



THE OBSERVER

East Valley Astronomy Club



Three Galaxies in Draco: NGC 5981, NGC 5982, and NGC 5985
 Credit & Copyright: Giovanni Benintende

UPCOMING EVENTS:

- Public Party - July 14*
- Local Star Party - July 15*
- EVAC Monthly Meeting - July 21*
- Deep Sky Party - July 22*
- Check out all of the upcoming club events in the Calendars on page 14.*

INSIDE THIS ISSUE:

EVAC This Month by Don Wrigley

I want to start out by thanking all those who participated in the June meeting's Star-B-Que and auction. From a financial perspective, it was a huge success and we should have the final results at the July meeting. It is quite a windfall for the club, and we are looking for suggestions from club members as to how we might best put the money to use.

On a personal level, I want to compliment everyone who participated in the estate sale

that followed the auction, for the manner in which they conducted themselves. It was an exercise in civility and good manners. I had a great time, and I hope everyone else did as well.

This month's speaker will be Michael Sori, from the University of Arizona, who will discuss the latest finding on cryo-volcanism with research from the Dawn mission.

Don Wrigley

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If It's Clear...

by *Fulton Wright, Jr. Prescott Astronomy Club*

July 2017

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 Monday, July 3, you can see some events with Jupiter's moons. Here is the schedule:

07:47 PM Sunset.

08:02 PM Io moves in front of the planet.

08:15 PM You can probably find the planet in the dusk.

09:17 PM Io's shadow falls on the planet.

09:42 PM Europa moves in front of the planet.

10:13 PM Io leaves the face of the planet.

11:25 PM Io's shadow leaves the planet.

12:11 AM (Tuesday) Europa leave the face of the planet.

12:18 AM Europa's shadow falls on the planet.

12:24 AM Jupiter sets.

On Saturday, July 8, the full Moon rises at 7:27 PM (19 minutes before Sunset) spoiling any chance of seeing faint fuzzies for the night.

On Sunday, July 16, the Moon is at third quarter phase and rises at 12:32 AM (Monday).

On Saturday, July 22, it is new Moon and you have all night to hunt for faint fuzzies.

On Sunday, July 30, the Moon is at first quarter phase and sets at 12:19 AM (Monday).

The Backyard Astronomer

by *Bill Dellinges (July 2017)*

Five Must-See Double Stars for Summer

Even if you're a not a double star nut like myself, you might want to check out the following five showcase doubles on display this summer.

Mizar (Ursa Major): Components A and B are magnitude 2.2 and 3.9. Separation is 14.4". SAO 28737. Located at the bend in the Big Dipper's handle, this double is easily split in an 85mm refractor at 24x. Good eyes may notice there is a naked eye fourth magnitude star, Alcor, only 11.8' away from Mizar. There is some debate about whether Mizar and Alcor are related. Estimates of their distances vary but it seems that they are at least 1.5 light years apart. Alcor shows a common proper motion (CPM) with Mizar. Astronomer James Kaler estimates that if the two are part of the Mizar system, Alcor's period of revolution would be about 750,000 years.

It turns out Mizar and its companion and Alcor are all spectroscopic binaries too; so, when you look up at these two stars, you're actually looking at six stars!

Mizar has some interesting bragging rights. It's thought to be the first double star split with a telescope in 1617 by Benedetto Castelli and Galileo in 1617. Mizar was the first double star photographed in 1857 by G. Bond. Mizar A was the first spectroscopic binary to be discovered by Edward Pickering in 1889.

NU Scorpii: AB 4.1, 5.2, 1.3". AC 4.0, 6.5, 41.5". CD 6.5, 7.8, 2.3". SAO 159763. Distance: 450 light years. One and half degrees northeast from Beta Scorpii, the top star in Scorpius' claws, lies the quadruple star Nu Scorpii. AB 4.1, 5.2, 1.3". AC 4.0, 6.5, 41.5". CD 6.5, 7.8, 2.3". SAO 159763. Think of this multiple star as two pairs. The AB set has a separation of only 1.3". It might look like a single star to you at first, especially at lower powers. The CD set is 41.5" away from AB and more forgiving with a separation of 2.3". An 8x50 binocular splits the AB - CD pair. A Televue 85 split the CD pair at 200x. Only at the North Rim of the Grand Canyon have I been able to cleanly split the AB pair with a C8 at 290x.

Gamma Delphini: AB 4.4, 5.2, 9.4". SAO 106475. Distance: 102 light years. Just east of Cygnus and Aquila one finds

The Backyard Astronomer

by Bill Dellinges (June 2017)

the diminutive constellation Delphinus, the Dolphin. Gamma is the most north-eastern star in the constellation, representing the Dolphin's nose. A Televue 85 splits AB nicely at 60x. In the same low power field, you'll spy Struve 2725. AB 7.5, 8.2, 6.1". Distance 125 light years. A twofer!

Epsilon Lyrae: Distance: 160 light years. SAO 67310. The famous Double-Double in Lyra, the Lyre. This stellar system is beautiful, unique, and a great test for your optics! The two sets of doubles, E1 and E2 are separated by 208" (3.46'). On a good night of seeing I used to be able to split these two sets naked eye. But that was when I was younger – I'm not so sure I can do that anymore. Can you? Three arc minutes is doable; give it a shot.

Here are the vital statistics of the two pairs: E1: AB 5.1, 6.2, 2.3". E2: 5.3, 5.5, 2.4". I have found the more equal magnitude E2 with its slightly larger separation easier to split than E1. Your gas mileage may vary. I have split both pairs with a Televue 85 at 143x. My 5" APO has split them with as little as 104x. With 14" and 11" SCTs I have used, about 200x has been required. No surprise there – refractors, with their superb resolution, are killer instruments on double stars. Its' also interesting to note that the line connecting the stars of E1 and E2 are perpendicular to one another.

In a telescope, we see four dots. But imagine just how much "space" there is between the components. Robert Burnham, Jr. in his venerable Burnham's Celestial Handbook (circa 1970's)

addresses this issue. His estimates show the E1 pair's separation as 155 Astronomical Units (AU) with a period of revolution of 1165 years. E2's separation is 165 AU's and period 585 years. He also states that the 208" distance between the pairs equates to 13,000 AU's and that there is no sign of them revolving around each other but if they do, the period would be something under one million years.

Albireo (Cygnus): AB 3.1, 5.1, 34.4". SAO 87301. Distance 390 light years. Our final double star is well known and admired by many stargazers. Albireo is possibly the most popular double star in the northern skies. Its claim to fame is its two gorgeous blue and gold components, separated by a generous 34.4" and thus resolvable in just about any small telescope. As a result, Albireo can be a great example of a double star to use at public star parties. The colors are best appreciated when the stars are seen slightly out of focus, at least for older folks like me. Younger viewers seem to have no problem seeing the colors when the duo is in focus.

Albireo is a very wide double star, as double stars go. I have split Albireo with tripod mounted 10x70 binoculars. The true separation of the pair is equivalent to 55 of our solar systems or about 4,400 AU's based on Pluto's orbital distance from the Sun (I refuse to let go of Pluto). Because of this huge separation, there is uncertainty whether the two stars are truly a binary pair or just an optical double star (unrelated gravitationally). If it is a binary, it's period would be about 100,000 years. Binary or not, just enjoy the view!

FULL MOON ON JULY 9 AT 00:00

LAST QUARTER MOON ON JULY 16 AT 03:26

NEW MOON ON JULY 23 AT 05:46

FIRST QUARTER MOON ON JULY 30 AT 11:23

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

Looking for that perfect weekend activity?

Why not resolve to getting involved?

Contact Claude Haynes to join the staff at GRCO

Email: grco@evaconline.org



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Upcoming Meetings

July 21

September 15

October 27

November 17

December 15

January 19

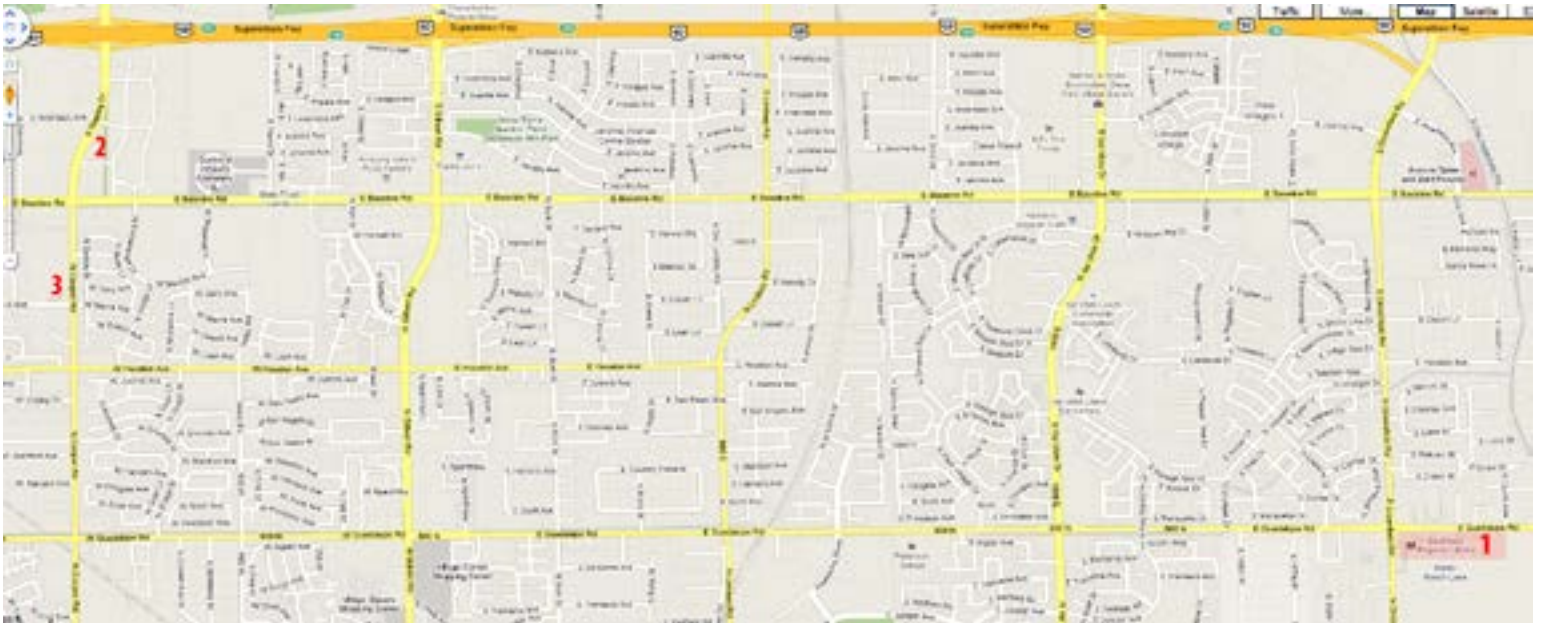
February 16

March 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.

Visitors are always welcome!



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



JULY 2017

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

July 7 - Public Star Party

July 21 - EVAC Monthly Meeting

July 15 - Local Star Party

July 22 - Deep Sky Party

AUGUST 2017

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

August 11 - Public Star Party

August 19 - Deep Sky Star Party

August 12 - Local Star Party

East Valley Astronomy Club -- 2017 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"/> \$30.00 Individual January through March | <input type="checkbox"/> \$22.50 Individual April through June |
| <input type="checkbox"/> \$35.00 Family January through March | <input type="checkbox"/> \$26.25 Family April through June |
| <input type="checkbox"/> \$15.00 Individual July through September | <input type="checkbox"/> \$37.50 Individual October through December |
| <input type="checkbox"/> \$17.50 Family July through September | <input type="checkbox"/> \$43.75 Family 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:

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month.

- | | |
|--|---|
| <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

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.

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Please send your contributions, tips, suggestions and comments to the Editor at: news@evaonline.org. Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

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The East Valley Astronomy Club is a 501(c)(3) nonprofit charitable organization.

www.evaonline.org

East Valley Astronomy Club
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