

SJAA EPHEMERIS

2003 Messier marathon

Bob Havner

The San Jose Astronomical Association will be hosting the 2003 Messier marathon on March 29/30 at Henry Coe State Park. The Messier marathon as an attempt to find 109 of the Messier objects in one night! French comet hunter Charles Messier created the catalog to identify objects that could be mistaken for comets. Today's list represents 110 of the most famous deep sky objects in the night sky. While being a favorite goal of amateur astronomers to complete over time, late March offers an opportunity to find 109 of the Messier objects in a single night.

Don Machholz brought the Messier marathon to the SJAA with an article titled "Messier marathon" in the September 1978 SJAA newsletter. In the article, he invited members to join him on Loma Prieta mountain in March for the event. Using star atlases, a planisphere, and his own comet hunting records, Don developed the observing order, or search sequence, the same list used by most marathoners to this day.

The first San Jose Astronomical Association Messier marathons were held on the nights of March 23/24, 24/25, 30/31 and March 31/April 1, 1979. About fifty club members turned out at these events. Of those, about a dozen participated in the actual marathon. On March 30/31 Don Machholz and Gerry Rattley found 108 objects each, missing only M74 and M33! Amazingly on the night of March 12/13 1980 Don successfully found all 109 objects without star charts, relying only on search instructions he previously recorded on cassette tapes!

The 2003 Messier marathon will be held at the overflow parking area at Henry Coe. Directions can be found in

the box on page 2, or at <http://www.sjaa.net/directions.html>. Although not required, we recommend pairing up with someone as a way of verifying observations. Observing lists will be available at the site. There will be 3 lists: a short list of bright, easy to find objects for novice astronomers, a half list for those who would rather not make it an all nighter, and the long list for you die-hard marathoners.

There are two books written by SJAA members on the subject of the

Messier marathon. Don Machholz's booklet, *The Messier Marathon Observer's Guide*, gives a detailed search sequence, finder charts, and star hopping information. It also points out that less complete Messier marathons may be run at every time in the year. Robert Garfinkle's book, *Star-Hopping; Your Visa to Viewing the Universe* (Cambridge University Press, 1994, 1997) has a chapter with instruc-

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SJAA activities calendar

Jim Van Nuland

March

- 1 Deep sky weekend. Sunset 6:00 p.m., 1% Moon rises 6:49 a.m.
- 7 Astronomy class. Hough Park, 7:30 p.m., Dave North on the moon
- 7 Hough Park star party. Sunset 6:07 p.m., 22% Moon sets 10:40 p.m.
- 8 ATM class. Hough Park, 7:30 p.m.
- 15 General meeting, Hough Park. 8:00 p.m. Robert Naeye, ASP: *Solving the universe's mysteries through extra dimensions*
- 22 Deep sky weekend. Sunset 6:19 p.m., 71% Moon rises 11:50 p.m.
- 27 ATM class. Hough Park, 7:30 p.m.
- 28 Hough Park star party. Sunset 6:27 p.m., 12% Moon rises 4:54 a.m.
- 29 Deep sky weekend. Sunset 6:26 p.m., 7% Moon rises 5:20 a.m. Messier marathon, Henry Coe Park

April

- 5 ATM class. Hough Park, 7:30 p.m.(new date)
- 6 Darkness Squandering Time begins at 1:00 a.m.becomes 2:00 a.m.
- 11 Hough Park star party. Sunset 7:39 p.m., 72% Moon sets 4:33 a.m.
- 12 General Meeting, Hough Park. 8:00 p.m. Fulvio Melia, *The black hole at the middle of the galaxy*
- 13 Auction XXIII (Sunday) noon
- 24 ATM class. Hough Park, 7:30 p.m.
- 25 Astronomy class. Hough Park, 7:30 p.m. Akkana Peck discusses planetary observing
- 26 Deep sky weekend. Sunset 7:52 p.m., 15% Moon rises 4:52 a.m.

May speaker

May 17 Norm Sperling on his new book, *What your astronomy textbook won't tell you.* 8 p.m.

24 Hour News and Information Hotline: (408) 559-1221

<http://www.sjaa.net>

Messier marathon

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tions and the list for doing a Messier marathon. Copies of Don Machholz's *The Messier Marathon Observer's Guide* will be for sale at the March 15 general meeting and at the marathon (while supplies last) for \$10.00.

Also check out the SEDS Messier page <http://www.seds.org/messier/xtra/marathon/marathon.html>. They have many helpful links to images and lists.

You will want to have a planisphere and a good star atlas, preferably plastic or plastic coated, to locate constellations and for star hopping to the objects. As always, come prepared for cold weather and a long night; bring plenty of warm clothing and hot drinks.

This is a great time for those that are new to astronomy to be introduced to the deep sky. Don't expect to get them all if this is your first time, just have a good time and enjoy the ones you do find. You will get a good start on completing your own Messier list.

Come out to Henry Coe with us for a night of astronomy and start (or perhaps finish) your Messier list.

Messier marathon Henry Coe State Park. March 29, 2002 There is a \$2.00 per vehicle night use fee.

— Bob Havner, bhavner@earthlink.net

Directions to Henry Coe State Park

Henry Coe State Park is located east of Morgan Hill in the Hamilton Range.

Go south on Hwy. 101, past San Jose toward Morgan Hill. Take East Dunne Ave. Follow it east, past Anderson Reservoir, up the mountain for 12 miles. Eventually you'll cross a cattle guard, then an additional half mile brings you to a sign identifying the park, and immediately afterward on the right, a parking lot; this is the SJAA observing site. The main park and campground are a half mile farther on. The park fee is \$2 per vehicle, payable in the drop-box at the park entrance.

Out there

Side dishes to the Messiers

Mark Wagner

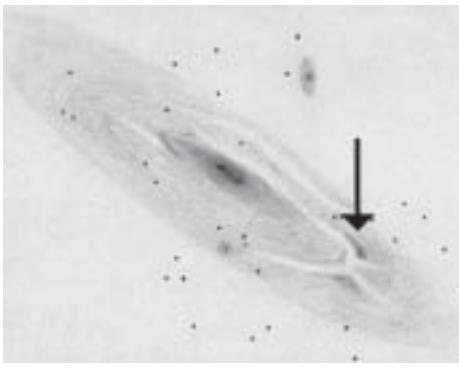
At the end of March or beginning of April, depending on when new moon falls, a favorite pastime of many amateur astronomers is to attempt a marathon observing session, an all night effort to observe all objects in Charles Messier's famous catalogue.

A Messier marathon starts out hectic, trying to get objects that set in the early evening. This is followed by a nice leisurely paced journey until you get to Virgo, the celestial equivalent of the Bay to Breaker's Hayes Street hill. Things then settle back down until dawn approaches, and you race to get the last few objects.

"I consider Virgo to be 'the main course' — part of a night-long relaxed celestial gourmet meal."

I consider Virgo to be "the main course" — part of a night-long relaxed celestial gourmet meal. Why not enjoy a few "side-dishes?" These are interesting objects within a degree of the night's entrée.

Begin with M31 and hunt down the gentle glow of a cluster of young blue supergiant stars in the galaxy's disk. NGC206 is just 40' south-southwest of the bright core of M31. You'll recognize the cluster as a dim haze. If it is a particularly transparent night you



NGC206 in Andromeda. Arrow points to the cluster in M31. Sketch by Andreas Domenico, Germany.

can also see the dark lanes of M31's arms snaking through the area.

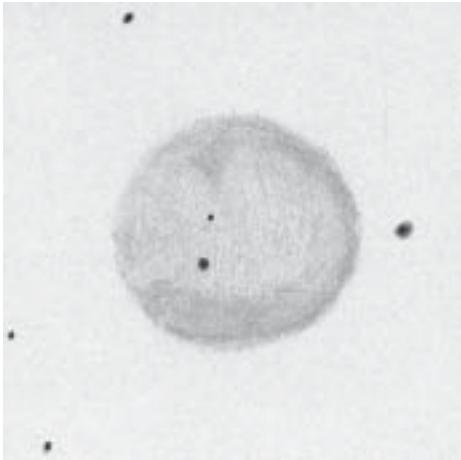
We never tire of M42 — it is so detailed and bright! The entire region glows in nebulosity, and sometimes we overlook the more subtle nearby neighbors. From M42 go to M43 — and keep going. A mere 20' north are some bright stars, with wispy nebulosity and dark lanes running around and between them. This is NGC1977, the "Running Man" nebula. It is subtle, but under dark skies presents a beautiful sight. Move just 26' further north and enjoy the open cluster NGC1981. What a rich area!

The big open cluster M35 in Gemini is adjacent to another open cluster NGC2158 — just 23' to its southwest. It appears to be dimmer and smaller, but is resolvable. NGC2158 is a much denser open cluster, and ten times older and four times more distant than M35. Just 30' south of M38 is the open cluster NGC1907. The combination of M38 and this NGC cluster is bound to remind you of the prior combo of M35 and NGC2158. But, you will find the NGC brighter and easier to resolve next to M38.

Next stop is at the two Messier open clusters in Puppis: M46 and M47. I can often see M47 without optical aid, even from in town. M46 holds an unusual treat, NGC 2438 — a bright planetary nebula. The planetary is annular and responds well to high contrast filters. Pump up the magnification and see what sort of detail you can pull out of this little side-dish.

Two famous spiral galaxies in Leo are M65 and M66. They make up two-thirds of what is called "The Leo Triplet." The third component is NGC3628, a very interesting but dimmer galaxy about half a degree north of the brighter pair. Called "The Hamburger" by some, NGC3628 is edge-on and has an obvious dust lane that is the meat between the two buns.

Continued on follow page



NGC2438 in Puppis. Sketch by Andreas Domenico, Germany.

Messier side dishes

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Photographs show that this galaxy is obviously tidally disturbed — the ends of the dust lanes protrude away from the major axis of the galaxy and in opposite directions. This “unevenness” should be visible too in moderate size telescopes.

Globular clusters comprise nearly a third of the Messier catalogue. M53 in Coma Berenices is large and moderately bright. But not even one degree to its east-southeast is NGC5053, a large, dim and sparse globular cluster. M53 and NGC5053 are nearly the same angular size. What a surprise it is to see such a difference in appearance!

When running up Hayes Street hill, take some time to enjoy a section of sky which is the most incredible sight a human can behold (other than

perhaps DNA). It is Markarian’s Chain. Find it by locating the big pair of elliptical galaxies M84 and M86, then move at first east then curve north. How many galaxies do you see?

The Great Hercules Cluster M13 sits a mere 25,000 light years away. The light you see from M13 began its journey to your eyes when modern homo sapiens replaced earlier man-like forms. Look next just under one half degree north-northeast for NGC6207. The gently glowing little smudge is a spiral galaxy, millions of light years past the big globular. Have a big scope, dark skies and try for IC4617, between M13 and NGC6207. The last two side-dishes are a pair of globular clusters nearby big Messiers.

M4 is just over a degree west of Antares in Scorpius. Very nearby Antares, under half a degree northwest is NGC6144, a small mag 9 globular.

One of my favorite globulars is M22. It competes well with M13 as *the* showpiece globular in the northern sky. About a degree west northwest is another globular — NGC6642 shining at mag 8.8, and providing a nice contrast with the big splashy M.

There are many, many more “side dishes” of the Messiers. I hope you enjoy the “meal.” Since it lasts all night bring some coffee and chocolate cake for an energy desert. I think you’ll find the experience both tasty and filling.

— *Mark Wagner, mgw@resource-intl.com*

Board of Directors elected for 2003

Jim Van Nuland, Secretary

The February meeting is designated as the corporate annual meeting, whose main business is the election of the Board of Directors. Directors serve two-year terms, with four directors elected in even-numbered years, and five elected in odd years. Candidates must be SJAA members for at least one year.

Jim Bartolini and Paul Mancuso declined to stand for re-election. We thank them for their years of service.

Replacing them are Dana Crom, and (sharing a seat) Craig and Elena

Scull, their first times on the Board. Re-elected were Jim Van Nuland, Bill O’Shaughnessy, and Bob Havner. In addition: Dave Smith, Mike Koop, Steve Nelson, and Gary Mitchell all have an additional year to go.

At the March meeting, the new Board will elect its officers for one-year terms. Officers are chosen from the new Board.

Board meetings are held at 6:30 preceding each general meeting. They are open to all.

— *Jim Van Nuland, jvn@svpal.org*

Pre-register now for the April 13 SJAA auction

The twenty-third annual SJAA auction is just around the corner. Do you have telescopes or unusual or pricey astro-gear to sell? If you do, it will sell better with some pre-auction publicity. Also, if you have more than 5 items (large or small), please send a list with a short description and minimum bid. This will avoid the crush at the registration table.

The auction and swap are fundraisers for the club loaner program, so please consider donating items to the auction. All commissions from the

auction and the swap are tax-deductible, as SJAA is a 501(c)(3) educational organization.

Please email your lists of items, or your large items to auction central, auction@sjaa.net, with a short description and a photo of it, or a link to your own web page. If you have a question about the suitability of an item you’d like to auction, you can send your questions to this address too, before the auction. As in past years, the SJAA reserves the right to refuse inappropriate items.



NG3628 in Leo. Part of the “Leo trio” of galaxies. Sketch by Andreas Domenico, Germany.

The Moon from three feet

Dave North

A really fun problem from Bill Maney this month. I'll start with his explanation:

"I'd like to make a 3D picture of the moon (an old fashioned stereogram type of thing). I figure if I take a picture of the moon at the same phase but on two different lunar cycles, I would get two different librations and if I arrange them correctly, they could be used to make a stereo image."

Sure! Neat idea. He goes on:

"I doubt if this is an original idea, but it's seems like a good project."

I have no idea if the idea is original or not but I hadn't previously thought of it, so if it's old hat at least two of us have to wear it.

This raises some fun issues.

I know Bill knows if you really want to make an accurate stereovision view of the Moon, all you need to do is use the same photo twice. That's how it looks.

From the point of view of our human binocular vision the Moon is effectively at infinity, and we get no "stereoscopic" advantage to using both eyes.

But we do get a three dimensional effect somehow anyway. This can easily be illustrated by looking at the Moon through a good telescope with a binoviewer on it. Of course both those images are identical from a practical standpoint, but the illusion is startling.

But hey, we have this big ol' planetoid hanging up there in the sky, and it has a weird tendency to shake its head at us. How many planet-dwellers can say that?

Seems like we're practically morally obligated to take such a picture, and make the stereogram.

But ... what would you get?

You'd get an image of the Moon that would look like it was about three feet away (no surprise; I gave it away with the title). Or more. But probably not much less.

I managed to establish this by a highly scientific experiment. Since I know the maximum libration totals

about 7 degrees either way (east or west, left or right, whatever) I simply moved back from my moon globe until I saw about that effect by closing one eye and opening the other.

This may turn out to be completely bogus, but it's a starting point.

And, of course, it assumes a virtual image about the same size as the globe at that distance. In fact, the more I think about it the more I realize I'm very unclear on how close it would look, but I'm fairly safe in assuming it would look a lot closer than a quarter of a million miles.

I'm fascinated with the idea of noting how many folks who looked at such an image would figure out something was very wrong with it?

"You'd get an image of the Moon that would look like it was about three feet away ... but probably not much less.

Here's another fun point: the image turned toward the right (as you face it) is the one you should put on the left side of the stereograph (and vice versa of course). Your left eye would see more of the left side. This may seem counterintuitive, but so is the universe, so don't let that trouble you too much.

Now about the mechanics he had essentially three questions.

The first is, how to predict when you might be able to get a photo at exactly the same phase with some libration? He was particularly interested in locating a program to manage this.

I would particularly recommend Akkana's "Hitchhiker's Guide To The Moon:" <http://shallowsky.com/moon/> It features libration and phase angle prominently, and you can change the date to anything you want to home in on the next similar phase.

However, for this simple problem you don't need software. If, say, you wanted an elevated eight or nine-day-

old Moon (excellent choices for such a photograph) and then wanted the next available opportunity to shoot that phase, add 59 days. It's that simple.

But, you say, wait! The Moon has about a 29-1/2 day cycle, so why not ... oh. Because that which is high at night this month will be, alas, high during the day next month. By the time the sun sets, the terminator will be marching toward it (but never quite get there) or already past, depending.

Still, you might be able to get close. It's not clear it would be close enough, though. Besides, we want a lot of libration, don't we? And generally the longer you wait, the more change you'll get. Up to a point.

Wait a year and you'll get next to nothing, for example.

I'm writing this on February 11; let's see what happens if we check position and libration around 8 p.m. tonight ... the terminator is 36.9 West and the libration is 5.75 West (also note: 2.12 South).

First, add 29-1/2 days just to see what happens. Very close. If we add another 90 minutes, we're in the right place. The only problem is, yup, it's 9:30 am, and the sun is up. That won't work!

Okay, let's add 59 days and see what we get. What luck! Due to a calendar quirk, that's April 11! February's weirdness makes for a singularly easy time to calculate 59 days into the future...

So the result is: at 8 p.m., April 11 35.4 degrees west. Hey, wait! That's over a degree off! You'll have to wait until about 11 pm to get the same result! (Actually midnight, after you allow for Daylight Squandering Time). Fortunately, that would still be okay.

But note the western libration is now 7.61 degrees, almost two degrees more. That should be enough to give our Moon illusion. So we're in business, right?

Wait. Bill was also curious about

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3D Mooning

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the North/South or Up/Down libration. Where is that now?

It's at 6.64 South. Ouch. It has actually moved more to the south than it did to the West! That would look just a bit weird now, wouldn't it? What are we going to do?

Stereoscopic vision kind of assumes a difference from left-to-right, but no real change from top to bottom. (That is, of course, because our eyes are placed side-by-side and not above-below. Unless you're a Charles Adams fan).

So how to solve the problem? Study the orbit of the Moon, and spot the point where the North/South libration shifts little (if at all) while the East/West libration would shift the most.

Logic tells us this would be when the two apparitions cross the axis determined by the Moon's closest approach to the Earth.

When is that? Why do I say that? Enough for now.

All the problems in the Universe cannot normally be solved in a single column. If there aren't any better questions over the course of the month, maybe we'll solve this problem in the next column.

— Dave North, north@znet.com

at 0.58", a large telescope under very steady skies might be able to resolve Vesta as something other than a point of light. Look for Vesta in Virgo, just west of the halfway point between the stars delta and epsilon Vir.

While you strain to resolve that small disc, think about this interesting asteroid. Vesta is the only asteroid known to have distinctive light and dark areas, and the only one known to comprise layers of different types of rock, like the larger planets. A Hubble study in 1994 (when it was a bit farther from us than the 1.28 au we'll see at opposition) showed basaltic lava flows rather like the maria on our own moon, as well as craters and large impact basins similar to what we see on the moon, and a core of olivine, much like the earth's mantle. Where did the heat for lava flows come from, on such a small body (326 miles in diameter, or 525km)? Did it coalesce from radioactive material which provided heat for Vesta's core? That's one theory, but not the only possibility.

Mars is visible in morning twilight, slowly drawing nearer as we draw closer to its opposition this summer. It's still too small to see much detail, though.

— Akkana Peck,
observer@shallowsky.org

The shallow sky

Planets to in-Vesta-gate in March

Akkana Peck

Jupiter and Saturn continue to rule the night skies this month, up high in the sky where the seeing is good during evening hours. As I write this, we've seen some nice steady air in the early spring weather; perhaps this will be a good planet season.

Jupiter continues to fascinate with its ever-changing stormscape. First, we're going to have to stop making jokes about the "great spot formerly known as red" — this season the spot is distinctly pink, enough that several people who never saw color in it before have commented on it. Will it get redder over the next few years? Only time will tell.

Trailing the GRS in the southern equatorial band (SEB) is a long, long trail of white ovals. Those ovals (apparently formed by turbulence in the wake of the spot) just keep multiplying, and one observer recently commented, "I got tired sketching them all." In addition, there are some prominent dark spots (barges, or something else?) showing up in the NEB, as well as a big loopy festoon, and other observers have reported a linear dark feature (a festoon? or perhaps another split in the SEB?) immediately south of the GRS. By the time you read this, I guarantee things will have changed

again. You won't run out of things to see looking at Jupiter this year!

Saturn, too, is presenting us with an unusually good face. The wide-open tilt of the rings is making features like the thin gaps in the A ring, and even the elusive "spokes," visible to visual observers in steady seeing. I've seen some spectacular sketches this year, showing spokes, the Encke minimum, and the Keeler Gap, all in one drawing. I haven't yet been blessed with seeing quite that steady myself, but here's hoping! Aperture will help when looking for this sort of feature — don't ignore the planets just because you're out with your big dob — but those with small optics won't be disappointed either. And as Saturn draws farther away from opposition, the shadows of the planet on the rings lengthen, increasing that wonderful three-dimensional effect that makes the ringed planet so beautiful.

This month is a good opportunity to try some asteroid watching. (4) Vesta, is at opposition on March 26. The brightest asteroid, Vesta will reach magnitude 5.9 at opposition, just barely bright enough to see with the naked eye, and almost exactly the same brightness as Uranus this month. More interesting, though, is its apparent size:

Directions to Houge Park

Houge (rhymes with "Yogi") Park is in San Jose, near Campbell and Los Gatos. From Hwy. 17, take the Camden Avenue exit. Go east 0.4 miles, and turn right at the light, onto Bascom Avenue. At the next light, turn left onto Woodard Road. At the first stop sign, turn right onto Twilight Drive. Go three blocks, cross Sunrise Drive, then turn left into the park.

From Hwy. 85, take the Bascom Avenue exit. Go north, and turn right at the first traffic light, onto White Oaks Road. At the first stop sign, turn left onto Twilight Drive. You will now be passing the park. Turn right at the first driveway, into the parking lot.

School star parties

Bob Havner

Here is a list of March school star parties. If one is near your home or work please come join us and share your hobby with some future astronomers.

March School Star Parties

Mar. 5, Steinbeck Middle,
Almaden valley
Mar. 6, Sakamoto school, SE San Jose
Mar. 10, Silver Oak Elementary,
far E San Jose
Mar. 11, Randol Elementary,
SE San Jose

Mar. 12, Argonaut School, Saratoga
Mar. 13, Santa Rita school, Los Altos
Mar. 14, Cadwallader Elementary,
E San Jose
Mar. 18, Briarwood Elementary,
Santa Clara
Mar. 19, Saratoga Elementary,
(Saratoga)
Mar. 27, Cedar Grove Elementary,
E San Jose
For details see Jim Van Nuland's
school star party page <http://www.svpal.org/~jvn/current.htm>

Robert Naeye returns for March program

March 15: Robert Naeye of the Astronomical Society of the Pacific — *Solving the universe's mysteries through extra dimensions.*

What is the dark matter? Why is the universe's expansion accelerating? Why is gravity so weak that a \$10 magnet can lift a paper clip against the gravitational force of the entire Earth? Invoking the existence of dimensions beyond the three we experience in our everyday lives helps scientists explain some of these great mysteries, convincing many of them that our seeming 4-dimensional universe is embedded in a higher-dimensional hyperspace.

Join Robert Naeye on a mind-bending romp through the possibility of hidden dimensions and their effects on our perception of reality.

Robert Naeye is the editor of Mercury magazine, which is published in San Francisco by the Astronomical Society of the Pacific. He is the 2002 recipient of the American Astronomical Society High Energy Astrophysics Division's David N. Schramm Award for Science Journalism and the Astronomical Association of Northern California's 2002 Professional Astronomer of the Year Award.

Silicon Valley Astronomy Lecture Series

Andrew Fraknoi

Wednesday, Mar. 5, 2003, 7 p.m.

Dr. Seth Shostak (SETI Institute) will give a non-technical illustrated talk on: *What happens after contact: Responding to a message from space* in the Smithwick Theater, Foothill College, El Monte Road and Freeway 280, in Los Altos Hills, California. Free and open to the public. Call the series hotline at 650-949-7888 for more information.

Co-sponsored by: NASA Ames Research Center, Foothill College Astronomy Program, SETI Institute, Astronomical Society of the Pacific.

Dr. Shostak, who is Senior Astronomer at the Search for Extraterrestrial Intelligence (SETI) Institute in Mountain View, will discuss what plans scientists have if they detect a radio message from an alien civilization out among the stars. He will examine how any such messages will be verified (to avoid hoaxes), how the news will be announced, how information from the message would be disseminated, and how humanity might decide whether and how to reply.

— Andrew Fraknoi,
fraknoiandrew@fhda.edu

Celestial calendar

March 2003

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
NM	18:34 PST	02	07:23	12:04 16:56
FQ	23:14 PST	10	09:15	17:46 01:21
FM	08:34 PST	18	18:26	00:04 06:50
LQ	17:50 PST	24	01:58	05:31 08:59

Nearer Planets:	R. A.	Dec.
Mercury, 1.36 A.U., Mag. 2.2		
07 06:10 11:36 17:04	22:25.9	-12:10
17 06:14 12:04 17:56	23:32.9	-04:54
27 06:18 12:36 18:56	00:43.9	+04:04

Venus, 1.14 A.U., Mag. 4.4		
07 04:36 09:41 14:46	20:31.4	-18.20
17 04:36 09:50 15:05	21:19.8	-15:39
27 04:32 09:58 15:24	22:07.1	-12:15

Mars, 1.37 A.U., Mag. +0.1		
07 02:31 07:16 12:00	18:06.6	-23:33
17 02:19 07:04 11:49	18:34.3	-23:31
27 02:06 06:52 11:38	19:01.7	-23:13

Jupiter, 4.60 A.U., Mag. 2.4		
07 14:48 21:53 05:02	08:47.6	+18:48
17 14:05 21:11 04:21	08:44.8	+18:59
27 13:24 20:30 03:40	08:43.1	+19:05

Saturn, 9.04 A.U., Mag. +0.7		
07 11:15 18:33 01:54	05:26.5	+22:08
17 10:37 17:55 01:17	05:27.9	+22:12
27 10:00 17:18 00:40	05:30.1	+22:15

SOL Star Type G2V Intelligent Life in System ?
Hours of Darkness

09:30 07 06:30	12:19	18:08	23:09.5	-05:25
09:04 17 06:15	12:16	18:18	23:46.3	-01:29
08:37 27 06:00	12:13	18:27	00:22.7	+02:28

Astronomical Twilight:	Begin	End
JD 2,452,705 07	05:04	19:34
715 17	04:48	19:44
725 27	04:32	19:55

Sidereal Time:

Transit right ascension at local midnight

07 00:00 = 10:50	
17 00:00 = 11:30	
27 00:00 = 12:09	

Darkest saturday night: 29 Mar 2003

Sunset	18:29
Twilight	19:57
Moon Set	04:54
Dawn Begin	04:29
Hours Dark	08:31

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Members Email Lists:	http://www.sjaa.net/mailman/listinfo

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 San Jose Astronomical Association,
 P.O. Box 28243
 San Jose, CA 95159-8243

Submit

Submit articles for publication in the SJAA Ephemeris. Send articles to the editors via e-mail to ephemeris@sjaa.net.

SJAA loaner scope status

All scopes are available to any SJAA member; contact Mike Koop by email (loaner@sjaa.net) or by phone at work (408) 473-6315 or home (408) 446-0310 (Leave message).

Available scopes

These are scopes that are available for immediate loan, stored at other SJAA members homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
1	4.5" Newt/ P Mount	Annette Reyes
3	4" Quantum S/C	Hsin I Huang
7	12.5" Dobson	Michael Lagae
10	Star Spectroscope	Lew Kurtz
16	Solar Scope	Bob Havner
24	60mm Refractor	Al Kestler
28	13" Dobson	Michael Dajewski
32	6" f/7 Dobson	Sandy Mohan
35	Meade 8" Equatorial	Carl Ching
38	Meade 4.5" Digital Newt	Tej Kohli

Scope loans

These are scopes that have been recently loaned out. If you are interested in borrowing one of these scopes, you will be placed on the waiting list until the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
6	8" Celestron S/C	Ashwath Kakhandiki	5/7/03
8	14" Dobson	Ron Gross	4/3/03
11	Orion XT6 Dob	Tina Viahavner	5/7/03
12	Orion XT8 Dob	Vinod Nagarajan	4/8/03
13	Orion XT6 Dob	Jay Natarajan	5/10/03
26	11" Dobson	Jan Lynch	4/3/03
29	C8, Astrophotography	Alfred Viceral	5/9/03
33	10" Deep Space Explorer	Michael Wright	2/15/03
34	Dynamax 8" S/C	Mike Macedo	5/7/03
36	Celestron 8" f/6 Skyhopper	Gene Schmidt	3/5/03

Extended scope loans

These are scopes that have had their loan period extended. If you are interested in borrowing one of these scopes, we will contact the current borrower and try to work out a reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
9	C-11 Compustar	Paul Barton	Indefinite
14	8" f/8.5 Dob	Tom Frerickson	4/19/03
15	8" Dobson	Vikram Keshavamurthy	3/13/03
19	6" Newt/P Mount	Daryn Baker	3/27/03
21	10" Dobson	Ralph Seguin	Repair
23	6" Newt/P Mount	John Bunyan	2/28/03
27	13" Dobson	Richard Savage	3/21/03
37	4" Fluorite Refractor	Steve Sergeant	2/16/03
39	17" Dobson	Patrick Lewis	Repair

Waiting list:

6	8" Celestron S/C	Carl Ching
10	Star Spectroscope	David Kingsley, Keng Tehh
36	Celestron 8" f/6 Skyhopper	Dennis Hong
37	4" Flourite Refractor	Jeff Crilly

San Jose Astronomical Association Membership Form

New Renewal (Name and corrections below)

Membership Type:

Regular — \$15

Regular with Sky & Telescope — \$45

Junior (under 18) — \$6

Junior with Sky & Telescope — \$36

Bring this form to any SJAA Meeting or send (with your check) to

**San Jose Astronomical Association
P.O. Box 28243
San Jose, CA 95159-8243**

Subscribing to Sky & Telescope magazine through the SJAA saves you \$10 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

Make your check payable to "SJAA"

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