

TAAA DESERT SKIES BULLETIN

Observing Our

Since



Desert Skies

1954

December 2022

www.tucsonastronomy.org

Membership Meeting

December 2 @ 6:30 pm - 9:00 pm

TAAA's next general member meeting will be held on **Friday, December 2, 2022**. The Main Presentation will start at 6:30 PM (AZT).

This will be a **hybrid meeting** (both in person and online). TAAA members will receive a Zoom link should they wish to attend remotely. The public may attend in person at the **Steward Observatory Lecture Hall (Rm N210), 933 N Cherry Ave., Tucson** or online through our [Facebook page](#). (A recording will be available on [YouTube](#) a few days after the meeting)

Main Presentation at 6:30PM AZT

Title: A JWST View of Starburst Galaxies: Sweet Data Coming Soon!



Presentation: The James Webb Space Telescope (JWST) has already produced stunning results since it began sending back images and data in July. Among its first programs, JWST will study two famous "starburst" galaxies: M82 (the Cigar Galaxy) and NGC253 (the Sculptor Galaxy), as part of program #1701 in which Dr. Levy is deeply involved. These two well-studied galaxies are relatively nearby and are undergoing an intense burst of star formation at their centers. During this talk, Dr. Levy will

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highlight some of the key observations and results we have learned so far; from the "super" star clusters powering these galaxies' extreme star formation to the large-scale outflows of material being expelled from them. Dr. Levy will explain the goals of her team's JWST program and will show some preliminary images from JWST that have just been delivered.

Biography: **Dr. Rebecca Levy** is an expert on measuring the effects of stars on their environments in nearby galaxies. She uses telescopes across the electromagnetic spectrum and around the globe to measure the motions of gas in and around galaxies. She is currently a National Science Foundation Astronomy & Astrophysics Postdoctoral Fellow at Steward Observatory. Dr. Levy obtained her PhD in 2021 from the University of Maryland, where she studied the very center of a nearby "starbursting" galaxy NGC253 as well as ionized gas around galaxies. Dr. Levy obtained her B.S. degrees in Astronomy and Physics from the University of Arizona in 2015, and she is delighted to be back in Tucson for her postdoc position.

November 2022

Some general announcements include: (1) A TAAA Information Technology (IT) Committee was formed a couple of months ago with David Rossetter as Chair. That Committee has been further developed with Terri Lappin, Jim Knoll, Ben Bailey, Ed Foley, Barbara Whitehead and Doug Smith being appointed as Committee Members. In addition, Ed Foley was recently officially appointed as Webmaster. Any passwords used for any purpose in TAAA activities need to be submitted to a TAAA-Controlled Master password list which will be maintained by Barbara Whitehead, TAAA Treasurer, and David Rossetter, Chair of the TAAA IT Committee.

(2) The TAAA Executive Committee meets on the Thursday prior to the TAAA Board meeting in order to develop the agenda for the TAAA Board meeting. Any items that are to be considered for the Board Agenda for that month (along with supportive materials) need to be submitted to Mae Smith prior to the upcoming TAAA Executive Committee meeting. If any items come up later please discuss with the President immediately so that a decision can be made regarding referral to the Executive Committee for that month's or a later month's meeting.

(3) Three or four TAAA representatives met with four Astronomy Camp persons at CAC and information was shared between the two groups. Unfortunately, at the present time the Astronomy Camp program does not have a home/legal identity and until that it resolved it is unable to establish business arrangements. It is unclear whether that will be resolved in time for there to be a 2023 program offering.

(4) Stay tuned for information on the AZPM segment focusing on TAAA that is in process. AZPM conducted interviews and filming at CAC (upon their request) in November, and we are told that the segment is developing positively.

by Mae Smith

(5) We would like to have a raffle of small items at the December 10th Holiday Party. Anyone having donations for a raffle, please contact Mae Smith or Ed Foley.

(6) An initiative has begun to publish more information/articles on the administration, organization and operation of TAAA. If you have ideas for such articles, contact Mae Smith.

The TAAA Board met on November 9th with all Board members present. The Treasurer's Report was presented and approved. Additionally, the plan had been to present the IRS Form 990 at this meeting. However, the accountant is still processing the 990 so approval by the Board was postponed until the December meeting. A presentation on the options to increase TAAA liability insurance was put forward and a vote on this item passed. In accordance with recommendations from our insurance company, a proposal was made and passed by the board to adopt a TAAA liability waiver requirement for members and non-members visiting TAAA dark sky sites and participating in TAAA activities at remote locations. A second motion passed to set up the waiver policy requirement to be a part of new memberships and of yearly membership renewals for members. A motion was passed to develop a snake-bite first aid protocol for TAAA dark sky sites. Financial planning for the Gateway to the Galaxy Campaign (GTTG) is going well. This includes Electric Vehicle Charging stations. It was decided to provide information to members reminding them of options for end of year donations/tax planning. Updates were provided on the CAC Member Observatory Project, RV expansion project and EV projects; all of which are in active planning phases with applications for county permits and contractor coordination. A motion passed that all TAAA fees billed to members be done on an advance payment basis. CAC operations and planning discussion included addressing the need for TAAA to purchase a tractor. There are committed donors for the money, for the

tractor, and to provide storage for the tractor. A separate account will be developed to track CAC maintenance and associated storage. We were offered a special pricing from Valley Telecom for a 3-5 year package related to internet at CAC. The motion was approved for a 5 year contract. TAAA has been offered the gift of a 16" Mead LX200 from the Minnesota Astronomy Club provided that TAAA pay for transportation. A motion passed to accept the telescope and to locate it at TIMPA. There are volunteers to provide the money for shipping

and for a telescope enclosure. Further research is being conducted regarding protecting the scope from flood plain issues, permitting, ensuring appropriate power requirements, etc and a Committee has been appointed to manage this project. The Board also decided to begin a TAAA Volunteer of the Month recognition program. (Volunteers to work with that program would be appreciated).

President [Mae Smith](#)

Participation by Members and Guests in TAAA Activities October 2022*

Member meeting in person	23
Member meeting via zoom	50
Member meeting via Facebook	13
Member meeting total	86
Board Meeting	7
AFSIG	10
SMSIG	10
AISIG	19
TIMPA Dark sky Site Visits – regular night	6
Astronomy fundamentals class	29
Total TIMPA	35
CAC Dark Sky Site Visits	
Astronomy Camp Meeting	8
Evening Under Stars event(guests&mem)	31
Other visits	41
Total CAC	80
Paid Star Parties	
# events	7
Volunteer hours	53
# participants	426
# telescopes	11
\$ earned for TAAA	\$2,450
Nonprofit/School Star Parties	
Events	13
# telescopes	30
Volunteer hours	174.5
participants	1,002
schools	8
Tool kits	3

Compiled by Mae Smith from data provided by TAAA Leaders.

If you have suggestions for items to be added to this list send them to Mae at ssmith@email.arizona.edu

TAAA Desert Skies Bulletin
[David Rossetter](#) – Editor
 Terri Lappin & Jim Knoll - Proofreading
 Greg Ruppel -Images;
 Ken Bertschy - Graphics

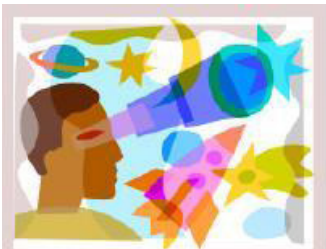
Special Interests Groups

TAAA Ladies' Night Out

by Susan O'Conner

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.

Ladies' Night Out is taking the month of December off.
We'll get back together in January!



Starry Messengers Special Interest Group

Opening Minds to the Universe

This month, the Starry Messengers SIG will meet in person on the afternoon of Sunday, December 11th at a member's home on the NE side of Tucson. Our meeting purpose is testing some of the ideas we've come up with for our spring outreach activities highlighting astronomy with the James Webb Space Telescope. We will meet on this Sunday afternoon rather than our normal 2nd Monday evening timeframe. We decided it was important to test our activities outside during the day. Please contact Terri Lappin for the address where we will be meeting.

We were able to support most of our November events but had to cancel some requests for hands-on activities due to a shortage of volunteers. We have three events coming up in January that are listed below along with the requested toolkit. Two volunteers are preferred for each of these events. Contact Terri Lappin if you want to volunteer. Training can be provided, and you can borrow the toolkit beforehand to practice using it.

- 1/10/23 (Tuesday) 6pm – 8pm @ Fruchthendler Elementary School (Tanque Verde & Sabino Canyon), Exploring the Solar System Toolkit (need two volunteers)
- 1/12/23 (Monday) 6:30pm – 8:30pm @ Booth-Fickett K-8 (Kolb & Broadway), Space Rocks Toolkit (need two volunteers)
- 1/19/23 (Thursday) Mesa Verde Elementary School (La Cañada & Magee), any toolkit (Pete Hermes, need one more volunteer)

The Exploring the Solar System Toolkit includes a model of the solar system where the sun is 1 meter across, Jupiter is about 4" across, and the Earth is about $\frac{1}{4}$ " across. Kids can put them in order of distance from the Sun or sorted by size. We can talk about the differences between the rocky planets and the gaseous planets. We can talk about the asteroids belt and the Kuiper Belt. A take home activity is called Pocket Solar System where a length of adding machine paper is folded several times and the fold lines closely match the orbits of the planets.



Exploring the Solar System with a scale model of the planets.

The Space Rocks Toolkit is a very popular toolkit. The activity called Meteorite or MeteorWrong is a sample of rocks which includes two meteorites. Tools allow the kids to determine which of the rocks are actually meteorites. (Thank you to Tom Sarko for providing replacement marble and iron pyrite samples that came up missing after an event in October.) Space Rocks also includes a large poster that shows impact craters on the Earth's surface (western hemisphere) which typically leads to a discussion of the demise of the dinosaurs as well as the fact that one of the best impact craters is in Northern Arizona. The poster also includes images of asteroids to scale showing that the largest asteroid would fit nicely over the state of Texas.



Space Rocks Toolkit - studying rocks in the Meteorite or MeteorWrong activity.

To learn more about these and other toolkits, visit the Night Sky Network website, <https://nightsky.jpl.nasa.gov/>, and check out the Outreach Resources. The Night Sky Network website covers most of the over 100 activities that we have available to bring to outreach events.

The Starry Messengers are TAAA members interested in doing outreach activities with the public. We normally meet the second Monday of the month, taking a break over the summer. We support the TAAA's outreach program through hands-on activities that generally don't require a telescope. This allows members who don't have a portable telescope to take part in the TAAA's outreach program. Our meetings are a mix of Zoom and in-person meetings, depending on what we need to get accomplished. If you have questions about the Starry Messengers SIG, contact Terri Lappin at terrilappin@tucsonastronomy.org or 520-977-1290.

Astronomy Fundamentals SIG

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 meeting is on **Thursday, December 8th at 6:30 pm - 8:00 pm**. Topics to be determined.

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

[AFSIG on the Web](#)

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

Astro-Imaging SIG

by Gregg Ruppel

The next AISIG meeting is **Monday, December 19 @ 7:00 pm** via ZOOM.

Email [Gregg Ruppel](#) for the ZOOM link or find it in the [TAAA Forum](#).

Topics: TBA

Check out [AISIG On the Web](#) or contact [Gregg Ruppel](#) for the latest information and Zoom links. Look for previous meetings on the [TAAA YouTube Channel](#). 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 out the [TAAA Forum](#).

Imagers, to help ensure that the TAAA Desert Skies Bulletin has explicit permission to publish your fine work, we need you to submit your images directly to [Gregg Ruppel](#), our Imaging Editor or come up with alternative arrangements. We would like you to restrict the size of your images to around 10MB (a little over is okay if needed). Members would appreciate a brief description of the object if it is not a common target along with your imaging details. If you desire, please include a link to the full-size version. I want to limit space to one page of the bulletin per contributor. If you submit five photos, they will be small or we may ask you to pick your favorites. If you do submit images, I will include you in a pre-publication version of the bulletin for your approval of the quality and layout. Feel free to ask me ([David Rossetter](#) – Bulletin Editor) or [Gregg](#) if you have any questions.

Highlights from the Astro-Imaging SIG

Jellyfish Nebula from **Allen Rockowitz** - 100 minutes of Ha, SII, and OII, combined using pixelmath in PI.

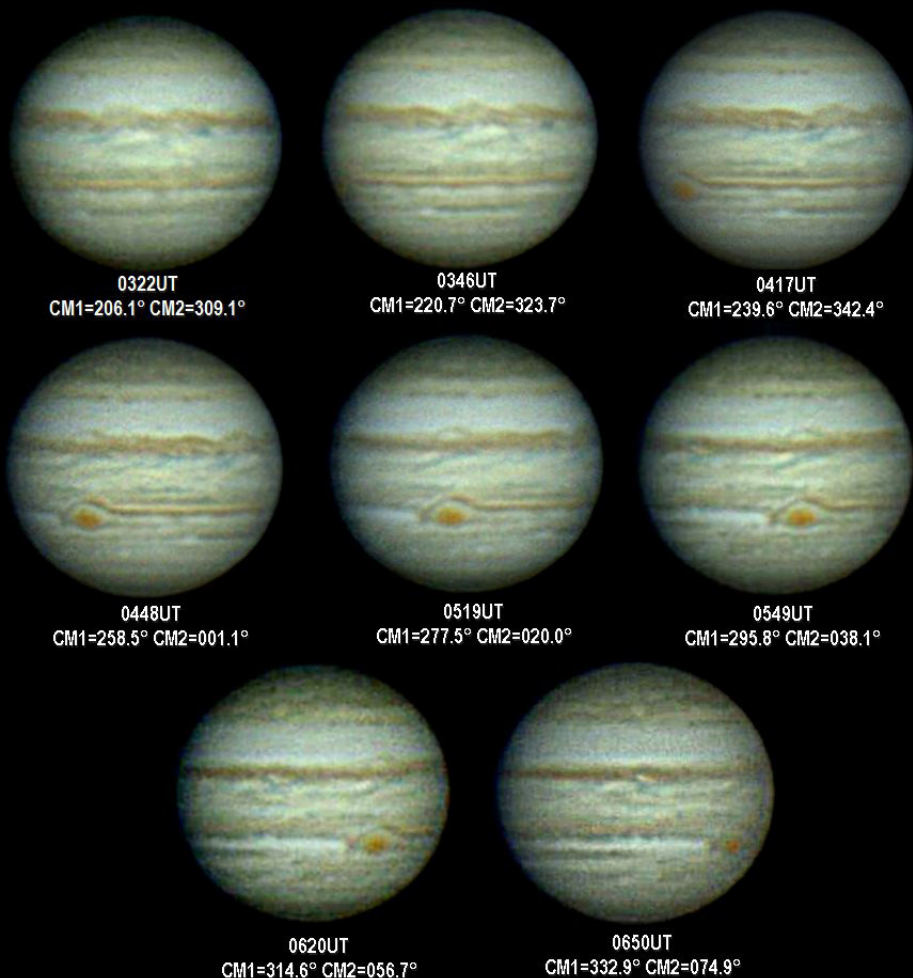


Flying Dragon
Sh2-114
Allen Force

OSC ASI294MC
Pro
L-enhance filter

Jupiter
10/27
Rik Hill

JUPITER
2022 10 27
TEC 8" f/20 Mak-Cas
Camera:Skylaris 132c
Filter:UV/IR cut
Scale:0.25"/pix
Seeing:8/10
Mag.: -2.8
Dia.:48.0"
North Up



Richard "Rik" Hill ©2022
Loudon Obs. Tucson, AZ
rhill24@cox.net

NGC 891
Vincent
Goetz





NGC 7380
Wizard Nebula
Randy Smith

C11 HyperStar
 2600 MM Pro
 Baader
 SHO filters
 90x120 Ha,
 40x120 Sii and
 45x120 Oiii

[Astrobin](https://astrobin.in/3k4w5r/0/)

Copyright r.smith65585

<https://astrobin.in/3k4w5r/0/>

C11 HyperStar 2600 MM Pro Baader SHO filters 90x120 Ha, 40x120 Sii and 45x120 Oiii

NGC 281
PacMan Nebula
Randy Smith

[Astrobin](https://astrobin.in/3k4w5r/0/)

C11 HyperStar,
 2600 MM Baader
 SHO filters
 110x120 Ha,
 39x120 Oiii,
 43x120 Sii



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NGC 3891
A Twisted Spiral
Alex Woronow

[Astrobin](#)

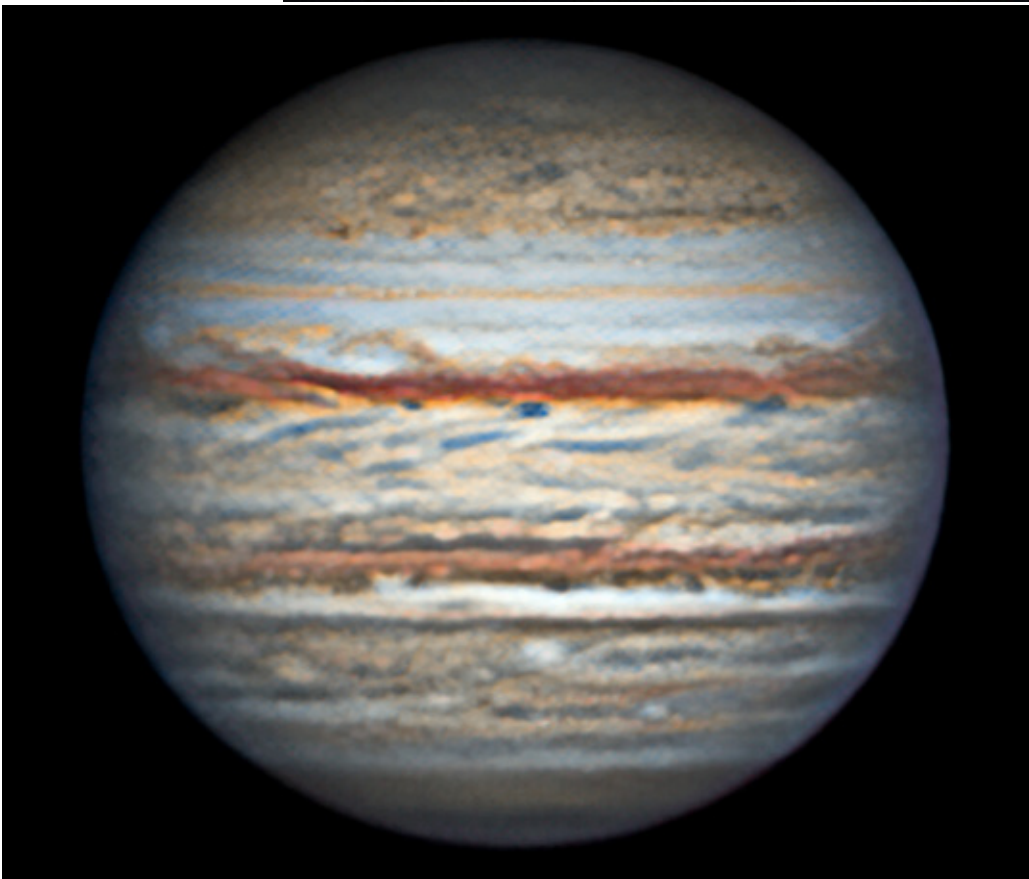
M63
Alex Woronow

[Astrobin](#)



Blue Snowball
NGC 7662
Tom Eby

Camera was Nikon
D810a DSLR in full
frame 35mm mode.



Jupiter 10/13
Tom Eby

CN212 at 3975mm fl
3-image derotation in
WinJupos.
Skyris 236c camera.



NGC 7635 - Bubble Nebula
Tom Rolfsmeyer

Scope C11, mount EQ6R pro, Camera ZWO ASI 294.
One shot color cooled, 20 two minute exposures stacked and processed with Maxim DL.
Date of imaging was 10-31-2022.

Observing Sites

TIMPA

by Ralph Means

TIMPA (Tucson International Modelplex Park Association), Dark Sky site west of the Tucson Mountains.

[TIMPA on the Web](#)

TIMPA Star Party Dates this month: **December 16 and 17.**

Location: The TIMPA observing site is located a few miles beyond the Desert Museum (3250 N. Reservation Road, Tucson, AZ 85743).

The TIMPA site is only partially improved. There are no inside buildings provided other than restrooms. TAAA does not provide 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.

[Reservation Form](#)

Any questions, please contact the TIMPA Director: [Ralph Means](#)

Chiricahua Astronomy Complex

by Jim Knoll

CAC Weekend Dates coming up (Friday/Saturday): **December 22 – 23 (New Moon December 23)**

Chiricahua Astronomy Complex (CAC) is the club's dark 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.

CAC Director: [Jim Knoll](#)

[CAC on the Web](#)

Observing Sites Star Party Dates 2022 & 2023

TIMPA

December 16 and 17

2023 TBA

CAC

December 22–23 (New Moon December 23)

January 20-21 (New Moon 21)

February 17-18 (New Moon 20)

March 17-18 (New Moon 21)

April 21-22 (New Moon 19)

May 19-20 (New Moon 19)

June 16-17 (New Moon 17)

Your Chiricahua Astronomy Complex – December 2022



There has been a lot of activity at our Chiricahua Astronomy Complex (CAC) this month. In addition to hosting several events plus the monthly member weekend, we had plenty of maintenance activities as well and the construction of the new buildings continues to progress. As we develop more and more of CAC, we will need the help of many club members to maintain this first-class observing complex. Please let me know if you are willing to help so you can be added to the volunteer list as these activities come up (cac-director@tucsonastronomy.org). Here is a general list of some

of the areas we will need to address on a recurring basis: Weed control, room and building cleaning, general maintenance, and new projects in a variety of areas. Your expertise or general help is critical to maintaining CAC and spreading the effort among our many club members. We will also try to maintain a list of tasks (displayed at CAC) that need to be accomplished so when members are at the site observing, during the day they can help with maintenance tasks. No specific commitment required, just want to have a list of members willing to help. Thanks!!



Thank you to our many volunteers that helped with the November semi-annual application of the weed pre-emergent.



Warren Hensey led the maintenance team which included: Jeff Busek, Ross Carnes, Dave Evans, Ed Foley, Steve Irwin, Joe Jakoby, John Kalas, Jim &

Susan Knoll, and Bob Rose. Also, Susan Knoll has been busy managing the weeds on a recurring basis each time we are out there and definitely helps to keep them under control.



Michael Turner and John Kalas have been busy planning and installing a new Pan, Tilt, Zoom camera and WiFi antenna that will be connected to the restroom facility. This will enhance the area we can monitor with cameras and push the WiFi signal further south for the public pads and RV spots. We also increased the internet speed at CAC from 50Mbps download/10Mbps upload to 300 down and 100 up. This should help when we have lots of members at the site imaging and doing other tasks, especially after the new buildings are completed and we have additional technology that will need internet access.

John Kalas, Bob Reynolds, and Ed Foley are diligently planning the Member Observatories that will be installed for members to lease at the south end of the complex near the RV sites. We are also planning the expansion of the RV sites from 4 spots to 7 during this phase as well. In conjunction with this project, we hope to install 2-4 Electric Vehicle (EV) charging stations along the north end of the main parking area. Members with EV vehicles will be able to charge, for a

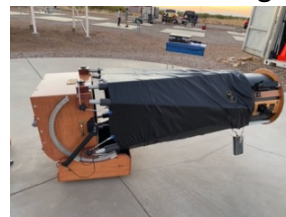


nominal fee to cover electricity, while at the site. We are also working on the creation of a perimeter road to access the new Sleeping Rooms and Learning Center.



Mike McDowell and Ed Foley are continuing the development and installation of four telescopes and sheds to house them on the Stinger Telescope Pad near the Learning Center. These scopes will include a 9.25" and 11" Celestron, a 12" Meade, and an 18" Obsession

and will be available for members who are trained/certified to operate them and for youth groups and other outreach activities to use while at CAC.



If you want to get certified on the other telescopes at CAC for personal use or during outreach events, please let us know so you can be scheduled for one of our training classes. These include the Wally Rogers Observatory 14" Celestron, the Reynolds-Mitchel Observatory 40" Big Boy and the 9" Folded Refractor (reserved for use during special events and the CAC weekend), and the 18" Obsession.

As you can see, we have a lot going on at CAC. Any help to maintain this first-class site is really appreciated. Please also consider TAAA and CAC for any year-end donations or distributions. You can also visit the CAC Webpage for updated information or to make a reservation to observe at CAC). Thanks!!

<http://tucsonastronomy.org/taaa-member-resources/observing-sites/chiricahua-astronomy-complex/>

Jim Knoll, CAC Director

cac-director@tucsonastronomy.org

Chiricahua Astronomy Complex Learning Center Construction Update

November 2022

By [Ed Foley](#)

Progress continues on the Learning Center Buildings toward an expected year end completion of the buildings. The utility electric cable and water line trench was filled and graded, followed by installation of the electric meters and activation of our electrical service.

Final connections were made by our member volunteers to insure we have internet service in each building. We temporarily installed a router and tested speeds of 241mps down/101mps up within each building.

The contractor began drywall installation, plumbed water lines in the bathrooms, and completed the concrete work at the sidewalk area where the electric power crossed to the buildings. The drywall completion was being delayed by the shortage of rock wool insulation, and the shower enclosures which had both been on back order.

Anticipating the needs of members in the future, 3 members donated funds for us to include 2 electric vehicle charging outlets – one for each building. These were also installed by the electrician during the work this month.

The drywall should be completed in the near future. At that point we will need to assemble a TAAA volunteer work crew to prime and paint the interior of the buildings.



TAAA Road Gang

TAAA is fortunate to have two dark sites available to members. These sites require a significant amount of work to keep them in top condition. This month a work crew of 11 members came to the CAC site to take on two tasks. One effort was the semiannual need for suppressing weeds at the now 4.5 acres of cleared space. Using hand sprayers and a sprayer towed by a borrowed tractor the pre-emergent application took 7 members 6 hours to complete the treatment. The other major task was smoothing of the new road to the Learning Center buildings that was cleared along the northern easement area. This road was constructed to steer traffic to the new buildings away from the heart of the observing areas at the site. The road had been cleared of trees and other vegetation. However, being located in an old river bed, it needed to be leveled, smoothed and cleared of large rocks ahead of being graveled.

Thanks to volunteers Jeff Buzek, Ross Carnes, Dave Evans, Ed Foley, Warren Hensey, Steve Irwin, Joe Jakoby, John Kalas, Susan Knoll, Jim Knoll, and Bob Rose for their hard day of manual labor maintaining the site.





TAAA 2023 Wall Calendars

are now available at the general meetings. Only 19 left!

The cost is \$15 cash or check made out to TAAA.

If you are unable to attend the general meetings, please contact Susan OConnor to arrange for delivery.

Board of Directors Meetings

The TAAA Board meets the second Wednesday of every month at 6:30pm. Members are welcome to attend Board meetings. If you would like to attend a Board meeting, you may email Mae Smith to receive a Zoom link for that meeting. Please send your email to Mae the Monday or Tuesday (By 5:00pm) and you will receive an email with the link on either Tuesday evening or Wednesday. **ALL MEMBERS ARE WELCOME**, we are simply changing from sending this reminder through Member Planet to conservatively use our Member Planet email system. I am sorry if this is an inconvenience. If this does not work, let me know - we can make changes.
-Mae

TAAA Annual Holiday Party



It's that time again! The TAAA HOLIDAY PARTY will be at the home of Ed and Janet Foley on Saturday December 10th. Each guest will need to RSVP so the gatehouse can be informed to admit you. **Please RSVP by [email](#) or by phone at 520-477-1062.**

The party starts at 5:00 while it is still light. We will use both the house and poolside for gathering. The patio heaters will be going if it is on the chilly side.

The event is a potluck dinner. You can bring something that will feed at least 3 such as: Hors d'oeuvre, an Entrée Bread, or Dessert Vegetables.

Soft drinks, coffee, tea and hot chocolate will be available. We will have disposable plates, utensils and cups.

THE RAFFLE: We will have the RAFFLE again this year featuring donated goodies Please bring any new or lightly used items you think other members might enjoy.

ADDRESS: 4790 N Via De La Granja, Tucson, AZ 85718

TELESCOPES FOR SALE

TAAA has 1 telescope for sale at this time. These telescopes are available for members only at this time.

Celestron 6" Newtonian Reflector telescope. German Equatorial Mount (GEM). Manual slow motion controls (no clock drive). 1.25 " eyepiece focuser. Wooden tripod and counterweights. 9x50 finder. Telescope has 750 mm focal length at f/5.0. See image below.

TAAA Member Price: \$150



New Workshop - Practical Astronomy Workshop - Star Hopping

We are putting together a practical hands-on series of workshops. The students will be using telescopes and other materials to practice and get familiar with various techniques used by amateur astronomers. These workshops are designed for the novice amateur astronomer, the same audience as the Fundamentals class. The first workshop will be on star hopping. If you are interested send an e-mail to [Douglas Smith](mailto:Douglas.Smith@tucsonastronomy.org) or call 520-396-3233. The workshops will be held at TIMPA. The dates are TBD but probably early next year. As soon as dates are set an announcement will be made and registration will open up. The workshops will be limited in size depending on equipment requirements and availability.



Donate to TAAA using your IRA Required Minimum Distribution

For those members who are of the age to take a Required Minimum Distribution from their IRA, Congress has created a very advantageous way to donate to a qualified charitable organization like TAAA.

If you direct your IRA custodian to make a donation to TAAA directly, the donation can count towards your RMD, and you pay no income tax on the amount of the charitable distribution.



Donate Securities to TAAA for maximum benefit

Are you interested in making a charitable gift that may yield double tax benefits and additional savings? If so, a gift of appreciated stock may be the right option for you.

Direct donation of securities like stocks and bonds can provide a greater tax benefit to you if they have appreciated in value since the time of purchase, since you won't have to pay capital gains on these securities when donated to a 501(c)3 nonprofit like TAAA.

If you are interested in making a tax efficient donation of stocks or bonds please email us to obtain additional information at: Treasurer@tucsonastronomy.org. As always, we recommend you consult your tax professional for guidance.

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 list for December, 2022.** December is typically a quieter month for Star Parties but still appreciate any help you can provide.

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) and Night Sky Network (NSN) (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 November 23rd. **Bolded telescope references** still have need for volunteers.

[Email](#) for questions or more information. -Bernie Stinger, TAAA Public/School/Non-Profit Star Party Manager

Thursday December 1 -- Oro Valley

Oro Valley Public Library

1305 W Naranja, 85737

All Ages; Participants: 30

3 Scopes (Filled) + Library Telescope.

Setup Time: 5:30 pm. Start: 6 pm. End: 7:30 pm.

Nearest Moon Phase: First Quarter

Directions: Ina & La Canada. North on La Canada to Naranja Dr. Right (east) on Naranja to Library on the south side of street.

Viewing Location: Tree of Life Knowledge area by front entrance.

Thursday December 1 – CENTRAL TUCSON

Museum of Art and Historic Block

140 N. Main Avenue

All Ages; Participants: 250

2 Scopes Needed

Setup Time: 4:30 pm. Start: 5 pm. End: 7:30 pm.

(Early start: Demo scopes, show pictures, do Planets/Moon once visible); Nearest Moon Phase: 1st Quarter

Directions: Heading west on Alameda, turn right onto Court, take your first left on to W. Telles and then a right turn on to Meyer Avenue.

Viewing Location: Museum's plaza / Bonnie L. Bradford Courtyard

Saturday December 3 -- NORTHWEST TUCSON

Hendricks Elementary

3400 west Orange Grove Rd

K – 6th Grade; Participants: 200

2 Solar Scopes Needed (filled)

Setup Time: 9:30am Start: 10:00am End: 12:00pm

Directions: East of Thornydale and Orange Grove.

The school is on the northwest corner of Orange Grove and Camino de la Tierra

Viewing Location: Behind the school where the recess area is located.

Wednesday December 7 -- WEST TUCSON

Cooper Center for Environmental Learning

5403 W Trails End Rd

Grade 5; Participants: 30

2 Scopes Needed (filled)

Setup Time: 6:15 pm. Start: 7:00 pm. End 8:30 pm.

Nearest Moon Phase: Full

Directions: West on Grant Rd, becomes Silverbell, becomes Ironwood Hills Drive which dead-ends at Camino De Oeste. Turn south. ALTERNATE: West on Speedway west of I-10. North on Camino De Oeste. Both paths: Turn west on Trails End Road and follow signs to "Cooper Center".

Viewing Location: Open area near restroom facilities. Access the site from the dirt road at the east end of the main parking lot (near the dumpsters).

School/Public Star Parties Continued

Thursday December 8 - ST DAVID (South of BENSON)

St. David Unified School

70 E Patton St, St David, AZ

High School/Adults; Participants: 40

2 Scopes Needed (filled)

Setup Time: 5:30pm. Start: 6:00pm. End: 8:30pm.

Nearest Moon Phase: Full

Directions: I-10 Exit 303 Benson. South on Business 10/4th St. Continue south on Hwy 80 to St David. Hwy 80 becomes E Patton St. Continue to the high school at 70 E Patton.

Viewing Location: High School Football Field

Saturday December 10 -- FAR WEST TUCSON

Tucson Mountain Park Ironwood Picnic Area

7300 W Hal Gras Road,

All Ages; # Participants: 50

1 scope needed (filled)

Setup Time: 5:20 pm. Start: 6:00 pm. End: 8:00 pm.

Nearest Moon Phase: Third Quarter

Directions: On Kinney Road, 1.5 miles south of Gates Pass Road or 3.8 miles north of Ajo Way.

Viewing Location: Right side of road (parking pullout) near the 2nd restroom facilities (right side of road) at the Ironwood Picnic area (about 3/4 of way into picnic area or approximately .6 miles

Wednesday December 14 -- WEST TUCSON

Cooper Center for Environmental Learning

5403 W Trails End Rd

Age/Grade Level: Grade 4; # Participants: 50

2 Scopes Needed (filled)

Setup Time: 6:15 pm. Start: 7:00 pm. End: 8:30 pm.

Nearest Moon Phase: Third Quarter

Directions, Viewing Location, Access: See above.

Thursday December 15 -CENTRAL TUCSON

Doolen Middle School

2400 N Country Club

Age/Grade Level: 6, 7 & 8 Grade; # Participants: 40

2 Scopes Needed (filled)

Setup Time: 6:45pm. Start: 7:30pm. End: 9:00pm.

Nearest Moon Phase: Third Quarter

Directions: NE Corner of Grant & Country Club

Viewing Location: TBD

Thursday December 15 - S. CENTRAL TUCSON

Borton Magnet Elementary School

700 E 22nd St.

Age/Grade Level: Grades K - 5; # Participants: 150

2 Scopes Needed

Setup Time: 5:30pm. Start: 6:00pm. End: 7:30pm.

Nearest Moon Phase: Third Quarter

Directions: From 22nd & Park. West on 22nd to Euclid. South on Euclid. School will be on the left.

Viewing Location: North Courtyard

Friday December 16 – EAST TUCSON

Saguaro National Park EAST

Saguaro EAST is located at 3693 S Old Spanish Trail.

All Ages; Estimated # Participants: 50

(Filled)

Setup Time: 5:45 pm Start: 6:30 pm End: 8:30 pm

Nearest Moon Phase: Third Quarter.

Directions: I-10 Exit 275. North on Houghton for ~8 miles to Escalante. East on Escalante for 2 miles to Old Spanish Trail. N on Old Spanish for .3 miles to Park entrance. ALTERNATE: Houghton/22nd St. south on Houghton to Old Spanish Trail. East (left) on Old Spanish Trail 2.8 miles to Park entrance.

Viewing Location: Admin/HR area. After entering Park, make first right and proceed to HR/Admin area. You will be shown where to setup.

Saturday December 17 – (NORTHEAST TUCSON)

Agua Caliente Park

Agua Caliente Park is located at 12325 E Roger Rd.

All Ages; Estimated # Participants: 50 - 75

(Filled)

Setup Time: 5:15 pm Start: 6:00 pm End: 8:00 pm

Nearest Moon Phase: Third Quarter

Directions: Tanque Verde Road east past Houghton to Soldier Trail. Go about two miles north to Roger Rd. Turn east for about 1/2 mile to the Park on the left (north).

Viewing Location: Parking Lot Bus Lane area (north end of parking lot). Will need to spread out to facilitate social distancing.

Tuesday December 20 -- WEST TUCSON

Cooper Center for Environmental Learning

5403 W Trails End Rd, 85745

Age/Grade Level: Grade 5; # Participants: 32

2 Scopes Needed (filled)

Setup Time: 6:15 pm. Start: 7:00 pm. End: 8:30 pm.

Nearest Moon Phase: Third Quarter

Directions, Viewing Location, Access: See above.

by Jim Knoll & Bernie Stinger

December 2022



Our public outreach is cruising at top Speed. November experienced a huge number of star parties that could not have been done without the dedication of our many volunteers. Many are just getting started again post COVID. Although most are evening events, we



do have some during the day for participants to observe our nearest star, the Sun.

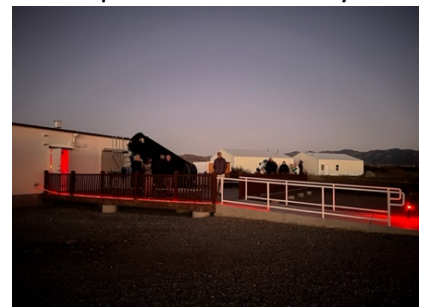


We hosted about 20 University of Arizona Space Grant students at the Chiricahua Astronomy Complex (CAC) in November as well. Although the temperature was cold, the skies were amazing. They all had a great time observing the planets, nebulae, star clusters, and checking out the Milky Way from our incredibly dark observing complex.

Our semi-annual Evening Under the Stars public event at CAC was a great success with 28 participants, two media outlets, and 10 staff volunteers. AZ Public Media plans to air a story on



TAAA, our outreach mission, and CAC on an episode of AZ Illustrated, probably airing in the January timeframe. I will let everyone know when the air date is announced.



We conducted seven Tucson Stargazing Adventures events bringing astronomy to our great visitors to Southern Arizona. These outreach events not only help raise funding for TAAA, but shows why Southern Arizona is an astronomy capital to visitors from other parts of the U.S.



and the world. We have been doing more of these at CAC to really show our dark southern Arizona skies.

If public outreach is something you want to get involved with, let Bernie Stinger (**School/Public/Non-Profit Star Party Manager**) know when the monthly volunteer request is sent out and feel the joy of sharing our wonderful hobby with the public! You can also contact Bernie at astronomy-events@tucsonastronomy.org.

What's Up list for December 2022 – January 2023

Fellow amateur astronomers: many of the Astronomical League observing programs can be done from our backyards. The following is a list of objects visible during December and January for the more common observing programs.

Constellation Hunter Program – Northern Skies

The following constellations are well placed for observing for December and January:

Andromeda, Aries, Auriga, Cassiopeia, Orion, Perseus, Pisces, Taurus, Triangulum

Messier Observing Program

The following Messier Objects are well placed for observation during December and January (listed in ascending RA): M103, M33, M74, M76, M34, M77, M45.

Lunar and Binocular Observing Program

The following is a list of dates for the lunar phase for observations during December and January:

New Moon: December 23, January 21
40 Hours waxing: December 25, January 23
72 hours waxing: December 26, January 24
4 days old: December 27, January 25
7 days old: December 30, January 28
10 days old: December 3, January 2, January 31
Full (14 days old): December 8, January 6
Gibbous: December 16, January 14
72 hours waning: December 20, January 18
40 hours waning: December 21, January 19

Solar System Observing Program

The following list describes the various solar system objects and their visibility in December and January:

Mercury is an early evening object during December and early January. Becomes a morning object in late January.

Venus is an early evening object in December and January.

Mars is well placed for evening viewing during December and January. Mars reaches opposition on December 7.

Jupiter is well up at sunset during December and January making it well placed for early evening observation.

Saturn sets early in the evening, earlier each day. At the start of December Saturn is setting around 10 PM. By the end of January it is setting around 6 PM, lost in the twilight.

Uranus is still well placed for evening observation. In early December it transits around 10 PM. By late January it transits around 6 PM.

Neptune is still relatively close to Jupiter. It transits about 30 minutes before Jupiter transits.

Urban Observing Program

The following deep sky objects are well placed for observing during December and January:

NGC457, NGC663, Cr 463, NGC 752, Stock 2, NGC 869, NGC 884, Tr 2, M77, Tr 3, Stock 23, Mel 20, NGC 1342, M45

The following Double Stars are well placed during December and January: Gamma Aries, Gamma Andromeda



Steward Observatory Public Evening Lecture Series

We are thrilled to be able to celebrate 100 years of presenting lectures on astronomy and telescope viewing to the public by offering a special Public Evening Lecture on the 100th Anniversary of the very first Steward Public Evening. All of the lectures and the use of the telescope are free of charge and open to the general public. For more information, go to the [Evening Lecture Series page](https://signup.e2ma.net/signup/1797802/1759894/). Sign up for our monthly Astronomy Newsletter at: <https://signup.e2ma.net/signup/1797802/1759894/>. **While all the lectures have been completed, you can click [here](#) to stream podcasts of previous Public Evening Lectures.**



College of Science

Myth Busting Science | Lecture Series

The College of Science is excited to announce Myth Busting Science as the topic of our 2023 Lecture Series (beginning on February 1st). Join us inside Centennial Hall beginning February 1 for enlightening presentations by four renowned University of Arizona faculty as they debunk common misconceptions in society and apply state-of-the-art scientific methods to solving critical problems.

Check [here](#) for speaker information, dates, and more in the coming weeks.

Fred Lawrence Whipple Observatory (FLWO)



The largest satellite facility of the Smithsonian Astrophysical Observatory (SAO), part of the Center for Astrophysics | Harvard & Smithsonian. Located on Mt. Hopkins in southern Arizona, this remote site is home to a number of telescopes, including the 6.5 meter MMT Observatory.

They host many on-line presentations by eminent astronomers. Check out their [web site](#) and [Calendar](#).

Skyward

By Dr. David H. Levy
December 2022

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.

As I get older and older, the list of people who depart gets longer and increases with a greater frequency. But now I find myself writing, for the third month in a row, about the loss of someone who meant a lot to me and without whom I do not know how I will continue my own journey through the night sky.

Constantine Papacosmas introduced himself to me the first night I entered the old observatory of the Montreal Centre of the Royal Astronomical Society of Canada. The young observer had just completed a truly fabulous 8-inch reflector which we used once or twice. At that time he was brilliant, creative, and inspiring. Within a few years we had become great friends and we spent a lot of time together. One afternoon while walking down a hill to my junior high school classes, a car passed me, then slammed on its brakes about 300 meters away. Putting the car in reverse, the driver screeched backward until it reached me. "Hello David!" It was Constantine.

You might have read a few months ago the story of how I got my own 8-inch reflector, Pegasus. It was a loaner scope. By the time David returned from college, Constantine suggested that my parents buy me the telescope. We gathered in our living room and my parents listened carefully as Constantine explained why they should make such an expensive purchase for me, and not for any of my siblings. He correctly persuaded them that I was never about to lose my passion for the night sky. By the end of that day my parents agreed to buy the telescope for \$400, (which would, in 2022, amount to \$3761). More important than that, that afternoon gave Dad a chance to form a genuine bond with Constantine that he never forgot.

In 1978, while resting in our home, Dad walked in and inquired how Constantine was doing. I had had a mild falling out with him, but I simply replied we hadn't been in touch for a while. Dad had something to say about that. "You can count on the fingers of one hand the number of close friends you have had since your youth. You just cannot afford to lose those precious friends." The minute he left the room I telephoned Constantine and we picked up where we had left off.

By 1984, my Dad was dying from Alzheimer's disease. He could barely recognize Mom, let alone me. But he remembered Constantine. The two began talking.

"Constantine, do you know what is happening to me?"

"Yes, I am sorry but I am afraid I do know."

"Constantine, I can't live like this. I wish... I wish I were dead." Constantine told me that story many years later.

Those of us who knew the older Constantine may not appreciate the skill, the intelligence, the humor, and the talent of the younger amateur astronomer. But they remembered him well enough to present him the Centre's highest medal for excellence, the Charles Good award. His clock that I received shortly before his death now tells Montreal time. It is the Constaclock.

Farewell, Constantine, and thank you for enriching my nights under the stars.

