



# THE OBSERVER

## East Valley Astronomy Club



Spiral Galaxy NGC 2841 Close Up  
APOD February 19, 2011 (Hubble Heritage)

### EVAC This Month

by Don Wrigley

Another month is upon us, and this being the shortest month, it probably deserves the shortest column. We'll see.

Although February is the shortest month, it is one day longer this year, thanks to the efforts of Julius Caesar, who sought to reconcile the problems of the old Roman calendar by popping in an extra day every four years. The "Julian" calendar was adopted in 44 B.C., with only one flaw: it failed to account for the extra day that would build up every 128 years (Caesar knew about the extra day, he just didn't want to deal with it).

By the 1500's there were 10 extra days in the calendar that had to be dealt with. The Vernal Equinox was arriving on March 10th instead of the 20th.

Pope Gregory solved the problem by decreeing that century years not divisible by 400 would skip the extra day. As a result, the year 1900 (which I do not remember) did not have a leap year, while the year 2000 (which I do remember) did have one. As for the extra 10 days: they could have erased them by skipping the next 10 leap years, but the Pope decided to do it all at once, and with a stroke of his pen,

### UPCOMING EVENTS:

- Deep Sky Star Party - February 6*
- Public Star Party - February 12*
- EVAC Monthly Meeting - February 19*
- Local Star Party - February 27*
- 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*

October 10th, in the year 1582, was followed immediately by October 20th. Many were not happy with that decision. Imagine the fuss it would cause today!

No discussion of this month would be complete without the mention of the custom of women proposing marriage during the Leap Year. I was unable to find the source of this custom, but according to an unimpeachable source (Wikipedia?), it extends at least as far back as the year 1288, when a law signed by Queen Margaret of Scotland (then aged five) decreed that a fine,

## If It's Clear...

*by Fulton Wright, Jr. Prescott Astronomy Club*

February 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 Saturday, February 6, about 6:30 AM, you can see 3 solar system objects near each other low in the Southeast. The easy one is Venus. To the left is the very thin crescent Moon. Below both, but nearer the Moon, is Mercury. Actually, Pluto is nearer Venus than any of the others, but at magnitude 14, it is beyond an observing challenge.

On Sunday, February 7, it is new Moon and you have all night to hunt for faint fuzzies.

On Sunday, February 14, the Moon is at first quarter phase and sets at 1:12 AM (Monday). Give yourself a Valentine present by looking for a straight string of 5 small craters at the northern end of Mare Serenitatis. See Astronomy magazine, February 2016, p.37 for details.

On the night of Monday, February 15, at 2:05 AM (Tuesday), the Moon occults Aldebaran again. (Remember January 19?) This one will be much harder to observe because the star will be only 1 1/2 degrees above the horizon.

consisting of a pair of leather gloves, one L sterling, a rose and a kiss, be levied on any man refusing a marriage proposal. That was considered a bargain even then.

Our speaker this month is our own Bernard Miller, who will speak on the topic of Photoshop Image Processing Techniques.

Take care, enjoy the morning planetary line-up while you can, and I hope to see all of you at the meeting.

Don Wrigley

On Monday, February 22, the full Moon rises at 6:34 PM (15 minutes after sunset) so you have to give up hunting for faint fuzzies for the whole night.

The night of Thursday, February 25, you can see some events with Jupiter's moons. Here is the schedule:

12:13 AM (Friday) Europa's shadow falls on Jupiter. (1 shadow).

12:47 AM Europa moves in front of Jupiter.

02:37 AM Io's shadow falls on Jupiter. (2 shadows)

02:53 AM Io moves in front of Jupiter.

03:02 AM Europa's shadow leaves Jupiter. (1 shadow)

03:32 AM Europa ends its transit of Jupiter.

04:52 AM Io's shadow leaves Jupiter.

05:07 AM Io ends its transit of Jupiter.

On Monday, February 29, you get one more day than usual to observe this month. It gets pretty dark by about 7:30 PM and the Moon doesn't come up till 12:50 AM Tuesday morning. Why not close out leap day with a few faint fuzzies?

# The Backyard Astronomer

by Bill Dellinges (February 2016)

## Ten Common Public Astro-Misconceptions

As veteran stargazers, we usually know the basic astronomical principles. But the public who attend our star parties can sometimes surprise us with misconceptions about how the universe works. Let's look at ten things they frequently get wrong.

**1) A "shooting star" is a star that has fallen into our atmosphere.** No. Long before a star fell into our atmosphere it would have vaporized Earth! Shooting stars are meteors, small rocks plunging through our atmosphere that burn up due to friction with atoms or molecules in the air. Most are as small as a grain of sand, traveling 10 to 40 miles per second. They're mostly space debris ejected from comets, chips off asteroids or stuff left over from the formation of the solar system. Big ones the size of a car can make super bright meteors called fireballs or bolides. About 50,000 years ago, an iron-nickel meteor about 200 feet across produced the famous 4000 foot diameter Meteor Crater in northern Arizona. Watch out for those!

**2) The Sun is not a star.** Not true. Many people do not understand that the Sun is a star just like the stars they see at night. Furthermore, most don't know a star is a big ball of hydrogen gas producing energy by fusion at its core. Though stars are faint compared to the blinding light of the Sun, if you took a space flight to them, you would see they grow larger and brighter as you approached them until they looked just like the Sun (some might be a little redder or bluer in color depending on their surface temperature). But bring a lunch; at our current rocket technology it would take 100,000 years to get to the nearest star beyond the Sun.

**3) Polaris is the brightest star in the sky** (excluding the Sun of course). I get this all the time. You can find about 50 stars brighter than Polaris which is only a second magnitude star. It is famous for two reasons. A) Since Earth's rotational axis points very close to it, Polaris marks the direction of north for mid latitude countries in the Northern Hemisphere. B) When a planet's axis points to a star, that star will not appear to move anytime during the night, while all other stars appear to circle around it.

**4) A telescope has a set power (magnification):** How

many times has someone asked you what power your telescope is? The public seems to think the power of a telescope is set in stone, each telescope a specific power. I explain the power can vary depending on eyepiece being used and the one I'm using now gives such and such power. They're usually surprised when I add that 90% of the time I use my lowest power (to get the largest real field).

**5) The Earth is closest to the Sun in summer:** It amazes me how many people believe this and the converse that it's cold in winter because Earth is farthest from the Sun in its elliptical orbit. Actually Earth was at its farthest distance from the Sun (aphelion), 94,506,507 miles last July 6, 2015, when it was summer in the Northern Hemisphere. And Earth was at its closest distance to the Sun (perihelion), 91,403,812 miles, last month, January 2, 2016, winter in the Northern Hemisphere. It is not the three million mile difference that determines summers and winters, rather the 23 ½ degree tilt of Earth's axis. Though we are farthest from the Sun in summer, the northern hemisphere is tilted toward the sun and its rays hit the planet more directly.

**6) The Big Dipper is a constellation:** Not really. It's just the seven brightest stars in Ursa Major, the Great Bear. Thus the Big Dipper is an asterism.

**7) A comet will streak across the sky like a meteor:** Though comets can exhibit high velocities like meteors, they are much farther away (millions of miles beyond our atmosphere) and so appear to move slowly. Movement is noticed only from night to night as it travels across the night sky, though slight movement of a comet relative to background stars can be detected in a telescope after just a few minutes.

**8) The moon does not rotate:** Untrue. The moon rotates in 27.322 days keeping the same side facing Earth. If it did not rotate while it revolves around Earth, we would see the back side of the moon at some point during the month.

**9) The phases of the Moon are caused by Earth's shadow:** No, they are caused by the play of the Sun's light on the moon as it revolves around Earth.

# The Backyard Astronomer

Continued from page 3

**10) The Moon is bigger when rising than later in the night:** No, this is the famous “Moon Illusion” effect so called because it’s an optical illusion. There is something about an object that is seen adjacent to other objects on the horizon that makes it appear to be larger than when it is seen higher in the sky. You may also have noticed the same phenomenon with constellations. For instance, Orion looks gigantic when rising on the eastern horizon compared to when it’s seen on the meridian.

**11) A bonus fallacy for no extra charge! The more massive the star, the longer it will live.** Makes sense doesn’t it? After all, it has more fuel to burn. But no, it’s quite the opposite situation. The more massive the star,

the more its gravitational force induces pressure upon the central hydrogen – burning core, causing it to burn fuel more furiously. Example: A star twice as massive as the Sun will live only 1/10th as long as the Sun – 1 billion years. It gets worse. A 30 solar mass star will live for only a few million years.

Correction to last month’s Backyard Astronomer: Winter’s Top Ten Delights. In object number 4, the Pleiades is listed incorrectly as the second closest star cluster to Earth. It is the fourth (380 LY) after the Ursa Major Moving Cluster (80 LY), the Hyades (120 LY) and the Coma Berenices Cluster (MEL 111) (280 LY).

## 2016 All Arizona Messier Marathon

Saturday, March 12

Hovatter Airstrip

Site Coordinates:

33° 34’ 50” N

113° 35’ 53” W

Elevation: 1.378’

2016 All Arizona

Messier Marathon Coordinators

AJ Crayon <acrayon@cox.net>

Rick Tejera <saguaroastro@cox.net>

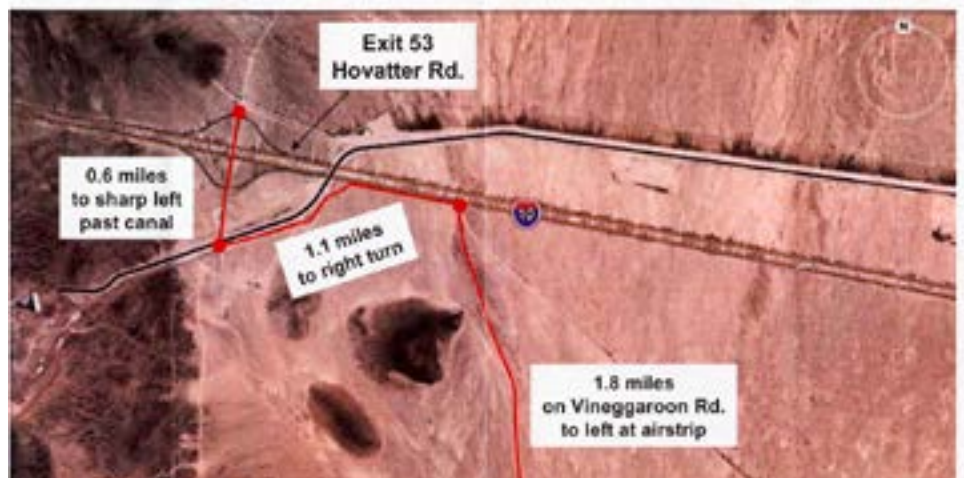
Jack Jones <telescoper@cox.net>

Saguaro Astronomy Club

Complete details:

<http://www.saguaroastro.org/content/messier2016.htm>

2010 All-Arizona Star Party  
Hovatter Road Airstrip Site



## 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.

**NEW MOON ON FEBRUARY 8 AT 09:39**

**FIRST QUARTER MOON ON FEBRUARY 15 AT 02:46**

**\*FULL MOON ON FEBRUARY 22 AT 13:20**

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





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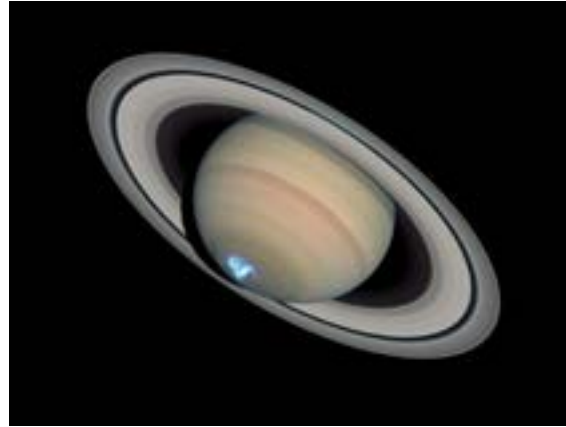
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# Upcoming Meetings

February 19

March 18

April 15

May 20

June 17

July 15

August 19

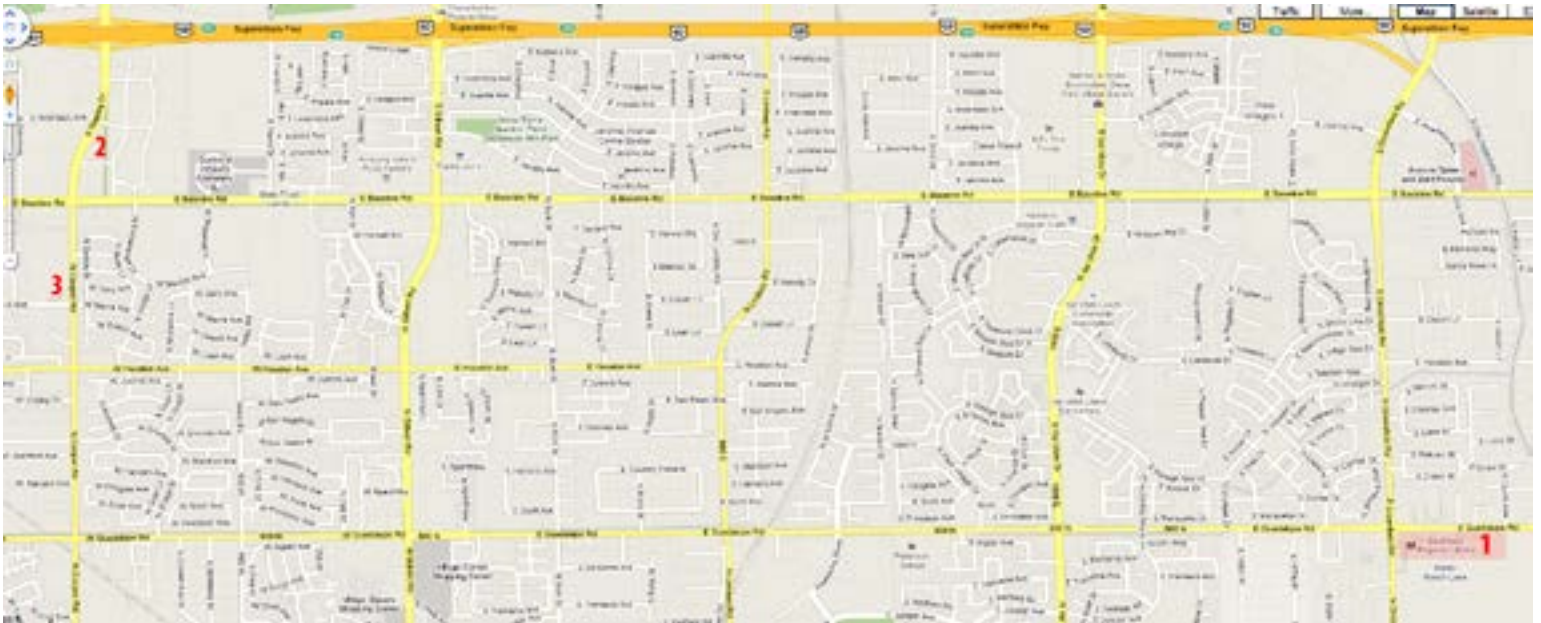
September 16

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.

All are welcome to attend the pre-meeting dinner at 5:30 pm. We meet at Old Country Buffet, located at 1855 S. Stapley Drive in Mesa. The restaurant is in the plaza on the northeast corner of Stapley and Baseline Roads, just south of US60.

***Visitors are always welcome!***



**2**

**Old Country Buffet**  
1855 S. Stapley Drive  
Mesa, Az. 85204

**1**

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





## FEBRUARY 2016

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

**Feb 1** - CGCC Star Party

**Feb 2** - Kino Jr High

**Feb 3** - Kyrene Middle School

**Feb 4** - Navarrete Elementary

**Feb 6** - Deep Sky Party

**Feb 10** - C. O. Greenfield School

**Feb 12** - Public Star Party

**Feb 18** - Payne Jr High

**Feb 19** - EVAC Monthly Meeting

**Feb 20** - City of Chandler Star Party

**Feb 23** - Carson Jr High

**Feb 25** - Redbird Elementary

**Feb 27** - Local Star Party

## MARCH 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		<b>1</b>	<b>2</b>	3	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>
20	21	22	23	24	25	<b>26</b>
27	28	29	30	31		

**Mar 1** - Oak Tree Elementary

**Mar 2** - Pomeroy Elementary

**Mar 5** - Deep Sky Party

**Mar 11** - Public Star Party

**Mar 12** - Messier Marathon

**Mar 12** - Phoenix Zoo

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

**Mar 19** - EVAC Monthly Meeting

**Mar 20** - Phoenix Zoo

**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:**

*Please make check or money order payable to EVAC*

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

Name:

Phone:

Address:

Email:

City, State, Zip:

- 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.evaconline.org](http://www.evaconline.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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