

# TAAA Desert Skies Bulletin

Observing Our

Desert Skies

Since

1954



June 2024

[www.tucsonastronomy.org](http://www.tucsonastronomy.org)

**Membership Meeting**

**June 14, 2024 Online Meeting**

TAAA's next general member meeting will be held on **Friday, June 14, 2024 (second Friday)**. The meeting will start at 6:30 P.M. This will be a **zoom meeting only**. TAAA members will receive a Zoom link to attend. The public may attend via public media at the TAAA [Facebook](#) page.

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## Title: **Following Pluto's Heart: A Look into Pluto's Past and Present**

*Presentation:* When NASA's New Horizons spacecraft flew through the Pluto system in 2015, it revealed a geologic surface of surprising complexity, which further hinted at the dwarf planet's unusual hidden depths. The characteristics of Pluto's thick ice shell and its potentially long-lived subsurface ocean, as well as the composition of its rocky core, remain active questions. The answers to these questions have critical implications for how icy bodies and ocean worlds form across the outer Solar System. In this talk, I will focus on the Sputnik basin, Pluto's largest impact basin, and investigate its formation conditions, morphology, and proposed association with geologic features elsewhere on the surface. By reproducing the giant impact that formed Sputnik, I can reconstruct Pluto's evolution over geologic time.

*Biography:* Dr. Adeene Denton is a postdoctoral researcher at the University of Arizona's Lunar and Planetary Laboratory interested in giant impacts and their influence on the history, evolution and tectonic activity of icy satellites, ocean worlds, and Kuiper

Belt Objects. Adeene received bachelor's degrees in History and Earth Science from Rice University in 2016, her MS in Earth, Environmental and Planetary Science from Brown University in 2018, and her PhD in Earth, Atmospheric, and Planetary Science from Purdue University in 2022. She uses a combination of numerical tools, from shock physics codes to finite element modeling, to explore the effects of giant impacts, which begin in the first few seconds after impact and can extend for hundreds of millions of years. She is passionate about integrating numerical modeling, fieldwork, and everything in between to approach planetary problems. Asteroid 16883 adeenedenton is named for her research on impact processes on outer Solar System worlds, including Pluto.



Heart of Pluto  
Credit: NASA/New Horizons Team

## **Don't Forget: June General Membership Meeting Change!**

**June Meeting, Friday, June 14: Date change, Zoom only.** Due to Grand Canyon Star Party.

## Notes From The President

### May 2024

A lot of activity has been occurring in TAAA prior to the hot, and perhaps rainy/cloudy events of the summer months. Some lessening, of course, of TAAA school-related activities will occur over the summer and that gives an opportunity for additional planning efforts to occur. As you may know, our new TIMPA Director, Stephen Ferris, is encouraging more member activity at TIMPA and is often adding additional open times to the TIMPA schedule. Stephen sends out invitations to members for those times and participation can be a great way to get in some additional shared observing experiences prior to the summer rains.

As you are aware the Grand Canyon Star Party (GCSP) occurs early in June this year, and the event nights are June 1-8 with, of course, our astronomy campground opening up the night before on May 31. Those of you who are attending may wish to note that even the Highway Department is assisting in welcoming us this year with the very recent completion of a third lane addition to Highway 64 entering through the Tusayan path to the Grand Canyon. It is certainly an ideal year for increasing ease of accessibility as enrollment for GCSP is noticeably up this year. In association with the overall enrollment increase, the complimentary campground space that the National Park Service provides us for the event is the fullest that we have ever had. This also will be a special year in that we are celebrating the life and gifts of Dean Ketelsen, and a number of his family members are traveling in to share the experience.

In the past, TAAA has participated in officially advocating for the reduction of lighting on billboards for Oracle State Park to become certified as a Dark Sky Park and for Grand Canyon National Park to become certified as a Dark Sky Park.

Some regular TAAA activities, such as the TAAA First Friday Member Meeting are being rescheduled due to the GCSP schedule. specific changes will be otherwise included in this newsletter.

#### Another Topic:

I also want to explore an additional topic. TAAA is not a politically focused organization and normally maintains a position of political neutrality. In the past

**The TAAA Board of Directors meets the second Wednesday of every month at 6:30pm.** Members are welcome to attend Board meetings. If you would like to attend, you may email [Mae Smith](mailto:Mae.Smith@tucsonastronomy.org) to receive a Zoom link for that meeting. Please send your email to Mae the Monday prior to the meeting (by 5:00pm) and you will receive an email with the link on either Tuesday evening or Wednesday. ALL MEMBERS ARE WELCOME.

by Mae Smith

when TAAA has expressed an opinion on a public matter, as far as I know, the opinion has focused on advocacy for astronomy and/or reduction of light pollution. It is in that vein that I bring this matter to your attention: the Tucson City Plan. You may or may not realize that the former 10-year Tucson City Plan expired in 2023 and the City is trying to create a new plan to start in 2025. The plan is described as a 10-year plan. However, there are apparently some people recommending that it become a 20-year plan. From January to the present, the City has offered citizens four opportunities to make input into the City Plan including the current one that is supposed to be open for input until June 2nd. The plan is complicated. I am including a link to the material written by Sam Miller on behalf of Dark Skies, that describes how to access the plan and how to make input. I would encourage you, if you have any contributions that you would like to make regarding the future role of astronomy or outdoor lighting in the City Plan that you review the linked material that will guide you on how to do so. The document also includes a link to accessing the material on the Tucson City Plan. You, of course, may use this material to make input into the new City Plan on anything you wish related to the future of Tucson.

#### [Plan Tucson Instructions](#)

Mae Smith, TAAA President  
[president@tucsonastronomy.org](mailto:president@tucsonastronomy.org)

#### Other Elected Leader Contact Information:

Vice-President: Ed Foley  
[vice-president@tucsonastronomy.org](mailto:vice-president@tucsonastronomy.org)

Secretary: Bob Reynolds  
[secretary@tucsonastronomy.org](mailto:secretary@tucsonastronomy.org)

Treasurer: Barbara Whitehead  
[treasurer@tucsonastronomy.org](mailto:treasurer@tucsonastronomy.org)

BOD Members-At-Large:  
Suzanne Bailey, [mal1@tucsonastronomy.org](mailto:mal1@tucsonastronomy.org)  
David Rossetter, [mal2@tucsonastronomy.org](mailto:mal2@tucsonastronomy.org)  
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Desert Skies Bulletin Editor - <a href="#">David Rossetter</a> Ken Bertschy - Graphics Terri Lappin & Jim Knoll - Proofreading Gregg Ruppel -Image Editor
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## Astronomical League Workshop

Open for Pre-Enrollment

**Place:** Woods Memorial Library, 3455 N. First Ave. Tucson

**Date:** Saturday August 24, 2024 **Time:** 10 AM until 1 PM

**Synopsis:** This workshop is designed for anyone who may be interested in pursuing one of the Astronomical League observing programs for the first time or anyone interested in learning about these observing programs. The workshop will cover how the various observing programs work, program requirements, selection of an appropriate program, recommended equipment, resources, logging requirements, and much more.

**If interested** TAAA Astronomical League Correspondent (ALCOR)

Douglas Smith: 520-396-3233, [Email](#)

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## TAAA Ladies' Night Out

*by Susan O'Connor*

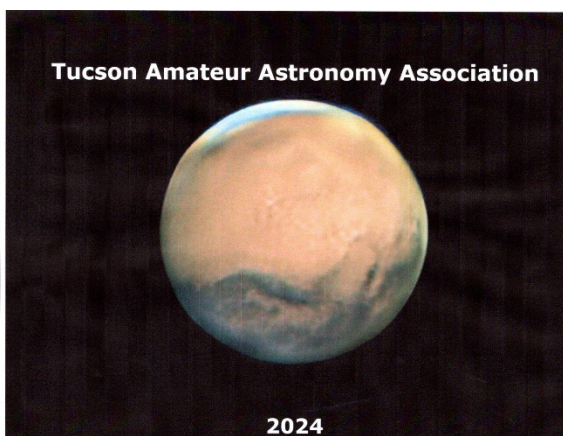
Ladies' Night Out is a social interest group for women members of the club. The group meets once a month at a restaurant for fellowship and conversation. This month's meeting is:

Thursday, June 20, 6:30pm

Dominick's Real Italian  
8330 N. Thornydale Rd (SE Corner of Thornydale and Cortaro)

Preview the menu at: <https://dominicksrealitalian.com/>

RSVP [Susan](#) - 520-780-0136



## 2025 TAAA Wall Calendar

We are looking for your images!

We are especially interested in images from the eclipse; both of the eclipse itself and of spectators who were with you during the event. Also of Comet 12P/Pons-Brooks. Any other images related to astronomy or club events are always welcome.

Please send your calendar images to [Susan OConnor](#).





The TAAA Annual Leadership Election was concluded during the last member meeting on May 3rd. Results reported to the membership in attendance included Robert Reynolds re-elected as our Secretary, John Kalas and David Rossetter re-elected as Board Members-At-Large, and John Christensen and David Pass re-elected as members of the NVRC, all for 2-year terms. Terms of office/position commence on June 1.

There were no candidates for the office of Treasurer, which currently stands as vacant with Ms. Barbara Whitehead continuing, on an interim basis. The TAAA Board and NVRC continue to search for a treasurer that can fulfill all the club's financial functions, but are also exploring an option that focuses on three principal parts – 1) mail management and depositing of checks, 2) bookkeeping, and 3) Treasurer, to be accomplished with 1 to 3 people. Therefore, TAAA is looking for people/contractors willing to provide “financial and treasury services that cover these 3 activities”. TAAA is willing to entertain offers to perform some, or all of these tasks. However, the subset of specific Treasurer role/activities is as a member of the Board of Directors so must be filled by a volunteer member. For the balance of the needed services, TAAA is willing to entertain both volunteers and/or contractors. If you are interested in either option or portion, please contact a member of the TAAA Executive Board (President, Vice-President, Secretary, or Treasurer) or the NVRC at [nvrchair@tucsonastronomy.org](mailto:nvrchair@tucsonastronomy.org).

NVRC - Pete Hermes (Chair), John Christensen, Dave Pass, and Stephen Ferris

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## Strategic Planning Process

By Suzanne Bailey

### Membership Survey Results Are IN!

A Member Survey was constructed that obtained feedback from members. A huge thanks to the members who responded and contributed to TAAA's future directions. The results of the survey are invaluable in making TAAA more responsive to the membership. **Membership survey results summary “out brief” is now available to the general membership [here](#).** It is also available through the MEMBERS ONLY tab of the TAAA Website. Log into MemberPlanet, then select “TAAA Links to Docs and Videos”, then scroll toward bottom of the page.

### Strategic Planning Update

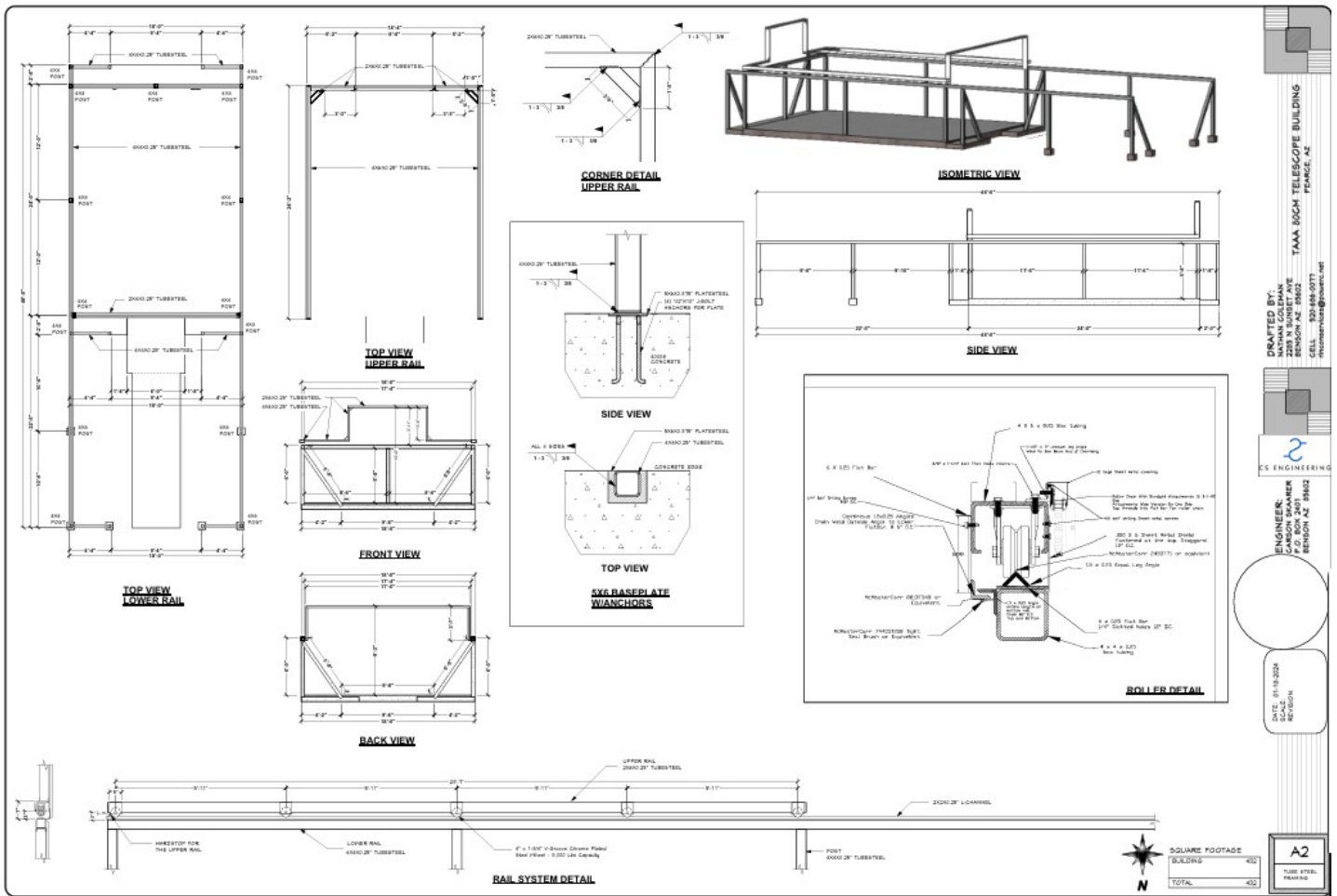
The Strategic Planning group held twelve hours of meetings with a professional strategic planning facilitator in February 2024. The two-day strategic planning event used the membership survey results as a template for the strategic planning effort. Fourteen TAAA leaders worked on various activities that are included in the 2024 TAAA Strategic Planning document. That data has been compiled and reviewed while several other activities are an on-going process. For the last several months, fourteen TAAA leaders have been working on various activities that are included in the 2024 TAAA Strategic Planning Process. The 2024 TAAA Strategic Plan will be continually updated as new processes and procedures are developed for the membership. We appreciate the efforts of “Team 14” in conducting this very important work and being so committed and diligent in getting it done. **The 2024 Strategic Plan is now available [here](#).** It is also available through the MEMBERS ONLY tab of the TAAA Website. Log into MemberPlanet, then select “TAAA Links to Docs and Videos”, then scroll toward bottom of the page.

# 32 Inch Telescope Observatory

by Ed Foley

Plans for the observatory to be constructed at CAC for our 32 Inch (.8 meter) DFM research grade telescope are ongoing. The first draft of construction drawings for the observatory was received from the engineer and draftsman. The plans were carefully reviewed by the construction committee. The committee red-lined a number of areas of the draft and returned it for revisions.

The committee is assembling a list of contractors in the Cochise County who have experience with metal frame buildings ahead of going out to bid the work. A draft request for proposal has been prepared and is being refined. As soon as the final draft of the drawings is ready, the committee should be in a position solicit bids for the project. Start date will be as soon as possible, but subject to scheduling with the contractor we select.



# TAAA Research Camp - by Ed Foley

April 2024

In preparation for the arrival of a high school Astronomy Research Camp group at CAC in the Fall, the instructors for the group, Russell Genet PhD. (Eastern Arizona College) and Michael-James Ellis (Payson High School) held a special two-day Research Camp with TAAA members in April. These TAAA members will be volunteers for the high school students during the upcoming camps. Russ and Michael have had a great deal of experience doing double star research with high school and community college students. Their efforts with these groups have led to many students becoming published researchers.



During this Research Camp, TAAA volunteers Suzanne Bailey, Ed Foley, Joe Jakoby, Bob Rose, Bernie Stinger, and Gary Wells participated in creating a short list of Washington Double Star Catalog objects for observing runs using their Right Ascension, declination, magnitude and separation as key variables to consider. Plots of the historic reported positions were reviewed to refine the short list of objects.

The first evening run was an examination of the first reported double star Mizar – observed by Galileo. The team used the CAC 9” folded refractor with a Meade astrometric lighted reticle eyepiece for observations of this object. Using this eyepiece with its laser etched markings, the team was able to calibrate the markings by timing the drift of the stars across the eyepiece compared to the known celestial movement at this declination. Converting this measurement to arcseconds per mark on the reticle, the separation of the two stars in the field of view could then be calculated. Secondly, the team then centered Mizar A, with Mizar B alongside it on the etched protractor. The tracking of the telescope mount was disabled, and stars were allowed to drift to the outside protractor markings, revealing the position angle of the two stars.



The following night the team used a technique from the current century to measure the same stars. The method is called speckle interferometry. Using the TAAA Mallincam DS10c one shot color CMOS camera on the 14” Celestron in the Wally Rogers Observatory, a series of short photographs of the Mizar A and B stars were obtained. These images will be reduced



using software to determine the precise separation and position angle using software designed for the purpose.

As a result of this Research Camp, TAAA members will be better prepared to support students as they learn the scientific method, organize their own observing runs, collect real data to analyze and become contributors to the greater body of scientific knowledge.



# Library Telescope Update

TAAA has donated another two telescopes to the Public Library system. These two telescopes will be going to Esmond Station (SE Tucson) and Flowing Wells (NW Tucson) libraries and were donated by Tom Sarko and Todd Hansen. This brings the total scopes to 14. They are very popular with Library



Flowing Wells Library



Esmond Station Library

Patrons and are constantly checked out. We also applied for another Library Telescope from the Astronomical League (AL) Horkeimer Grant. The award decision will be announced during the AL Convention this summer. Once we have most of the Pima County libraries with telescopes, we may expand to others in Cochise, Santa Cruz, and Pinal counties. For additional information, the Library Telescope webpage is:

<https://tucsonastronomy.org/community-services/librscope-program/>

Jim Knoll  
SMSIG Library Coordinator

Pima & Cochise County Library Telescope Locations			
Library Location	Address	Phone	Website
Ajo	15 W Plaza #179, Ajo, AZ	(520) 387-6075	<a href="https://www.library.pima.gov">https://www.library.pima.gov</a>
Ekstrom-Columbus Library	4350 E 22nd St	(520) 594-5285	
Flowing Wells	1730 W Wetmore Rd	(520) 594-5225	
Kirk-Bear Canyon	8959 E Tanque Verde Rd	(520) 594-5275	
Main Library (Joel D Valdez)	101 N Stone Ave	(520) 594-5500	
Miller-Golf Links	9640 E Golf Links Rd	(520) 594-5355	
Oro Valley	1305 W Naranja Dr.	(520) 594-5580	
Sahuarita Library	670 W Sahuarita Rd, Sahuarita	(520) 594-5490	
Sam Lena South Tucson	1607 S 6th Ave	(520) 594-5265	
Valencia	202 W Valencia Rd	(520) 594-5390	
W. Anne Gibson - Esmond Station	10931 E Mary Ann Cleveland Way	(520) 594-5459	
Benson (Cochise Cnty)	300 S Huachuca St, Benson	(520) 586-9535	<a href="https://cochiselibrary.org/">https://cochiselibrary.org/</a>
Sunsites Library (Cochise Cnty)	210 N Ford St, Pearce	(520) 826-3866	
Sunizona (Ash Creek) (Cochise)	6460 E Highway 181, Pearce	520-824-3145	

# Chiricahua Astronomy Complex

*By Jim Knoll*



Thank You to the volunteers that helped with spraying our semi-annual weeds application, including Jeff Buzek, Ed Foley, John Kalas, Jim & Susan Knoll, Bob Rose, and Bernie Stinger. We put the new tractor and sprayer to good use and managed to spray the entire site in one day. We may have a bit of a learning curve to re-calculate the

spray rate to get the right amount down to control the weeds. Spray dates will be listed on the CAC page when scheduled since the site will be closed during those dates. We will also be using the tractor to work other projects around the site and to smooth and maintain the access road off US 181.



Also, a special thanks to the members contributing toward the purchase of our Astronomy Globes in the Classroom. Especially Michael and Mary Turner for donating funding for most of the globes. But, we also received funding from Ed Jacoby (Jupiter globe), David & Lynn Pass (Constellation globe), Galen Worthington (Ganymede globe), and Mae Smith (Moon globe). We have most of the planets, plus the four Galilean Moons around Jupiter and several around Saturn (19 in total).

Most are 12-inch globes but a few were only available in a 6-inch size. These globes will be a great resource as we host Astronomy Camps and other groups at CAC to show any detail of solar system objects. In the near future a plaque will be installed in the classroom to commemorate the donations.



# Observing Sites

## TIMPA

by TIMPA Planning Group

TIMPA (Tucson International Modelplex Park Association), TAAA's dark sky site west of the Tucson Mountains. Location: The TIMPA observing site is located a few miles beyond the Desert Museum (3250 N. Reservation Road, Tucson, AZ 85743).

TIMPA Star Party Dates this month: **June 7-8**

The TIMPA Planning Group will be offering assistance with telescope usage and observing during the monthly TIMPA Star Parties. You are invited to bring your equipment and questions to TIMPA on Star Party dates for assistance. Be sure to register using the link below.



The TIMPA site is only partially improved. There are no inside buildings provided other than restrooms. TAAA provides very limited seating (members are welcome to bring folding chairs). Please note that members visiting the TIMPA site may encounter things commonly found in partially improved desert areas such as desert creatures and/or their remnants (such as gopher holes or ant hills), uneven terrain, weeds, and desert pollens. Members using the site are encouraged to bring red lights and to move cautiously taking appropriate safety measures. The site does not have potable water, so bring your own non-alcoholic drinks.

Reservations for the TIMPA Site are made on the TAAA website at [TIMPA DARK SITE RESERVATIONS](#). Please fill out the form completely and be sure to indicate the date you desire to visit TIMPA.

## Chiricahua Astronomy Complex

by Jim Knoll

CAC Weekend Dates coming up (Friday/Saturday): **June 7-8 (New Moon June 6)**. Over Monsoon, the site will be open for the member nights (July 5-6 and August 2-3), but confirm when making a reservation if you are not checked out to open and close the site.

Chiricahua Astronomy Complex (CAC) is the club's dark sky observing site, located in Cochise County approximately 100 miles southeast of the center of Tucson. If you would like to attend, you must make a reservation on the CAC Web page at [CAC Reservations](#).



Unless you are qualified to open and close the site, dates will be limited to those around the New Moon and are listed on the CAC web page. Hosted personnel are generally on site a few days before and after these dates. Those qualified to open & close the site can use it anytime but still need to reserve through the CAC Reservations process.

CAC Director: [Jim Knoll](#)    [CAC on the Web](#)

## Observing Sites Star Party Dates 2024

### TIMPA

June 7-8            July 5-6\*  
August 2-3\*        August 30-31\*  
\* Tentative – Monsoon  
Sept. 27-28        November 1-2  
Nov. 29-30        December 27-28

### CAC

June 7-8 (New Moon 6)  
July 5-6 (New Moon 5) \*  
August 2-3 (New Moon 4) \*  
August 30-31 (New Moon Sep 2) \*  
\* Monsoon Dates - no hosts available

September 21 – Evening Under the Stars – Public Event  
September 27-28 (New Moon Oct 2)  
November 1-2 (New Moon 1)  
November 29-30 (New Moon 30)

# School/Public Star Party Requests

by Bernie Stinger

Thank you for volunteering your time and talents for our extremely important outreach mission. **Below is the Star Party list for June, 2024.** June is our last month prior to the summer break and is typically the slowest month for star parties. Schools are out and public events tend to be hot in the evenings and too late for young kids, but we still have a few events.

Please let me know in return email if you are interested in volunteering for any of the events listed in red below. If you are new to Star Party outreach, let me know and we'll be sure to help you get started. It is important you sign up for star parties if you plan to attend, whether you bring a scope or help in other ways, so I can manage who from TAAA will be on-site and for you to be included in any reminder or weather emails.

The PUBLIC Astronomy Events are also listed on the TAAA ([tucsonastronomy.org](http://tucsonastronomy.org)) and Night Sky Network (NSN) ([nightsky.jpl.nasa.gov](http://nightsky.jpl.nasa.gov)) calendars. Also, all PUBLIC star parties will be listed on the TAAA Facebook events page and will be updated based on weather, etc. in real-time. You can follow any of those events and get a notification when I update the event. Again, this is only for PUBLIC star parties listed on Facebook.

The requests have been updated as of May 24th. **The first section, in RED, is a list of events where we still need volunteers.** If you can help out please contact me at:

[astronomy-events@tucsonastronomy.org](mailto:astronomy-events@tucsonastronomy.org)

Bernie Stinger

## **June Event still in need of Volunteers**

**Saturday – June 1 -- WILLCOX AZ – SOLAR**  
**Willcox WAMM Festival @ Railroad Park**  
130 N Railroad Ave, Willcox AZ  
Age/Grade Level: All ages  
# Participants: 50  
**1 Additional Solar Scope Needed (White light or H-alpha) (Sarko scheduled)**  
**Setup Time:** 3:00 pm **Start Time:** 4:00 pm  
**End Time:** 7:00 pm

## **June Events Filled—No Volunteers Needed**

**Saturday – June 8 — ORACLE AZ**

**Oracle State Park**

3820 E Wildlife Dr, Oracle AZ

Age/Grade Level: All Ages

# Participants: 150

**0 Scopes needed**

**Setup Time:** 7:30 pm. **Start Time:** 8:00 pm.

**End Time:** 10:00 pm.

**Wednesday – June 19 -- ORO VALLEY**

**Church of the Apostles**

12111 North La Cholla Blvd

Age/Grade Level: Mostly adults

# Participants: 100

**0 Scopes Needed**

**Setup Time:** 7:30 pm. **Start Time:** 8:00 pm.

**End Time:** 10:00 pm.

**Friday – June 28 -- EAST TUCSON**

**Saguaro National Park EAST**

Saguaro EAST is located at 3693 S Old Spanish Trail.

Age Group: All Ages

Estimated # Participants: 100+

**0 Scopes needed**

**Setup Time:** 7:30 pm **Start Time:** 8:00 pm

**End Time:** 10:00 pm

## TAAA Astronomy Equipment For Sale

TAAA has an assortment of astronomy related equipment for sale at this time. This equipment is available for members only at this time.

SPECIAL ANNOUNCEMENT: We have received a number of fine telescopes as donations in recent months. Some of these scopes will become available for sale within the next few months at bargain prices. We have also received some cameras, binocular viewers, and other equipment.

We also have an assortment of other items available at this time including: Finder rings, focusers, telescope rings of various sizes, mirror blanks of many sizes, a 6 inch Newtonian mirror set mounted in cells, several large mirrors and more.

To make inquiries about what is available or to express a desire to purchase one of items please contact: [Douglas Smith](#); 520-396-3233

## TAAA Equipment Loaner Program

The TAAA has a terrific Equipment Loaner Program. This gives you access to fine telescopes including computerized Schmitt Cassegrains from Meade and Celestron, Dobsonians from Orion, mounts, tripods, and cases full of fine eyepieces. Check out the [full list](#) with descriptions and photos.

This equipment is for TAAA members to checkout and use. Email [Ralph Means](#) for information or to schedule time for pick up.

## Special Interest Groups

### *Astronomy Fundamentals SIG*

*by Connor Justice*

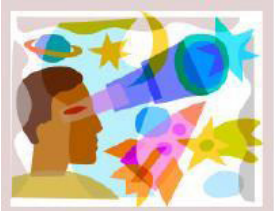
Come join us for a presentation from the fundamentals of amateur astronomy. Learn your way around the night sky to add to your observing enjoyment. Meetings are on the second Thursday of each month.

The next AFSIG meeting is on **Thursday, June 13, 6:30pm to 8:30pm**. Topics to be determined.

Contact [Connor Justice](#) for Zoom link and more information.

Access videos of previous meetings in the TAAA's [YouTube Channel](#)     [AFSIG on the Web](#)





## Starry Messengers Special Interest Group

### *Opening Minds to the Universe*

The Starry Messengers had a fantastic academic year that was celebrated last month with a (mostly) social time at Barrio Brewing Company. We're now on our summer hiatus and won't hold a regular meeting until Monday, September 9th. That doesn't mean we're not doing anything over the summer! Usually, an event or two come up over the summer which we try to cover with one of our hands-on astronomy activities.

This past academic year, we supported 23 events, including the two-day long Tucson Festival of Books. We were unable to support three events due to a lack of volunteers. Two other events were cancelled by the event organizers. There were a couple others that we declined due to scheduling conflicts or challenges beyond our control.

Our last event of the season was supported by Pete Hermes and Vanessa Thomas at Blenman Elementary.

Contact [Terri Lappin](#) or [Pete Hermes](#) if you'd like to learn about the Starry Messengers SIG and our toolkit activities.

NEXT MEETING OF THE STARRY MESSENGERS SIG: Sept 9th

SMSIG on the [Web](#)

### ***Astro-Imaging SIG***

***by Gregg Ruppel***

The next AISIG meeting is **Monday, June 17 at 7:00 pm** via ZOOM.

**Topics:** **Beginners' Corner** - Ask A Question  
**Capturing the Data - Two Practical Imaging Systems** David Stearn & Randy Smith  
**Image Sharing, General Discussion**

The targets for this year's **Monsoon Challenge** are: M87 Elliptical galaxy in Virgo  
NGC 6883 Open cluster in Cygnus

Take your images between now and July 15. Images will be shared at the July 15 AISIG meeting!

Email [Gregg Ruppel](#) for the ZOOM link or any other information. Gregg and the AISIG folks are very active on the [TAAA groups.io](#) forum. Check out all the helpful advice and amazing images there. For more information or instructions on how to join the forum, [check here](#).

Look for previous AISIG meetings on the [TAAA YouTube Channel](#).

**Check out AISIG's new [Web Pages](#)!** We've refreshed our landing page with current meeting info, fresh images and links for our Members Gallery, and are rolling out a new mentoring program.

## Highlights from the Astro-Imaging SIG

Lamont  
2023-04-26-0217UT  
Colongitude 341.4°  
Lunation 6.21 days  
Phase 106.3°  
Illum. 36.0%  
Dynamax 6  
Cam.:SKYRIS 132M  
Filter: 665nm  
Seeing:8/10  
North Up

Richard "Rik" Hill ©2023  
Loudon Obs., Tucson  
rhill24@cox.net

**Rik Hill - Crater Lamont:** 1800 frame AVI, stacked with AVIStack2 (IDL) and further processed with GIMP and IrfanView.

There are some features on the moon that we are drawn to and will go to great lengths to get a good look at them. The “crater” Lamont is one of these. I put the word “crater” in quotes because it is not a crater in the sense that we normally think of them. This was a crater of some 70-80 km diameter, before the flooding of Tranquillitatis and can be seen just left of center in this image. Note the wonderful radial ridges stretching across the mare especially to north and south. These ridges are not very high, possibly only a hundred feet or so, thus they can best be seen at low sun angles like this image. Three similar sized craters that frame Lamont. On the terminator above Lamont is Arago (27km dia.) and below that is Sabine (31km). Then right of center is Maskelyne (26km). Below Arago is a smaller crater, Manners (15km). Roughly halfway between Maskelyne and Manners is the impact site for Ranger 8, the second successful Ranger probe in the series, sent to get close up images of possible manned lunar landing sites. It impacted on Feb. 20, 1965. The unsuccessful Ranger 6 impacted almost directly in-between Arago and Sabine almost exactly a year earlier. A little over two years after the Ranger 8 mission, on Sept. 11, 1967 Surveyor 5 landed south of that area about one third of the way from Sabine to Maskelyne. Just under two more years later Apollo 11 landed just south of the Surveyor site, on July 20, 1969. Here that spot is located in the flat area between ridges just north of the small crater Moltke (6km) on the north side of the graben-like Rimae Hypatia at the bottom.

Getting back to Lamont, this shadow or ghost crater has an outer ring that can be seen in this image about 135km across. Beneath this is a mascon (mass concentration) about this same size discovered by a Lunar Orbiter spacecraft. This mascon is thought to be evidence that Lamont is a buried impact basin that was covered by the Tranquillitatis lavas, a situation similar to Grimaldi.

Notice that Lamont sits in a brighter area of the Tranquillitatis floor. This is most obvious north and east of the crater. The boundary of this region runs right over the wrinkle ridges as if they were not there! This is thought to be caused from a high density of tiny craters with bright rims and indeed you can see this in the LROC QuickMap images.

One last item, in the upper right corner of this image you can see a small dome. I can find no identification for it but on the LROC images it shows a pit very near the summit. I'm sure a thorough examination of this image would turn up more such domes.



Allen Force - M82 [Astrobin](#)

Jeff Rothstein- NGC 5128



Centaurus A, NGC 5128, is a large, bright and very active galaxy about 12 million light years away. It is a powerful radio and X-ray source and harbors a supermassive black hole thought to be about 55 million times the mass of the Sun. At declination -43 degrees, it is visible from the Southern Hemisphere and low northern latitudes. It

is just visible at CAC. I was able to capture about 3 hours of data one night, while Centaurus A rose from an elevation of just 10 degrees, to 15, and back to 10. [Astrobin](#)





**Trifid Nebula**

Taken from CAC

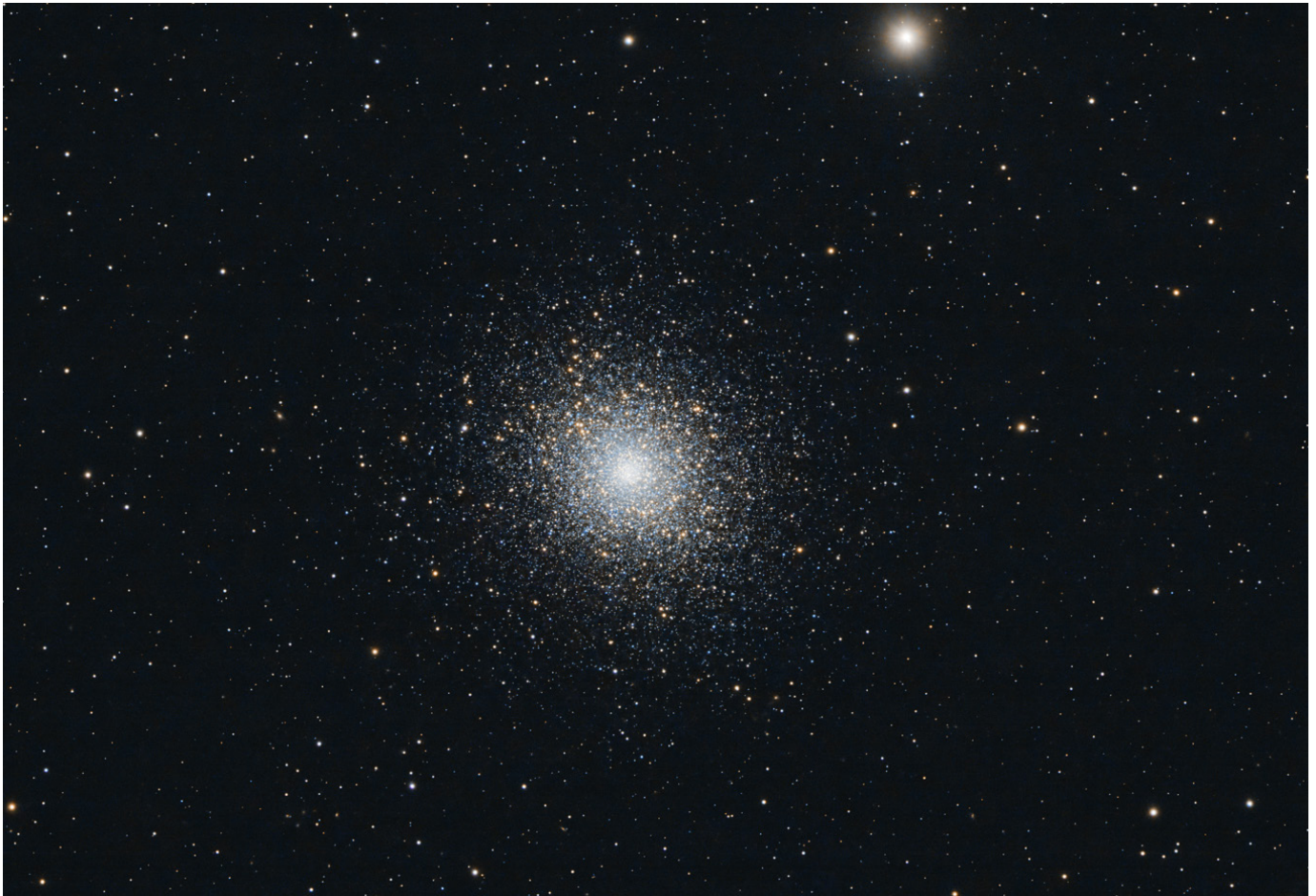
**Mark Savan**

**Black Eye Galaxy**

Taken from CAC







M5 - taken with the non cooled 585mc at Gain 50 Offset 7. 45 x 1 min subs. Stellarvue SVX80T f/6, UV IR block filter.

**Tom Eby**



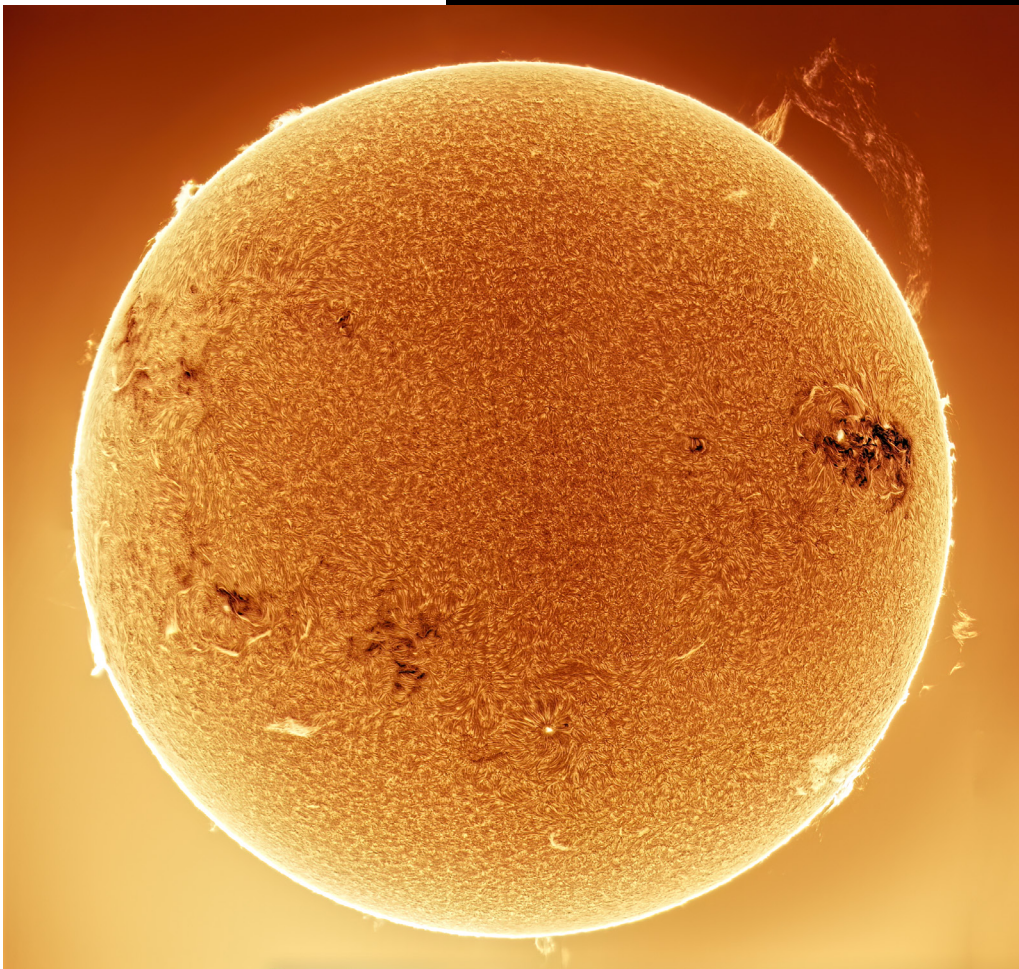
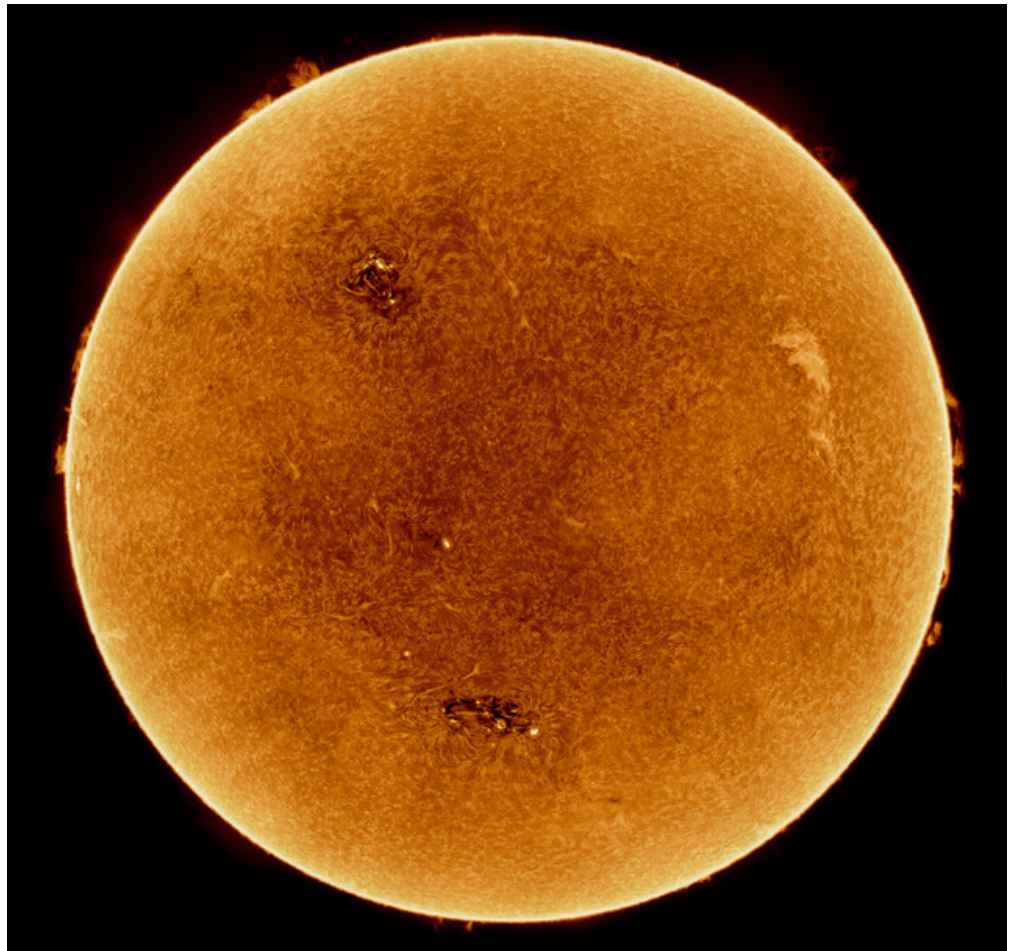
**Markarian's Chain**

Nikon D810a DSLR on the rear of the Stellarvue SVX80T refractor at f/6 for a 5.4 hr portrait of this galaxy rich region. Camera at iso1000 and DX format (~APS-C). No filters, CEM70ec PhD2 guided using an Orion 50mm guidescope/ asi290mm combo.



**Mike Mulcahy**

[Astrobin](#)



**Mark Johnston**

Lunt 100MT with 6 panel  
mosaic using a Player One  
Mars-M camera.





NGC4038 NGC4039 [Astrobin](#)

**David Stearn**

NGC4565 [Astrobin](#)





NGC 3184

8" Newtonian  
with 1.0  
Corrector and  
183 MC Pro at  
800 MM

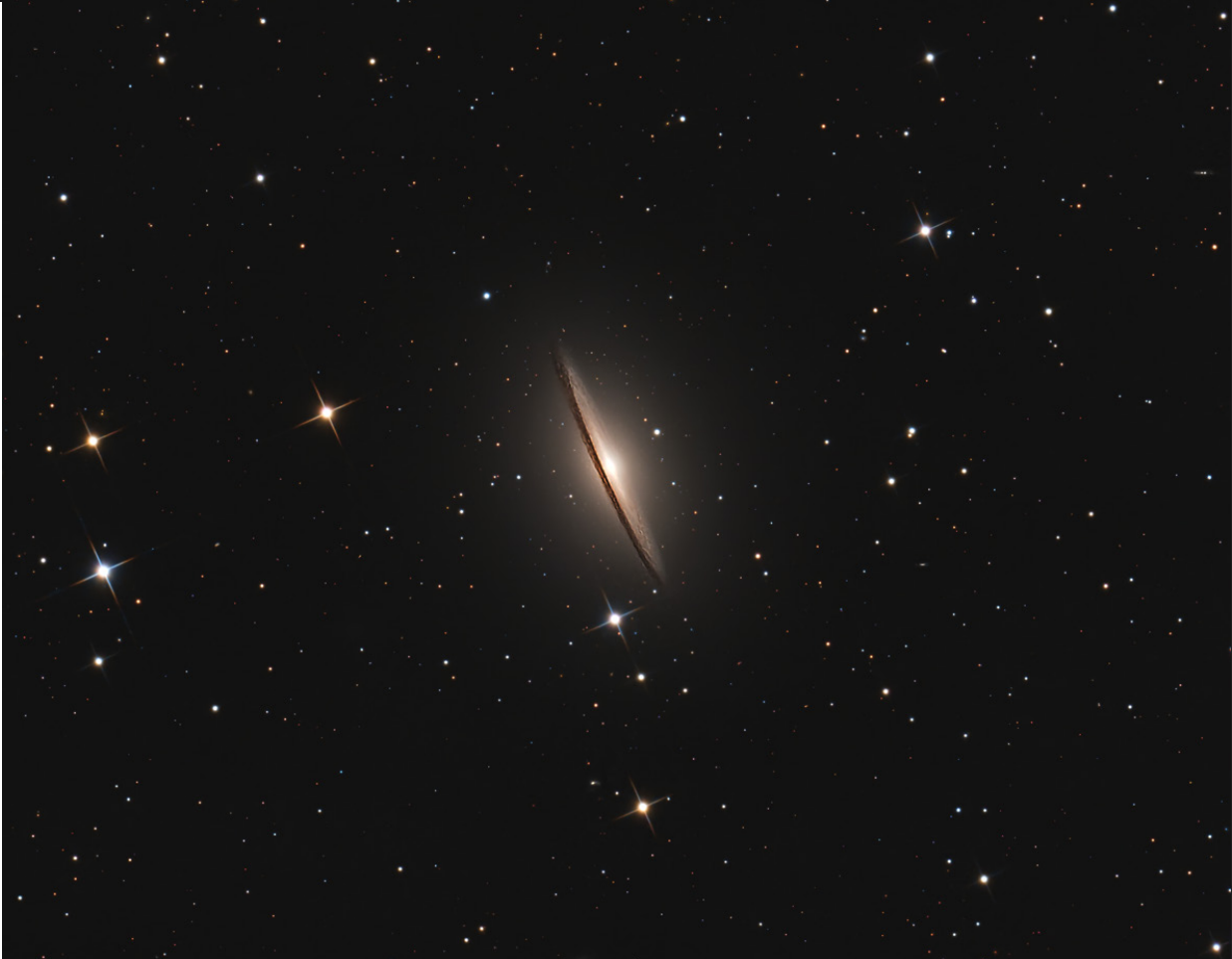
[Astrobin](#)

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**Randy  
Smith**

M104

Skywatcher  
200P Starizona  
1.0 corrector  
ZWO 585 MC  
Pro L-Pro  
filter 102x90



**Messier 83**, also known as the Southern Pinwheel Galaxy and NGC 5236, is a barred spiral galaxy approximately 15 million light-years away in the constellation borders of Hydra and Centaurus. This image was taken at CAC on May 5th using a 130mm/745mm focal length scope and an ASI2600mc Duo camera.



## Craig Harding

**Cat's Paw Nebula, NGC 6334** is an emission nebula and star-forming region located in the constellation Scorpius. NGC 6334 was discovered by astronomer John Herschel in 1837, who observed it from the Cape of Good Hope in South Africa. The nebula is located in the Carina–Sagittarius Arm of the Milky



Way at a distance of approximately 5500 light-years. The imaging for this was at CAC on May 6th on a 130mm/745mm focal length refractor using an ASI2600mc Duo camera.



M 12



**Alan Rockowitz**

M 10





**John Tsantes** - M82: 168, 5-minute frames (14 hours over 2 nights)

## *Public Astronomy Events*

Local astronomy public outreach events at our Tucson professional facilities have ended for the summer. Keep up with new events as the summer progresses at the following links.

[Fred Lawrence Whipple Observatory](#) The best place to follow their events is on their [Facebook](#) page.

[Steward Observatory](#) at the University of Arizona. Great lecture series should start up again in the fall.

[Lunar and Planetary Laboratory](#) at the University of Arizona.

## **What's Up list for June 2024 – July 2024**

Fellow amateur astronomers. Many of the Astronomical League observing programs can be done from our backyards. The following is a list of objects visible in June and July for the more common observing programs.

### **Constellation Hunter Program** – Northern Sky

The following Northern Constellations are well placed for viewing during June and July:

Bootes, Canes Venatici, Coma Berenices, Corona Borealis, Draco, Hercules, Serpens Caput, Serpens Cauda, Ursa Minor

**Messier Observing Program** - The following Messier objects are well placed for viewing during June and July (listed in ascending RA): M53, M63, M51, M83, M3, M83, M101, M102, M5

### **Lunar and Binocular Observing Program**

The following is a list of dates for the lunar phase when observations should be made in June and July:

New Moon: June 6, July 5	40 Hours waxing: June 8, July 7
72 hours waxing: June 9, July 8	4 days old: June 10, July 10
7 days old: June 14, July 13	10 days old: June 17, July 16
Full (14 days old): June 22, July 21	Gibbous: June 28, July 28
72 hours waning: June 3, July 2	40 hours waning: June 4, July 3

### **Solar System Observing Program**

The following list describes the various solar system objects and their visibility in June and July:

**Mercury** is an early evening object starting around June 15, all the way through the end of July. It's at its greatest Eastern elongation (27 degrees East of the Sun) and at its brightest on July 21. On July 6 Mercury will almost be centered on M44 (Beehive cluster) in Cancer.

**Venus** becomes an early evening object in early June, setting a little later each day. Might be difficult to observe as it will be in the evening twilight until end of July.

**Mars** is now a late evening object. On June 1 it rises around 2:30 AM. By the end of July it is rising just a little after midnight.

**Jupiter** is now rising in the early morning. On June 1 it rises around 4 AM. By the end of July it rises around 1 AM.

**Saturn** is now well placed for evening observation, rising around 1 AM on June 1 and around 9 PM by the end of July.

**Uranus** rises around 3:30 AM on June 1, and rises around 11:30 PM on July 31.

**Neptune** is an late evening object in June and July. It rises around 15 minutes after Saturn.

**Special Event:** July 6. Mercury will be centered on M44. Might make a good photo opportunity.

### **Urban Observing Program**

The following **deep sky objects** are well placed for observing during June and July: M3, M5

The following **Double Star** is well placed for observation during June and July: Zeta Ursa Major



# Skyward

By Dr. David H. Levy

June 2024

For the last few nights, I have been looking in one particular direction of the sky: the northeast. Over a period of four nights, I have noticed a faint glow in that direction. It wasn't bright, certainly nothing about which to write home, but it was the aurora borealis. It is a direct message from the Sun to us, a cosmic hello to we the people here on Earth. I also was aware that this aurora was a direct result of a gigantic group of at least 60 sunspots that had been rowing across the surface of the Sun.

The Northern lights and I have been good friends since my first view of a small display, back in 1961 when I was just beginning my teenage years. I duly informed Louis Duchow, the person in charge of aurora reports at the Royal Astronomical Society of Canada's Montreal Centre. "Did you write up a report on it?" he asked. When I answered in the negative, he said, "Then you really haven't seen it." It was a silly answer but there was a morsel of truth in it. I began filling out Aurora reports pretty religiously after that.

The night of July 8, 1966, was the night without a dusk. The Sun set, and as I watched the darkening sky, the sky just didn't get dark. Instead, the post-sunset glow slowly shifted from the northwest to the north, and then just stayed there. The sky also gradually turned a bright green as the auroral glow grew brighter. Then the first bright ray appeared, and within an hour, rays were growing all over the sky. Two months later, an even better display lit up the whole sky from Montreal. I was waiting for a bus to go to the Observatory for their typical Saturday night meeting when I saw a giant coronal arc at the zenith of the sky. I just turned around and walked home to watch this mighty show.

Over the years I have seen other displays of the northern lights, some from the northeast, and several from my current home in southern Arizona. Possibly the nicest one took place from the great auroral arc around the Arctic circle. Our airplane took off from Whitehorse, in Canada's Yukon territory, and the instant our plane rose above the clouds the sky was covered with aurora.

The Northern Lights are best seen without any optical aid at all, without binoculars, without a telescope. When the display appears, just open your eyes and relish the sight. Next to a total eclipse of the Sun, about which I wrote last month, the aurora is one of Nature's grandest spectacles.



Auroral rayed arc from the Arctic circle, early 2020 - David Levy



Rayed arc from a few years earlier from East Jordan, Michigan - David Levy



Dr. David Levy is a long-time member and former President of the TAAA. He is a well know astronomy writer and discoverer of comets. He writes this monthly "Skyward" column for the Vail Voice and generously allows us to publish it here.