



# THE OBSERVER

## East Valley Astronomy Club



Messier Marathon  
APOD May 27, 2011 Babak Tafreshi (TWAN)

### EVAC This Month *by Don Wrigley*

March is one of my favorite months to go out deep sky observing - the temperatures have reached that comfortable level, neither oppressively hot during the day, nor bone-chillingly cold at night. Comfortable. That's what I strive for these days. I do not wish to scale Mt. Everest or enter the belly of an active volcano. These items are not on my bucket list. Splitting Sirius is.

That elusive little white dwarf, sometimes called the pup because it is the companion to Sirius, the Dog Star, the brightest star that we can see (other than the sun),

has finally reached that point in its orbit around Sirius that it should be visible in amateur telescopes. Should be are the operative words here. The brightness of Sirius overwhelms the much dimmer companion and makes it nearly impossible to see. If conditions are just right, it can be done. March is a good month to try it. Sirius is high in the sky at sunset, when seeing conditions here in Arizona are often at their best. I'll try it again this year.

March is good for observing other things as well. I can go from studying the delicate tendrils of

### UPCOMING EVENTS:

- Public Star Party - March 11*
- Messier Marathon - March 12*
- EVAC Monthly Meeting - March 18*
- Local Star Party - March 26*
- Check out all of the upcoming club events in the Calendars on page 10*

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# EVAC This Month

*Continued from page 1*

Orion's Great Nebular, to the bright galaxies of Leo, and then on the the Virgo cluster. When I want to take a break from all those faint (and not so faint) fuzzies, there's always Jupiter, right in the midst of it all, in the tail end of Leo. That's a lot for one night!

If that's not enough for you, there is always the Messier Marathon (see Page 5), where we try to bag all 110 objects on the old Frenchman's list of objects to ignore while searching for comets. This year's event, sponsored yearly by the Saguaro Astronomy Club, will be held on the night of March 12th at the Hovatter Airfield site. Try to arrive well before sundown and plan to stay the night.

## If It's Clear...

*by Fulton Wright, Jr. Prescott Astronomy Club*

March 2016

Celestial events (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) customized for Prescott, Arizona. All times are Mountain Standard Time.

On Tuesday, March 1, the Moon is at last quarter phase and rises at 1:43 AM (Wednesday).

On Friday, March 4, from 4:32 AM to 5:37 AM there will be 2 shadows (Io's and Europa's) on Jupiter.

On the night of Saturday, March 5, you can see some events with Jupiter's moons. Here is the schedule:

06:30 PM Sunset

06:35 PM Jupiter rises.

06:55 PM Jupiter easy to find in the twilight.

06:55 PM Ganymede disappears in Jupiter's shadow.

09:36 PM Europa disappears in Jupiter's shadow.

10:25 PM Ganymede appears from behind Jupiter.

10:59 PM Io's shadow falls on Jupiter.

11:02 PM Io moves in front of Jupiter.

12:27 AM (Sunday) Europa appears from behind Jupiter.

01:14 AM Io's shadow leaves Jupiter.

01:17 AM Io moves from in front of Jupiter.

On Monday, March 7, Jupiter is at opposition (rises at sunset). That means that any shadow transits and satellite transits will occur at nearly the same place and time. As a matter of fact, Jupiter rises at 6:26 PM with 2 shadows on

Usually, it is possible to arrive on Friday night, in order to have two nights of viewing. I don't have any other details at this time, because of the early posting of this month's article, but I'm sure that they will be posted on our websight when they become available.

I've done about ten of these events and the most I have seen in one night is 109 objects, close but not good enough. I'm adding this one to my bucket list. It beats climbing Everest.

Don Wrigley

it, right next to the satellites of Io and Europa. Europa and its shadow leave Jupiter at 6:55 PM (about the same time it becomes easy to find Jupiter in the twilight). Io and its shadow leave at 7:42 PM. Opposition also means that Jupiter will be up all night for observation.

On Tuesday, March 8, it is new Moon and you have all night to hunt for faint fuzzies. If you were in Indonesia, you could see a total solar eclipse. Unfortunately, none of the eclipse will be visible from Arizona. This is the season of the Messier marathon, though the full Moon in the middle of the month makes this year more difficult than most to see all of them.

On Saturday, March 12, you can see the north-east (IAU-terrestrial) part of the Moon at its best. Libration tips that part toward us. It is also good the following night or two.

On Sunday, March 13, at 2:00 AM, the rest of the USA sets their clocks forward 1 hour for "Daylight Saving Time". It should be called "Daylight Shifting Time". Arizona doesn't participate in such foolishness.

On Monday, March 14, you can see some events with Jupiter's moons, including a double shadow transit. Here is the schedule:

05:54 PM Jupiter rises.

06:26 PM Europa moves in front of Jupiter.

06:37 PM Sunset

06:45 PM Europa's shadow falls on Jupiter. (1 shadow)

07:05 PM Dark enough to find Jupiter easily. Look 15 de-

# If It's Clear...

*Continued from page 2*

degrees above the East horizon.

07:12 PM Io moves in front of Jupiter.

07:22 PM Io's shadow falls on Jupiter. (2 shadows)

(Notice that the shadows follow the satellites now that we are past opposition.)

09:11 PM Europa moves from in front of the planet.

09:26 PM Io moves from in front of the planet.

09:31 PM Europa's shadow leaves the planet. (1 shadow)

09:36 PM Io's shadow leaves the planet. (no shadows)

On Tuesday, March 15, the Moon is at first quarter phase and sets at 2:03 PM (Wednesday).

On Wednesday, March 16, if you are up at about 5:00 AM, you can see Mars (magnitude 0) about 10 arc-minutes from Beta1 Scorpii (magnitude 2.6). Saturn is nearby to the East and Antares is below the pair forming an isosceles triangle. Notice that Mars and Antares look red while Saturn looks yellow. Check out Tau Scorpii, down and to the left from Antares, for a blue star. Left of Beta1 is Nu Scorpii, a challenging double-double.

On Sunday, March 20, Spring begins and we have equal length day and night.

On Monday, March 21, you can see some events with Ju-

piter's moons. The show starts at 8:42 PM when Europa moves in front of the planet. There are 2 shadows on the

planet from 9:22 PM to 11:29 PM. The show is over at 12:08 AM (Tuesday) when Europa's shadow leaves the planet.

On the night of Tuesday, March 22, at 6:17 PM (28 minutes before sunset) the full Moon rises spoiling any chance of seeing faint fuzzies for the night. If you are up later that night, you might notice a slight penumbral eclipse. First contact is 2:42 AM (Wednesday) and is unobservable. The center of the eclipse is about 4:50 PM but it won't help you out much with your hunt for faint fuzzies although it should be noticeable. Fourth contact (there is no 2nd and 3rd because the Moon never touches the umbra) is unobservable because the dimming is too slight to see and because the Moon has set. I'm not planning to stay up for this one.

On Monday, March 28, we get another chance to observe a double shadow transit on Jupiter. The show starts with Io moving in front of the planet at 10:40 PM. There are 2 shadows on the planet from 11:59 PM to 1:23 AM (Tuesday). The show is over at 2:45 AM when Europa's shadow exits.

On Wednesday, March 30, the Moon is at last quarter phase and rises at 1:18 AM (Thursday).

## The Backyard Astronomer

*by Bill Dellings (March 2016)*

### **Flea-Flicking Through Canis Major**

#### **(March Skies are Going to the Dogs)**

If you follow Orion's Belt southeast, you'll arrive at one of his two faithful hunting dogs. Canis Major (Best in Show) can't wait to get his paws on Lepus the Hare hiding below his master's feet. Meanwhile to the east smaller Canis Minor waits patiently for the Hunter to throw him a bone. The greater dog's head is marked by the sky's brightest star Sirius – Greek, "scorching." Its brightness is attributed to two factors, its intrinsic luminosity and closeness. Sirius is only 8.6 light years away, the 6th closest star to the Sun. This spectral type A1V star is almost twice the diameter and mass of our Sun and 23 times more luminous, a real chowhound when it comes to burning hydrogen. By an interesting coincidence, the sky's second brightest

star, Canopus, is 36 degrees due south of Sirius. When the latter transits the meridian, an observer with a clear southern horizon can collar the former.

To the right of Sirius is the star Mirzam, representing the left leg of the pooch. The Arabic word means "Announcer" for it rises before Sirius. Interestingly, Procyon, the bright star of Canis Minor is from a Greek word meaning "Before the Dog" because it too rises before the top Dog of the night sky. Sirius was known as Sothis or the Dog Star by the Egyptians long before Canis Major was created. Because its helical rising heralded the flooding of the Nile River, Sirius became equated with the warning cry of barking dogs. Over time, it was thought that the heat from Sirius added to that of the Sun during summer days and thus the phrase Dog Days of summer was coined.

# The Backyard Astronomer

*Continued from page 3*

Think Canis Major and two things pop into your mind instantly: Sirius and its best deep sky object M-41. This open star cluster resides four degrees due south of Sirius and is very easy to find. It can even be seen with the naked eye in a dark sky. The cluster is 2,100 light years away yet its stars appear bright and fill a low power field. Perhaps the best view of this object would be in binoculars such as a 15x70, 20x80 or 20x100 where a larger field can frame the star group distinguishing them from background stars, a useful trick of the trade. Our next doggy biscuit is 17 Canis Majoris (SAO 172569) just east of M-41 on the bloodhound's spine. This is a lovely quadruple star with magnitudes 5.8 to 9.5, easily split in an 11" telescope at 90x. Its three orbiting components are south of the primary. If you put M-41 on the right edge of a four degree 16x70 binocular field, you'll see on the opposite side a triangle of stars of which 17 Canis Majoris is the bottom dim star.

What other kibble might we sniff out in our doggie bag? South of M-41 there is a string of three large sparse open clusters running the length of our canine. Per Collinder (1890-1975) was a Swedish astronomer who published a catalog (Cr) of 471 such clusters in 1931. (Many amateurs are familiar with the Coathanger Cr 399 or the rich star field around Orion's Belt Cr 70.) Cr 121 is west of Omicron 2 Canis Majoris. Cr 132 is below a line connecting Delta (Wezen) and Epsilon (Alhara) Canis Majoris. Cr 140 lies two degrees southeast of Cr132. The clusters are plotted in Sky Atlas 2000, Chart 9. Try observing them on a moonless night to appreciate the many dimmer stars in the trio. A 16x70 binocular with a four degree field is the perfect instrument for observing star clusters of this size.

Standard dogma dictates that after M-41, NGC 2362 is the finest open cluster in Canis Major. Star hoppers who find Goto technology abhorrent (you can't teach an old dog new tricks) can find this neat little cluster by following a

line from Alhara to Wezen east to Tau Canis Majoris. Once you're on this 4.4 magnitude blue supergiant star, you have arrived as this star is an overwhelming bright member of a tight group of 60 stars 5,200 light years away. Tau is also a triple star whose 10.5 and 11.2 magnitude companions are fairly easy to pick out in an 11" telescope at 165x. Separations are 8.2" and 14.5". Position angles are 90 and 79 degrees (SAO 173446). If you take a dogleg turn north 1.5 degrees from Tau, you'll find a fine morsel, h3945, the "Winter Albireo" (SAO 173349). Cataloged by John Herschel, this beautiful gold and blue double is an optical double (line of sight accident, not physically linked gravitationally). But you'll find in this dog eat dog world, double star observers are benevolent and look the other way and still adopt them as "double stars."

Now to address the 900 pound Saint Bernard in the room – Sirius B! One of the biggest challenges in amateur astronomy is to someday, somehow, spot the "Pup," the white dwarf star orbiting Sirius. Now is the time to try. Sirius B is almost at its greatest distance from Sirius A in its 50 year orbit. Currently the Pup is 10" away from A at a position angle of 76 degrees and will max out at 11" in 2019. Normally a 10" double is not that difficult to split but the problem of course is Sirius' immense brilliance. The B star gets swallowed in the glare of Sirius. To work around the glare problem consider the following strategies: observe before the sky becomes totally dark, use a neutral density filter, try a hexagonal mask (Google for details), try using an occulting bar in the eyepiece, move Sirius slightly out of the field. If possible, try to observe during excellent seeing and when Sirius is near the meridian. And though you might be barking up the wrong tree, it wouldn't hurt to practice on Rigel in Orion and Canis Major's Alhara which have similar but more forgiving parameters. If you are successful in finding the little white dwarf around Sirius, wag your tail in victory.

# 2016 All Arizona Messier Marathon

Saturday, March 12

## Hovatter Airstrip

Sub Dinner - \$6.00 contact [loriprause@gmail.com](mailto:loriprause@gmail.com) to make reservation

Raffle Tickets - \$2 each or 3 for \$5, purchase onsite and arrive by 5pm

Midnight Snacks - take a break about 11pm and chat with your friends

2016 All Arizona  
Messier Marathon Coordinators  
AJ Crayon <[acrayon@cox.net](mailto:acrayon@cox.net)>  
Rick Tejera <[saguaroastro@cox.net](mailto:saguaroastro@cox.net)>  
Jack Jones <[telescoper@cox.net](mailto:telescoper@cox.net)>  
Saguaro Astronomy Club

Complete details:

[http://www.saguaroastro.org/content/  
messier2016.htm](http://www.saguaroastro.org/content/messier2016.htm)



## Find Out What's Happening – Join EVAC-Announce List

If you would like to receive email announcements about EVAC meetings and activities please join the EVAC–Announce mailing list. Click on the link below to subscribe. Enter your full email address in the box titled User Options and press OK. You will receive a confirmation email. Your privacy is respected by EVAC and we will never sell your email address, or use it for non-club relevant solicitations. This mailing list is designed for communication from EVAC, and does not enable users to respond to the message. If you wish to contact club officers, please use the list on the Contact-Us tab.

To subscribe to the EVAC – Announce mail group click:

<http://www.freelists.org/list/evac-announce>

To unsubscribe use the same link, enter your email address and select Unsubscribe from the “Choose An Action” list.

**LAST QUARTER MOON ON MARCH 1 AT 18:11**

**NEW MOON ON MARCH 8 AT 20:54**

**FIRST QUARTER MOON ON MARCH 15 AT 13:03**

**\*FULL MOON ON MARCH 23 AT 08:01**



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# Upcoming Meetings

March 18

April 15

May 20

June 17

July 15

August 19

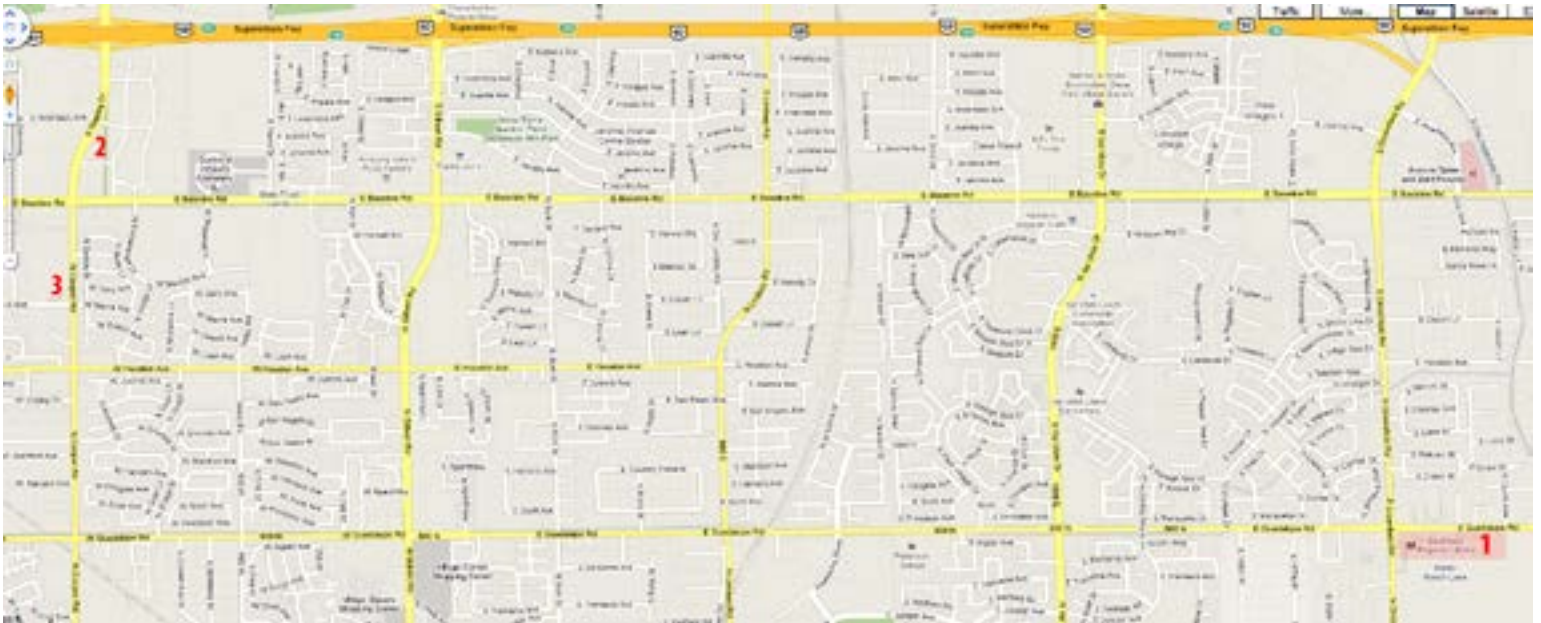
September 16

October 21

The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

***Visitors are always welcome!***



**1** Southeast Regional Library  
775 N. Greenfield Road  
Gilbert, Az. 85234



## MARCH 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		<b>1</b>	<b>2</b>	<b>3</b>	4	<b>5</b>
6	7	8	9	10	<b>11</b>	<b>12</b>
13	14	15	<b>16</b>	17	<b>18</b>	<b>19</b>
<b>20</b>	21	22	23	24	25	<b>26</b>
27	28	29	30	31		

**Mar 1** - Oak Tree Elementary

**Mar 1** - Renaissance Festival - Student Days

**Mar 2** - Pomeroy Elementary

**Mar 3** - Renaissance Festival - Student Days

**Mar 5** - Deep Sky Party

**Mar 11** - Public Star Party

**Mar 12** - Messier Marathon/Phoenix Zoo

**Mar 16** - Kyrene de la Mariposa Elementary

**Mar 18** - EVAC Monthly Meeting

**Mar 19** - Phoenix Zoo

**Mar 20** - Solar Fair

**Mar 26** - Local Star Party

## APRIL 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	<b>8</b>	<b>9</b>
10	11	12	13	14	<b>15</b>	16
17	18	19	20	21	22	23
24	25	2	27	28	29	<b>30</b>

**Mar 11** - Public Star Party

**Mar 5** - Deep Sky Party

**Mar 19** - EVAC Monthly Meeting

**Mar 26** - Local Star Party

# East Valley Astronomy Club -- 2016 Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

**IMPORTANT: All memberships expire on December 31 of each year.**

Select one of the following:

- New Member
  Renewal
  Change of Address

**New Member Dues** (dues are prorated, select according to the month you are joining the club):

- |   |   |
|---|---|
| <input type="checkbox"/> <b>\$30.00 Individual</b> January through March  | <input type="checkbox"/> <b>\$22.50 Individual</b> April through June       |
| <input type="checkbox"/> <b>\$35.00 Family</b> January through March      | <input type="checkbox"/> <b>\$26.25 Family</b> April through June           |
| <input type="checkbox"/> <b>\$15.00 Individual</b> July through September | <input type="checkbox"/> <b>\$37.50 Individual</b> October through December |
| <input type="checkbox"/> <b>\$17.50 Family</b> July through September     | <input type="checkbox"/> <b>\$43.75 Family</b> October through December     |
- Includes dues for the following year*

**Renewal** (current members only):

- \$30.00 Individual**
 **\$35.00 Family**

**Name Badges:**

- \$10.00** Each (including postage) Quantity: \_\_\_\_\_

Name to imprint: \_\_\_\_\_

**Total amount enclosed:**

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  Payment was remitted separately using my financial institution's online bill payment feature

Name:

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Publish email address on website  
 URL:

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- |  |   |
|--|---|
| <input type="checkbox"/> General Observing   | <input type="checkbox"/> Cosmology        |
| <input type="checkbox"/> Lunar Observing     | <input type="checkbox"/> Telescope Making |
| <input type="checkbox"/> Planetary Observing | <input type="checkbox"/> Astrophotography |
| <input type="checkbox"/> Deep Sky Observing  | <input type="checkbox"/> Other            |

Would you be interested in attending a beginner's workshop?  Yes  No

How did you discover East Valley Astronomy Club?

**PO Box 2202**  
**Mesa, AZ 85214-2202**  
[www.evaonline.org](http://www.evaonline.org)

All members are required to have a liability release form (waiver) on file. Please complete one and forward to the Treasurer with your membership application or renewal.

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East Valley Astronomy Club  
PO Box 2202  
Mesa, Az. 85214-2202

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