

# THE OBSERVER



## UPCOMING EVENTS:

- Public Star Party - February 9*
- EVAC Star Party - February 10*
- EVAC Monthly Meeting - February 16*
- EVAC Star Party - February 17*
- Check out all of the upcoming club events in the Calendars on page 11.*

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The Porpoise Galaxy From Hubble  
 APOD February 6 2017, Image Credit: NASA, ESA, Hubble, HLA

## From the Desk of the President by Tom Mozdzen

Turnout for the January meeting was wonderful (~85), and we had two nice member presentations from Tom Polakis and Bill Peters. Lindy Elkins-Tanton's talk about the Psyche mission was well received with many questions about the mission from the audience. More details about the January meeting can be found on page 5 in Ken's meeting minutes.

I can report that the output from the Board meeting in January resulted in a few tangible items: 1) we will create a Facebook page for EVAC and one for GRCO; and 2) both of our star parties at Picket Post Trailhead will be named "EVAC

Star Party". The historical names of "Local" and "Deep Sky" no longer have the relevance that they once had. Look for the FB pages to come on line soon. More updates to come in February as the Board will be meeting monthly for at least the first half of the year discussing and evaluating a myriad of topics.

January and February are busy months for outreach activities to local schools. Please view the EVAC calendar and assist with a star party if you can, especially the ones expecting a large turnout. The schools love us and the bookings are bringing us out 2 to 3 nights a week. Lynn Young and crew have been doing a heroic job keeping up with the demand.

## From the Desk of the President

*Continued from page 1*

GRCO continues to be a popular destination as the number of visitors remains strong. Claude Haynes and his volunteer crew are staffing the Observatory come clouds or stars. They are serving hundreds of visitors every week, and are doing a wonderful job.

My day job is working at ASU as a Postdoc researcher, and I like to keep an eye out for opportunities for club members to get involved with astronomical research projects. Two such opportunities are on the radar screen. One is working with the cube sat program led by Professor Danny Jacobs, where amateur astronomers with Ham Radio experience are needed. Another opportunity is with measuring the radius of nearby

stars with a pair of amateur sized telescopes, 8" to 16" in diameter using a resurrected technique developed in the 1950s called Intensity Interferometry. Instead of a CCD camera attached to the telescope, a single photon detector is used on each scope. This is led by Professor Phil Mauskopf. We will be getting more information about these projects in the near future.

Our February featured speaker will be Taisiya Kopytova who will talk about her research activities on Exo-planets.

Tom Mozdzen

## The Backyard Astronomer *by Bill Dellenges (February 2018)*

### Double Stars in Hidden Places

Many amateur astronomers enjoy observing double stars. These little jewels might be part of a constellation or a nondescript dim star in their confines. But sometimes they can be sneaky and hide in a star cluster. A star cluster you say? Sure, why not? At least half of all stars have one or more companions so why shouldn't members of a cluster have some? Below you'll find six examples of hidden gems.

Struve 485: (Cam) AB Mag 7.0, 7.0, SEP 17.9", PA 304°. SAO 13031. We can use the intriguing asterism, Kemble's Cascade in Camelopardalis, as a gateway to this double. It's hard to find your way around in Camelopardalis because it's a very faint constellation. One way to find the asterism is to imagine a line from Algol to Mirphak in Perseus. Continue that line eastward a little more than the distance between those two stars. That should put you close enough to sweep up the star chain in a finder or binoculars. Follow the star chain southeastward where it terminates at the small, tight open star cluster NGC 1502. Or, if you have a GOTO telescope, simply enter NGC 1502! Even at low power you'll spot an equal magnitude double star, conspicuously brighter than the cluster's other stars. This is Struve 485. Volume Two of Sky Catalog 2000 shows no less than 10 components, but let's just settle for the AB pair (the others are dim and lost amongst the cluster stars). A 3.3" refractor can split the pair at 29x.

Struve 738: (Ori) AB 3.5, 5.5, 4.0", 44°. AC 4.0, 11, 29.1", 184°. SAO 112921. The "Head" of Orion is a small group of three stars. Magnitude 3.5 Lambda Orionis, the brightest of the three, is our quarry. By the way, combined with a dozen other fainter stars, the group makes for a neat looking cluster (aka Collinder 69) in binoculars. A SCT 11" split the trio at 90x, but was more impressive at 165x. Note: 15' north is magnitude 6.0 Otto Struve 111: AB 6.0, 6.0, 2.6", 349°. The 11" barely split AB at 90x. 165x was more convincing.

Struve 750: (Ori) AB 6.43, 8.39, 4.3", 60°. SAO 132325. To the naked eye, Orion's Sword is the three dim stars below his Belt. The middle one of course, is M-42, the glorious Orion Nebula. The top star is actually NGC 1981, a weak open star cluster shaped like a W. Struve 750 is the top star in the eastern wing of the W. A C-8 can split the pair at 145x. Because the secondary is both dimmer than the primary and somewhat tight, more power or aperture may be necessary. No problem in an 11" at 165x.

Struve 848: (Ori) AB 8.3, 9.0, 2.5", 108°. AD 8.3, 9.1, 28", 121°. AE 8.3, 9.7, 43.4", 183°. SAO 95282. This multiple star has nine components listed in Sky Catalog 2000. Shown here are the four brightest stars in the system. They reside in the popular "37" cluster NGC 2169, located near Orion's "elbow." In an 11" at 165x, ABCDE were identified. This multiple star is located near the top of the "3" in the "37."

# The Backyard Astronomer

*Continued from page 2*

10 Monocerotis (aka Bpm)(Mon): AB 5.1, 9.3, 77.2", 256°. AC 5.1, 9.3, 80.2", 2310. SAO 133290. The A component of this triple star in NGC 2232 is the brightest star in the cluster. Look for the B and C stars an equal distance west of the primary (this would be to your left in a reversed field) and aligned vertically to each other.

O. Struve 134: (Gem) AB 7.5, 9.1, 31", 188°. SAO - none. This double is hidden, though not too conspicuously, in the

200 stars of M-35 in Gemini. The double is located in the northeast corner of the cluster and stands out pretty well. The primary is the brightest star in the cluster; the dim secondary is south of it. While studying the group, you might as well try for the faint background cluster NGC 2158, slightly off M-35's southwest corner. The former is 12,000 light years away, the latter 2,800 light years distant. No doubt NGC 2158's comet-like appearance has led many stargazers to think they have finally discovered a comet!

## Let's Party for February

Astronomical objects for public (and private) star parties, arranged by type.  
*by Fulton Wright, Jr. Prescott Astronomy Club*

Flashy, deep-sky objects, visible in the middle of the month, at the end of astronomical twilight, 7:10 PM this month, (when it really gets dark). This list customized for Prescott, Arizona, should work well anywhere in the state, and be usable anywhere in the old 48 states.

Double Stars (2 or 3 stars, close together)

Name: Sigma Orionis (triple star) (another double nearby)  
alt name: SAO 132406  
Magnitudes: 3.8, 6.3, 6.6  
separation: 13 arc-seconds, 42 arc-seconds  
R.A.: 5hrs 39min  
Dec.: -2deg 36'

Name: Alpha Gemini (bright)  
alt name: Castor, SAO 60198  
magnitudes: 1.6 & 3.0  
separation: 5 arc-seconds  
R.A.: 7hr 35min  
Dec.: 31deg 53'

Name: Gamma Andromedae (colorful)  
alt name: Almach, SAO 37734  
magnitudes: 2.1 & 5.0  
separation: 10 arc-seconds  
R.A.: 2hr 5min  
Dec.: +42deg 45'

Name: Gamma Arietis  
alt name: Mesarthim, SAO 92681  
magnitudes: 3.9 & 4.6  
separation: 7 arc-seconds

R.A.: 1hr 55min  
Dec.: +19deg 23'

Open Clusters (about 50 bright stars)

Name: Double Cluster  
alt name: NGC 869 and NGC 884  
magnitude: 5.3 and 6.1  
size: 18 and 18 arc-minutes, centers 28 arc-minutes apart  
R.A.: 2hr 22min  
Dec.: +57deg 12'

Name: M 37  
alt name: NGC 2099  
magnitude: 5.6  
size: 14 arc-minutes  
R.A.: 5hr 53min  
Dec.: +32deg 33'

Name: M 45 (binocular object)  
alt name: Pleiades  
magnitude: 1.5  
size: 120 arc-minutes  
R.A.: 3hr 48min  
Dec.: +24deg 10'

Globular Clusters (about 200,000 dim stars)

Name: M 79  
alt name: NGC1904  
magnitude: 7.7  
size: 10 arc-minutes  
R.A.: 5hrs 25min/Dec.: +24deg 31'

# Let's Party for February

*Continued from page 3*

Galaxies (about 200,000,000 very dim and distant stars)

Name: M 31 (M 32 & M 110)

alt name: Andromeda galaxy

magnitude: 3.4 (7.9 & 8.0)

size: 180 x 70 arc-minutes (8 x 5 & 16 x 10)

R.A.: 0hr 44min

Dec.: +41deg 22'

Name: M 82 and M 81

alt name: Bode's nebula, NGC 3031 and NGC 3034

magnitudes: 6.8 and 8.1

size: 21 x 11, 11 x 5 arc-minutes, 37 arc-minutes apart

R.A.: 9hrs 55min

Dec.: +69deg 55'

Name: M 77

alt name: Cetus A

magnitude: 9.0

size: 6 x 6 arc-minutes

R.A.: 2hr 44min

Dec.: +0deg 4'

Diffuse Nebulae (gas and dust lit by a nearby star)

Name: M 42

alt name: Orion Nebula

magnitude:

size: 85 x 60 arc-minutes

R.A.: 5hrs 36min

Dec.: -5deg 26'

Name: NGC 2261

alt name: Hubble's Variable Nebula (small and dim)

magnitude: 9

size: 4 x 2 arc-minutes

R.A.: 6hrs 39min

Dec.: +8deg 45'

Name: NGC 2024

alt name: Flame Nebula

magnitude: 10

size: 8 x 7 arc-minutes

R.A.: 5hrs 42min

Dec.: -1deg 52'

Planetary Nebulae (gas shell from exploding star, looks like Uranus in telescope)

Name: NGC 2392

alt name: Eskimo Nebula

magnitude: 9.2

size: 0.8 arc-minutes

R.A.: 7hrs 29min

Dec.: +20deg 55'

Name: NGC 1535

alt name: Cleopatra's Eye

magnitude: 9.4

size: 0.8 arc-minutes

R.A.: 4hr 15min

Dec.: -12deg 42'

Name: NGC 246

alt name: Skull Nebula

magnitude: 10.4

size: 3.7 arc-minutes

R.A.: 0hrs 47min

Dec.: -11deg 52'

Miscellaneous (Supernova Remnant)

Name: M 1

alt name: Crab Nebula

magnitude: 8.4

size: 6 arc-minutes

R.A.: 5hrs 34min

Dec.: 22deg 01'

# EVAC General Meeting Notes for January 2018

The first EVAC meeting of 2018 was held on Friday, January 19, 2018 at 7:30 pm.

This was the first meeting with our new board and new president, Tom Mozdzen.

There was a great turnout with a number of new members, out of town visitors, and people renewing their dues for 2018. We are thankful for each and every one of you!

A viewing award was presented by Wayne Thomas to a young man named Ayden Yap. He completed his Lunar Observing Program in August, 2017. It is great seeing young people showing an interest in astronomy and EVAC!

Bill Peters provided a detailed update on the asteroid Oumuamua. The interesting aspects discussed were its size and shape, speed, and dips in magnitude. It is unlike any asteroid we have encountered thus far.

Tom Polakis showed us some great pictures of the December 3rd Supermoon while flying to Alberta. He also had amazing photographs of the December 22nd SpaceX rocket launch that was visible in the Phoenix area. He wrapped up his presentation by showing pictures of the January 5th Jupiter and Mars conjunction while on a geology trip to Death Valley California.

Our new Treasurer, Lana Young, provided an excellent update on EVAC's finances.

Lynn Young discussed all of the upcoming school visits. He reiterated his need for additional volunteers to help him with these events. Please come out and help even if you don't have a scope.

The main presenter of the night was Dr. "Lindy" Elkins-Tanton, Director ASU School of Earth and Space Exploration (SESE). Her talk was on the Psyche mission that will visit what is believed to be a mostly metal asteroid. She gave an excellent accounting of the goals of the mission, how the bidding process worked, and the details on the spacecraft and instrument package.

The Psyche mission is a journey to a unique metal asteroid orbiting the Sun between Mars and Jupiter. What makes the asteroid Psyche unique is that it appears to be the exposed nickel-iron core of an early planet, one of the building blocks of our solar system.

Deep within rocky, terrestrial planets - including Earth - scientists infer the presence of metallic cores, but these lie unreachably far below the planets' rocky mantles and crusts. Because we cannot see or measure Earth's core directly, Psyche offers a unique window into the violent history of collisions and accretion that created terrestrial planets.

The mission is led by Arizona State University. NASA's Jet Propulsion Laboratory is responsible for mission management, operations and navigation. The spacecraft's solar-electric propulsion chassis will be built by Space Systems Loral with a payload that includes an imager, magnetometer, and a gamma-ray spectrometer.

Here is a link to the Psyche site:

<https://www.nasa.gov/psyche>

The next EVAC meeting is on Friday, February 16th. The presenter will be Taisiya Kopytova, Post-Doctoral at ASU, SESE. The topic will be Stars and Exoplanets. We look forward to seeing everyone!

## 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@evaconline.org](mailto:grco@evaconline.org)***

**LAST QUARTER MOON ON FEBRUARY 7 AT 10:54**

**NEW MOON ON FEBRUARY 15 AT 16:05**

**FIRST QUARTER MOON ON FEBRUARY 23 AT 03:09**

**FULL MOON ON MARCH 1 AT 19:51**



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=====  
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# For Sale

Telescope: A Vixen mount with star book and through the mount align scope. The scope is a five inch refractor. Carrying case shown. Sale price: \$2700. Call 480-882-3485 Frank Pino



For Sale:

A Vixen mount with star book and through the mount align scope. The scope is a five inch refractor. With wooden carrying case.

Sale price \$1,400.00

Frank Pino [f.pino@mchsi.com](mailto:f.pino@mchsi.com) 480-882-3485

# Upcoming Meetings

February 16

March 16

April 20

May 18

June 15

July 20

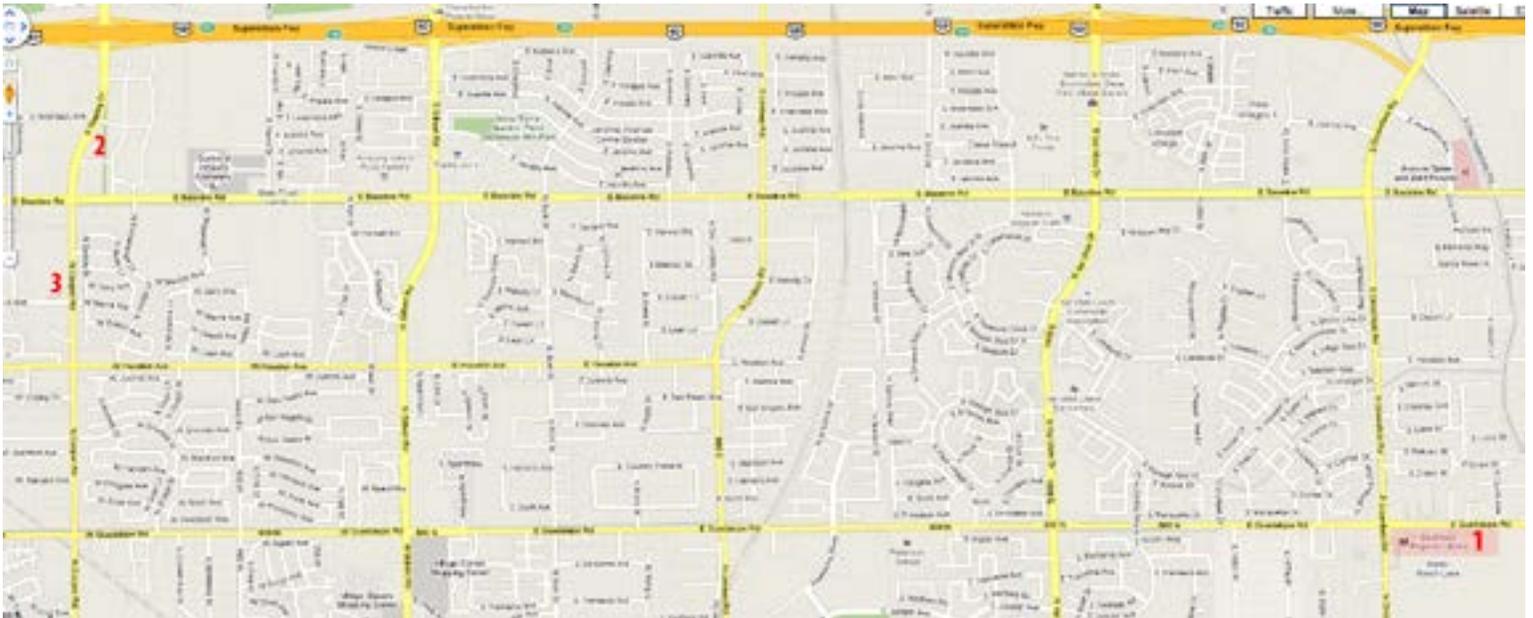
August 17

September 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



## FEBRUARY 2017

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

**February 1** - Carlson Elementary School

**February 7** - C. O. Greenfield

**February 8** - Taylor Jr. High

**February 9** - Public Star Party

**February 10** - EVAC Star Party

**February 12** - CGCC Star Party

**February 13** - Keller Elementary School

**February 15** - Kyrene de la Mariposa School

**February 16** - EVAC Monthly Meeting

**February 17** - EVAC Star Party

**February 20** - Carson Junior High School

**February 21** - San Tan Junior High School

**February 23** - City of Chandler

**February 27** - San Marcos Elementary School

## MARCH 2018

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

**March 1** - Pomeroy Elementary School

**March 7** - Ida Redbird Elementary School

**March 9** - Public Star Party

**March 10** - EVAC Star Party

**March 16** - EVAC Monthly Meeting

**March 17** - EVAC Star Party

\* - Indicates high turnout expected



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East Valley Astronomy Club  
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