Messier Marathon on April 10th.

Until then keep looking up.

On The Cover

In this image by the NASA/ESA Hubble Space Telescope, an unusual, ghostly green blob of gas appears to float near a normal-looking spiral galaxy.

The bizarre object, dubbed Hanny's Voorwerp (Hanny's Object in Dutch), is the only visible part of a streamer of gas stretching 300 000 light-years around the galaxy, called IC 2497. The greenish Voorwerp is visible because a searchlight beam of light from the galaxy's core has illuminated it. This beam came from a quasar, a bright, energetic object that is powered by a black hole. The quasar may have turned off in the last 200 000 years.

This Hubble view uncovers a pocket of star clusters, the yellowish-orange area at the tip of Hanny's Voorwerp. The star clusters are confined to an area that is a few thousand light-years wide. The youngest stars are a couple of million years old. The Voorwerp is the size of the Milky Way, and its bright green colour is from glowing oxygen.

The image was made by combining data from the Advanced Camera for Surveys (ACS) and the Wide Field Camera 3 (WFC3) onboard Hubble, with data from the WIYN telescope at Kitt Peak, Arizona, USA. The ACS exposures were taken 12 April 2010; the WFC3 data, 4 April 2010.

Credit:

NASA, ESA, William Keel (University of Alabama, Tuscaloosa), and the Galaxy Zoo team

From the Secretary

By Rose Moore

Members:

Our meeting for Friday March 12th will be another Zoom meeting. Jeremy is trying to arrange a speaker for the meeting. Further information on our program for that evening, and the link for the Zoom meeting will be sent out several days before. We had a short meeting for February to try it out and it went well. I think we had 11 or 12 attendees. I hope we can have many more for our next few meetings. Our club VP Matt is beginning to line up speakers.

On Saturday April 10th we will have our first dark sky star party for 2021! We will be having our Messier Marathon at Chuchupate, near Frazier Park. Further information will be sent out that week. We are hoping the weather will be cooperative. Darrell spoke to the Saddleback Park Ranger about having our DSSP there, but they are not taking any reservations for the large group campground during the spring or early summer.

The month of May brings us two star party events. The first will be a DSSP on Saturday May 8th at Chuchupate. Our second event will be on Saturday May 15th and that will be our Lunar Club meeting at member Judy's home in Antelope Acres. Further info coming for both events as we get into May. Also we will have a club Zoom meeting on Friday May 14th.

We had a Board Meeting the last Sunday in January. We discussed the upcoming calendar for 2021, dates for DSSP's, organizing Zoom meetings, and other items.

Because Frank and I are still planning to downsize and move, hopefully this year, our club needs to find a person to replace me as club Secretary. Are there any members interested in resuming the job of club Secretary? That person needs to be comfortable with handling emails, organizing the club calendar, maintaining contact with other Board members and club members, and various other duties. I and other Board members can train someone for the position, and the person can assume the position gradually as I will probably be here for awhile.

Mercury is visible in the morning sky for the remainder of the month of March, it's at greatest western elongation on March 6th. Venus will be at superior conjunction on March 25th, and will unlikely be seen in March due to the Sun's glare. Venus will become an evening planet sometime in April. Mars will continue as an evening planet through the spring. Jupiter and Saturn continue as morning planets. New Moon March 13th, and Full Moon on March 28th.

If anyone is doing any observing at home, please share your experience with us! Send any information to Phil, our Editor.

Clear skies, Rose

Club's Trailer For Sale

The Executive Board has decided that the Club's trailer is no longer needed. The last active use for the trailer was to store members scopes overnight at the Poppy Festival, and lately has been storing a few boxes of club records. It's believed to be a 6x10 single axle cargo van. Contact Darrel for more info...

AVAC Membership Renewal

It is that time year again, time to renew your AVAC Membership. In a normal year I would be enjoying your company and announcing this at our January meeting, but sadly for us all this is still not a normal year. I remain hopeful that we will be able to resume our monthly meetings soon.

It is very gratifying to see the early membership renewals. Even though we are unable to have meetings, our members are still the life blood for the AVAC. And worry not, financially the club is still solvent and we are able to meet all our obligations.

Please remember that when we are able to have our monthly meetings again that our meetings are open to the public and all will be welcome. So, if for any reason you are unable to renew your membership you are still welcome to attend and we look forward to seeing you all again.

For myself the easiest way to renew my membership was through the AVAC website via our PayPal account. But you can still renew using a check via the club's Post Office Box:

Antelope Valley Astronomy Club
PO BOX 8545
Lancaster, CA 93539-8545

For members less familiar with the club's website, it is actually fairly simple:

- Google Antelope Valley Astronomy Club and then open on the link.
- Click on MEMBER and then click on LOGIN.
- The default Member Name will be your Membership Number.
- If you had Signed Up on line you would have created a Password, but if you have forgotten it, use the Forgot Password link.
- Once you have Logged In, under Member click on Profile.
- Under Profile click on Membership.
- Under Your Current Membership click on Renew Now.
- You will have the choice of paying with a PayPal account or with a Credit Card.
- If you choose Credit Card PayPal will allow you to pay as a Guest.

In my opinion renewing on the AVAC website is the best way to go. You will get an almost instant online receipt and the transaction is fully documented. And trust me, if I can do it, anyone should be able to do it also.

Thank you,
Rod Girard, AVAC Treasurer

What is a “Messier Marathon”?

A star party that is devoted to observing as many of the Messier objects as possible in a single evening has come to be called a “Messier Marathon.” These turn out to be some of the most memorable evenings of stargazing that you’ll do - not only because of the quantity of objects that you can observe, but because the you’re ‘forced’ to interact with the breadth of the night sky in a short period of time. I also enjoy the discussions with other amateurs as we each tackle the Virgo Cluster galaxies!

How is it possible to see what amounts to an entire year’s worth of deep sky objects in just one night? With a lot of planning and patience (See Messier Marathon Tips). After a review of your planisphere, you can determine that it’s possible to see all of the Messier Objects if you try during the period near the Spring Equinox of March 17-24. Anything can happen at this time of year though; clouds, rain, high winds. Many roadblocks to success are possible/probable.

There is a suggested order to observing the Messier objects in one evening. This logical progression across the night sky has little to do with the order of Charles Messier’s list! This suggested order has been established after many years of Messier Marathoning - give it a try and see what you think.

It is all worthwhile on that crystal clear, steady night when the local astronomy club visits their favorite dark sky site, everyone has set up early with their scopes roughly aligned and pointed west - a sense of excitement awaiting M74 and M77’s emergence. The sun sets, the twilight deepens. And you’re off! Two down and just 108 items on your list to go before dawn washes out your chance of finding M30! Good Luck!

Suggested Messier Marathon Observing Order

[Marathon order \(html file\)](#)



[Marathon order \(Excel file\)](#)



[Marathon order \(.pdf file\)](#)



Tips on Participating in a Messier Marathon

By John Barra, Peoria Astronomical Society

Edited to reflect the Antelope Valley Astronomy Club's observing sites.

Here a few tips for those who are participating in a Messier Marathon:

1. BE PREPARED:

The Boy's Scout motto is a good one for the marathon that is twelve hours long. Have a good plan of attack. Included at the end of this article is one suggested order to follow. Get the star charts you are going to use and study them.

Do not forget to bring the extras you will need such as a red flashlight, extra batteries for your Telrad or other battery-operated equipment, and a dew zapper. You will have dew in the spring. If you don't have one, bring a hair dryer and a long extension cord.

2. GET THERE EARLY:

Get to the site as early as you can, at least by 6:30 pm. The first object viewable will be M45, the Pleiades, at 6:45. If you are set up by then you can get a few of the brighter objects out of the way fast, even if they are actually listed lower on the list.

3. HAVE A PLAN ON THE TOUGH EARLY OBJECTS:

Try the suggested Messier Marathon order.

You will not have much time between the first signs of darkness, around 7 pm., and the time several of the first tough objects on your list will set in the west. You must be prepared for them. M74 and M77 will be particularly hard to locate. M74, a faint galaxy in Pisces, will undoubtedly be the toughest to find all night. I have trouble finding it when it is high in the sky if seeing conditions are not excellent. It has a low surface brightness. You will need to find a target nearby star and be able to find it fairly quickly after 7 pm. M77, a galaxy in Cetus, is a little easier and you can locate it first because it is brighter.

4. VIEW AS MANY AS YOU CAN AS EARLY AS YOU CAN:

Once you completed the first ten, you can slow your pace a little. However, since you have the most energy early, you need to move across the sky at a fairly good pace. You may need the extra time on the dreaded Virgo Cluster. You should be able to get through the first 48 by 10:30 or 11 pm. By then the Virgo Cluster will be in a good position in the sky to attack.

5. TAKE A BREAK BEFORE THE VIRGO CLUSTER:

Now is a good time to take a break. Have some coffee. Go inside. Rest your feet. Have a snack. After 15 minutes or half an hour, you will be ready to go again.

6. PREPARE FOR VIRGO CLUSTER:

You will need a good plan to wind your way through the Virgo Cluster, comprised of 14 galaxies in Virgo and Coma Berenices. I recommend you follow the path suggested in the chart on pages 42 and 43 of the May 1994 issue of Sky & Telescope. (See this link for the Messier Marathon Order.) It starts in the eastern edge at Epsilon Virginis and goes toward the west rather than following the west to east, right ascension order from the list below

that works well with most of the other objects. If you have Uranometria 2000, copy the charts on pages 192 and 193 and highlight the path suggested in the article. That night if you get halfway through and get lost, don't panic. Start over again and the second time you will be able to quickly get back to the last galaxy you had observed.

7. VIEW ALL THE OBJECTS DOWN TO THE EASTERN HORIZON:

Continue to view as many objects as you can now as you cross the sky at a leisurely pace to the eastern horizon. If you have been successful so far, by about 1:30 am you should have completed 90 of the 110 objects. No more will be high enough above the eastern horizon to view now.

8. TAKE A LONG BREAK OR NAP:

At this time there is a natural break in the marathon. Rather than waiting outside for a few objects to rise, you might as well rest for an hour-and-a half or two while you wait for a larger number to rise sufficiently above the horizon. You may even want to try to take a nap someplace warm. Make sure however you have someone to wake you at 3 or 3:30. You don't want to oversleep and miss the end.

9. GO AT A LEISURELY PACE DOWN THE STRETCH:

You will have a couple of hours to locate the next fifteen objects, so take extra time to view these objects. Enjoy the beauty of the Lagoon and Swan Nebulae. You're almost done.

10. HAVE A PLAN FOR THE LAST TOUGH OBJECTS:

Just as you had to hurry at the beginning to catch the early objects before they set, you will have to hurry to catch the last few objects when they rise shortly before dawn. M72, a faint globular cluster, and M73, a faint four-star asterism, are both in late-rising Aquarius and will be difficult to find. Have your route carefully marked on your chart. If the marathon is later in the month, M30 may be visible but M74 and M77 may not be. If we are delayed to the late April dates, 5 or 6 objects at the beginning of our list may not be visible.

11. PRACTICE AHEAD OF THE TIME:

If you have the time and the weather permits, you might want to try a dry run on the tough twilight objects and the Virgo Cluster. Practice might make the difference on whether or not you view all those objects during the marathon. I won't be so presumptuous to suggest that you do a dry run on the early morning objects. Even I won't go out at 4:30 a.m. to do that.

12. HAVE FUN:

Last and most important, have fun. You don't have to view them all. The competition is friendly. Messier Marathons, while a challenge, are designed to improve your viewing skills rather than being an end in themselves. Finally, if you do come after sunset, don't forget to turn on your parking lights and then turn off your headlights when you drive up.

Taking the Dog Stars for a Springtime Walk: Sirius and Procyon!

by David Prosper

March skies feature many dazzling stars and constellations, glimmering high in the night, but two of the brightest stars are the focus of our attention this month: Sirius and Procyon, the dog stars!

Sirius is the brightest star in the nighttime sky, in large part because it is one of the closest stars to our solar system at 8.6 light years away. Compared to our Sun, Sirius possesses twice the mass and is much younger. Sirius is estimated to be several hundred million years old, just a fraction of the Sun's 4.6 billion years. Near Sirius - around the width of a hand with fingers splayed out, held away at arm's length - you'll find Procyon, the 8th brightest star in the night sky. Procyon is another one of our Sun's closest neighbors, though a little farther away than Sirius, 11.5 light years away. While less massive than Sirius, it is much older and unusually luminous for a star of its type, leading astronomers to suspect that it may "soon" - at some point millions of years from now - swell into a giant star as it nears the end of its stellar life.

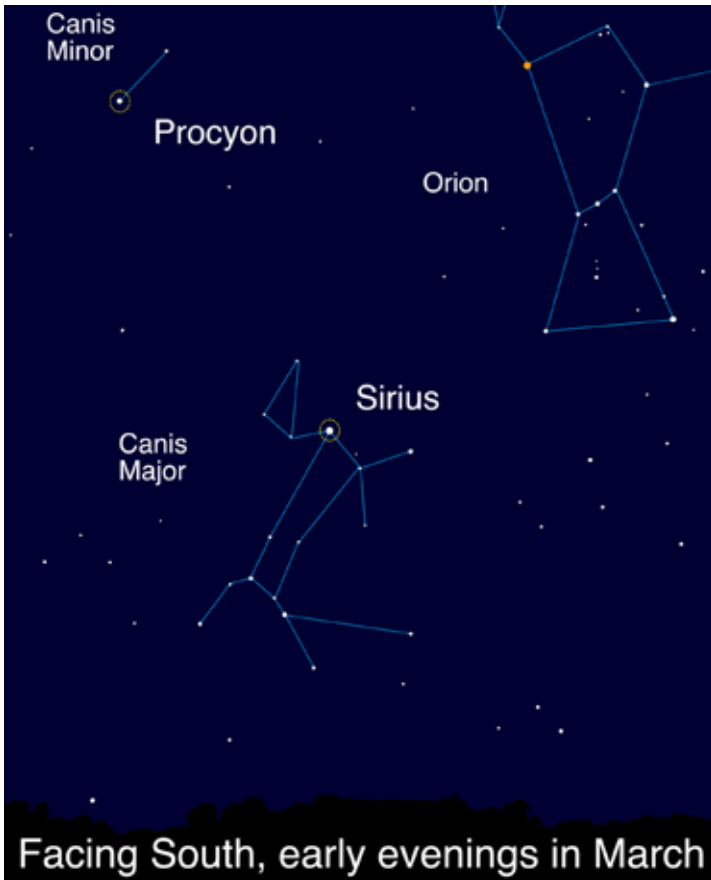
Sirius and Procyon are nicknamed the "Dog Stars," an apt name as they are the brightest stars in their respective constellations - Canis Major and Canis Minor - whose names translate to "Big Dog" and "Little Dog." Not everyone sees them as canine companions. As two of the brightest stars in the sky, they feature prominently in the sky stories of cultures around the world. Sirius also captures the imaginations of people today: when rising or setting near the horizon, its brilliance mixes with our atmosphere's turbulence, causing the star's light to shimmer with wildly flickering color. This vivid, eerie sight was an indication to ancient peoples of changes in the seasons, and even triggers UFO reports in the modern era!

Both of these bright stars have unseen companions: tiny, dense white dwarf stars, the remnants of supermassive companion stars. Interestingly, both of these dim companions were inferred from careful studies of their parent stars' movements in the 1800s, before they were ever directly observed! They are a challenging observation, even with a large telescope, since their parent stars are so very bright that their light overwhelms the much dimmer light of their tiny companions. The white dwarf stars, just like their parent stars, have differences: Sirius B is younger, brighter, and more energetic than Procyon B. Careful observations of these nearby systems over hundreds of years have helped advance the fields of: astrometry, the precise measurement of stars; stellar evolution; and astroseismology, the study of the internal structure of stars via their oscillations. Discover more about our stellar neighborhood at [nasa.gov](https://www.nasa.gov)!

Desert Sky Observer

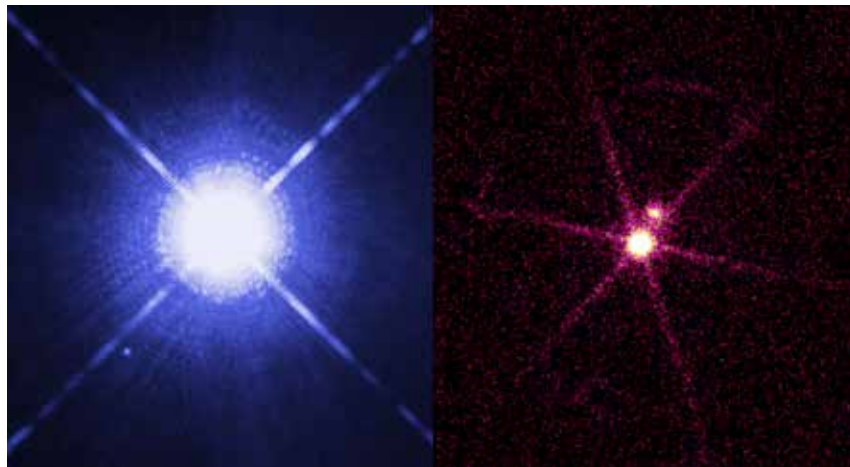
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Sirius and Procyon, the loyal hunting dogs of nearby Orion the Hunter! What other stories can you imagine for these stars? Learn about “Legends in the Sky” and create your own with this activity: <https://bit.ly/legendsinthesky>

Image created with assistance from Stellarium.



Sirius A and B imaged by two different space telescopes, revealing dramatically different views! Hubble’s image (left) shows Sirius A shining brightly in visible light, with diminutive Sirius B a tiny dot. However, in Chandra’s image (right) tiny Sirius B is dramatically brighter in X-rays! The “Universe in a Different Light” activity highlights more surprising views of some familiar objects: <http://bit.ly/different-light-nsn> NASA, ESA, H. Bond (STScI), and M. Barstow (University of Leicester) (left); NASA/SAO/CXC (right)

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!

Space News

News from around the Net

The Mars Helicopter is Online and Getting Ready to Fly

Earth is the only planet in the solar system with aircraft capable of sustained flight. Suppose the ground-breaking Ingenuity helicopter, currently stowed aboard the similarly spectacular Mars Perseverance rover, accomplishes its planned mission. In that case, Mars will become the second planet to have a powered aircraft fly through its atmosphere. ... (continued at <https://www.universetoday.com/150224/the-mars-helicopter-is-online-and-getting-ready-to-fly/>)



NASA's Parker Solar Probe captures stunning Venus photo during close flyby

NASA's Parker Solar Probe nailed its fourth swing past Venus on Feb. 20, and mission scientists celebrated by releasing a stunning image captured during a similar maneuver in July. Parker Solar Probe launched in August 2018 with a daring mission: to fly closer to the sun than any previous spacecraft. But along the way, the probe needs to whiz past Venus a total of seven times, with each pass pulling the spacecraft closer to the sun. . . . (continued at <https://www.space.com/stunning-venus-photo-parker-solar-probe-flyby>)



Our Part of the Galaxy is Packed with Binary Stars

Binary star systems are everywhere. They make up a huge percentage of all known solar systems: from what we can tell, about half of all Sun-like stars have a binary partner. But we haven't really had a chance to study them in detail yet. That's about to change. Using data from the European Space Agency's Gaia spacecraft, . . . (continued at <https://www.universetoday.com/150274/our-part-of-the-galaxy-is-packed-with-binary-stars/>)



New Mars image from rover landing site shows the red planet in high definition

The Perseverance rover has had a chance to settle in on Mars since landing last Thursday, so it's doing what every new resident does these days -- sending back photos of its new home. In this case, it's a steady stream of amazing imagery from another planet. The rover's Mastcam-Z instrument, a pair of zoomable color cameras, returned 142 images of its landing site on February 21. The teams at NASA stitched them together to create the instrument's first 360-degree panorama. . . . (continued at <https://www.cnn.com/2021/02/24/world/mars-perseverance-landing-panoramic-image-scen-trnd/index.html>)



New Documentary Reveals How Star Trek Changed NASA Forever

Science fiction fans often think of 1977 as the year of star wars. But, more importantly, 1977 was when space exploration actually made strides toward Star Trek's vision of a diverse future. During a roughly four-month period in early 1977, Nichelle Nichols worked to recruit astronauts for NASA's then-new Space Shuttle program. Her goal was simple and self-fashioned: Get as many women and non-whites to apply as possible. . . . (continued at <https://www.inverse.com/entertainment/star-trek-nichelle-nichols-woman-in-motion-documentary>)



Dark Sky Observing Sites

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.



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.

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.



Planet Summary

The **Sun** starts March in Aquarius and crosses into Pisces by the end of the month.

Mercury achieves Greatest Elongation West on the 6th. There after starting its dive back toward the Sun. The waning crescent Moon passes 4° to the south on the 10th, but the Earth will be in the way.

Venus starts the month in Aquarius falling toward the Sun, ending the month in Pisces at a mag of -3.91. Problem is the Sun is in Pisces too. Say good-bye till early May when it reemerges in the evening twilight.

Mars spends the month in Taurus slowly moving east. On the 3rd of March, Mars passes less than 3° south of the Pleiades (M45). On the 19th the 32% waxing Moon passes 2°35' to the south.

Jupiter spends the month in eastern Capricorn. The solar elongation opens from 24° to 48° during the month. In close conjunction, just 0°17', from Mercury on the morning of the 5th.

Saturn spends the month in Capricorn. On the 9th 12% waning Moon passes less than 4° to the south. The elongation from the Sun from 33° on the 1st to 60° on the 30th.

Uranus will spend the month in southern Aries at magnitude 5.8. The 12% crescent Moon slides past 3° to the south on the 16th.

Neptune will spend the month stationary in northeast Aquarius at mag 7.9. The Sun will pass in front of Neptune the 6th -14th.

Pluto spends the month in Sagittarius at mag 14. On the 8th the waning Moon slides past to the south by 2°11"

Sun and Moon Rise and Set



First Qtr Mar 21 Full Mar 28 Third Qtr Mar 5 New Mar 13

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
3/1/2021	20:45	08:04	06:21	17:48
3/5/2021	12:15	10:33	06:16	17:52
3/10/2021	04:58	15:25	06:09	17:56
3/15/2021	08:28	21:19	07:02	19:00
3/20/2021	11:08	13:06	06:55	19:04
3/25/2021	15:55	05:14	06:48	19:08
3/30/2021	21:48	08:08	06:41	19:12

Planet Data*

Mar 1

	Rise	Transit	Set	Mag	Phase%
Mercury	05:05	10:22	15:39	0.25	49.1
Venus	06:12	11:44	17:17	-3.91	99.4
Mars	09:52	16:57	00:04	0.93	89.6
Jupiter	05:16	10:32	15:47	-1.99	99.8
Saturn	04:50	09:58	15:07	0.72	99.9

Mar 15

	Rise	Transit	Set	Mag	Phase%
Mercury	06:03	11:28	16:55	0.01	69.5
Venus	07:03	12:54	18:46	-3.91	99.8
Mars	10:26	17:37	00:48	1.11	90.4
Jupiter	05:31	10:49	16:07	-2.04	99.6
Saturn	04:59	10:09	15:19	0.74	99.8

Mar 30

	Rise	Transit	Set	Mag	Phase%
Mercury	06:07	11:55	17:45	-0.43	85.0
Venus	06:51	13:03	19:16	-3.91	99.9
Mars	10:01	17:16	00:31	1.29	91.3
Jupiter	04:41	10:02	15:23	-2.10	99.4
Saturn	04:05	09:15	14:26	0.75	99.8

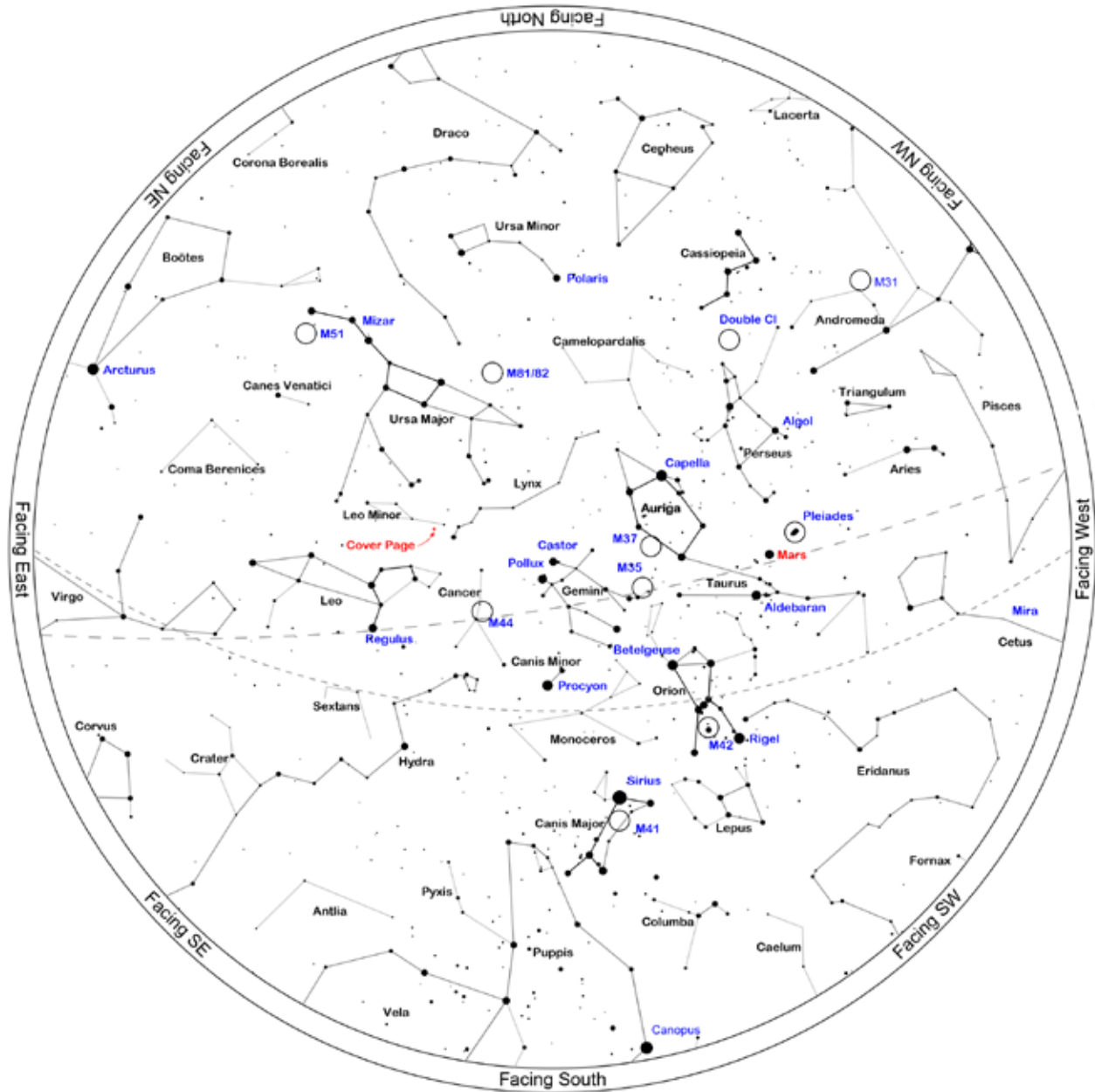
*Sun, Moon and Planetary date based on Quartz Hill, CA

Desert Sky Observer

www.avastronomyclub.org

March 2021

Sky Chart



Location: Palmdale, CA 93551

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

Time: 2021 March 13, 20:00 (UTC -08:00)

Powered by: Heavens-Above.com

Desert Sky Observer

www.avastronomyclub.org

March 2021

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 March 13, 2021. The list is sorted by the transit time of the object.

ID	Type		RA	Dec	Mag	Rise	Transit	Set
NGC1350	Galaxy	For	03h 31m 08s	-33° 37.7'	10.5	11:46	16:01	20:15
Barnard1	DkNeb	Per	03h 32m 57s	+31° 09.0'		08:20	16:02	23:45
Barnard2	DkNeb	Per	03h 33m 31s	+32° 19.0'		08:16	16:03	23:50
Barnard3	DkNeb	Per	03h 40m 01s	+31° 58.0'		08:24	16:09	23:55
NGC1407	Galaxy	Eri	03h 40m 12s	-18° 34.8'	9.8	11:00	16:10	21:19
IC347	Galaxy	Eri	03h 42m 32s	-04° 17.9'	13.0	10:21	16:12	22:03
NGC1448	Galaxy	Hor	03h 44m 32s	-44° 38.6'	11.0	13:01	16:14	19:27
IC348	Open	Per	03h 44m 34s	+32° 09.7'	7.3	08:27	16:14	00:01
M45	Open	Tau	03h 47m 30s	+24° 07.0'	1.6	09:02	16:17	23:32
Barnard5	DkNeb	Per	03h 47m 53s	+32° 53.0'		08:28	16:17	00:07
NGC1461	Galaxy	Eri	03h 48m 27s	-16° 23.5'	11.7	11:02	16:18	21:34
IC353	Neb	Tau	03h 53m 00s	+25° 48.0'		09:01	16:22	23:44
IC2003	P Neb	Per	03h 56m 22s	+33° 52.5'	13.0	08:31	16:26	00:20
NGC1499	Neb	Per	04h 03m 14s	+36° 22.0'		08:26	16:33	00:39
NGC1515	Galaxy	Dor	04h 04m 03s	-54° 06.0'	11.0	15:10	16:34	17:57
NGC1496	Open	Per	04h 04m 32s	+52° 39.7'	10.0	06:03	16:34	03:05
NGC1502	Open	Cam	04h 07m 50s	+62° 19.8'	5.7	Circum	16:37	Circum
IC360	Neb	Tau	04h 09m 00s	+26° 06.0'		09:16	16:38	00:01
NGC1514	P Neb	Tau	04h 09m 17s	+30° 46.5'	10.0	08:58	16:39	00:20
NGC1513	Open	Per	04h 09m 57s	+49° 30.8'	8.4	06:56	16:39	02:23
IC359	Neb	Tau	04h 12m 28s	+27° 42.1'		09:13	16:42	00:10
NGC1535	P Neb	Eri	04h 14m 16s	-12° 44.3'	10.0	11:17	16:44	22:11
Barnard10	DkNeb	Tau	04h 18m 41s	+28° 16.0'		09:18	16:48	00:19
NGC1545	Open	Per	04h 20m 57s	+50° 15.2'	6.2	06:58	16:50	02:43
NGC1569	Galaxy	Cam	04h 30m 49s	+64° 50.8'	11.2	Circum	17:00	Circum
Barnard18	DkNeb	Tau	04h 31m 13s	+24° 21.0'		09:45	17:01	00:17
NGC1582	Open	Per	04h 31m 53s	+43° 49.0'	7.0	08:10	17:01	01:53
NGC1560	Galaxy	Cam	04h 32m 48s	+71° 52.7'	11.5	Circum	17:02	Circum
Barnard19	DkNeb	Tau	04h 33m 00s	+26° 16.0'		09:39	17:02	00:26
Barnard20	DkNeb	Per	04h 37m 04s	+50° 58.0'		07:04	17:07	03:09
Barnard22	DkNeb	Tau	04h 38m 00s	+26° 03.0'		09:45	17:07	00:30
Barnard14	DkNeb	Tau	04h 39m 59s	+25° 44.0'		09:48	17:09	00:31
IC2087	Neb	Tau	04h 40m 00s	+25° 44.5'		09:48	17:09	00:31
Barnard23	DkNeb	Tau	04h 40m 33s	+29° 52.0'		09:33	17:10	00:47
NGC1624	Open	Per	04h 40m 36s	+50° 27.6'	10.4	07:15	17:10	03:06
NGC1640	Galaxy	Eri	04h 42m 14s	-20° 26.0'	11.7	12:08	17:12	22:15

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ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC1647	Open	Tau	04h 45m 55s	+19° 06.8'	6.4	10:17	17:15	00:14
IC2118	Neb	Eri	05h 04m 54s	-07° 15.0'		11:52	17:34	23:17
NGC1851	Globular	Col	05h 14m 06s	-40° 03.0'	7.3	14:01	17:44	21:26
IC405	Neb	Aur	05h 16m 29s	+34° 21.3'		09:49	17:46	01:43
M79	Globular	Lep	05h 24m 11s	-24° 31.4'	8.5	13:04	17:54	22:43
M38	Open	Aur	05h 28m 40s	+35° 50.8'	7.0	09:54	17:58	02:02
M1	SNR	Tau	05h 34m 32s	+22° 00.8'	8.4	10:56	18:04	01:12
M42	Open+D Neb	Ori	05h 35m 16s	-05° 23.4'	4.0	12:17	18:05	23:53
M43	D Neb	Ori	05h 35m 31s	-05° 16.0'	9.0	12:17	18:05	23:53
M36	Open	Aur	05h 36m 18s	+34° 08.3'	6.5	10:10	18:06	02:01
M78	D Neb	Ori	05h 46m 45s	+00° 04.8'	8.0	12:13	18:16	00:19
M37	Open	Aur	05h 52m 18s	+32° 33.2'	6.0	10:33	18:22	02:10
M35	Open	Gem	06h 09m 00s	+24° 21.0'	5.5	11:22	18:38	01:55
M41	Open	CMa	06h 46m 01s	-20° 45.3'	5.0	14:13	19:15	00:18
M50	Open	Mon	07h 02m 42s	-08° 23.0'	7.0	13:53	19:32	01:12
M47	Open	Pup	07h 36m 35s	-14° 29.0'	4.5	14:44	20:06	01:28
M46	Open	Pup	07h 41m 46s	-14° 48.6'	6.5	14:50	20:11	01:32
M93	Open	Pup	07h 44m 30s	-23° 51.4'	6.5	15:22	20:14	01:06
M48	Open	Hya	08h 13m 43s	-05° 45.0'	5.5	14:56	20:43	02:30
M44	Open	Cnc	08h 40m 24s	+19° 40.0'	4.0	14:10	21:10	04:10
M67	Open	Cnc	08h 51m 18s	+11° 48.0'	7.5	14:45	21:21	03:57
M81	Galaxy	UMa	09h 55m 33s	+69° 03.9'	7.8	Circum	22:25	Circum
M82	Galaxy	UMa	09h 55m 53s	+69° 40.8'	9.2	Circum	22:25	Circum
M95	Galaxy	Leo	10h 43m 58s	+11° 42.2'	10.6	16:38	23:13	05:49
M96	Galaxy	Leo	10h 46m 46s	+11° 49.2'	10.1	16:40	23:16	05:52
M105	Galaxy	Leo	10h 47m 50s	+12° 34.9'	10.5	16:39	23:17	05:56
M108	Galaxy	UMa	11h 11m 31s	+55° 40.4'	10.6	Circum	23:41	Circum
M97	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circum	23:44	Circum
M65	Galaxy	Leo	11h 18m 56s	+13° 05.5'	10.1	17:09	23:48	06:28
M66	Galaxy	Leo	11h 20m 15s	+12° 59.4'	9.7	17:10	23:50	06:29
M109	Galaxy	UMa	11h 57m 36s	+53° 22.4'	10.6	13:40	00:27	11:14
M98	Galaxy	Com	12h 13m 48s	+14° 54.0'	10.9	17:58	00:43	07:29
M99	Galaxy	Com	12h 18m 50s	+14° 25.0'	10.4	18:04	00:48	07:32
M106	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	15:28	00:48	10:09
M61	Galaxy	Vir	12h 21m 55s	+04° 28.3'	10.1	18:36	00:51	07:07
M40	DbI+Asterism	UMa	12h 22m 12s	+58° 05.0'	8.7	Circum	00:52	Circum
M100	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	18:04	00:52	07:40
M84	Galaxy	Vir	12h 25m 04s	+12° 53.2'	10.2	18:15	00:55	07:34
M85	Galaxy	Com	12h 25m 24s	+18° 11.4'	10.0	17:59	00:55	07:50
M86	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	18:16	00:56	07:35
M49	Galaxy	Vir	12h 29m 47s	+08° 00.0'	9.3	18:34	00:59	07:24

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ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M87	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	18:23	01:00	07:38
M88	Galaxy	Com	12h 31m 59s	+14° 25.2'	10.2	18:18	01:01	07:45
M91	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	18:21	01:05	07:49
M89	Galaxy	Vir	12h 35m 40s	+12° 33.3'	10.9	18:27	01:05	07:43
M90	Galaxy	Vir	12h 36m 50s	+13° 09.7'	10.2	18:26	01:06	07:46
M58	Galaxy	Vir	12h 37m 44s	+11° 49.1'	10.4	18:31	01:07	07:43
M68	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	20:27	01:09	05:51
M104	Galaxy	Vir	12h 39m 59s	-11° 37.3'	9.2	19:39	01:09	06:40
M59	Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	18:36	01:12	07:47
M60	Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	18:38	01:13	07:48
M94	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	16:47	01:20	09:53
M64	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	18:19	01:26	08:33
M53	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	18:47	01:42	08:38
M63	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	17:06	01:45	10:24
NGC5139	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	23:06	01:56	04:47
NGC5169	Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	16:43	01:58	11:12
NGC5204	Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circum	01:59	Circum
M51	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	16:40	01:59	11:19
Arp85	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	16:40	01:59	11:19
NGC5182	Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	21:24	02:00	06:37
NGC5214	Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	17:24	02:02	10:40
M83	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	21:37	02:06	06:36
HR5144	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	19:09	02:10	09:11
NGC5283	Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circum	02:11	Circum
M3	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	18:41	02:12	09:43
NGC5286	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	00:07	02:16	04:25
NGC5292	Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	21:52	02:17	06:43
NGC5356	Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	20:07	02:24	08:42
NGC5363	Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	20:08	02:26	08:43
NGC5447	Neb	UMa	14h 02m 29s	+54° 16.3'		15:16	02:32	13:48
M101	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	15:13	02:33	13:52
NGC5461	Neb	UMa	14h 03m 42s	+54° 19.0'		15:15	02:33	13:51
NGC5485	Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circum	02:37	Circum
NGC5460	Open	Cen	14h 07m 27s	-48° 20.6'	5.6	23:54	02:37	05:19
NGC5500	Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	17:07	02:40	12:12
IC991	Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	21:24	02:47	08:11
HR5362	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	23:26	02:50	06:14
IC4406	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	23:35	02:52	06:08
HR5409	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	21:01	02:58	08:54
NGC5669	Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	20:32	03:02	09:33

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ID	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC5689	Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	17:30	03:05	12:40
M102	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circum	03:36	Circum
NGC5875	Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	17:10	03:39	14:07
NGC5907	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circum	03:45	Circum
NGC5882	P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	00:41	03:46	06:52
NGC5897	Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	22:45	03:47	08:48
M5	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	21:40	03:48	09:57
Barnard228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		00:03	04:13	08:24
IC4593	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	22:04	04:41	11:18
IC4592	Neb	Sco	16h 11m 59s	-19° 27.4'		23:35	04:41	09:48
M80	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	23:52	04:47	09:41
IC4601	Neb	Sco	16h 20m 18s	-20° 04.9'		23:45	04:50	09:54
Abell38	P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	00:30	04:53	09:15
M4	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	00:11	04:53	09:36
IC4603	Neb	Oph	16h 25m 24s	-24° 28.0'		00:05	04:55	09:45
IC4604	Neb	Oph	16h 25m 33s	-23° 26.5'		00:02	04:55	09:48
NGC6124	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	01:16	04:55	08:34
Abell39	P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	21:28	04:57	12:26
IC4605	Neb	Sco	16h 30m 12s	-25° 06.8'		00:12	05:00	09:47
NGC6153	P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	01:20	05:01	08:42
NGC6181	Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	22:01	05:02	12:03
NGC6171	Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	23:36	05:02	10:28
NGC6178	Open	Sco	16h 35m 47s	-45° 38.6'	7.2	02:00	05:05	08:11
NGC6193	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	02:32	05:11	07:49
M13	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	21:04	05:11	13:18
NGC6210	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	22:00	05:14	12:28
Barnard44a	DkNeb	Sco	16h 44m 45s	-40° 20.0'		01:34	05:14	08:55
NGC6204	Open	Ara	16h 46m 09s	-47° 01.0'	8.2	02:21	05:16	08:10
M12	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	23:19	05:17	11:14
NGC6231	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	01:51	05:23	08:55
IC4628	Neb	Sco	16h 56m 58s	-40° 27.3'		01:46	05:26	09:06
NGC6254	Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	23:35	05:27	11:18
Barnard47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		00:33	05:29	10:25
M62	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	01:02	05:31	10:00
M19	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	00:49	05:32	10:16
Barnard51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		00:37	05:34	10:32
IC4637	P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	01:57	05:35	09:12
Barnard56	DkNeb	Sco	17h 08m 48s	-32° 05.0'		01:17	05:38	09:59
Barnard59	DkNeb	Oph	17h 11m 23s	-27° 29.0'		01:02	05:41	10:20

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