

The President's Corner

mail to:president@saguaroastro.org

By now you should have heard that Photon Instruments has closed. They had an advertisement in our newsletter (for their contributions to the Raffle at the All Arizona Messier Marathon...the Editor) sometime near forever (at least before I joined SAC). The owners Warren and Judy Kutok are retiring. We want to wish them a long and pleasant retirement and thanks for being part of our community.

If you have a presentation for the August meeting please contact Michael Poppre. He has generously volunteered to organize the presentations.

A note: If you use an Apple laptop you will probably need to configure it to have either a VGA or HDMI interface. Or you may have to convert your presentation to run on a Windows laptop.

As mentioned last month we will get to the Messier Marathon awards, at the August 9th meeting. This may be a packed meeting. As the monsoon is upon us so there has been little if any good skies for observing. It is a good

time for a SAC meeting but I don't anticipate any recent images.

One curious note: I've been using Pixinsight to process my astrographs (night time images). I have some old, blurry, and pixilated personal photographs. I thought I'd try the software on a daylight image. It works!

Clear skies.

David



SAC President, David Dillmore at the Thunderbird Park Spring Public Star Party Photo: Rick Rotramel

Website: saguaroastro.org

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Quick Calendar

Friday, August 9: **SAC Board Meeting**, 6:30 PM, in room or near SAC general meeting room Friday, August 9: **SAC General Meeting**, 7:30 PM, SAC Members, Topics: 10 Minute Talks, *Contact Michael Poppre* about your presentation topic, Email: popps@fastq.com Saturday, August 31 **Star Party**, Fredericksen Meadow, weather permitting, see page 2 Tuesday, September 10: **SAC ATM/Imaging Meeting**, Paul Lind's Shop, see page 2 Friday, September 13: **SAC General Meeting**, 7:30 PM, Speaker: TBA, Topic: TBA Saturday, September 28: **Star Party**, Fredericksen Meadow, weather permitting, see page 2 Saturday, October 5: **Thunderbird Park Fall Public Star Party**, 6:00 pm – 9:00 pm Friday & Saturday, October 25 & 26: **All Arizona Star Party**, Salome Emergency Air Field

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(Bick Botramel)	

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(SAC Imagers & Observers)

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



Editor Notes



Saguaro Skies

Hi Folks.

Here we are in the midst of the summer furnace in the Phoenix area where thoughts of packing up for a sky gazing trip a couple hours away seems a huge effort. Thus, these days not much star gazing is done. So we wait it out and look forward to the cool October evenings out at the All Arizona Star Party out in the west desert of Arizona, October 25 & 26!

Best of the NGC features this month, NGC 7129, a reflection nebula in Cepheus.

Such-A-Deal has five, long running ads.

Bits & Pisces has the minutes of the July SAC General Meeting and some SAC history.

The SAC Observing feature has sky info for August, courtesy of Guy Ottewell. Also. this month it has the announcement for the All Arizona Star Party. I know everyone looks forward to this popular star party in the cool evenings in October. It is well attended when the weather and clouds cooperate.

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	Маг 22	Арг 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 ? 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 Meetings

No meetings in the summer. Next meeting: Tuesday, September 10th, 6:30 PM @ Paul Lind's Shop 210 W. Tierra Buena Lane, Phoenix, AZ

Star Party, Fredericksen Meadow

Saturday, Aug. 31st, Sunset * Weather permitting Saturday, Sept. 28th, Sunset * Weather permitting http://saguaroastro.org/meadow-directions/

All Arizona Star Party

Friday & Saturday, October 25th & 26 See future details at the EVAC website: http://www.eastvalleyastronomy.org/

Outreach:

Thunderbird Park Fall Public Star Party

Date: Saturday, October 5, 2019, from 6:00 pm - 9:00 pm Jack Jones, Coordinator

2019 SAC Officers

President: David Dillmore

Treasurer: Paul Dickson

Vice President: TBD

Secretary: Kevin Kozel



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



SAC Announcement

SAC Members:

Have you renewed for 2019?

Use the form on the last page of this issue or on the SAC website.

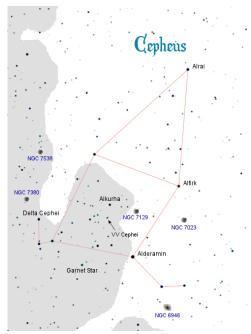
Best of the NGC:

NGC 7129, Reflection Nebula in Cepheus

By SAC Imagers, Observers & Sketchers



Left: NGC 7129 and NGC 7142 Credit & Copyright: Tony Hallas



Cepheus Star Chart
© R. Kerk-Hecker

Observed and Imaged Date: Jul 27, 2012 Site: Camas Valley, OR Elevation at Site: 1120 ft Local Time: 22:30 DST 05:30 UT

Observing Chart D. M. Douglass - Tempe, AZ Modified 04-2013 for RCA-AL Herschel II Requirements

Other Names:

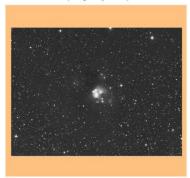
NGC 7129

Desc: A small open cluster of about 8 primary stars. The central region, containing 4 of these stars has some light nebulosity around them.

Observing Programs: EVAC Herschel II - EVAC Finest NGC

SBig Image 40x30 Arc Min (Approx) Before Cropping

ESO Palomar Sky Survey 40x30 Arc Min (SBig Projection)





Telescope: LX80- Meade 6" SCT Equatorial Mount Camera: SBIG ST-8300-M Mag (SBig): (1535/22.5) = 68 FOV = 40 x 30 Arc Min

TheSkyX Pro "Image Link"

Type: Open Cluster
R.A. 21:42:59
DEC 66:06.8
Magnitude: 12
Size (Arc Min): 8

Constellation: Cep

Weather: Temp: 62 Wind: Calm Clouds: None

Estimated Seeing: FWHM CCDInspector = 3.58 as (Png) Sky Brightness Mags / sq ArcSec (v) 21.5 or Bortle Scale: 3 Moon III = 70

Estimated Transparency: Object = Little Dipper Value (Mag) = 5

David Douglass

Continued on next page...

Best of the NGC:

NGC 7129, Reflection Nebula in Cepheus

By SAC Imagers, Observers & Sketchers

SAC Observer Steve Coe, 1949-2018

13.1" f/5.6 Newtonian; This NGC number is applied to both a cluster and nebula. 11X80 finder - just seen as fuzzy spot. At 100X the cluster is pretty bright, pretty large, very poor in stars. I counted 6 stars in a 10 arcmin area. The nebula at 100X is pretty bright, pretty large with an irregular figure. Of the 6 stars in the cluster, 4 or them are involved within the nebula. Averted vision makes it much easier to see the nebula. Going to 150X helps the contrast somewhat, and 220X is too much for the nebula, but I can see 2 very faint stars in the center that were missed at lower power. The UHC filter does not help.

SAC Observer AJ Crayon

8" f/6 Newtonian; at 80X: 3', 5 stars involved in milky nebulosity. The field includes NGC 7142, 30' southeast and 50 stars, 8th to 14th mag. Try not to miss observing both of these objects as both can be seen in a low power eye piece.

14.5" f5.2 Dobsonian; at 140X with Broad Band filter: eight stars, 11th to 14th mag, with four in nebulosity. Size is about 5' and stars in an easterly position.

SAC Observer Rick Rotramel

16" f/4.4 Newtonian, 200x, Fairly Bright, pretty Large, reflection nebula around 5 bright stars, brighter on the east side of the cluster.





' 16" f/4.4, 200x

Saguaro Skies

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

Hello SAC imagers, observers & sketchers:

For **September**, NGC 6939, OC, 20 31.4, +60 38, 7.8 mag, 8.0', rich, 80*, near NGC 6946, in Cepheus.

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.

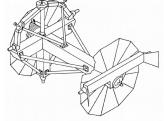
For scanned sketches, send a file with caption details: optics and eyepiece power used.

Email to: r.rotramel@cox.net

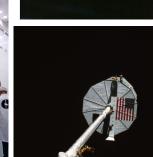
For **October**, NGC 6826, PN, 19 44.8, +50 31, 8.8 mag, 27"x24," Blinking PN, 10*, in Cygnus.

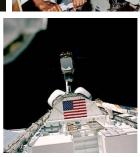
For November, NGC 6207, Sc Galaxy, 16 43.1, +36 50, 12.5 mag, 3.3x1.2, no definite nucleus, in Hercules.











Spaceflight Trivia Answer STS-8: The First Shuttle Night

Launch & Landing - Challenger

Mission type Satellite deployment NASA Operator

COSPAR ID 1983-089A

6 days, 1 hour, 8 minutes, 43 seconds Mission duration 4,046,660 kilometres (2,514,480 mi)

Distance travelled Orbits completed

Spacecraft properties

Spacecraft Space Shuttle Challenger

110,108 kilograms (242,747 lb) 92,508 kilograms (203,945 lb) Launch mass Landing mass 12,011 kilograms (26,480 lb) Payload mass

Crew size 5
Members Richard H. Truly, Daniel C. Brandenstein, Guion S. Bluford, Jr, Dale A. Gardner, William E. Thornton

Start of mission

Launch date August 30, 1983, 06:32:00 UTC

Edwards Runway 22

Launch site Kennedy End of mission September 5, 1983, 07:40:43 UTC

Landing date Landing site

Orbital parameters Reference system Regime

Low Farth Perigee altitude 348 kilometres (216 mi) Apogee altitude 356 kilometres (221 mi) Inclination 28.512 degrees Period 90.6 min

On August 30. Challenger and her crew thundered into the night sky at KSC, only the second night launch in the American human space flight program - the first was Apollo 17 in 1972. They entered a circular orbit around

the Earth and got to work on their flight plan, which included Dr. Thornton taking the first measurements for the space motion sickness studies that continued throughout the mission. On the second day, Bluford deployed the Insat-1B weather and communications satellite for India and activated the Continuous Flow Electrophoresis System, a commercial experiment sponsored by McDonnell Douglas and developed to separate cells using an electric current, a process believed to be more efficient in microgravity. Over the next several days, Truly and Gardner maneuvered the RMS with the PFTA attached to various positions and arm joint angles to test its full dynamic range. The crew held an in-flight press conference and also spoke with President Ronald W. Reagan, who congratulated them on a successful mission. On September 5, the crew fired Challenger's engines to return to Earth, and made the first night landing of the Shuttle program at Edwards Air Force Base in California, having completed 98 orbits around the Earth in 6 days, 1 hour and 9 minutes. NASA ferried Challenger back to KSC to prepare it for its next historic mission









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Such-A-Deal

ITEMS FOR SALE

MEADE ETX-90EC 90mm Maksutov Telescope

- #07426 8 x 21mm Erect Image Viewfinder #07427/#825 8 x 25mm Right Angle Viewfinder
- **Deluxe Tripod**
- Eyepieces:

Meade Ultra Wide Angle 6.7mm multi-coated Meade Super Plossl 26mm LP multi-coated

- Meade 2X telenegative multi-coated
- Meade remote controller
- #880 Table Tripod for Polar Alignment of the ETX-90EC Astro Telescope
- Manual
- Compass
- Carrying Case Allen wrenches
- Selling on behalf of a friend, Asking \$350.00 For all.
- Contact Rick Tejera: 623-203-4121
- Email: Saguaroastro@cox.net



16-inch Dobsonian & Observing Chair

Telescope: 16-inch f/4.5 Enterprise Optics mirror, excellent figure and

- Truss-type Dobsonian, home-made of Baltic Birch structure, bearings of Ebony Star and Teflon.
- Black fabric light shield (not shown in photo)
- Scope disassembles and nests into approximately 3-foot cube, to fit
- Protective box for primary mirror.

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

Asking:

\$1900

Contact me to schedule a visit in Gold Canvon.

Bob Buchheim

Email: oca bob@yahoo.com

480-646-1324







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: telescope or as r.rotramel@cox.net

Celestron Nexstar 130 SLT

- Celestron Skyportal wifi module
- Orion Lasermate Collimator
- Celestron 2" Universal Digital Camera Adapter
- Meade 2X Barlow Lens 25mm & 9mm Evepieces
- Nikon adapter ring
- Moon filter
- Original manuals and start up guides Original investment: over \$600
- Asking for all items: \$375.00
- Steve Scott, 602-502-4955
- Mailto:steve@equitysigngroup.com













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
- https://www.youtube....h?v=e4ecJOceRjY
- https://www.peterzel...rer-mini-course





Cost new is \$299. I am asking \$180. Jim Waters: jimwaters@cox.net



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http://www.lowell.edu/visit.php

PHOTON The store is closing and we would like to sell the remaining inventory The store is called Photon instrum s. Open Wed - Sat. 10:30 to 3:00 REPAIR RESTORATION ASTRONOMICAL TELESCOPES WARREN & JUDY KUTOK 122 EAST MAIN STREET
MESA, ARIZONA 85201
E-MAIL AT WEB SITE 480 835-1767 800 574-2589 http://www.photoninstrument.com

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The store is called Photon instruments. Open Wed. - Sat. 10:30 to 3:00



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Telescope Accessories

http://corvus-optics.com/

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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.)

Call Us: (520) 292-5010 http://starizona.com/acb/index.aspx dean@starizona.com



Bits & Pisces

Minutes of the July 12, 2019 SAC Meeting

By Kevin Kozel, SAC Secretary

The president, David Dillmore, called the meeting to order at 7:34 pm, and asked for visitors or new members. There were 23 members here tonight plus our guest speaker. 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. David also said that the Harkins theaters will be showing space-based movies in honor of the 50th anniversary of the Apollo 11 moon landing.

Tom Curry told the Club that Photon Instruments in Mesa Arizona, is closing and going out of business. All the telescopes have been sold and most of the other accessories too. Warren Kotok will no longer service and repair astronomy equipment. He is over 80 years old and it's time for him to rest. Thank you very much, Warren, for all your help over the many years.

Steve Dodder told the members that the annual Grand Canyon North Rim Star Party was held at the North Rim Lodge from June 22 to June 29. This year is the 100th year anniversary of the founding of the Grand Canyon National Park, signed into law by President Woodrow Wilson. The Star Party was very successful with 11,822 visitor views for the week. Six out of eight nights were very clear and the seeing was excellent. Two of the nights were partly cloudy but still the visitors were eager to look at the night sky. Many of them had never looked through a telescope and to do so from a very dark site was a real treat that they will not forget. Next year the Star Party will be held from June 13 through June 20, 2020. Steve also invited folks to his home observatory, Stone Haven Observatory in Maricopa, Arizona.

The Grand Canyon National Park is investigating whether it if feasible to obtain a telescope and have one of their rangers operate the scope throughout the North Rim season. The Park may contact Steve Dodder at a later date to ask his advice.

Our Treasurer, Paul Dickson, told the members that we had \$3,700.00 in the bank at this time. Only 42 members have paid their dues so far. Folks, please pay your dues and attend the monthly meetings.



lim Renn Photo: Susan Trask

There was no ATM meeting at Paul Lind's shop this month. It's the summer break, Paul goes on vacation this time of year. The next ATM meeting will be held in September at Paul's really nice shop.

President Dillmore told the Club that August will be our annual Members Presentation Month. Please get your presentations ready and let everyone know what you have been doing and what you are planning to do.

Michael Poppre told the Club that Lowell Observatory in Flagstaff is seeking a Public Relations person to run their new Visitors Center they are currently constructing on Mars Hill. Contact the Observatory if you would like to help them in this new position.

Member Presentations:

Tom Polakis told us of the various times over the last 30 years in getting his astronomy papers and photographs published in the astronomy field. He has had a number of them published and is currently a regular contributor to <u>Astronomy Magazine</u>. Tom also has a four-digit asteroid, 4078, named for him by Brian Skiff. Jennifer Polakis also has an asteroid named for her (146846?).

Paul Lind said he and Lynn Blackburn were at Fredrickson's Meadow for the June Star Party. Paul took photos of M101 and showed them to the Club tonight. He also had a comparison photo of M31 to show the relative sizes of both galaxies if they were side-by-side in the night sky. Very nice.

David Dillmore showed the members various photos taken from his home observatory near Tonopah Arizona which is west of the Phoenix metro area's light dome. The skies are much darker out west. His shots are getting better with more and more time spent at the scope. Thank you David!

Tonight's guest speaker is Mr. James Renn from the Vatican Observatory. He told us of the history of the Vatican's long and varied pursuit of the science of astronomy and how it has helped all of us understand how the universe works and the Vatican's proposal as to why it the universe is here at all. The Club members asked many questions and we thanked him for his time and effort to give us a very good talk.

The 50/50 raffle was won by Michael Poppre. He netted \$15.00 and returned it to the Club.

The meeting was adjourned at 9:50pm. See you all next month or at the different star parties.

The July SAC Meeting Speaker

Mr. James Renn, of the Vatican Observatory

Topic: The Science Goals of the Vatican Observatory



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)



New Meeting Room, note: this building has elevators.



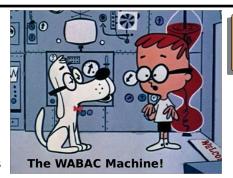
Saguaro Skies

August 2019

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© 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





Minutes of the August Meeting

During the meeting, Paul Dickson talked about the TAAA's 40th Aniversery Banquet. There was more info supplied on the table as well as hand-outs available.

Discussion about the Buckeye Hill Recreation Area started. The facts are: the park is closed; the park will not be locked; the road into the park will be paved! Maricopa Parks has decided to not maintain the park due to the lack of money, but the State decided to pave the road through the park as part of another program.

There was no Show and Tell.

After the break Paul Dickson introduced our speaker. Steve Mutz, from ASU.

—Paul Dickson, from notes taken from memory.

10 Years Ago in SAC

Saguaro Astronomy Club



SACnews

Volume 33 Issue 8

September 2009

Bits & Pisces, Minutes of the Aug. 8th, 2009 General Meeting by AJ Crayon, Secretary





After opening the meeting President Dick Harshaw called for first visitors to introduce themselves. An amazing 9 folks did so and this seems to be a research of feetities in the seems to be a research of the seems to

cord of some sort for number of first time visitors. He first presented Gene Lucas a Letter of Commendation for all he has done for SAC over the years. Also, special recognition was made to Walt Thomas for making a very professional looking SAC poster. The treasurer Charlie Whiting announced we had \$3879.00 in the checking account and \$89.00 cashon-hand. At this time there were 49 people at the meeting, this included late comers.

Steve Dodder started the announcements by discussion the North Rim Grand Canyon Star Party. If you are interested in attending please see Steve for making your reservation. Steve is also SAC Novice chair and if you have any questions please see him for assistance. You can find out how to contact him by going to the SAC web site: https://www.saguaaro.gov/

content/2010GrandCanyonStarPartyNorthRim.htm.

AJ Crayon started Show-n-Tell with a short presentation about SAC observing sites from "Then and now and then ..." Robert Martin gave an extensive talk about Kit Peak National Observatory and their programs for astronomers, families and children. For more information see their web site at https://mww.noao.edu/outreach. Jennifer Polakis gave an update on the Burnham Memorial, scheduled for August 8". Good job Jen! Tom Polakis had a very interesting presentation of the Chinese total solar eclipse they viewed from a cruise ship in the Pacific Ocean.

After the break Vice-President Chris Hanrahan introduced the nights speaker, Steve Desch from ASU. His topic was titled *Cryovolcanism on Charon and* other Kupier Belt Objects.

Saguaro Skies

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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 Observing

Astronomical Calendar for August 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.

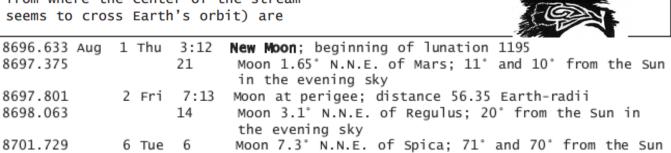
Tell me of errors you notice. They're inevitable, but more easily corrected here than in the former printed *Astronomical Calendars*!

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



		in the evening sky
8703.230	7 Wed 17:32	First Quarter Moon
8703.500	8 Thu 0	Mercury 9.2° S. of Pollux; 19° and 23° from the Sun
		in the morning sky; magnitudes 0.4 and 1.2
8703.883	9	Venus at perihelion, 0.7185 AU from the Sun
8705.167	9 Fri 16	Moon 7.8° N.N.E. of Antares; 114° and 113° from the
		Sun in the evening sky
8705.521	10 SAT 1	Moon 2.46° N.N.E. of Jupiter; 118° and 117° from
		the Sun in the evening sky

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8706.623	11 SUN 3	Sun enters Leo, at longitude 138.18° on the ecliptic
8707.938	12 Mon 11	Moon 0.31° E. of Saturn; 146° from the Sun in the
		evening sky
8708.115	15	Moon at descending node; longitude 287.4°
8708.125	15	Jupiter 6.9° N.E. of Antares; 115° and 110° from
		the Sun in the evening sky; magnitudes -2.3 and
		1.0; quasi-conjunction
8708.500	13 Tue	Perseid meteors; ZHR 110; 3 days before Full
8709.729	14 Wed 6	Venus at superior conjunction with the Sun; 1.731 AU
		from Earth; latitude 3.06°
8710.985	15 Thu 12	Venus brightest; magnitude -3.92°
8711.021	12:30	Full Moon
8712.971	17 SAT 11	Moon at apogee; distance 63.69 Earth-radii
8713.188	17	Moon 3.5° S.S.E. of Neptune; 156° and 157° from the
		Sun in the morning sky
8713.458	23	Mars 0.66° N.N.E. of Regulus; 5° from the Sun in
0713 500	10 000	the evening sky; magnitudes 1.8 and 1.4
8713.500 8716.750	18 SUN 21 Wed 6	Kappa Cygnid meteors; ZHR 3; 3 days after Full
8/10./50	21 Wed 6	Venus 0.90° N.N.E. of Regulus; 2° from the Sun in the evening sky; magnitudes -3.9 and 1.4
8717.271	19	Moon 4.4° S.S.E. of Uranus; 111° and 112° from the
0/1/.2/1	19	Sun in the morning sky
8718.920	23 Fri 10	Sun enters the astrological sign Virgo, i.e. its
0710.920	23 FIT 10	longitude is 150°
8719.123	14:58	Last Quarter Moon
8719.167	16	Moon 7.8° S.S.E. of the Pleiades; 89° and 90° from
0.10.10.	20	the Sun in the morning sky
8719.875	24 SAT 9	Moon 2.37° N. of Aldebaran; 81° from the Sun in the
		morning sky
8720.229	18	Venus 0.29° N.N.E. of Mars; 3° from the Sun in the
		evening sky; magnitudes -3.9 and 1.8
8722.577	27 Tue 2	Moon at ascending node; longitude 106.7°
8723.083	14	Moon 6.1° S. of Pollux; 40° and 41° from the Sun in
		the morning sky
8724.750	29 Thu 6	Mercury 1.28° N.N.E. of Regulus; 6° from the Sun in
		the morning sky; magnitudes -1.6 and 1.4
8725.500	30 Fri 0	Moon 3.1° N.N.E. of Regulus; 7° from the Sun in the
		morning sky
8725.539	1	Venus at northernmost latitude from the ecliptic
		plane, 3.4°
8725.604	3	Moon 1.86° N.N.E. of Mercury; 6° and 5° from the
	40.00	Sun in the morning sky
8725.943	10:37	New Moon; beginning of lunation 1196
8726.021	13	Moon 2.91° N.N.E. of Mars; 4° and 1° from the Sun
0726 165	45.50	in the evening sky
8726.165	15:58	Perigee only 5.3 hours after New Moon
8726.165 8726.271	15:58 19	Moon at perigee; distance 56.00 Earth-radii Moon 2.79° N.N.E. of Venus; 6° and 5° from the Sun
0/20.2/1	19	in the evening sky
		in the evening sky

Saguaro Skies



SAC Observing

All Arizona Star Party, Preview October 25 & 26, 2019

Announcement by Claude Haynes



The annual All Arizona Star Party will be held at the Hovatter airfield site on the weekend of October 25 and 26. A great place to enjoy a dark sky and the companionship of fellow star gazers. Friday night offers a potluck supper, with Saturday featuring a prize raffle and Taco dinner. Great fun, great skies and great people.



The 2018 AASP central meeting/dining area

Photo: Rob Baldwin



Saguaro Skies

August 2019

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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

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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August 2019

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Saguaro Astronomy Club Membership Services

Membership Memberships are for the calendar Jan - Mar: 100%; Apr - Jun: 75%; Jul - Sep: 50%; € □ \$32.00 Individual Membership □ \$36.00 Family Membership	year and are pro-rated for new members as follows: Oct - Dec 25%.
Please print all information legibly Date: For the year of: 20 Name:	Make check payable to: SAC

City:______
State:_____

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

SAC Treasurer

it with payment to:

☐ Check here if this is updated information

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.

Saguaro
Astronomy Club

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/