



Saguaro Astronomy Club, Phoenix, AZ

Volume 43, Issue 11
November 2019

The President's Corner

mail:president@saguaroastro.org

The Kyrene Monte Vista Elementary School STEAM Fest was a great deal of fun! Tom Curry and I showed up representing SAC as did one faculty member and 3 graduate students from Arizona State University School of Earth and Space Exploration.

We were up to our arm pits in "munchkins." There were enough kids and their parents to keep us busy without so much as a 10-second break. I used my 80mm refractor this time because it is easier to look through than my Newtonian. Everyone else used Schmidt Cassegrains. The sky was dark and clear so the seeing was good but with the waiting line of "customers" there wasn't time to slew to different objects. I showed only Jupiter, then Saturn. That was enough, everyone was thrilled to see the strips of Jupiter and its 4 Galilean moons or seeing the rings of Saturn.

Someone else will have to give a report on the All Arizona Star Party. I had a business appointment Saturday.

We desperately need a SAC Secretary to keep record of our meetings. We may have to elect a member who doesn't show up for the November meeting or draw a name from a hat. Seriously, someone volunteer, please!

On November 8, the day of our meeting, is the University of Arizona Mirror Lab tour.

There will be enough time to get back and attend the SAC board meeting. You don't need to be an officer to attend so please sit in.

Clear skies,

David



SAC President, David Dillmore

Photo: Susan Trask

Website: saguaroastro.org Like SAC on Facebook



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Header image © 2000-2013 Stellarium Developers
Scorpius setting in the southwest.

Quick Calendar

Tuesday, November 5: **SAC ATM/Imaging Meeting**, Paul Lind's Shop, see page 2
Friday, November 8: **SAC Board Meeting**, 6:30 PM, Members welcome to attend.
Friday, November 8: **SAC General Meeting**, 7:30 PM, 2020 SAC Officer Elections;
Speaker: Chris Groppi, ASU School of Earth and Space Exploration; Topic: TBA
Saturday, November 23: **Star Party**, Antennas Site, weather permitting, see page 2
Thursday, November 28: **Happy Thanksgiving**
Saturday, December 14: **SAC Holiday Party Potluck**, 6:00 PM @ Mitch & Lori's Home
Wednesday, December 25: **Merry Christmas**
Saturday, December 28: **Star Party**, Antennas Site, weather permitting, see page 2
Wednesday, January 1: **Happy New Year**

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Editor Notes



Hi Folks,

I had a good time at the *All Arizona Star Party* on Saturday night, October 26th. The taco dinner was great. The gathering of the astronomers at the dinner there was mellow, just right. After dark, I spent time observing with Matt Luttinen with his Celestron C14 along with Richard Payne, Paul Lind, Lynn Blackburn, and Al Stiewing. Many thanks to EVAC and Claude Haynes for doing the logistics and such, of this great star party.

Best of the NGC features this month, NGC 6207, Sc Galaxy in Hercules.

Such-A-Deal has three long running ads.

Bits & Pisces has the minutes of the October SAC General Meeting, a report of the 2019 SAC Membership and some SAC history.

The *SAC Imaging* feature has an excellent image by Paul Lind. His first attempt at using the Hubble Palette imaging, wow!

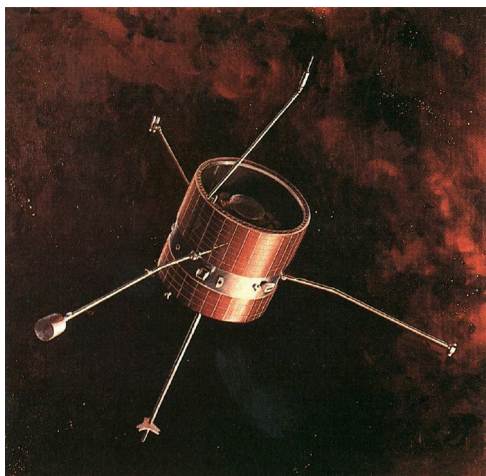
The *SAC Observing* feature has sky info for November, courtesy of Guy Ottewell.

Enjoy,

Rick Rotramel, Editor

Spaceflight Trivia

Can you name the mission involved in this picture below? ([See answer on page 5](#))



NASA

Schedule of Events 2019

SAC General Meetings

Jan 25	Feb 22 plus Board Meeting	Mar 22	Apr 12
May 10 plus Board Meeting	June 14	July 12	Aug 9 plus Board Meeting
Sept 13	Oct 11	Nov 8 plus Board Meeting	Dec 14 Holiday Party

Meetings held at Grand Canyon University
3300 W. Camelback Rd. Phoenix, AZ
Engineering Building 1-202, 7:30 to 10:00 PM

ATM/Astro Imaging Meeting
Tuesday, November 5th, 6:30 PM @ Paul Lind's Shop
210 W. Tierra Buena Lane, Phoenix, AZ

Star Party, Antennas

Saturday, Nov. 23rd, Sunset * Weather permitting
[http://www.saguaroastro.org/wp-content/sac-docs/maps/antennas-handout%20\(REVISED\).pdf](http://www.saguaroastro.org/wp-content/sac-docs/maps/antennas-handout%20(REVISED).pdf)

All Arizona Messier Marathon

Saturday, March 28, 2020. Sunset
Salome Emergency Air Field (Hovatter Road Exit on I-10)
Preceded by a Swap Meet, AAMM Dinner & Raffle

2019 SAC Officers

President: David Dillmore



Vice President: TBD

Treasurer: Paul Dickson



Secretary: Kevin Kozel



Properties Director & Webmaster: Robert Brewington
Photos: Susan Trask (3) and Rick Rotramel (1, of Kevin Kozel)



SAC Announcement

SAC 2020 Officer Elections @ the Nov. 8 SAC General Meeting

President:

Tom Curry

Vice President:

David Dillmore

Treasurer:

Paul Dickson (still has

one year left to serve)

Secretary:

* Open for nomination

Properties Director:

Kevin Kozel

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Best of the NGC:

NGC 6207 Sc Galaxy in Hercules

By SAC Imagers, Observers & Sketchers

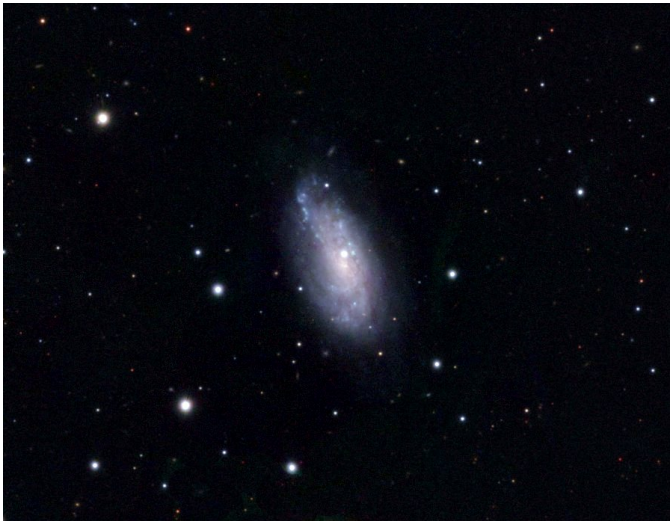
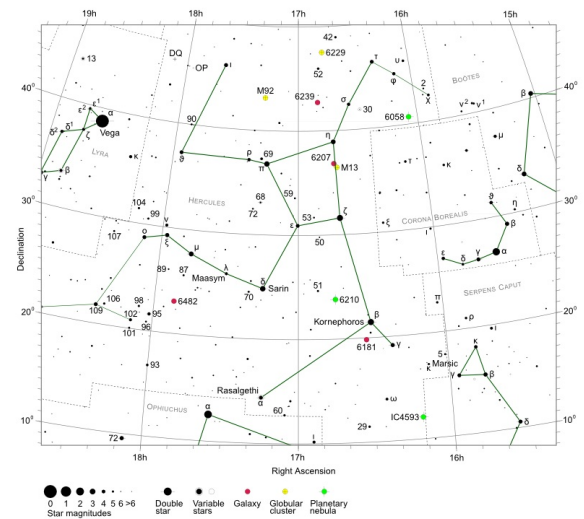


Image by: Nigel Metcalfe/PS1 Science Consortium;
Pan-STARRS Herschel 400
All images from PS1 3- π stacked survey.



Hercules Star Chart
© freestarcharts.com

NGC 6207	
Observing Chart D. M. Douglass - Tempe, AZ http://www.AZ-DaHut.net	Observed and Imaged Date: May 21, 2017 Site: DaHut, Tempe, AZ Elevation at Site: 1200 ft Local Time: 20:30
Other Names:	
Observing Program: EVAC and Astronomical League and General Observations	
Telescope and Mount: Celestron EdgeHD 8" SCT Mount: Celestron CGEM (EQ)	
CGEM Mount Control: TheSkyX Pro All slews by "closed loop" (Plate Solved) Mount Guiding: TheSkyX Pro Guide Camera: Starlight Express Lodestar X2	
Image Capture Information: Mag (SBIG): (2000/22.5) = 88 FOV = 32 x 24 Arc Min Filter: Lumicon Deep Sky (UHC/LPR) w/ Baader IR/UV Cut	
Total # of frames (subs): 05 Frame exposure time (min): 05 Total exposure time (min): 25 Camera: SBIG ST-8300-M Camera controlled by: TheSkyX Pro Plate Solved by: TheSkyX Pro Preprocessing and stacking: CCDStack PostProcessing: Adobe Photoshop CS3	
Object Type: Galaxy R.A. 16:43:04 DEC 36:49.9 Magnitude: 11.6 Size (Arc Min): 3 Constellation: Her	
Sky Brightness and Weather Mags / sq ArcSec (v)18.5 or Bortle Scale: 6 Moon Ill = 00% 85 Deg F - Calm	

David Douglass

Continued on next page...



Best of the NGC:

NGC 6207 Sc Galaxy in Hercules

By SAC Imagers, Observers & Sketchers

SAC Observer Steve Coe, 1949-2018

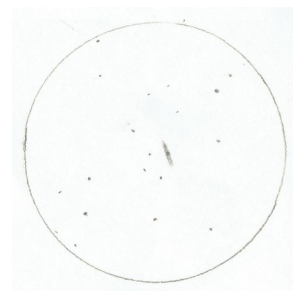
13" f/5.6; Pretty bright, pretty large, elongated 2x1, somewhat brighter in the middle at 100X. Going to 150X shows off a stellar nucleus and arms that are somewhat mottled.

SAC Observer Rick Rotramel

16" f/4.4 Newtonian, 200x; Fairly Bright, Pretty Small, elongated, stellar nucleus, nebulous arms.



15' x 15'



16" f/4.4, 200x

[Click here to return to page 1](#)

Call for *Best of the NGC* images, notes and sketches.

Hello SAC imagers, observers & sketchers:

For **December**, NGC 663, OC, 01 46, +61 15, 7.1 mag, 16', NGC's 654 & 659 nearby, in Cassiopeia.

For submitting images, send your file as an attachment in an email to the editor. Please send caption details of the image: Optics, camera, main software used, exposure, location and date taken.

Observation notes are sent in the email text area or as an attached file.

For scanned sketches, send a file with caption details: optics and eyepiece power used.

Email to: r.rotramel@cox.net

For **January**, NGC 185, dE0 dwarf spheroidal galaxy, 00 39.0, +48 20, 9.7 mag, 12×10, distant companion to M31, in Cassiopeia.

For **February**, NGC 772, a Sb Galaxy, 01 59.4, +19 00, 11.5 mag, 8.0×5.0, diffuse spiral, in Aries.

Spaceflight Trivia Answer

Pioneer 9

Mission type	Interplanetary space
Operator	NASA
1968-100A (Pioneer 9)	
Spacecraft properties	
Manufacturer	TRW
Launch mass	
147 kg (Pioneer 9)	
Power	79 W
Start of mission	
Launch date	
Pioneer 9:	November 08, 1968, 09:46:29 UTC
Rocket	Thor/Delta-E
Launch site	Cape Canaveral LC-17A
Orbital parameters	
Reference system	Heliocentric
Perihelion altitude	between 0.75 to 1 AU
Aphelion altitude	between 0.99 to 1.2 AU

The spacecraft failed in 1983.

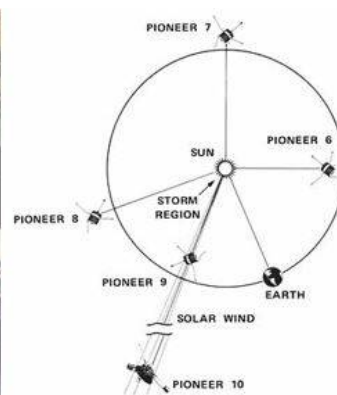
In 1968, NASA's primary focus was to land humans on the Moon and return them safely to Earth before the end of the decade. The Agency was also interested in studying interplanetary space and using that information to assist Apollo astronauts during their lunar voyages. NASA's Ames Research Center in California's Silicon Valley managed the lesser known but highly successful Pioneer program of solar orbiters. Between 1965 and 1968, four Pioneer space probes entered solar orbit to make comprehensive measurements of interplanetary magnetic fields and the flow and structure of the solar wind. The spacecraft also acted as the world's first space-based solar weather network providing data on solar storms that can impact communications and power systems on Earth, and that could potentially affect Apollo astronauts traveling to the Moon and back.

The fourth in the series, Pioneer 9, launched November 8, 1968, on a Delta E rocket from Cape Kennedy, Florida, and entered a solar orbit with a mean radius just slightly inside Earth's, making a revolution around the Sun every 298 days. Equipped with eight instruments, the solar powered probe recorded and transmitted data on magnetic fields, plasma, cosmic rays and cosmic dust in interplanetary space. Scientists correlated the findings from these instruments with information gathered by the other Pioneers, in similar solar orbits but spaced at varying intervals from each other, just inside or outside of Earth's orbit. During the Apollo lunar missions, the fleet of Pioneers provided hourly updates on the Sun's activity. Shared with flight controllers in Houston, their data provided early warnings of intense, otherwise unexpected blasts of solar protons that could have endangered the lives of astronauts.

Planned for six-months of operations, all four Pioneers far exceeded their design lives. Taking advantage of this longevity, scientists used the spacecraft to conduct joint observations of a large solar flare in August 1972 with another spacecraft, Pioneer 10, then more than twice the Earth's distance from the Sun and on its way to Jupiter. Contact with Pioneer 9, launched 50 years ago today, was lost in 1983. The hardy little space probe helped characterize the interplanetary space environment and contributed an extra margin of safety for Apollo astronauts during their lunar missions.



Left: Pioneer space weather monitoring console at Ames Research Center during the Apollo 10 lunar mission in May 1969. Right: The relative positions of five Pioneer spacecraft to study the August 1972 solar flare.



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- Protective box for primary mirror.

Observing chair: stand or sit comfortably, even when viewing at the zenith!

Asking:

\$1900

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Bob Buchheim

Email: oca_bob@yahoo.com

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Ads placed here are free to SAC members and friends. SAC is not responsible for the quality of the advertised items. If you wish to place an ad here to sell your telescope or astronomy related items, contact Rick Rotramel at: r.rotamel@cox.net



For Sale

Orion Maksutov-Cassegrain
Telescope - 127mm 5in

\$300.00

602-240-5421 or 602-499-9910

Sky-Watcher Star Adventurer Mini (Black)

I have too many toys and am selling my Star Adventurer Mini. It includes all components, manual and box. It's fully functional and in 'Like New' condition. You can control the SAM from an Android or iOS device. Details can be found on the Sky-Watcher website below.

Does not include DEC Bracket or Wedge.

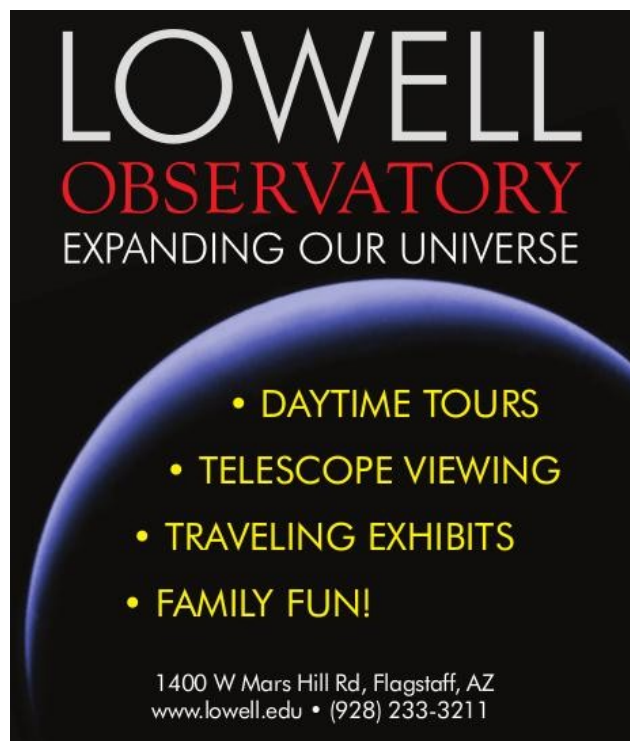
- <https://www.skywatch...adventurer-mini>
- <https://www.youtube....h?v=qVSmHghQxbQ>
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Cost new is \$299. I am asking \$180.
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The store is closing and we would like to sell the remaining inventory.
The store is called Photon instruments. Open Wed. - Sat. 10:30 to 3:00

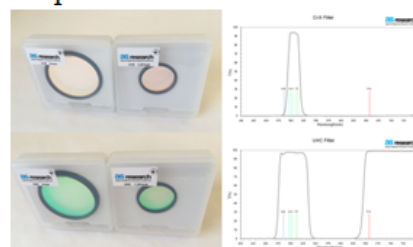
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The HyperStar-equipped ISERV telescope is now installed on the ISS!

The HyperStar-equipped Celestron 9.25" telescope (and its backup) that is now installed on the ISS. The scope also features a Starizona MicroTouch Autofocuser. With the Starizona gang: Steve, Scott, Dean, and Donna. (Steve has since had to move to NY because he was dressing too much like Scott.)

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dean@starizona.com



Bits & Pisces

Minutes of the October 11, 2019 SAC Meeting

By SAC Secretary, Kevin Kozel

e

Our esteemed president, David Dillmore, called the meeting to order at 7:34 pm, and asked for visitors or new members. Bruce Morrison, a friend of member Rob Brewington, was present, and Rick Cunningham were both here tonight as visitors. There were 37 members here tonight including the two visitors. David stated that the members who wish to join each other after the meeting, will meet at the Denny's on 35th Avenue and Bethany Home Road.

Ken Milward reminded us of the tour of the University of Arizona's Mirror Lab for the day of November 8, 2019 from 11:00 am to 12:30 pm. He currently has 28 people from SAC and EVAC and he has room for two more. The cost of the tour is \$15 for each person. Folks planning to go must provide their own transportation to Tucson or carpool with someone. Ken also said that anyone who wants, can join the group to visit Starizona and Stellarvision after the tour.

Ken also stated that a future field trip to the Multi Mirror Telescope on Mount Hopkins will take place on Friday, April 24, 2020. Ken is currently taking names of members from EVAC and SAC to attend this field trip. Please contact Ken if you would like to go. Details of this field trip will be posted to the EVAC website.

The 2020 SAC officer nominations were made tonight and the results are as follows:

President:	Tom Curry
Vice President:	David Dillmore
Treasurer:	Paul Dickson (Still has one year left to serve)
Secretary:	Open for nomination
Properties Director:	Kevin Kozel

The elections will be held on the evening of November 8, 2019 and may present a conflict with the Mirror Lab tour. Kevin Kozel will continue taking notes until a new secretary is elected.

Paul Dickson stated in the Treasurer's Report that the Club has \$3,350 in the bank at this time and has 54 paid members. 65 people on the newsletter listing have not paid for 2019 yet. We need at least 65 paid members to keep the Club in good financial condition. Please pay your dues, folks.

Steve Dodder told the members that the camping sites and telescope volunteers will be open for selection beginning January 1, 2020 for the Grand Canyon North Rim Star Party, in June of 2020. All the details will be on the SAC website.

Various members stated that our SAC website has been hacked numerous times in the recent past and Rob Brewington has cleaned the website up each time. Brew suggested that the Club move from Go Daddy to a different server so as to help prevent future hacking, which Go Daddy doesn't seem to be able to prevent. Brew will make the change as soon as possible. The current Board has approved the change via email communications.

Lori Prause asked the Club members if anyone would be willing to donate a telescope to her for use by her astronomy class students to help with their studies. A donation would be very much welcome and may be for a very long time. You may get your scope back after Lori retires from teaching at Glendale Community College.

Lori also stated that she and Mitch will host the Christmas Holiday Party this year at their lovely home. She and Mitch hosted the party last year also. Thank you very much for your kind offer!

Paul Lind hosted the ATM/Imaging meeting at his really nice workshop on Tuesday, October 8, 2019. Lynn Blackburn brought his 5" refractor parts to the shop and he and Paul took some measurements of the objective lens for collimation. Lynn and Paul, with help & observations of folks present, will construct a new telescope for Lynn to use on his various trips to dark sky sites.

Paul Lind was the only member who told of his exploits in astronomy in the recent past. Paul's telescope pier-type tripod had an accident while out in the wilds of the Arizona wilderness. An aluminum turnbuckle on the tripod leg had the thread strip out and the entire telescope fell over and hit the ground. No damage to the scope or mount took place. Only the collimation was out-of-whack. Paul replaced the aluminum turnbuckles with steel turnbuckles and all is well now. He can continue using his nice 12" Newtonian scope to take really nice astrophotos.

Our speaker for tonight is Patrick Young from the ASU School of Earth and Space. His talk was about "Supernova and the Life and Death of Massive Stars." His talk was very informative and kept the Club members asking many questions after Dr. Young was finished. Thank you very much, Dr. Young!

The 50/50 raffle was held and netted the Club \$18.00. Glenn Nishimoto was the winner this month. Glen is saving every dime he can to make another trip to South America to view another total solar eclipse.

The meeting was adjourned at 9:30 pm.

See you all next month or at the *All Arizona Star Party* on October 25 and 26.

The October SAC Meeting Speaker



Patrick Young

Photo: Susan Trask



Bits & Pisces

Reminder: Pay Your Dues for 2019!

New SAC Meeting Location:

Engineering Building 1 – Room 202, second floor.
It is just north of the parking garage.

(Old room location, Building 33)

GRAND CANYON
UNIVERSITY

3300 W. Camelback Road, Phoenix, AZ 85017
gcu.edu | 800-800-9776 | www.gcu.edu/campusmap



Parking Garage

New Meeting Room, note: this building has elevators.



Bits & Pisces

The 2019 SAC Membership (as of October 2019)

By SAC Treasurer, Paul Dickson

2020 Dues are Due by February

Rather than shaming the 2018 members by listing their names, I will instead list those who have renewed (some for 2020 and beyond). Please contact me if there are any errors. Please include any details such as dates, check numbers, etc, to assist me.

Those who have not supported the club this year can still renew for 2019 when renewing for 2020. However, if you want to cheap out and not support the club, you can renew as new members for 2020.

Thanks to everyone who has renewed, below.

Adamavich, D.
Ajayi, P.
Anderson, H.
Blank, T.
Bogan, D.
Buchheim, R.
Butler, J. (2020)
Crayon, A.
Cunningham, D.
Curry, T.
Dickson, P.
Dillmore, D.
Dodder, S.
Douglas, D.
Favreau, K.
Foltyn, M. (2020+)
Galanis, A.
Goss, J.
Harding, B.

Hedden, M.
Hoag, C.
Jones, J.
Ketelsen, D. (2020)
Klamut, D.
Kozel, K. (2020)
Kundrat, J.
Lind, P.
Maddy, J.
Meek, B.
Milward, K.
Mitrovic, A.
Moritz, T.
Morrison, R. (2020)
Mozden, T. (2020+)
Naiff, K.
Newman, R.
Nishimoto, G.
Perry, S.

Pfirrmann, D.
Poole, B.
Poppo, M.
Prause, M.
Princehouse, D.
Rotramel, R.
Rottas, S.
Schular, C.
Shay, T.
Sims, F.
Stiewing, A.
Thomas, W.
Trask, S.
Vorbeck, R. (2020)
Waters, J.
Whitlow, T.
Willmoth, M.
Zabcik, J.
Zachary, R.



Bits & Pisces

Tucson Mirror Lab Tour

The date for the Mirror Lab Tour in Tucson has been set for Friday, November 8th. This is a limited tour that has started to fill up. If you would like to attend, please bring cash or a check for \$18 made out to EVAC to the September SAC meeting. The tour will begin at 11:00 AM and conclude at 12:30 PM. Usually, it is only an hour tour but they will be extending it for our group. Tours normally start at 10:00 but the Mirror Lab has moved the start time to 11:00 to keep us out of the traffic coming from the valley. You will be providing your own transportation and I would suggest that you ride share if possible. After the tour we will find somewhere for lunch which is not included in the \$18 tour.

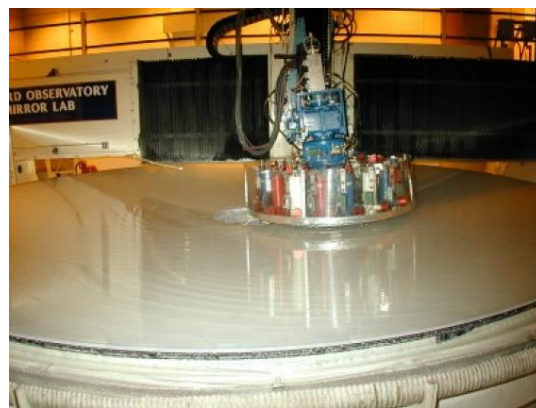
Both of the Tucson telescope shops Starizona and Steller Vision are expecting us after lunch if you would like to have a look. Starizona will be having a star party that evening in their parking lot and demonstrating some of their equipment. We need this event to fill up and have it a success. I would like to send a check to the Mirror Lab to confirm our reservation after this meeting.

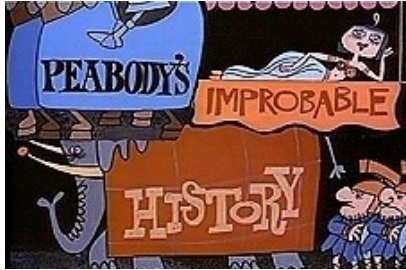
Ken Milward

Email: events@evaonline.org

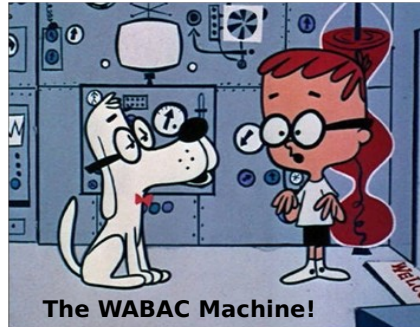
Outreach and Event Coordinator
East Valley Astronomy Club

* Email Ken to find out if there are any openings left in the tour!



[Click here to return to page 1](#)

© Peabody and Sherman, 'Rocky and Bullwinkle' Pictures



Where we
going today
Mr. Peabody?

25 Years Ago in SAC

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



January 1995 — Issue #216

v12.22

Minutes of the November Meeting

The President opened the meeting by asking for first time visitors to identify themselves.

Nominations were opened for next years officers. No new names advanced, so the nominations were closed. A motion to accept the officers by acclamation was made and passed. So the officers for 1995 are:

President	—	Bob Gardner
Vice President	—	Susan Pritchard
Treasurer	—	Adam Sunshine
Secretary	—	AJ Crayon
Properties	—	Pierre Schwaar

Adam Sunshine gave the treasurers report.

Rich Walker spoke about two upcoming Public Star Parties for elementary schools and requested assistance from club members.

AJ Crayon spoke about the Deep Sky Meeting and the 1995 Messier Marathon which will be on April 1st [and that's no joke].

Leroy Paller agreed to have the Christmas Party at his house.

Gerry Rattley spoke about the upcoming Lunar Grazing occultation.

At the break there was a low of 28 people in attendance.

After the break it was announced the our speaker decided to stay in Flagstaff due to bad weather. (Looks like some club members did the same.)

To recover from speaker's absence; Pierre Schwaar and Paul Lind took center stage to talk about their trip to Peru to observe a Solar Eclips. They were introduced by their Peruvian friend Pablo! In addition Dick Jacobsen and Gayle Lind also made the trip. Members enjoyed seeing the slides and video. The next, reasonably close eclipse, is February 1998 some where in the Caribbean Sea.

—A. J. Crayon, SAC Secretary

Editor's Note: I could not locate the minutes for the November 2009 meeting.



SAC History

The Beginnings of the Saguaro Astronomy Club

© 2019 by former SAC President, Fred Tretta

I won't pretend to recall all the details of the SAC beginnings, but let me share what I DO recall.

Things started to form in 1976.

The dominant astronomy club in the Phoenix area at that time was the Phoenix Astronomical Society and it centered around lectures and meetings. A number of us had a far greater interest in using our telescopes to do some observing and attempted to stir up some PAS effort in that direction, but it didn't seem to get much traction. Interestingly, I can recall discussions amongst those of us that ended up leaving PAS about the different expectations one might have from a group that saw themselves as a society versus one that might consider itself more as a club. And I feel that difference really did have a bearing because I think deep down most people did see the title and functional difference between a society and a club as real, and tended to function accordingly.

In any case, the talk started to turn into action. I think the failed effort to try and create a section within PAS that was more associated with astronomical observing stimulated a rebellious attitude by those who wanted to go play with their scopes, that attitude pointed toward those who preferred to discuss things. The division became increasingly obvious as time went by. And because the observing ideas failed to get traction, we finally began meeting in parallel with PAS meetings, the emphasis being on getting out and using our telescopes. While others joined in shortly after we started to go out on our own, I think the earliest members were Gene Lucas, Pete Yurka, Bob Latterman, Lynn Blackburn, Kent Hepburn, Paul Maxson, Tom Muggleton, George Kohl, John Adair and myself.

Some scattered facts:

- The original membership, before there was even a membership, was seven people.
- We originally met at ASU but never really felt that was the right place for us. For a time, we met at members' homes.
- It was my assignment to find us a new place to meet. Why I talked to Grand Canyon College is no longer clear to me, but thank goodness we did. The Club has been there ever since.
- We were very closely associated with a downtown camera shop called Wilson Camera where much of our equipment and membership came from. At that time they were located around 2nd Ave and maybe Campbell?
- The name, Saguaro Astronomy Club, came out of a group séance and was put together a word at a time, first CLUB, then ASTRONOMY and lastly, SAGUARO.
- The logo was created either by Bob Latterman or Pete Yurka.
- Because I missed some meetings I was punished by being elected the first, second and 4th president. Slim pickings, I guess.

Fessler's Ranch

George Fessler worked for me at Honeywell and had both an interest in astronomy and some acreage slightly south of what is now Anthem. He was delighted to let us "claim" an acre of that land and so we busied ourselves clearing it of brush and leveling it. George let us run some power out there and we kind of set things up into pads. One of the guys knew of an old 14' trailer that we could have and so we moved that out to Fessler's, wired it up, and sunk it into the ground aways. It barely made it out there, but it became the club storage facility and our warming tent. There were times when there would be 15 or more people sitting on the floor in there warming up, drinking hot chocolate and telling stories. Outside, there were discussions about how to avoid getting beamed up.

RTMC

One of the very special attractions each year was RTMC, held at Big Bear Lake, CA. Back then, there were certainly as many built scopes as bought scopes. One year we teamed up with the Tucson club to go together. I called the Riverside Club that puts on RTMC and asked if they would allow us to take over one of the big second story rooms in the building over near that small lake which is now only one story. They agreed and what a ball we had that year! I still try to attend every year.



SAC Imaging

IC 1396, the Elephant Trunk Nebula

Paul Lind



Image by: Paul Lind; 12.5" f/3.6, Hyperbolic Astrograph, Apogee F16 Camera, Hubble Palette: SII, Ha, OIII, 130, 80, 130 minutes. It was taken on Friday and Saturday at the All Arizona Star Party and is my first attempt at a Hubble Palette image. Salome Emergency Airfield, 10/25/19 & 10/26/2019



SAC Observing

Astronomical Calendar for November 2019

© 2018 by Guy Ottewell

The left column gives **Julian Dates** (number of days from 4713 B.C. Jan. 1 noon), useful for finding time spans between events by subtraction. The first 3 digits of the Julian date (245) are omitted.

Hours and minutes, where given, are in Universal Time.

Occasions such as "Moon 1.25° N.N.E. of Venus" are **appulses**: closest apparent approaches. They are slightly different from **conjunctions**, when one passes north of the other as measured in right ascension or in ecliptic longitude. A **quasi-conjunction** is an appulse without a conjunction, and typically happens when a planet is near its stationary moment.

For **meteor showers**: ZHR (zenithal hourly rate) is an estimate of the number to be seen under ideal conditions at the peak time if the radiant were overhead; actual rates may be very different. Peak times (predicted from where the center of the stream seems to cross Earth's orbit) are

uncertain; best to start watching the night before. Meteor are usually most abundant in the morning hours.

Tell me of errors you notice. They're inevitable, but more easily corrected here than in the former printed *Astronomical Calendars*!

universalworkshop.com/contact
This calendar may be subject to improvement. Come back to it!

Explanation of terms can be found in our glossary book **Albedo to Zodiac**. There is more about each topic in *The Astronomical Companion*. And events in this list can be traced in the large **Zodiac Wavy Chart** for the year. For all these, see universalworkshop.com



8789.403	Nov	1	Fri	22	Moon at descending node; longitude 280.3°
8789.833		2	SAT	8	Moon 0.67° S.S.E. of Saturn; 66° from the Sun in the evening sky
8790.500		3	SUN		Clocks back 1 hour (America)
8791.126				15	The equation of time is at a maximum of 16.49 minutes.
8791.932		4	Mon	10:22	First Quarter Moon
8794.833		7	Thu	8	Moon 3.6° S.S.E. of Neptune; 121° from the Sun in the evening sky
8794.867				9	Moon at apogee; distance 63.51 Earth-radii
8797.333		9	SAT	20	Venus 3.9° N. of Antares; 23° from the Sun in the evening sky; magnitudes -3.9 and 1.0
8797.479				24	Mars 2.83° N.N.E. of Spica; 23° and 24° from the Sun in the morning sky; magnitudes 1.8 and 1.0
8798.500		11	Mon		Armistice Day



SAC Observing

Astronomical Calendar for November 2019

8798.833		8	Moon 4.1° S.S.E. of Uranus; 165° from the Sun in the evening sky
8799.500	12 Tue		Northern Taurid meteors; ZHR 5; near Full
8800.067		13:36	Full Moon
8800.917	13 wed	10	Moon 7.3° S.S.E. of the Pleiades; 170° from the Sun in the morning sky
8801.625	14 Thu	3	Moon 2.94° N. of Aldebaran; 162° and 161° from the Sun in the morning sky
8803.867	16 SAT	9	Moon at ascending node; longitude 99.1°
8804.979	17 SUN	12	Moon 5.4° S. of Pollux; 121° from the Sun in the morning sky
8805.438		23	Leonid meteors ; ZHR 15; 2 days before Last Quarter
8807.383	19 Tue	21:12	Last Quarter Moon
8807.583	20 wed	2	Moon 3.6° N.N.E. of Regulus; 87° and 88° from the Sun in the morning sky
8808.500	21 Thu		Alpha Monocerotid meteors; ZHR 5; 5 days before New
8810.124	22 Fri	15	Sun enters the astrological sign Sagittarius, i.e. its longitude is 240°
8810.821	23 SAT	7:42	Moon at perigee; distance 57.50 Earth-radii
8811.253		18	Sun enters Scorpius, at longitude 241.14° on the ecliptic
8811.354		21	Moon 7.1° N.N.E. of Spica; 37° from the Sun in the morning sky
8812.021	24 SUN	13	Moon 4.0° N.N.E. of Mars; 28° from the Sun in the morning sky
8812.042		13	Venus 1.41° S. of Jupiter; 26° from the Sun in the evening sky; magnitudes -3.9 and -1.8
8812.542	25 Mon	1	Mercury 9.5° E. of Mars; 20° and 29° from the Sun in the morning sky; magnitudes -0.3 and 1.7; quasi-conjunction
8812.688		5	Moon 1.81° N.N.E. of Mercury; 19° and 20° from the Sun in the morning sky
8814.130	26 Tue	15:07	New Moon ; beginning of lunation 1199
8814.604	27 wed	3	Moon 7.1° N.N.E. of Antares; 7° from the Sun in the evening sky
8815.500	28 Thu		November Orionid meteors; ZHR 3; 1 day after New
8815.979		12	Moon 0.78° N.N.E. of Jupiter; 24° and 23° from the Sun in the evening sky
8816.198		17	Venus at southernmost declination, -24.79°
8816.269		18	Venus at aphelion, 0.7282 AU from the Sun
8816.313		20	Moon 1.87° N. of Venus; 28° and 27° from the Sun in the evening sky
8816.676	29 Fri	4	Moon at descending node; longitude 278.6°
8817.396		22	Moon 0.95° S.S.E. of Saturn; 41° from the Sun in the evening sky
8817.642	30 SAT	3	Moon, Saturn, and Pluto within circle of diameter 3.60° ; 42° east of the Sun
8818.067		14	Sun enters Ophiuchus, at longitude 248.04° on the ecliptic

[Click here to return to page 1](#)

2019 SAC Officers and Contacts

Board Members

President	David Dillmore (mail to:president@saguaroastro.org)
Vice-President	Officer Position Vacant
Treasurer	Paul Dickson (mail to:treasurer@saguaroastro.org)
Secretary	Kevin Kozel (mailto:secretary@saguaroastro.org)
Properties	Robert Brewington(mail to:properties@saguaroastro.org)

Non-board Positions

Novice Leader	Steve Dodder (mail to:fester00@hotmail.com)
Newsletter	Rick Rotramel (mail to:r.rotramel@cox.net)
Webmaster	Robert Brewington (mail to:webmaster@saguaroastro.org)
Public Events	Jack Jones (mail to:publicevents@saguaroastro.org)
ATM Group	Paul Lind (mail to:atmgroup@saguaroastro.org)
Imaging	Al Stiewing (mail to:amst@cox.net)
Deep Sky	Kevin Kozel (mail to:kevin.kozel@cox.net)
Public Outreach	Tom Curry (canyonhiker2@cox.net)

Mail Address

SAC, 7720 N. 36th Ave, Phoenix, AZ 85051-6401

2019 Board Mtgs:

February 22, 6:30 pm

May 10, 6:30 pm

August 9, 6:30 pm

November 8, 6:30 pm

Occultation Info

Wayne Thomas has
asteroid occultation info
for the greater Phoenix
Area:

[Mail to:tomwaymas@gmail.com](mailto:tomwaymas@gmail.com)

Meeting Location: Grand Canyon University is located at 3300 W. Camelback Rd, Phoenix, AZ. We meet in Engineering Building 1-202, 7:30 to 10:00 PM.



Parking: Turn into the campus from Camelback Road at 33rd Ave. and drive straight and stop at the guard station. Tell the guard you are attending the astronomy club meeting. Then, drive into parking garage and park.

Saguaro Astronomy Club

Saguaro Astronomy Club (SAC), Phoenix, Arizona, was formed in 1977 to promote fellowship and the exchange of scientific information among its members-amateur astronomers. SAC meets monthly for both general meetings and star parties, and regularly conducts and supports public programs on astronomy. Membership is open to anyone with these interests.

Saguaro Skies is posted as a pdf file monthly on the SAC website,

www.saguaroastro.org/content/SACNEWS/newsindex.htm

for browsing or downloading for SAC members and friends of SAC. A email announcement of the monthly newsletter release is included with membership.

Direct all membership inquiries to the SAC Treasurer by using the membership form found in this newsletter. For editorial and SUCH-A-DEAL advertising inquiries, contact the Saguaro Skies Editor.

Contacting This Issue's Authors

If you wish to write to an author in this month's issue, contact them by sending your message to the editor of Saguaro Skies, Rick Rotramel, at: r.rotramel@cox.net

I will then forward your questions or comments to the author.

Saguaro Skies Staff

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Photographers: Tom Polakis, Michael Poppre, Rick Rotramel and Susan Trask

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Saguaro Astronomy Club Membership Services

Membership -- Memberships are for the calendar year and are pro-rated for new members as follows:
Jan - Mar: 100%; Apr - Jun: 75%; Jul - Sep: 50%; Oct - Dec 25%.

- ☐ \$32.00 Individual Membership
- ☐ \$36.00 Family Membership



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Please bring your completed form to a meeting or mail it with payment to:

SAC Treasurer
Paul Dickson
7720 N. 36th Ave.
Phoenix, AZ 85051-6401

Saguaro
Astronomy Club

SAC on the Internet

SAC has several email lists. To subscribe, simply send an email to the list address with Subscribe on the subject line.

SAC-Announce@freelists.org - Sac Announce is a list used for club announcements. Traffic is usually less than six messages per month.

SAC-Forum@freelists.org - SAC Forum is a general discussion list for members to discuss the club or astronomy in general.

SAC-Board@freelists.org - SAC Board is a list for discussions of club business. If you'd like to see how the club is being run, this is the list for you.

AZ-Observing@freelists.org - AZ-Observing is not a SAC list, but many members participate. This is the list for discussions on observing around the state.

Please download the PDF version of the monthly newsletter from our website. When the newsletter is published a message will be sent to the email address provided above containing a URL to the current newsletter.

<http://saguaroastro.org/newsletter/>