

# TAAA DESERT SKIES BULLETIN

Observing Our

Since



Desert Skies

1954

August 2022

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

## Membership Meeting

August 5 @ 6:30 pm - 9:00 pm

TAAA's next general member meeting will be held on **Friday, August 5, 2022**. The Main Presentation starts at 6:30 PM (AZT), followed Mary Turner's popular Seasonal Night Sky Presentation. There will also be a combination Zoom/In Person vote on a proposed dues increase. Only eligible TAAA members may vote.

This will be a **hybrid meeting** (both in person and online). TAAA members (only) 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** at <https://www.facebook.com/TucsonAstronomy/>.

### Main Presentation at 6:30PM AZT

**Title: Sun Daggers and Simple Noontime Sun Observations; From the Hohokam and Ptolemy to Kepler and Einstein**

**Presentation:** All cultures have specialists and laypeople observing the Sun, for purposes ranging from calendars (for planting and ritual days) and timekeeping, to astronomy research (e.g., sunspot counts, Earth's orbit, and the gravitational bending of light). For TAAA, Dr. Schaefer will share two sets of his research with naked-eye observations of the Sun from the Tucson area that are of interest to amateur astronomers, professional astronomers, and historians of astronomy. One set of research concerns the many sun daggers - dagger-shaped gaps in shadow created by sunlight steaming through crevices in rocks - etched onto rocks by the Hohokam Indians (c. 1000 AD) as markers for solstices and equinoxes for ritual purposes. His research (with Jim Stamm) on sun daggers from spiral petroglyphs at Picture Rocks, Signal Hill, and Cerro Prieto prove the solstitial alignments were intentional. Another local observing program has been to accurately measure the Sun's analemma; a diagram that shows the position of the Sun as viewed from a fixed position on Earth over the course of a year. With these observations for the Astronomical League Observing Award on the Analemma, he can define Earth's orbit, and derive

Tucson's latitude, the obliquity of the ecliptic, the dates of solstice and equinox, the eccentricity of the Earth's orbit, and the date of perihelion. This is a modern empirical test of the ancient Greek discoveries that led them to introduce epicycles. Dr. Schaefer's modern data can also be used to test and prove the three Kepler Laws. And all this, he says, is possible "by making quick naked-eye observations, with simple and cheap equipment, from my front yard."



**Biography:** **Dr. Bradley Schaefer** received his Ph.D. in 1983 from Massachusetts Institute of Technology and is Professor Emeritus in the Department of Physics & Astronomy at Louisiana State University. His wide range of interests include many areas of astrophysics, as well as many aspects of astronomical events in history (e.g., the Crucifixion and the Star of Bethlehem), and in literature. For his work on the Supernova Cosmology Project which led to the discovery of dark energy and for which its leader, Saul Perlmutter won the 2011 Nobel Prize in Physics, Dr. Schaefer received a share of the 2007 Gruber Cosmology Prize, and the 2015 Breakthrough Prize in Fundamental Physics.

### July 2022

As I write this, it is a late July Tucson afternoon and we have passed the unrelenting, daily heat. Finally, there is a glorious heavy rain coming down, cooling the day, and being so wonderful for all earth's creatures. Our astronomers are hoping for some break in the clouds and doing a lot of readying equipment, tweaking images, and internet surfing. Many of our TAAA leaders are accomplishing their summer travel, going to the Astronomical League Conference, or holding extra meetings to tweak projects they are working on with other club members.

The TAAA Board met on July 13th. At that meeting it passed a very well-organized budget for 2022-23. This year our Treasurer will be issuing reports to leaders who proposed budgets giving them regular feedback regarding the status of dollars reserved for them. Please note that our Treasurer will be updating inventory records and will be needing inventory information from leaders. Leaders can assist by emailing her with a current list of TAAA possessions currently in your charge related to activities of your particular group

### From The Editor - David Rossetter

As we work our way through the summer and monsoon season, I hope you all might consider some personal contributions to this bulletin. I would really like first person stories of your adventures. Maybe about some views you shared at TIMPA, or a new object you were shown at CAC, or a trip to an out-of-town star party or astronomy event. The members want to know!

What a wonderful "Skyward" from David Levy this month! If you did not know, he wrote the biography of University of Arizona professor, Bart Bok. His insight into Bart's relationship with his wife, Priscilla (also an astronomer), and their spiritual connection with one of the JWST images, is very emotional. And I enjoyed learning about their connection to the Arizona Sonora Desert Museum (where I am a docent).

If you are looking for a full report on the Grand Canyon Star Party, hang in there for the September issue of the Desert Skies Bulletin. So much goodness to report, I am told, that they need a little more time.

Finally, this bulletin is formatted with lots of links. Explore by clicking them. If you want to contact someone who wrote an article, just click on the link attached to their name and an email form to them should simply pop up.

### by Mae Smith

(if responsibility for an item is assigned to a member of your group rather than yourself, please provide the member's name and contact information).

At the July Board meeting no changes were made to TAAA COVID policies; an update was provided by the CAC Planning Group; wording for NVRC to use in the proposal for a member dues increase was approved; and a report was provided on the July 13th afternoon meeting of Cochise County on acceptance of the Special Use Permit requested by the Chiricahua Sky Village Group to establish an astronomy camping area. A decision was made to add a recently donated telescope to the TAAA Loaner Program. Discussion was held of aspects of wording of the 2016 TAAA Donation Policy and of a proposed Donation Equipment Manager position description.

I keep thinking that a series of long-ago projected relaxed summer days are just beyond the horizon and surely will be here tomorrow or next week...

President [Mae Smith](#)

# Book Of the Month

By Douglas Smith (TAAA Librarian)

*Book: Digital SLR Astrophotography*

This book was first published in 2007. The second edition was published in 2018. Published by the University of Cambridge Press. It is of very high quality and very up to date. This book is a gold mine of information. It covers all the various techniques for using a digital camera for astrophotography. It covers all the topics from beginning topics like exposure times, camera settings, etc. to advanced processing techniques. The techniques described and examples given are very relevant for today's digital astrophotographer. The book is well written. The illustrations and many examples are very easy to follow and very informative. At 348 pages, it is not an overnight read and much of the information might not be relevant for advanced imagers. However, I would strongly recommend this book as a reference on the shelf on anyone doing digital astrophotography. Currently going for between \$25 and \$30 on eBay.

## TAAA Dues Increase Vote

On June 8, 2022, the TAAA Board of Directors voted to increase the annual dues, effective September 1, 2022.

The Proposed increase is as follows:

Membership Category	Current Dues	Proposed
Individual	\$25	\$30
Senior	\$23	\$25
Teacher (K-12) or College Student	\$17	\$18
Family	\$30	\$35
Family/Senior	\$28	\$30
Family/Teacher (K-12) or College Student	\$22	\$23
Youth	\$17	\$18

As per the Constitution and Bylaws ARTICLE II, Section 2: “A 2/3 vote of the members represented at a General Meeting is required to ratify any dues increases. Notice of a proposed dues increase ratification vote shall be published in the Association monthly publication at least thirty days prior to the vote, and announced during at least one General Meeting preceding the meeting of the vote.” The published notification was made in the July, 2022 Desert Skies Bulletin and the announcement was made during the July 1, 2022 General Meeting. Please reference the [July, 2022 Bulletin](#) (Notes from the President, page 2, and announcement, page 4) or the meeting recording for details on the decision.

**A general member vote on this proposal will take place at the August 5, 2022 general member's meeting.** This will be a combination Zoom and in-person vote. The Zoom link will be sent only to TAAA Members in Good Standing. (Non-members may attend online via the [TAAA Facebook page](#).) Attendees to the in-person meeting will have their membership status checked upon entrance to the meeting before being handed a paper ballot. (Non-members may attend the in-person meeting but will not be given a ballot.) The vote will be run by the Nominations and Volunteer Resource Committee (NVRC). The Zoom and in-person portions of the vote will occur simultaneously during a five-minute window and tabulated by the NVRC and volunteers. The results will be announced before the end of the meeting.

## **Fundamentals of Astronomy Class Open for Enrollment**

*Place:* Armory Park Center, 220 S. 5th Ave, Tucson

*Date:* 3 consecutive Saturdays: **October 8, 2022; October 15, 2022; October 22, 2022**

*Time:* 9 AM until 4 PM each day

*Synopsis:* This class covers all the basic topics in Amateur Astronomy. The course is designed for any TAAA member interested in learning the basic concepts in Amateur Astronomy. Topics covered (but not limited to) include the solar system, deep sky objects, stars, telescopes, eyepieces, mounts, star hopping, observation techniques, plus much more. This course is highly recommended for novice amateur astronomers and for anyone who may have just purchased a telescope for the first time. Taking this class will also aid the student in understanding the more advanced lectures often given during general membership meetings.

If interested you can contact the instructor at the information listed below or sign up using the signup sheet that will be available at the August, September and October General Members meeting. Enrollment is strictly limited to 20 students and is on a first come basis. If there is sufficient interest the class may be offered again in the spring time frame.

Instructor – Douglas Smith

Phone: 520-396-3233

e-mail: [alcor@tucsonastronomy.org](mailto:alcor@tucsonastronomy.org) or [fundamentals@tucsonastronomy.org](mailto:fundamentals@tucsonastronomy.org)

## **Astronomical League Workshop Open for Enrollment**

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

*Date:* Saturday August 20, 2022

*Time:* 10 AM until Noon

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

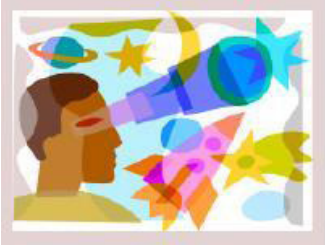


If interested you can contact the TAAA Astronomical League [Correspondent](#) (ALCOR) or sign up using the sign up sheet that will be available at the June, July and August General Member meetings. Please note the workshop is limited to 20 people.

TAAA ALCOR: [Douglas Smith](#); 520-396-3233



## Special Interests Groups



### **Starry Messengers Special Interest Group**

#### *Opening Minds to the Universe*

The Starry Messengers SIG will take a break over the summer. Our next meeting will be on September 12th.

If you want to become involved in astronomy outreach with the TAAA, send your email address to [Terri Lappin](#) so you can be added to the SMSIG email list.

[SMSIG on the Web](#)

### **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.

August Ladies Night Out

Thursday, August 18

6:30pm

Ole Mexican Grill

2080 W Orange Grove

(NE corner of Orange Grove and La Cholla)

Preview the menu at <http://www.olemexicangrill.com>

## ***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, August 11th 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 through the Members Only section of the TAAA web site.

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

***by Gregg Ruppel***

The next AISIG meeting is **Monday, August 15 @ 7:00 pm** via ZOOM.

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

**Topics: Hunting Outbursting Young Stars (HOYS) - Dr. Dirk Froebrich**  
*An easy citizen science project for astro-imagers*

### **Image Sharing / Questions and Answers**

Check out [AISIG On the Web](#) or contact [Gregg Ruppel](#) for the latest information and Zoom links. 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.

## June Highlights from the Astro-Imaging SIG

From Tom Eby

### NGC 3726

C11@f/7  
(1970mm fl),  
asi2600,  
AP900GTOCP4  
PhD2 guided  
60mm.  
Res: 0.39 "/px.

2.55 hours total  
exposure. PI/CS5



### NGC 4731

C11@f/ (1970mm fl), asi2600,  
AP900GTOCP4  
PhD2 guided 60mm.



From  
Randy Smith

**NGC 6334  
Cat's Paw Nebula**

131x45 C11  
HyperStar 2600  
MC Antlia ALP-T  
dual narrow band  
filter.

[Astrobin Link](#)

Copyright r.smith65585

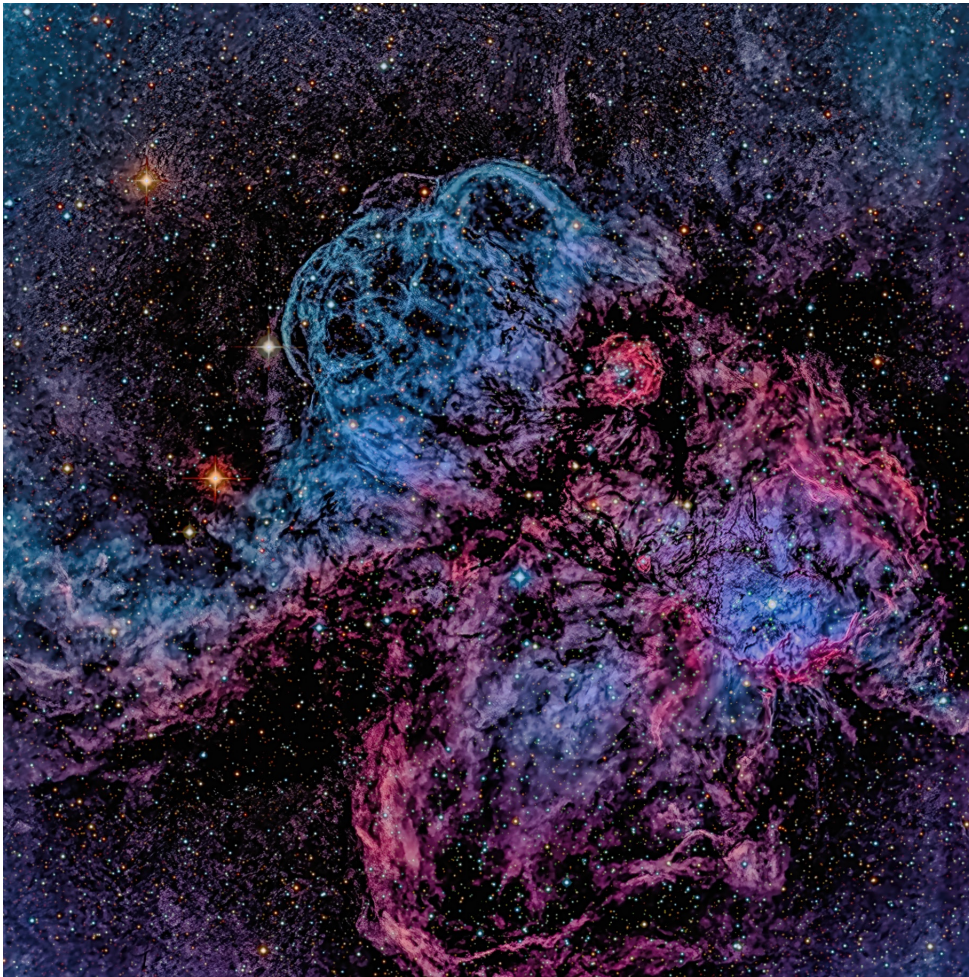
**NGC 6542 Cat's Eye Nebula**

C11 HyperStar 183 MC Antlia  
Narrow Band filter (Ha/Oiii)  
230x120

[Astrobin Link](#)

Copyright r.smith65585





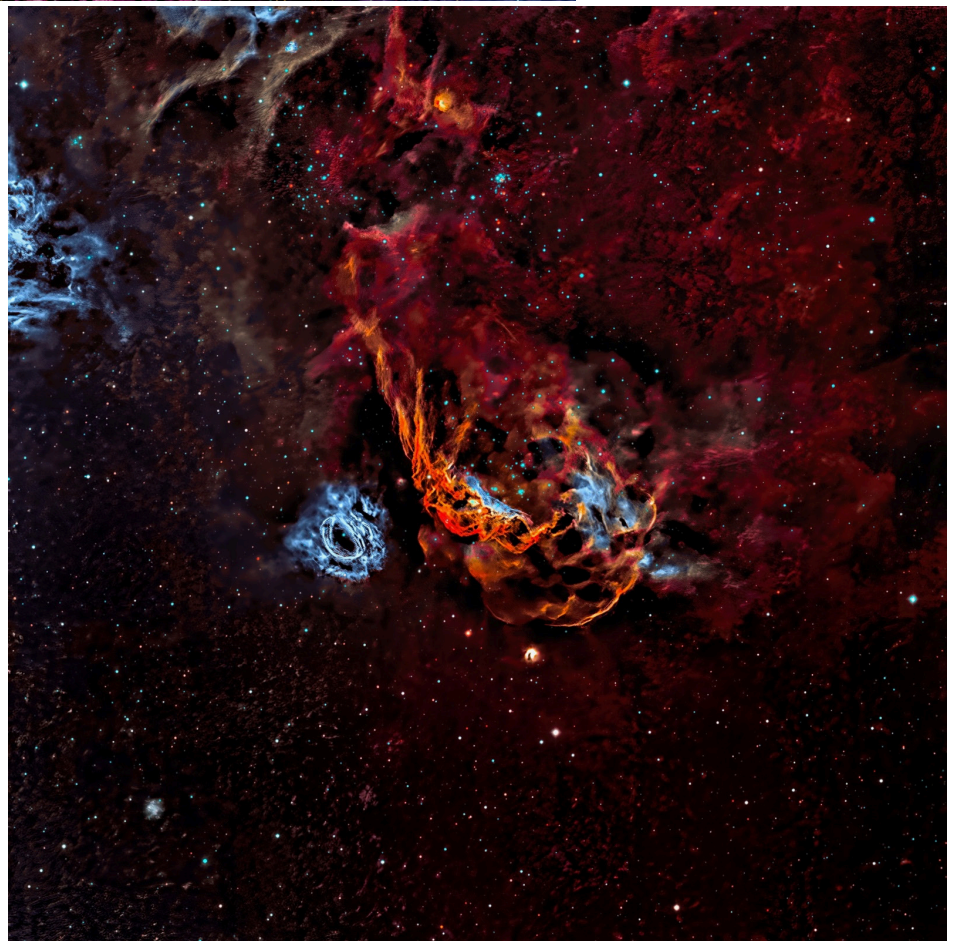
From Alex Woronow

NGC 2467

[Astrobin Link](#)

NGC 2014 and 2020  
in the Large Magellanic  
Cloud

[Astrobin Link](#)



# 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: *Monsoon Break*.

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):

**August 26 – 27 (New Moon August 27)**

*Hosts may not be present during Monsoon (July & August). Members should be qualified to open or close the site or be with someone that is qualified.*

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

### TIMPA

August monsoon season no dates set  
September 23 and 24  
October 21 and 22  
November 18 and 19  
December 16 and 17

### CAC

August 26 – 27 (New Moon August 27)  
September 23 – 24 (New Moon September 25)  
October 21 – 22 (New Moon October 25)  
November 25 – 26 (New Moon November 23)  
December 22 – 23 (New Moon December 23)





We would like to invite TAAA Members to the 2022 NASA Innovative Advanced Concepts (NIAC) Symposium which will be held in Tucson, AZ on September 20-22, 2022 at the Tucson Marriott University Park! This event is free, open to the public, and all are invited to attend in person ([registration website link](#)), via [Livestream](#) or through our new [interactive event space](#).

The NASA NIAC program executes annual solicitations seeking exciting, innovative, and technically credible advanced concepts that could one day change the possible in aeronautics and space. The portfolio of NIAC studies addresses diverse research areas including: Revolutionary Exploration Systems, Novel Propulsion, Human Systems & Architectures for Extreme Environments, Sensors, and Imaging. This year's Symposium will feature exciting keynote addresses to inspire attendees. Past NIAC speakers have included visionary thinkers, distinguished scientists, senior government officials, authors, astronauts, and entrepreneurs.

Details of the Symposium are provided below, including how to register. All information relating to the Symposium can be found on the [NIAC Symposium page](#).

#### NIAC SYMPOSIUM

Date: September 20 – 22, 2022

Location: Tucson Marriott University Park, 880 East 2nd Street, Tucson, Arizona 85719

This event is free and open to the public. Feel free to share broadly!

This three day, in-person event will feature presentations from currently funded NIAC researchers, and exciting keynote speakers.

#### LIVESTREAM

The 2022 NIAC Symposium will be held via [Livestream here](#). It will be archived to this site so you will be able to view presentations after the event.

COMMUNIQUE' (\*New! Virtual collaborative event space for all attendees.)

We are currently developing a virtual platform for attendees to collaborate with NIAC Fellows and their teams during the event as well as networking opportunities with other attendees in a virtual lounge. The collaborative event platform can be accessed [here](#) and all updates will be available on the Symposium page.

#### REGISTER

Please register for the event on our registration website which is available [here](#) and on our Symposium page. This will be the major hub for the Symposium, and houses all information for this exciting three day event.

For more information on the NIAC program, go to [www.nasa.gov/niac](http://www.nasa.gov/niac).

'Risdon, Diane L. (HQ-OA000)[Bryce Space and Technology]'

## **What's Up list for August 2022 – September 2022**

Fellow amateur astronomers, many of the Astronomical League observing programs can be done from our backyards. The following is a list of objects visible this month for the more common observing programs.

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

The following Northern Constellations are well placed for viewing for August and September:

Aquila, Cygnus, Delphinus, Equuleus, Hercules, Lyra, Sagitta, Serpens Caput, Serpens Cauda, Vulpecula

### **Messier Observing Program**

The following Messier objects are well placed for observation during August and September (listed in ascending RA): **Sagittarius is in prime location!**

M62, M19, M92, M9, M14, M6, M7, M23, M20, M8, M21, M24, M16, M18, M17, M28, M69, M25, M22, M70, M26, M11, M57, M54, M56, M55, M71, M27

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

The following is a list of dates for the lunar phase during August and September:

New Moon: August 27, September 25  
40 Hours waxing: August 29, September 27  
72 hours waxing: August 1, August 30, September 28  
4 days old: August 2, August 31, September 29  
7 days old: August 5, September 3  
10 days old: August 7, September 6  
Full (14 days old): August 12, September 10  
Gibbous: August 19, September 17  
72 hours waning: August 24, September 22  
40 hours waning: August 25, September 23

### **Solar System Observing Program**

The following list describes the various solar system objects and their visibility during August and September:

**Mercury** is an evening object becoming an early morning object the last two weeks of September.

**Venus** is an early morning object gradually getting closer to the Sun each day.

**Mars** is well placed for evening observing rising around 11 PM early August and rising around 9 PM by end of September.

**Jupiter** is high in the sky early evenings. It rises around 9:30 PM early August and by end of September it is rising before sun set. Reaches opposition September 26.

**Saturn** rises during evening twilight early August and before sunset during late August and September. Well placed for evening observation. Reaches opposition on August 13.

**Uranus** is a late evening object rising earlier each day. In Early August it rises around 11 PM. By end of September it rises around 7 PM.

**Neptune** is well placed for observation, near Jupiter. Neptune reaches opposition September 16.

### **Urban Observing Program**

The following deep sky objects are well placed for observing during August and September:

M62, M92, M6, IC 4665, M7, NGC 6520, M8, M17, NGC 6633, M22, IC 4756, M11, NGC 6709, M57, Cr 399, NGC 6818, NGC 6826, M27

**The following Double Stars** are well placed for observation during August and September:

Epsilon Lyra, Beta Cygnus



# Skyward

By Dr. David H. Levy

August 2022

## The Sky Reborn

Ever since I read Bart J. Bok's foreword to Rose Wilder's and Gerald Ames' *The Golden Book of Astronomy*, I have marveled at what the night sky had to offer and how much of that has changed. "Such wonders," Bok wrote, "fill this book." I have never forgotten those beauties, in particular Bart's favourite: The Eta Carinae nebula, deep in the southern sky.

On Tuesday, July 12, 2022, NASA released the first light pictures from the Webb telescope. One of them is the Eta Carinae nebula. If Bart Bok could come back to us for one minute, he would be thrilled and elated beyond expression. The image is unadulterated joy. It shows so much more than anyone has ever seen before. It tells how this faint star suddenly became the second brightest star in the sky in 1843, the year of a great comet, and it had a second eruption near the end of the 19th century. If Eta Carinae should one day become a supernova it may become as bright as, or even much brighter than, Venus.



The other picture that really got to me was Stephan's Quintet. It was the first compact group of interacting galaxies ever discovered. First observed from France by Édouard Stephan, it consists of four galaxies interacting with one another; plus a fifth, NGC 7320, which is much closer to us. I have seen this cluster many times. Seeing these images from the new telescope pierced my eyes and warmed my heart. But my mind kept returning to the image of Eta Carinae, and to Bart and Priscilla Bok and their lives together.

*The two pictures are both courtesy of NASA, the European Space Agency and the Canadian Space Agency and show the first light images from JWST of the Stephan Quintet and Eta Carolina regions.*

Bart loved to tell the story of how he and Priscilla attended the opening of the Flandrau planetarium in November 1975. They arrived early that morning, and they walked toward an exhibit in the back, in the galaxy room. Suddenly Priscilla stopped. "Bart," she said softly as she gazed upon a picture of Eta Carinae, "When I am gone, I will be in this nebula. Whenever you look at the nebula, you will see me there."



Priscilla passed away just four days later. In her memory Bart funded a beautiful concrete bench in the aviary at the Desert Museum. Bart often visited the museum and always enjoyed her bench. “Another audience with the roadrunner soon took place,” I wrote later. “As he watched this roadrunner, Bart’s thoughts wandered off to a far off place and time. A memory of Priscilla, happy and alert as she fed a group of magpies, filled his mind. Slowly the image faded, and he imagined once again the exquisite swirls of the nebula in Carina.”

The James Webb Space Telescope belongs to the world. In January 1610, Galileo pointed his telescope at Jupiter. Over the course of a few nights, he discovered four moons orbiting the solar system’s biggest planet, and the night sky has not been the same ever since.

In July of 1994, the Hubble space telescope also pointed at Jupiter. It recorded the crash of a comet on the solar system’s biggest planet, and the night sky changed again.

On Tuesday, July 12, the world saw the James Webb Space telescope’s first view of the Eta Carinae nebula. The night sky will never be the same.



*The Priscilla Fairfield Bok Memorial Bench at the Arizona Sonora Desert Museum.*

Photos by David Rossetter

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

[David Rossetter](#) – Editor

Terri Lappin & Jim Knoll - Proofreading

Greg Ruppel -Images;

Ken Bertschy - Graphics