



THE OBSERVER

East Valley Astronomy Club



[Arp 87: Merging Galaxies from Hubble](#)
 APOD December 9, 2015 ESA, Hubble, NASA

UPCOMING EVENTS:

- Public Party - December 11*
- EVAC Monthly Meeting - December 18*
- Local Star Party - December 19*
- Deep Sky Star Party - December 26*
- Check out all of the upcoming club events in the Calendars on page 9.*

INSIDE THIS ISSUE:

EVAC This Month

by Don Wrigley

The end of another year is upon us and time, I feel, to give thanks to all those people who have worked so diligently and tirelessly on behalf of the club.

First, there is Claude Haynes, our vice-president, who does so much more than just supply us with a monthly speaker, a daunting task unto itself. He is the one who transports the tables and shade tents and most of snacks and beverages for both the All Arizona Star Party and the SAC sponsored Messier Marathon.

Then there is Lynn Young, whose job as activities director not only requires him to respond to and

schedule countless numbers of school star parties each year, but also to coordinate with the members who attend these events, as well as attending most, if not all of them himself.

Thanks to Brooks Scofield, who makes the difficult job of treasurer seem easy and fun. I'm pretty sure it is neither, as witnessed by the fact that it is the only club position I have not held, and do not expect to hold any time in the near future!

Marty Pieczonka serves as both the webmaster and newsletter editor, and even now is patiently awaiting my monthly contribution to the newsletter. Thank you for your

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EVAC This Month

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patience Marty.

Thank you, Jan Barstad for providing us with our much needed and appreciated refreshments for our monthly meetings. Meetings would not be the same without them.

Finally I would thank all the officers and board members who worked together with Claude and myself to plan, organize and carry out what was, for me, the highlight of the year for EVAC: the outstanding field trip to Lowell Observatory. Thanks, everyone!

If It's Clear...

by Fulton Wright, Jr. Prescott Astronomy Club

December 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, December 6, the Moon is at first quarter phase and sets at 12:09 AM (Wednesday).

On Monday, December 12, at 8:06 PM, the nearly full Moon occults Aldebaran. The star reappears at 9:15 PM.

On Tuesday, December 13, at 5:35 PM, the full Moon rises, spoiling any chance of seeing faint fuzzies for the night.

On Tuesday, December 20, the Moon is at third quarter phase and rises at 12:39 AM (Wednesday).

Space does not permit me to single out all those people who have done so much for EVAC this past year. You know who you are and I thank all of you as well.

Don't forget to come to our meeting on Friday, December 16th. It is our annual holiday party, and the meeting will begin at 7:00 PM instead of the usual 7:30 time. If you can, bring a side dish or dessert; food and beverages will be provided. I hope to see you all there!

Don Wrigley

On Wednesday, December 21, winter begins in the northern hemisphere.

On Thursday, December 22, about 2:30 AM, look for the Moon, Jupiter, and Spica rising in a line in the east-southeast.

On Wednesday, December 28, it is new Moon and you have all night to hunt for faint fuzzies.

On Saturday, December 31, you can see Mars and Neptune in the same field of view in your telescope. At about 6:00 PM, when it is dark enough to see them, they are 11 arc-minutes apart. At 10:10 PM, when they set, they are 3 and 1/2 arc-minutes apart. They go on to get only 1 arc-minute apart but are below the horizon at that time.

You Need Binoculars

Why? Binoculars are a wonderful device. They render a magnified, wide angle image in a short portable package. And unlike your trusty telescope, they have two eyepieces for a more natural, comfortable viewing experience. And Christmas is just around the corner (A hint to significant others).

Binoculars have several attributes for the stargazer. They are especially handy for observing large deep sky objects, like large open star clusters that exceed the typical one degree field of view of telescopes. Examples in that category are the Pleiades (M-45), Beehive Cluster (M-44), Perseus OB Association (Mel 20) and the Coma Berenices Cluster (Mel 111). Binoculars are also excellent instruments for observing comets, whose long tails require wide fields of view. Mounting binoculars to a tripod can be a huge advantage to enjoying vibration free observing, as it can be difficult to hold binoculars motionless even at low powers of 7x to 10x – let alone 15x. For a pleasing experience, try using tripod mounted binoculars to pan large areas of the Milky Way while comfortably seated on a stool. Lastly, should the observer be bereft of a GOTO telescope or setting circles, binoculars can be very helpful in finding objects using the lost art of star hopping.

Binocular primer: There are two types of binoculars – Porro Prism and Roof Prism. The former have the familiar bulges on the sides that you grasp holding the binoculars. The latter are narrower, looking like two attached tubes (popular with birders for their smaller size). There is a third type called stabilized binoculars, hi-tech and expensive, but let's just discuss the tried and true Porro and Roof types here. Both work fine for stargazing but Porros are generally less expensive than Roof Prisms because the latter require more stringent tolerances. The numbers stamped on binoculars are the power (magnification) and objective lens size in millimeters. Thus a 10x50 has 10 power and front lenses 50 millimeters in diameter. Some typical sizes for astronomy are 7x50, 10x50, 15x70, 20x80 and 25x100. Often the Field of View is indicated, such as 70, meaning that many degrees of sky are encompassed in the view (known as Real Field). Sometimes the field is shown as "375' at 1000 Yards." To convert to degrees, divide 375 by 52.4. If it reads "115 meters at 1000 Meters", divide 115

by 17 (fortunately this system is falling out of favor).

Apparent Field is how wide the view is, looking into the eyepieces. To determine Apparent Field, multiply power times Real Field: a 7x50 with a 6 degree Real Field has an apparent field of 420 ($7 \times 6 = 42$). Exit Pupil is the diameter of the cone of light exiting the eyepieces. Exit Pupil can be determined by dividing lens size by power: a 7x50 has an exit pupil of 7.14mm ($50/7 = 7.14$). Purists might argue an older person's pupil at night only opens to 5mm, so some light from a 7.14mm exit pupil is lost. Technically yes, but it's not a big deal. If so, buy a 10x50 that renders a 5mm Exit Pupil.

What to look for in binoculars: First, go with a name brand. High end binoculars like Leica, Zeiss, and Swarovski are excellent but extremely expensive. Fortunately one can find reasonably priced, well performing binoculars starting at about \$150 from companies like Pentax, Minolta, Nikon, Celestron, Orion, and Vixen. Avoid Bushnell, Tasco, Jason or unfamiliar brand names in department stores. Also avoid binoculars priced under \$100 unless they are on sale and were originally more expensive.

Desirable specifications: The lenses and prisms should be fully multi-coated (not just "coated" or "multi-coated"). This assures every air to glass surface in the binoculars, including prisms, have anti-reflection coatings. This is very important considering that each barrel of binoculars can contain up to ten or more lenses and prisms, each losing 4% of light due to reflections off each uncoated glass surface. Without coatings, binoculars can lose 60% - 75% of the light through its optical train. Modern fully multi-coated lenses can reduce light loss to about 0.3% per glass surface, resulting in binoculars passing up to 97% of the light in a 10 lens/prism system. Prisms should be Bak-4 glass which pass more light than BK-7 glass. There shouldn't be eye strain while viewing, which may suggest collimation problems. Look for good edge performance – the view should be sharp to at least one half the distance from the field's center to its edge (the further, the better). Eye relief should be at least 19mm if you wear glasses while observing. Twist up eye cups for the eyepieces are more convenient than rubber cups that fold down. Though not essential, nitrogen purged and sealed binoculars are a plus to avoid possible vapor and dust forming on internal surfaces. Make sure the binoculars are tripod adaptable.

The Backyard Astronomer

Continued from page 3

Stargazing with binoculars opens a whole new experience in observing, especially if they are mounted on a tripod which eliminates the annoying jiggling of objects in the field. It's hoped this primer helps you in selecting a

good binocular. One final piece of advice – spend a little more than you planned to, as quality binoculars will last you a lifetime.

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.

Looking for that perfect weekend activity?

Why not resolve to getting involved?

Contact Claude Haynes to join the staff at GRCO

Email: grco@evaonline.org

Classified Ads

I have added a filter wheel with 36mm filters to my equipment, and no longer need my collection of 2" filters. I am offering them For Sale...

Some of the items have already sold, but these below are still available.

Item:	Model:	Cost New:	Asking:
<u>Baader UV/IR Cut L Filter</u>	2459210A	\$ 132	\$ 80
<u>Baader O III 8.5nm</u>	245836	\$ 227	\$ 140
<u>Lumicon Deep Sky UHC/LP</u>	<u>LF 3015</u>	\$ 299	\$ 200
<u>Lumicon Night Sky H-Alpha</u>	<u>LF 3090</u>	\$ 149	\$ 100
<u>Astromik 1.25" CLS</u>	CLS-1	\$ 70	\$ 50

David Douglass
david@az-douglass.net
Cell (602) 908-9092

FIRST QUARTER MOON ON DECEMBER 7 AT 04:03

***FULL MOON ON DECEMBER 13 AT 19:06**

LAST QUARTER MOON ON DECEMBER 20 AT 20:56

NEW MOON ON DECEMBER 29 AT 01:53



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Upcoming Meetings

December 16

January 20

February 17

March 17

April 21

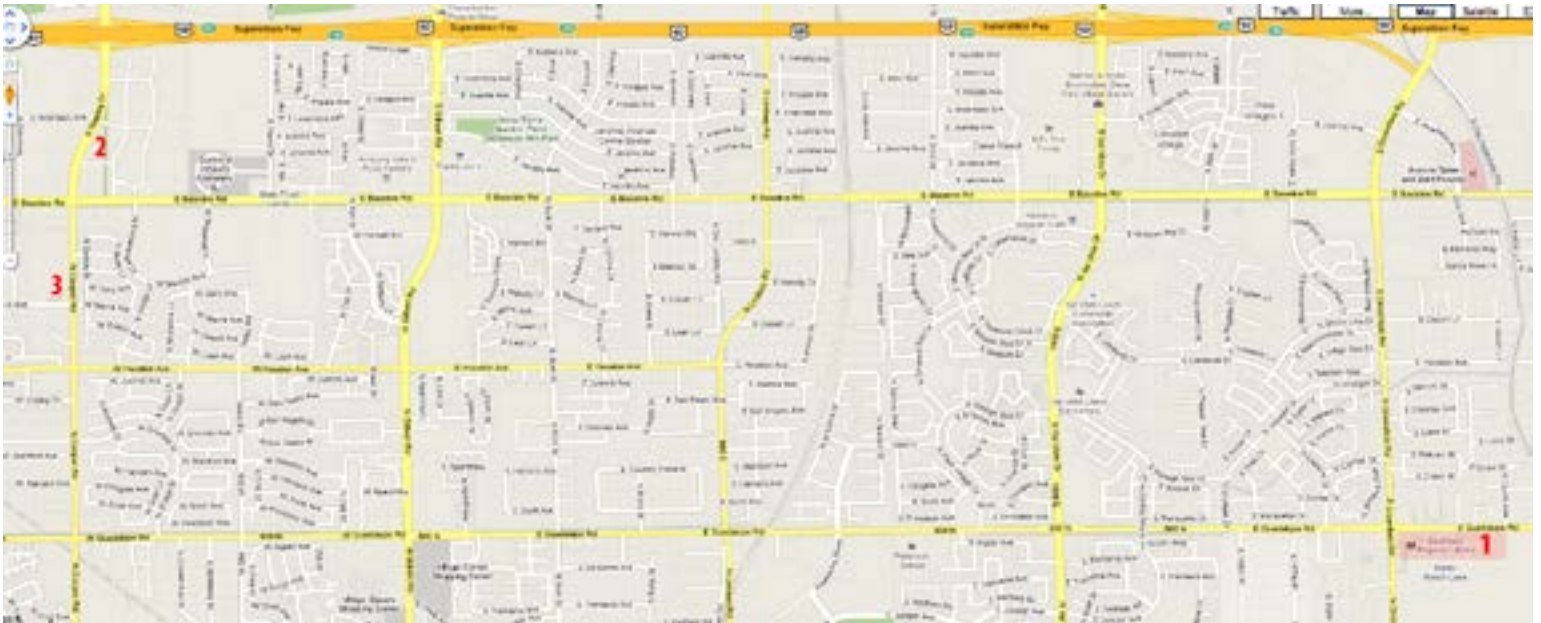
May 19

June 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



DECEMBER 2016

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

Dec 9 - Public Star Party

Dec 24 - Local Star Party

Dec 16 - EVAC Monthly Meeting

Dec 31 - Deep Sky Star Party

JANUARY 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				

Jan 13 - Public Star Party

Jan 21 - Local Star Party

Jan 19 - Charlotte Patterson Elementary

Jan 26 - Frye Elementary School

Jan 20 - EVAC Monthly Meeting

Jan 28 - Deep Sky 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"/> \$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.

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www.evaonline.org

East Valley Astronomy Club
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Mesa, Az. 85214-2202

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Vice President: Claude Haynes

Secretary: Jan Barstad

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Events Coordinator: Lynn Young

Property Director: David Hatch

Refreshments: Jan Barstad

Observing Program Coordinator: Wayne Thomas

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Webmaster: Marty Pieczonka

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Observatory Manager: Claude Haynes