

# TAAA DESERT SKIES BULLETIN

Observing Our

Since



Desert Skies

1954

March 2023

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

## Membership Meeting

March 3 @ 6:30 pm - 9:00 pm

TAAA's next general member meeting will be held on **Friday, March 3, 2023**. The Main Presentation will start at 6:30 PM (AZT). This will be a **hybrid meeting** (both in person and on social media). 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:** The Sky at Night – Easy Enjoyment from your Backyard.

**Presentation:** Avid stargazer and amateur astronomer, Tim Hunter, will talk about his recently published book, *The Sky At Night* (University of Arizona Press); how it came about from 750 Sky Spy astronomy columns - 15 years worth - in Thursday's Caliente, the Arizona Daily Star's weekly entertainment section. Learn about his adventures, both the joys and aggravations, of being an astronomy columnist, including some of his most memorable mistakes and foibles. Tim will also discuss what it takes to write and get a book into print; the pros and cons of different paths to publishing. He will donate several copies of *The Sky At Night* to TAAA.

**Biography:** Tim Hunter has been an amateur astronomer since 1950, and is the owner of two observatories, the 3towers Observatory and the Grasslands Observatory (<http://www.3towers.com>). In his own words, he is also "a prime example of someone whose hobby has run amok, spending more time and money on it than common sense would dictate." Tim has been the

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Tim Hunter at his Grasslands Observatory

President of the Tucson Amateur Astronomy Association, Inc. (TAAA) and a member of the TAAA since 1975. He is also the immediate past Chair of the Board of Trustees of the Planetary Science Institute (PSI). Since 1986, Tim Hunter has been interested in the growing problem of light pollution. In 1987, he and Dr. David Crawford founded the International Dark-Sky Association, Inc. (IDA). IDA is a nonprofit corporation devoted to promoting quality outdoor lighting and combating the effects of light pollution. And since 2007, Tim has written the weekly "Sky Spy" column for the Caliente Section of the Arizona Daily Star for 16 years. Asteroid 6398 is named Timhunter.

## Notes From The President

February 2023

TAAA has numerous volunteers who provide service to the organization. Some members provide essential functions that keep us operating smoothly from day to day. Those contributions sometime occur behind the scenes, such as organizing the basic monthly information about our First Friday Member Meeting and making sure that information reaches the public or is posted on the TAAA website. There are many other important foundational tasks that keep us functioning. One is operating technology that is basic to our functioning and needed regularly. Other volunteer tasks include activities such as cleaning the warm room, the restrooms, and turning on the red lights at CAC. Some volunteers reserve the rooms at Steward Observatory, some pick up the mail from the TAAA mailbox, keep the TIMPA site functional, lug telescopes around, and clutter up their vehicles with astronomy items to do star parties. There are many, many of these behind-the-scenes tasks that are handled every month and most Club members or leaders may not even think about them being performed.

Often with different projects, members may become acquainted with a few major leaders while there are numerous behind the scenes persons serving on related committees or doing various jobs associated with the projects, but who are not as visible to members or to the public. And, of course, there are leaders and other volunteers that for years have been assisting with our three Special Interest Groups: AISIG AFSIG, SMSIG; or working regularly with the Forum, the Bulletin, TAAA meetings, the calendars, or special activities such as the Grand Canyon Star Party (GCSP), etc. And, then you have more visible people Directing CAC, TIMPA, etc. And certainly, TAAA has a very active Board that works diligently with an extraordinarily high attendance rate at Regular and Special Board Meetings. The Board never says “we are not going to tackle that problem because it will be so hard or so time consuming or I will have to learn so much new background material” but instead it dives in and tackles whatever is necessary.

The ongoing contributions that members make over and over again to TAAA, and the long terms of service to TAAA that people maintain, keep us going. However, it is easy for all of us not to be aware of those contributions. When things function well, the energy and dedication exerted to make that happen may not be noticed. However, we can do better. We can notice. We can pay attention. We can say “Thank You.”

Something that we have been discussing for a while and are making progress on is developing an ongoing system to honor people who contribute so much

by Mae Smith

over time and who are so dedicated to service the TAAA. We periodically give awards. However, this has been sporadic. So, the TAAA Board has asked **David Rossetter** to develop a committee to reflect upon and improve our honoring of contributions to the organization and giving public recognition through awards, including recognizing people who work behind the scenes. Since TAAA is so complex and we have so many dedicated volunteers, we expect this committee to take a while in accomplishing its objectives. There is a lot to organize and think through and a lot to appreciate. Thanks, David and your volunteer committee members, for taking on this large task! If any of you have ideas and suggestions, please make sure to share them with David.

In the **February meetings of the TAAA Board**, one Board decision was to maintain the current TAAA COVID rule which suggests masks. The Board passed an assumption of risk waiver for joining and renewing members to sign. TAAA wants to be sure all members are aware of common risks encountered at astronomy sites and events so they can take precautions to protect themselves. The Board reviewed the status of projects at CAC and TIMPA and shared information that our accountant is expected to return the 990 for TAAA (our yearly 501.c3 report to the IRS) to the TAAA Treasurer in two weeks so the Board can review it and then send on to IRS. The Board, for the purpose of producing consistent membership data, approved that all Member Planet listed family memberships be counted as 2 members per family. This membership recording method will simplify and assist with consistency of our accounting processes. Additionally, the Board approved the loan of up to \$2,000 to the GCSP for the cost of GCSP t-shirts to be primarily sold to volunteers at the 2023 GCSP. The income from sales will be returned to TAAA. (The apparel program is structured with an objective to provide benefits to members, not to make income for the club. So, the financial objective for Apparel is simply to break even and recover the dollars that were used to purchase apparel items while providing a positive experience for members, and, in this case, for volunteers supporting our efforts at GCSP).

At the February TAAA Member Meeting, the TAAA Service Award was awarded to Joe Jakoby for his dedicated, long-term contributions to CAC. Joe has been a consistent, on-going, contributing member to the CAC effort since the very first Strategic Planning Meeting for CAC was held many years ago. Please say, “Thank You” whenever you see him!!

-President [Mae Smith](#)

# Committee Reports



## TAAA Election 2023

### Candidate Volunteers Needed

By Pete Hermes

The TAAA Leadership Election is on May 5, 2023, at the monthly Membership Meeting. Before the election can take place the Nominations and Volunteer Resource Committee (NVRC) will compile a list of nominees for each position. The first step in the election process is to identify interested TAAA members who want to help the club by running for one of these positions. We hope you will be interested in serving the club in an elected position on the Board of Directors or the Nominations and Volunteer Resource Committee.

The club maintains information pertinent to elected positions to include our Constitution and Bylaws, policy letters and position descriptions for each elected office that members might access through their respective MemberPlanet accounts (after signing on to your MemberPlanet account, select “TAAA Links to Docs and Videos” on the right panel or “TAAA Docs and Videos” in the center of the page - scroll down at least 1 page), then select “Handbooks and Reference Materials” from the Member Only Index; our Constitution and Bylaws as well as policy letters can be viewed from the TAAA main web site page – select “About TAAA” in the upper tabs just below the club banner, then Governance. If you require any assistance in locating the aforementioned information, please email [nvrcchair@tucsonastronomy.org](mailto:nvrcchair@tucsonastronomy.org). We would appreciate hearing from you by the March member meeting or as soon as possible immediately thereafter. Additionally, we ask members to update their profiles in MemberPlanet as needed and we are still looking to fill the volunteer position of Member Meeting Refreshment Coordinator.

We will likely have open (no-incumbent) positions for one (1) Board Member-At-Large and one (1) member of the Nominations and Volunteer Resource Committee. [Please use the following link to access the [Candidate Bio form](#) if you are interested in running for an elected position; forward your completed form to [nvrcchair@tucsonastronomy.org](mailto:nvrcchair@tucsonastronomy.org)]

#### Timeline:

- February and early March – find and evaluate candidates
- March – conduct candidate interviews
- April – announce candidates before and at general membership meeting
- After April 7 to 1 week before May 5 member meeting – accept write-in candidates
- April 29 to May 5, 7 PM MST – conduct online election

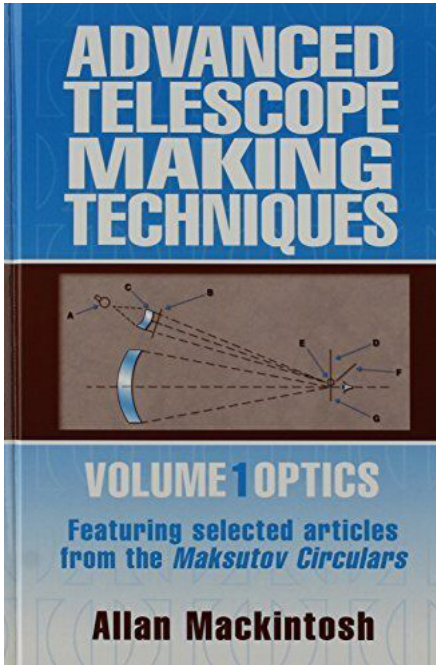
Please email [nvrcchair@tucsonastronomy.org](mailto:nvrcchair@tucsonastronomy.org) with any questions.  
**Pete Hermes – Chair, John Christensen, Allen Force, Dave Pass**



## Book Of the Month

By Douglas Smith (TAAA Librarian)

### Advanced Telescope Making Techniques (volumes 1 and 2)



The author is Alan Mackintosh. First published in 1977. First published in English in 1986. This is a two volume set. Volume 1 deals with optical design and volume 2 deals with mechanical design. The books were actually written as a collection of articles published in the Maksutov Club Circulars.

These books are well organized. There is a lot of advanced math, however I found them very informative, especially if I were going to build a 'non-standard' designed telescope. For example there is really good information on how to build a folded reflector. Lots of very advanced designs are discussed. The books also describe how to build mirror and lens grinding machines. Maksutov designs are discussed in great depth.

I strongly recommend these books to anyone who is considering building an advanced design telescope. I could only find the paperback versions of these books on e-bay (our copies are hardcovers). The paperback versions go for around \$45 for each volume.

## Practical Astronomy Workshop 1 – Star Hopping Open for Enrollment

Place: TIMPA

Date/Time: Thursday, March 23, 2023, 5:45 PM until completed

Synopsis: This first workshop in practical astronomy will teach Star Hopping. The students will be taught the proper star hopping technique and equipment usage. Each student will use the supplied equipment to locate at least 2 targets (maybe more if time permits). By the end of the workshop the student will know what equipment to use and how to use it in order to locate targets using star hopping.

If interested you can contact the instructor at the information listed below or sign up using the sign up sheet that will be available at the January and February General Members meeting.

PLEASE NOTE: due to equipment limitations there is a strict limit of 20 students for this workshop. Because of rescheduling, there are still five openings.

Instructor – email: [Douglas Smith](mailto:Douglas.Smith@taaa.org); Phone: 520-396-3233





# TAAA TELESCOPES FOR SALE

TAAA has one telescope for sale at this time. This telescope is available for members only.



Orion 6" XT-6 Dobsonian Newtonian Reflector telescope. Comes with 1.25 " eyepiece focuser, 6x30 finder, telrad mount (telrad not included). Telescope has 1200 mm focal length at f/8.0. See images below. I fully tested it and it is good operating condition.

**TAAA Member Price: \$150**

Note that these prices are exclusive for TAAA members and after 45 days these items will be offered to the general public at a higher price.

To make inquiries about these telescopes or to express a desire to purchase one of these instruments please contact:

[Douglas Smith](#)

520-396-3233



## 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.

# TAAA Library Telescope Program

The Library Telescope Program is going great. TAAA has donated nine telescopes so far to libraries in Pima and Cochise County. They seem to be very popular and are constantly checked out. Patrons can use them for three weeks. No reservations are accepted, so you need to call the library to see availability. Here are the current locations:

Pima & Cochise County Library Telescope Locations			
Library Location	Address	Phone	Website
Main Library (Joel D Valdez)	101 N Stone Ave	(520) 594-5500	https://www.library.pima.gov
Oro Valley	1305 W Naranja Dr.	(520) 594-5580	
Miller-Golf Links	9640 E Golf Links Rd	(520) 594-5355	
Valencia	202 W Valencia Rd	(520) 594-5390	
Sam Lena South Tucson	1607 S 6th Ave	(520) 594-5265	
Kirk-Bear Canyon	8959 E Tanque Verde Rd	(520) 594-5275	
Ajo	15 W Plaza #179, Ajo, AZ	520-387-6075	
Benson (Cochise Cnty)	300 S Huachuca St, Benson	520-586-9535	https://cochiselibrary.org/

This list, as well as other information, is available on the TAAA Library Telescope webpage at: <http://tucsonastronomy.org/community-services/libaryscope-program/>.



Jim and Susan Knoll are almost done modifying three additional telescopes for the program. These were generously donated by Tom Sarko and Todd Baker. These telescopes will be heading to: Eskstrom-Columbus Library (4350 E 22<sup>nd</sup> St), Sahuarita Library (670 Sahuarita Rd), and in Cochise County, Sunsites Community Library (210 N Ford Rd).

Help us spread the word of this great community resource. Let us know if you have any questions or suggestions.

Thanks. [Jim Knoll](#)

## TAAA 2024 Calendar

Please consider submitting images for the TAAA 2024 Wall Calendar. We always hope to include as many different contributors and as many different types of objects as possible.

Images of deep sky and solar system objects need not be recent. Post processing is optional. We can also use "landscape" photos – pictures of astronomical objects against local terrain.

We always welcome pictures of club events.

Due to the requirements of the publisher's software, images must be in JPG format.

Please contact [Susan OConnor](#) if you are interested in having your images in the calendar



# Special Interests Groups



## Starry Messengers Special Interest Group

### *Opening Minds to the Universe*

Science City at the Tucson Festival of Books is March 4 & 5. We have activities highlighting the amazing James Webb Space Telescope and solar observing. Several have already volunteered. Contact Terri Lappin if you want to help. This is a big event - over 100,000 people attend, we encounter about 3,000 at our booth. A lot of work, but a lot of fun!

In addition to providing telescopes for school events, the TAAA offers hands-on activities. Below are events that we've been asked to support. Two volunteers are preferred for these events, especially when over 200 people are expected. Let Terri Lappin know if you can support any of these events. If you haven't done hands-on activities before, we can provide training or you can use the online training videos provided by the Night Sky Network YouTube page (<https://www.youtube.com/@NASANightSkyNetwork/videos>).

- March 2 Copper Creek Elem (Tangerine & La Canada), 5 – 7pm, Space Rocks activities (asteroids & meteorites), 500 expected, Pete Hermes
- March 8 Science Fair High School judging, UA Student Union, 8:30am – 3pm, **NEED 3 judges**
- March 10 Pueblo High School (12th Ave & Ajo), Life in the Universe (extremophiles, Drake Equation, Earth life timeline), 300 expected, Pete Hermes
- April 14 Vail Academy (I-10 & Kolb Rd), any activity, 500 expected, **NEED volunteers**
- April 15 All in for Autism event at Rillito Racetrack (River Rd & 1<sup>st</sup> Ave), any activity, 1000+ expected, **NEED volunteers**
- April 29 Tucson Astronomy Festival @ Brandi Fenton Memorial Park, 1pm – 10pm, **NEED 7 or more volunteers**

Thank you to Liz Kalas for two beautiful table runners she made for our outreach program! What a talented person she is!



Starry Messengers will meet on March 13<sup>th</sup> at 7pm. This will be a Zoom meeting where we'll discuss the April 29<sup>th</sup> Tucson Astronomy Festival. An email will be sent to the membership with the link information. If you have questions about the Starry Messengers SIG, contact Terri Lappin at [terrilappin@tucsonastronomy.org](mailto:terrilappin@tucsonastronomy.org) or 520-977-1290.



## **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, March 16, 6:30

Le Rendez-vous

3844 Ft Lowell  
( SW corner of Ft Lowell and Alvernon )  
Parking in the back

Preview the menu at <http://rendezvoustucson.com/>

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

## **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, March 9th at 6:30 pm - 8:00 pm**. Topics to be determined.

Contact [Connor 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*

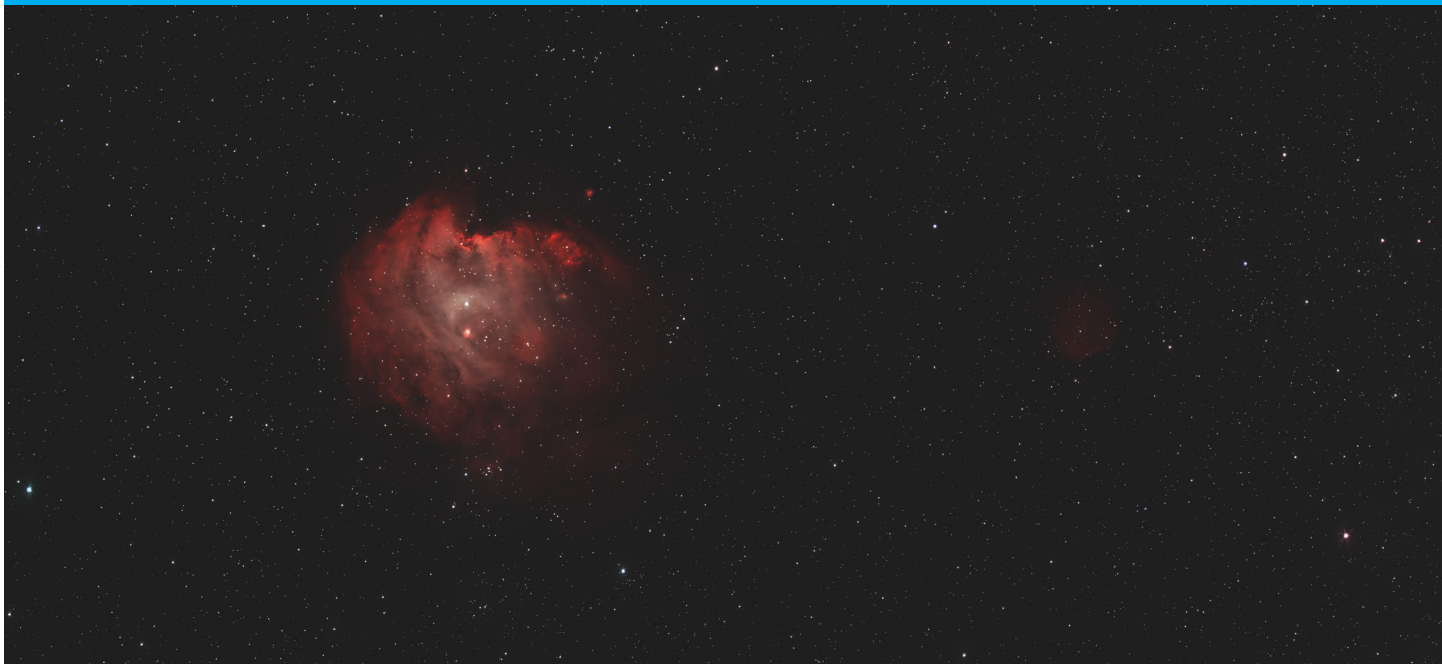
The next AISIG meeting is **Monday, March 20th @ 7:00 pm** via ZOOM.

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

*Topics: TBA*

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](#).

## Highlights from the Astro-Imaging SIG



**John Tsantes: Monkey Head Nebula;** This is the first image that I processed completely myself. I processed about 150, 30s frames to get this image.



**Randy Smith: IC 443;** C11 HyperStar 2600 MC IDAS Nebula Booster filter 148x90 for 3.7 hours about half after moon set. PixInsight using Blur, Noise and Star Exterminators and EZE Processing Suite EZE stretch.





Tom  
Eby

**NGC 2683:** A bright relatively nearby galaxy in a sparse field, possibly about 16 million LY distant.  
 RASA 11 / asi2600 / 54min / 1-29-2023 / no filters / PI,CS5 processed.

**Comet c2022 E3 ZTF**

0 x 45sec  
 RASA 11  
 f/2.2, No  
 filters.  
 Processing  
 included  
 use of latest  
 comet  
 alignment  
 process from  
 Pixnsight just  
 released.







## Allen Force Sh2-308

This is the Dolphin Head Nebula in Canis Major. The central star (the dolphin's eye) is a Wolf-Rayet star. About 20 times the mass of our sun it has burned all of its hydrogen and is now burning helium and other heavier elements, which means it is approaching the

end of its life and is expected to go nova in about a thousand years. The blue nebula is highly ionized hydrogen, blown off from the surface of the star. It's about 60 light years across and expanding at about 3.8 million mph.



## Craig Harding

### NGC 2264

26 images at 180sec,vcC8 with reducer for 1455mm focal length, ASI294MC Pro for main camera, ASI174mm on OAG, ZWO AM5 mount, ASIAir Pro, UV/IR cut filter. I started with 32 images and deleted 6 because of their quality. Stacked the rest in WBPP with drizzle. I used DBE, SPCC, BXT, NXT and some GHS in Pix before separating the stars and finalizing my work in GIMP.



## Rik Hill: Reiner Gamma

Reiner Gamma  
2023-01-05-0123UT  
Colongitude 67.6°  
Phase 19.2°  
Lunation 12.77 days  
Illum. 97.2%  
TEC 8" f/20 Mak-Cas  
Camera: SKYRIS 132M  
Filter: 610nm  
Seeing: 7-8/10  
North Up

Richard "Rik" Hill ©2023  
Loudon Obs. Tucson  
RHILL24@COX.NET

This is one of the features that represents "lunar swirls", a localized magnetic anomaly in Oceanus Procellarum. The crater in the center of the image is, appropriately, Reiner (31km dia.). At the top, half of the crater Marius (43km) is peeking down. To the left of Marius you can see some of the Marius Hills, the famous field of lunar domes. Then on the left side of this image is the large crater, Cavalerius (60km) still mostly in shadow. Above Reiner, on the terminator, is the crater Galilaei (15km) and roughly halfway between these two and a little left is the crash site of Luna 8. Unfortunately radio contact was lost with that spacecraft after two unsuccessful retro burns and it crash landed on 7 Dec. 1965 (Moscow date).

Reiner Gamma has no relief, and is a purely an albedo feature. Oblique views from the Lunar Orbiter 2 cameras show no topography at all, just a stain on the floor of Procellarium. It's magnetic field has been measured from spacecraft altitudes as low as 28km and those measurements have shown it to be one of the strongest magnetic anomalies on the Moon. In the 17th century this feature was identified as a crater that was named Galilaeus to honor Gaiileo. This honorarium was changed to the aforementioned Galilaei after the true nature of Gamma was learned. However, the cause of this and other lunar magnetic swirls is still a tantalizing enigma.

This was made from 2-1800 frame AVIs stacked with AVIStack2 (IDL) then assembled with MicroSoft ICE and final processed with GIMP and IrfanView.

## Observing Sites

### Observing Sites Star Party Dates 2023

#### TIMPA

March 17-18  
April 21-22  
May 19-20  
June 16-17

#### CAC

March 17-18 (New Moon 21)  
April 21-22 (New Moon 19)  
May 19-20 (New Moon 19)  
June 16-17 (New Moon 17)

## TIMPA

*by Ralph Means*

TIMPA (Tucson International Modelplex Park Association), dark sky site west of the Tucson Mountains.

TIMPA Star Party Dates this month: **March 17 - 18**

[TIMPA on the Web](#)

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): **March 17 - 18 (New Moon , March 21)**

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](#). The reservations page has been enhanced with cancellation links. This allows members to more easily cancel a previous space or telescope reservation.

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.

**TAAA has many generous members and we thank you for that generosity.** We are always in need of funding assistance to further develop the site. If you have a Required Minimum Distribution from your IRA or want to do a direct roll-over from an IRA or 401K, check with your Financial Advisor for the proper form and it may be Tax Free to you. Please consider donating to support your world class astronomy complex.

CAC Director:

[Jim Knoll](#)

[CAC on the Web](#)





## CAC Learning Center Construction Update - by Ed Foley

February 2023

The electric connections and the remaining fans and lights were installed inside and outside the buildings. The bathrooms fixtures in the 4 bathrooms were installed and the tiling of their shower walls was completed. Water is now able to flow to the buildings' faucets and showers.

The 15 doors arrived at the buildings and the hangings were begun. Trim and baseboards were cut and installed. Rooms with doors now allowed us to test fit a pair of beds we had ordered to gauge their fit.

The most volunteer intensive work on the project this month involved literally tons of work. In order to place the air conditioning compressors on the outside of the buildings, we needed to create a flat compacted area of base material on the north side of the building. We had a 25-ton truck bring almost a complete load of aggregate base material. Four volunteers spread these many tons along the building. Working with volunteers Sam Maiorano, Ryan Foley, David Foley and Michael Foley, one wheelbarrow load after another was needed to place the gravel in place along the 100 feet of building. This was followed by compacting the graveled area with a bucking gas-powered tamper - which was quite a ride for the volunteers accomplishing this task.



25 tons of gravel delivered to buildings needing to be spread and compacted.

Member Volunteers Michael, David and Ryan Foley after building and compacting the base for air conditioners.



by Jim Knoll & Bernie Stinger

We are reaching the Spring culmination of many school events. This is the time of year when students are doing Science, Technology, Engineering, and Math (STEM) related activities and schools are holding science fairs to display these projects. What a great time to showcase astronomy as a STEM career or activity. The March school/public activity list is long and diverse, so if you can help out, please let Bernie know. You can see his list elsewhere in the newsletter. February's events included our annual Tucson Star Party, co-hosted with



Astronomy Magazine.

Dave Eicher and Michael Bakich gave talks on galaxies and upcoming eclipses. The talks were well attended. Weather kept the numbers down for the evening stargazing, but we still had quite a few attend. If

you are new to our hobby, these events are a great way to begin learning the night sky. The groups we support are very appreciative of the astronomy we are showing them. If you pick out 3-4 objects you want to showcase each event and study up on them, by doing several events you will build your knowledge base of the night sky. Please let us know if you can help.



School Event on Roof of Steward Observatory building



Evening Observing, Tucson Star Party

Our Tucson Stargazing Adventures events are also in demand, averaging 12-13 events each month. These events are another way to showcase astronomy and our hobby to diverse groups



Stargazing with the Tucson Realtors

or small private events. Imagine showing a family or small group a galaxy millions of light years away or a stellar nursery making new stars and sparking their imagination of the immense nature of our universe. Or, showing beautiful star clusters or nebulae from a star in its final phase of existence to a group visiting from a light polluted area. The feedback and joy you receive make it all worthwhile and, who knows, you might just be sparking the interest of a future astronomer or astronaut! We can always use additional volunteers for this aspect of the TAAA mission. If you have some experience with your scope and the night sky and want to help out, let Jim Knoll know and he will get you started.

Thanks to all our volunteers who support both these programs. We cannot do these activities without your help!!

Bernie Stinger. School and Public Star Party Manager. [astronomy-events@tucsonastronomy.org](mailto:astronomy-events@tucsonastronomy.org)  
Jim Knoll. Tucson Stargazing Adventures. [stargazing@tucsonastronomy.org](mailto:stargazing@tucsonastronomy.org)

## 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 updated list for March, 2023. March is getting very busy with activity so appreciate any help you can provide as there are still many events to fill, in particular lots of demand for Solar Scopes.

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](#) and [Night Sky Network](#) (NSN) 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 February 24rd. \*Stared events and bolded telescope references still have need for volunteers.

### Wednesday – March 1 -- WEST TUCSON

#### Cooper Center for Environmental Learning

5403 W Trails End Rd

Age/Grade Level: Grade 5

# Participants: 50

**Filled**

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

Nearest Moon Phase: First Quarter

**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).

### \*Thursday – March 2 -- MARANA

#### Leman Academy of Excellence

7720 N Silverbell Rd

Age/Grade Level: K – 8

# Participants: 100's

**1 additional Scope Needed**

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

Nearest Moon Phase: First Quarter

**Directions:** From I-10 go Southwest on Cortaro to Silverbell Road, Southeast on Silverbell two blocks. School on left.

**Viewing Location:** Courtyard or basketball court

### Thursday – March 2 – ORO VALLEY

#### Copper Creek Elementary

11620 N. Copper Spring Trail

Age/Grade Level: K-5

# Participants: 200

**Filled**

**Setup Time:** Daytime: 4:30 pm. Start: 5:00

End: 7:00 pm.

**Directions:** Travel East on Tangerine, after La Canada, turn right onto Copper Springs Trail, travel about 1/2 mile and turn left into the school parking lot.

**Setup area:** TBD

### \*Saturday / Sunday – March 4 & 5 -- (UofA TUCSON)

#### Tucson Festival of Books (TFOB)

On the Mall at the UofA

Age Group: All Ages

Estimated # Participants: 100's to 1000/day

**Additional Solar telescopes needed** – (white light or H-alpha)

– 1 additional **Saturday morning,**

– 2 needed **Sunday Afternoon**

**AM Setup Time:** 8:30 am Start: 9:00 am End: 1:00 pm

**PM: Setup** 12:30 pm Start: 1:00 pm End: 5:00 pm

**Directions:** UofA Mall at University Blvd and Campbell

**Viewing Location:** On the Mall across from Kuiper Space Sciences Bldg. opposite TAAA booth.



## School/Public Star Parties Continued

### \*Wednesday – March 8 -- WEST TUCSON

#### Cooper Center for Environmental Learning

5403 W Trails End Rd

Age/Grade Level: Grade 4

# Participants: 20

#### 1 additional Scope Needed

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

Nearest Moon Phase: Full

**Directions:** See above

**Viewing Location:** See above

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### \*Thursday – March 9 -- EAST TUCSON

#### Leman Academy

10100 E Golf Links Rd

Age/Grade Level: Grade K–8

# Participants: 100++ (students and parents)

#### 1 additional Scope Needed

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

Nearest Moon Phase: 2 days past full

**Directions:** East on Golf Links just before Houghton Rd. on south side of Golf Links.

**Viewing Location:** Grassy area behind school or basketball courts.

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### Friday March 10 -- FAR WEST TUCSON

#### Tucson Mountain Park Ironwood Picnic Area

7300 W Hal Gras Road

Age/Grade Level: All Ages

# Participants: 70

#### Filled

**Setup Time:** 6:20 pm. Start: 7:00 pm. End: 9:00 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 (~3/4 of way into picnic area or approximately .6 miles

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### \*Friday – March 10 -- SOUTH TUCSON – Solar event

#### Pueblo High School

3500 S. 12th avenue

Age/Grade Level: 12 – 18yrs

# Participants: 200

#### 1 additional Solar Scope Needed –White light or H-alpha NSN Toolkit filled

**Setup Time:** NSN Toolkit: 3:30 pm. Start: 4:00 pm. End Time: 8:00 pm.

**Solar Scopes:** 3:30 pm Start: 4:00 pm. End Time: 6:00 pm.

Nearest Moon Phase: NA

**Directions:** Travel east on Ajo Way, turn north (left) on

12th avenue. Travel north on 12th. School will be on the west side of the street. Must turn into 434th street to do a U turn and travel south on 12th avenue to access the school's parking lot.

**Setup Location:** Toolkit: Inside TBD, Scopes: Meet by the flagpole, which is visible from the parking lot and contact POC.

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### Wednesday – March 15 – FAR EAST TUCSON

#### Gridley middle school

350 S Harrison

Age/Grade Level: 9 to 15yrs

# Participants: 200

#### Filled

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

Nearest Moon Phase: 3<sup>rd</sup> Quarter

**Directions:** East on Broadway to Harrison, South on Harrison, school is on right side of street about four blocks just past fire station.

**Viewing Location:** Volley ball court

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### \*New – Thursday – March 16 -- SOUTHEAST TUCSON

#### Aluce Vail Middle School

5350 E 16th St

Age Group: 6 – 8 Grade

Estimated # Participants: 150

#### 2 Scopes needed

**Setup Time:** 6:30 pm Start Time: 7:00 pm End Time: 8:30 pm

Nearest Moon Phase: Third Quarter.

**Directions:** From 22nd & Craycroft, go north on Craycroft to 16th St. Turn left on 16th. School on left.

**Viewing Location:** Basketball courts in school's yard south of school building

---

### Friday – March 17 -- EAST TUCSON

#### Saguaro National Park EAST

Saguaro EAST is located at 3693 S Old Spanish Trail.

Age Group: All Ages

Estimated # Participants: 50

#### Filled

**Setup Time:** 5:30 pm Start : 7:00 pm End: 9:00 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.

## School/Public Star Parties Continued

### **Sunday – March 19 -- FAR WEST TUCSON**

**UA Astronomy Program – ASTR 203**

**Redhills Visitor Center @ Saguaro National Park -- WEST.**

2700 N Kinney Rd.

Age/Grade Level: College

# Participants: 65

**Filled**

**Setup Time:** 7:00 pm.    Start Time: 7:30 pm.    End Time: 9:30 pm.

Nearest Moon Phase: New Moon

**Directions:** Connect to Kinney Road either by way of Ajo Way or over Gates Pass. Go north on Kinney Road, continuing north from Gates Pass road. Continue past the Arizona-Sonora Desert Museum. Kinney road forks with the left fork becoming Mile Wide and the right fork making a sharp turn into Saguaro National Park. Continue into the Park until you reach the Red Hills Visitor's Center.

**Viewing Location:** Redhills Visitor Center lower parking lot.

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### **\*Tuesday – March 21 – TUMACACORI AZ**

**Tumacacori National Historical Park**

1891 E Frontage Rd, Tumacacori, AZ

Age/Grade Level: All Ages.

**2 additional Scopes Needed**

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

Nearest Moon Phase: New Moon

**Directions:** I-19 south to Exit 29 (Tumacacori), go under the overpass to the frontage Rd. Left on frontage Rd. about ½ mile to the Park on the right side.

**Viewing Location:** In front of the old mission.

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### **\*Friday – March 24 – (NORTHEAST TUCSON)**

**Pima County Natural Resources Parks & Recreation (NRPR) @ Agua Caliente Park**

Agua Caliente Park is located at 12325 E Roger Rd.

Age Group: All Ages

Estimated # Participants: 75

**1 Scope needed**

**Setup Time:** 6:30 pm Start: 7:00 pm End: 9:00 pm

Nearest Moon Phase: 3 days past NEW

**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.

### **\*NEW – Saturday – March 25 – EAST TUCSON – SOLAR Radio Society of Tucson**

8711 East Speedway

Age Level: Adults

# Participants: 150

**1 Solar Scope Needed – White light or H-alpha**

**Setup Time:** 7:30 am.    Start Time: 8:00 am.    End Time: 11:00 am.

Nearest Moon Phase: NA

**Directions:** Speedway and Camino Seco, NE Corner. Turn left into Calvary Tucson Church parking lot. The event is in the parking lot on the east side of the Cavalry Tucson Church building.

**Viewing Location:** Between the parking lot solar panel roofs and the South Parking lot

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### **\*Thursday – March 30 – MARANA – SOLAR**

**Dove Mountain School**

5650 W Moore Rd

Age/Grade Level: 6 grade

# Participants: 100

**2 Solar Scopes Needed – White light or H-alpha**

**Setup Time:** 11:30 am.    Start Time: 12:00 pm.    End Time: 2:15 pm.

Nearest Moon Phase: NA

**Directions:** Tangerine Rd to Twin Peaks/Dove Mountain Blvd. Turn left on Moore Rd. School will be on the left in three blocks.

**Viewing Location:** Parking lot or playground.

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### **\*Friday – March 31 – Sahuarita AZ**

**Sahuarita Unified School**

350 W Sahuarita Rd

Age/Grade Level: 8<sup>th</sup> Grade

# Participants: Hundred+

**3 additional Solar Scopes Needed (White light or H-alpha)**

**Setup Time:** 7:30 am.    Start Time: 8:00 am.    End Time: 12:30 pm.

Nearest Moon Phase: NA

**Directions:** From I-19 take Sahuarita Rd exit and head east. We are the next left after Salome Loop Rd. and before Desert Gem Ln.

**Viewing Location:** Inner courtyard.



## **What's Up list for March - April 2023**

The following is a list of objects for various AL observing programs that are well placed during March and April 2023.

### **Constellation Hunter Program – Northern Skies**

The following constellations are well placed for viewing during March and April:

Orion, Gemini, Taurus, Auriga, Leo, Lynx, Perseus, Canis Minor, Camelopardis, Monoceros

### **Messier Observing Program**

The following Messier objects are well placed for viewing during March and April:

M42, M43, M1, M35, M36, M37, M38, M41, M46, M47, M48, M79, M45

### **Lunar Observing Program**

The following are the dates for the various phases of the moon listed in the Lunar program for March and April:

New Moon: March 21, April 20

10 days old: March 2, April 1

40 Hours waxing: March 23, April 22

Full (14 days old): March 7, April 1

72 hours waxing: March 24, April 23

Gibbous: March 14, April 13

4 days old: March 25, April 24

72 hours waning: March 18, April 17

7 days old: March 28, April 27

40 hours waning: March 19, April 18

### **Solar System Observing Program**

The following is a list of planets that can be observed during March and April.

**Mercury** is an early evening object for the latter half of March and all of April. Brightest around March 30 and greatest western elongation on April 11.

**Venus** is an early evening object during March and April. On March 30, Venus and Uranus are only 1.3 degrees apart.

**Mars** is well placed for evening observation during March and April. Mars is close to overhead at Sunset.

**Jupiter** sets earlier each night during March and is lost in the twilight by late March. It becomes an early morning object in late April.

**Saturn** is an early morning object during March and April, rising earlier each day. By end of April it rises about 2.5 hours before sunrise.

**Uranus** is an early evening object during March and April, setting earlier each day. At the start of March it sets about 5 hours after sunset. By end of April it is setting less than ½ hour after sunset. On March it passes within 1.3 degrees of Venus.

**Neptune** is an early morning object during March and April, rising earlier each day. By the end of April it is rising almost 2 hours before sunrise.

### **Urban Observing Program**

The following deep sky objects are favorably placed for viewing during March and April:

M45, Hyades, NGC 1647, NGC 1807, NGC 1817, M38, M36, M42, NGC 1981, M37, M35, NGC 2169

**The following non-deep sky objects** are well placed for observation during March and April:

Gamma Leo, Trapezium, Beta Monoceros

**SPECIAL EVENT: March 30** – Venus and Uranus will be within 1.3 degrees of each other.



## Steward Observatory Public Evening Lecture Series

Lavinia Steward made her historic contribution of \$60,000 to the University of Arizona “...TO BUY TELESCOPE OF HUGE SIZE,” on October 18, 1916. However, the United States entry into World War I delayed the construction of the Steward Telescope and its 36-inch mirror. That original Steward Telescope was finally used for the first time on July 17, 1922. It would take another 9 months before the Steward Observatory and Telescope would be formally and officially dedicated on April 23, 1923.

The Telescope, however, was ready to be used before the official dedication date and Prof. Andrew Ellicott Douglass, the first Director of Steward Observatory, did not leave the telescope idle. He invited members of the campus and Tucson communities to view the wonders of the night sky through this new, large (for the time) telescope. The date was September 28, 1922, and the Steward Observatory Public Evenings were born.

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. Please save the dates for the following Public Evening Lectures, which will **begin at 7:30 p.m. in Steward Observatory Room N210 and on ZOOM at the URL: <https://arizona.zoom.us/j/4470189357>**

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](#). You can click [here](#) to stream podcasts of previous Public Evening Lectures.

Mar. 13	Dr. Kate Alexander Steward Observatory	The Messy Eating Habits of Snacking Black Holes
Mar. 27	Dr. Emma Beasor, Bok Fellow Steward Observatory	How do Massive Stars Live and Die?
Apr. 10	Dr. Everett Schlawin Steward Observatory	JWST's First Stares at Planets that Peek in Front and Behind their Stars
Apr. 24	Dr. Christopher Impey Distinguished Professor Steward Observatory	Worlds Without End: Exoplanets and the Search for Life Beyond Earth Book-signing for Prof. Impey's new book Worlds Without End after the lecture





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.

March 1, 2023      Michael Worobey    Origins of the Covid-19 Pandemic: Facts and Fallacies

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



COLLEGE OF SCIENCE

**LUNAR & PLANETARY  
LABORATORY**

## LPL Colloquia

Click links for more information

[Tuesday, April 11, 2023 - 3:45pm](#)

Dr. Regis Ferriere      Via Zoom and Kuiper 308  
Associate Professor, Ecology and Evolutionary Biology  
University of Arizona

[Tuesday, April 18, 2023 - 3:45pm](#)

Dr. Mark Robinson      Via Zoom and Kuiper 308  
Professor, School Of Earth and Space Exploration  
Arizona State University

[Tuesday, April 25, 2023 - 3:45pm](#)

Dr. Chuanfei Dong      Via Zoom and Kuiper 308  
Staff Research Physicist  
Princeton Plasma Physics Laboratory  
Princeton University

[Tuesday, May 2, 2023 - 3:45pm](#)

Dr. Tiffany Kataria      Via Zoom and Kuiper 308  
Scientist, NASA Jet Propulsion Laboratory

# Skyward

By Dr. David H. Levy

March 2023

## Of comets, more comets, and Fritz Zwicky

Since October 1965, when I spotted my first comet, Comet Ikeya-Seki, I have seen 227 different comets. Near the dawn of my passion for the night sky, watching that mighty comet rise, apparently right out the St. Lawrence River, was a sight I shall never forget. The two most recent comets I have seen share the same name; they are both called Comet ZTF for Zwicky Transit Facility. This project uses a new camera that offers a very wide field of view. The camera is attached to the large 48-inch Oschin Schmidt camera at Palomar.

This project has a rich history. It is loosely named for astronomer Fritz Zwicky, one of the founding astronomers at Palomar and one of the foremost scientists of the last century. He developed not the big Schmidt but the original smaller 18-inch Schmidt camera, the very first telescope atop that mountain. Since this project is named after Zwicky, why are its comets called “ZTF” instead of just Zwicky? It is because the comets are named for the project, not the man. The historical Zwicky actually had little interest in comets. His career leaned towards the big questions of cosmology, the study of the large-scale issues of the Universe. But he was the first regular user of Palomar’s 18-inch Schmidt camera, the telescope Gene and Carolyn Shoemaker and I used to discover our comets, including the one that collided with Jupiter in 1994. That in itself was a tribute to Zwicky, for it offered insights into how comet impacts contributed to the origin of life on different worlds. Zwicky was not into comets, but he was deeply concerned with the distant explosions of massive stars that he and colleague Walter Baade called supernovae. When he began using the 18-inch there were 12 known supernovae. He discovered 121 supernovae with the 18-inch, 120 by himself and one with Paul Wild.



The 200-inch dome, which Zwicky never used, taken at dusk from the 18-inch dome, which Zwicky used a lot.

Even though I never met Zwicky, I can share three aspects of him, not including the most famous one in which he called anyone he did not like a “spherical bastard.” The expression was intended to mean that no matter from which angle you look, that person is (or was) a bastard. One story I heard from Walter Hass, founder of the Association of Lunar and Planetary Observers, who said that when Zwicky was having a quiet chat in a corridor at Caltech with another astronomer, one could hear him two blocks away. The other involved Zwicky’s observing coat, which he left in a closet at the 18-inch observatory building. One night as I was about to observe alone there, as Gene Shoemaker left the building he said “If you get too cold, you can wear Zwicky’s coat! The thought of that coat haunted me all night. Third, my friend David Rossetter named his large 25-inch diameter reflector Fritz, after Zwicky’s first name. It is a wonderful telescope named for a brilliant man.



In January, the ion or gas tail of Comet ZTF showed a sort of disconnection in which the part of the tail closest to the comet was a thin line which suddenly broadened to a larger fan further out. This “disconnection event” was closely tied to a sudden increase in sunspot activity. This ZTF comet teaches us how comets interact with the solar wind.

As this article goes to press, there is not one ZTF comet, but two. David Rossetter and I saw the other one at our club’s dark observing site. The second one is much fainter, visible as an amorphous smudge of small slowly moving haze. As I looked at this second comet, I tried to understand and appreciate the seminal role that Zwicky played in his time. And in our time, that role has expanded to explore in still greater detail the night sky that he loved.



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.

TAAA Desert Skies Bulletin

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