# **Committed to Supporting Amateur Astronomy since 1933**



# The IAS News & Views



Volume 92, Issue 4

Indiana Astronomical Society
General Meeting
Saturday, April 19, 7:00 PM
Goethe Link Observatory

# "Astrophotography in Namibia" Larry Cates, Fritz Kleinhans, Kerry Cates

From September 22 to October 6, 2024, we travelled to the Hakos Astrofarm in Namibia in Africa. The main purpose of the trip was to do astrophotography in a very dark sky in the southern hemisphere, but we also were able to see some unique landscapes and animals in their natural environment. We will show photographs of astronomical objects that can't be seen from our area and share some of our experiences with the people, plants, and animals that we encountered. We will also discuss some of the issues involved with travelling to that area and the equipment we selected to travel with.

Larry Cates is a retired Electrical Engineer who joined the Indiana Astronomical Society in 2018 and has served on the Board of Directors and is currently serving as Secretary of the IAS.

Fritz Kleinhans is an Emeritus Associate Professor of Physics at Indiana University, Indianapolis. He has been an active member of the IAS since 1975. His first astrophotography work was done in 1959 with a Kodak Brownie Hawkeye using Tri-X film and a fast f/11 lens.

Kerry Cates has also participated in the IAS along with Larry since 2018. She is an avid photographer with interests in gardening, astronomy, and nature.

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# From the President's Desk



With this month's meeting we return to Link Observatory, and it is only fitting that we have two globetrotting IAS members as presenters! April is also when the Helen Link Daffodil Fields are open to the general public from 10-4 each weekend. We are responsible for the middle two weekends and we will also try to cover the first and last weekends, providing observatory tours and hydrogen alpha views of our nearest star, Sol. If you have a solar telescope please come out, and if you are a new member and have not yet seen our venerable observatory, these weekends provide an excellent opportunity to tour the building and share the flower fields with the whole family.

I wanted to thank Dail Jones of Bloomington publicly for contacting the IAS to receive her late husband Sheldon Pratt's astronomical gear. Sheldon was a Hoosier, a career US Army officer, and a member of the IAS who passed away (far too young) in 2022 due to cancer. We very much appreciate the donation.

Let's all hope for clear skies despite those famous April showers.

# **April General Meeting Call-In Details**

### **IAS April 2025 General Meeting**

Apr 19, 2025, 7:00 – 9:00 PM (America/New York)

Please join my meeting from your computer, tablet or smartphone.

https://meet.goto.com/726628117

You can also dial in using your phone.

Access Code: 726-628-117 United States: +1 (224) 501-3412

Get the app now and be ready when your first meeting starts:

https://meet.goto.com/install

You can join without installing any additional software by using the Google Chrome Browser

# **IAS NEWS**

# **Upcoming Events for April**

The following events will occur rain or shine.

# IAS Program Planning/Board Meeting

**Wednesday, 16 at 7 PM, via GoToMeeting.** The IAS board will get together to discuss the business of the Society. Dues-paying members are welcome to participate and provide input. Please monitor <u>our collaboration site at groups.io</u> for details.

### **IAS General Meeting**

**Saturday, 19 at 7 PM.** The IAS general meeting is scheduled to occur at the Goethe Link Observatory, 8403 Observatory Rd, Martinsville, IN 46151 (Also Virtual) (map) The public is welcome.

Those who are unable to make it to the meeting may also participate virtually, using a GoToMeeting teleconference. For details and call-in information, see the first three pages of this newsletter.

# **Observing Activities for April**

The following events are weather-dependent and subject to last-minute cancellation. Please monitor our collaboration site for updates and do not drive out until you receive confirmation that it's a "go."

### Link Activities (Members and Invited Guests) —

The IAS has deep-sky observing sessions scheduled to occur at Link Observatory on the weekend of <u>April 18-19</u>, (the 19<sup>th</sup> is immediately after our general meeting), and again on the weekend <u>April 25-26</u>.

Come observe with the telescope operators using the Link 36" and/or Tanager Hill 14" scopes, or bring your own and set up on the north observing field.

### McCloud Activities (Public Event) —

First McCloud of 2025 is scheduled for May 3, 2025

### Koteewi Park Activities (Members Only) —

April 18, 2025



M53 is a globular cluster 58,710 light years away in the constellation Coma Berenices

Imaged with the Seestar S50 Smart telescope

55 minutes of integration time Stacked and processed in Siril, GraXpert, and Cosmic Clarity

Photo of M53 by Kabel Rainbolt

# **Astronomical League Observing Programs**



Pins and logos from the Astronomical League's many excellent observing programs- there are even more than seen here! *Image Credit:* The Astronomical League

Reach for the Stars with Astronomical League Observing! If you are an IAS member, you are already a member of the Astronomical League.

Have you ever wanted to take your stargazing to the next level? The Astronomical League (AL) Observing Programs offer a fun and rewarding way to explore the night sky while earning official recognition for your efforts!

With over 70 observing programs, there's something for everyone—whether you enjoy hunting galaxies, sketching planets, or tracking the Moon's phases. Each program provides structured challenges that improve your skills and deepen your knowledge of astronomy. Completing a program earns you a certificate and a beautiful pin to celebrate your achievement!

Participating is easy! Choose a program that interests you, follow the guidelines, and record your observations.

By joining an AL program, you'll gain confidence and improve your observing techniques. Plus, it's a great way to stay engaged with the Indiana Astronomical Society and share your passion with fellow members.

So why wait? Pick a program, grab your telescope, and start your journey toward an AL award today!

— John Musick

# **Observing and Outreach Reports**

March 14 Eclipse—



Photos by Sara Farkas and Kelly McCormick

Links to Great Animations by Zolt Levy: <u>Lunar Eclipse 1</u> <u>Lunar Eclipse 2</u>

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Photo by James Smith

Photo by John McShanog



Eclipse shot with a Canon EOS T5i. Settings were f/10, ISO 400, 1/400

Photo by Jeff O'Dair

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Here are a couple of my photos from last night's eclipse, taken with a Canon T8i Rebel through my Redcat51. The first was taken early on, and the second was taken later, once the moon was fully covered.



Photos by Tyler Pieper

March 17 Link—Just completed a two-hour tour of Link Observatory for the third-grade class of Paragon Elementary School. Approximately 45 students wearing varying shades of green plus three teachers. Fortunately, time has not yet weakened my Staff Sergeant voice and I was able to command and hold their attention.

— Robert Aull

March 29 Brooks School STEM —The IAS participated in Brooks Elementary School STEM night.

Members representing the IAS were Rick Galloway, Robert Aull and Steve Haines. Rick and Robert had telescopes setup looking at space pictures while Steve had a Seestar S50 set up in Landscape mode looking around the gym. In this mode images could be viewed on an IPAD while the students remotely moved the scope. We had a constant stream of students and adults at all locations.



Photo by Steve Haines

— Steve Haines, IAS Public Event Coordinator



Photo by John Kramer

March 22 Link DSO — A group of ten IAS members met at Link Observatory following this month's general meeting, where they attempted to hold a Messier Mini-Marathon despite very poor skies that grew progressively more overcast as the evening wore on. The following members were on the field:

Dave Howard

Sara Farkas

Kelly McCormick (Seestar S50 in operation)

Grant Hiestand (Seestar S50 in operation)

John Kramer

Robert Aull

Dave Collier

Phil Thompson

Maribel Gaspang

Bob Harrold

The following 23 Messier targets were observed using the C14 in Tanager Hill Observatory before 11PM, at which time the skies became untenable:

M34 open cluster in Perseus

M45 the Pleiades (Subaru) in Taurus the Bull

M42 the Great Orion Nebula

M43 de Marian's Nebula in Orion the Hunter

M35 open cluster in Gemini the Twins

M37 open cluster in Auriga the Charioteer

M36 open cluster in Auriga the Charioteer

M38 open (Starfish) cluster in Auriga the Charioteer

M41 open (Little Beehive) cluster in Canis Major the Great (Hunting) Dog

M93 open (Critter) cluster in Puppis the Stern (or Poop Deck)

M47 open cluster in Puppis the Stern

M46 open cluster in Puppis the Stern

M50 open (Heart Shaped) cluster in Monoceros the Unicorn

M48 open cluster in Hydra the Sea Serpent

M44 open cluster Praesepe, the Beehive Cluster in Cancer the Crab

M67 open (King Cobra or Goldeneye) cluster in Cancer the Crab

M95 spiral galaxy in Leo the Lion

M96 spiral galaxy in Leo the Lion

M105 elliptical galaxy in Leo the Lion

M65 spiral galaxy in Leo the Lion (Leo Triplet)

M66 spiral galaxy in Leo the Lion (Leo Triplet)

M81 Bode's Galaxy spiral galaxy in Ursa Major the Great Bear

M82 Cigar Galaxy irregular galaxy in Ursa Major the Great Bear

— Robert Aull

# **Daffodils at Link Observatory**



April is daffodil season at Link! The Link grounds will be open every weekend this month from 10:00 AM to 4:00 PM for public viewing of the multitude of flower varieties of the genus *Narcissus*.

Goethe Link Observatory during daffodil season. Photo courtesy Lee Lewellen and Indiana Landmarks.

The <u>Indiana Daffodil Society</u> (IDS) will also have Master Gardener docents on site most of the open times.

It is spiritually uplifting to see so many flowers in bloom at one time.

The IAS (Tom Borlik and Robert Aull) will open Link Observatory for guided tours during these same hours on April 11-12 and 18-19 together with solar viewing through the club's Lunt hydrogen alpha 100mm telescope, weather permitting.







Photos by John Musick

— Robert Aull

# **Save The Date – Indiana Family Star Party**

When: July 22 - 27, 2025

WHAT: The Indiana Family Star Party is the 22nd Annual Star Party at Camp Cullom and the Prairie Grass Observatory, hosted by the Indiana Astronomical Society, the Wabash Valley Astronomical Society, and the Muncie Astronomy Club.

Where: Camp Cullom, near Mulberry, IN, is the home of the Prairie Grass Observatory (Clinton County Foundation for the Youth). Views from the observatory's four telescopes will be shared with attendees on Friday and Saturday and you may bring your own equipment, set up on the observing field, and share your views as well.

Who: Friday evening and Saturday are open to the public, with the purchase of a day ticket. Those with full event registration may attend daily or camp onsite starting as early as Tuesday, 22 July. Registration forms and additional details are available on the IFSP Website – <u>Indiana Family Star Party</u>

Join IAS President, Robert Aull, on Friday, 25 July, at 2:00 PM, for Solar Viewing.

Come hear our Guest Speakers on Saturday, 26 July:

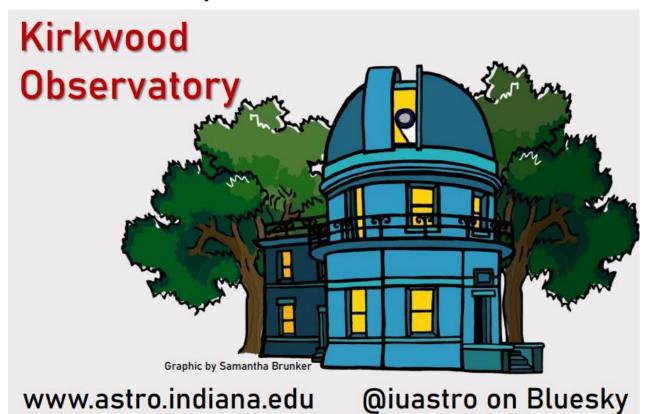
- Bob Morrow Founder and Owner of Bob's Knobs
  - o Telescope Selection & Deformance
- Dr Steve Case Olivet University, Director of University Honors Program
  - o The Extraordinary Life of John Herschel
- Chuck Allen / Terrry Mann Astronomical League President / Vice President
  - o AL Observing Programs What is available and how to do them



Panoramic images of the Camp Cullom observing field and Prairie Grass Observatory. Photos courtesy Mike Lockwood.

— Sara Farkas

# **Kirkwood Observatory**



# Kirkwood Observatory Open Nights March – July, 2025, Schedule

Date	Time
March 26	9:00-103 <b>0</b> pm
April 2	9:00-10:30 pm
April 9	9:00-10:30 pm
April 16	9:30-11:00 pm
April 23	9:30-11:00 pm
April 30	9:30-11:00 pm

Date	Time	
May 7	10:00-11:30 pm	
May 14	10:00-11:30 pm	
May 21	10:00-11:30 pm	
May 28	10:00-11:30 pm	
June 4	10:30-11:30 pm	
June 11	10:30-11:30 pm	
June 18	10:30-11:30 pm	
June 25	10:30-11:30 pm	

Date	Time
July 2	10:30-11:30 pm
July 9	10:30-11:30 pm
July 16	10:30-11:30 pm
July 23	10:30-11:30 pm
July 30	10:30–11:30

All open times are weather permitting. Check the web or Bluesky to confirm.



# **March General Meeting**

"Perspectives on Distance"

The main speaker for the IAS's General Meeting teleconference was Chuck Allen, President Astronomical League

"Perspectives" uses props and graphics to examine relative distances in the universe and the possible distances achievable through space flight and through the use of human vision and amateur and professional telescopes. Examining scales from the human altitude record to the four cosmological horizons imposed by an expanding universe, the program discusses astrophysicists' current thinking on the biggest questions about the universe: How far can we see, how far will we be able to see, and how big might the universe be? The program ends with thoughts on our size as human observers.

Video of the meeting is now available: March 2025 General Meeting







Photos by Sara Farkas

— Dave Collier

# **Links to Past General Meetings**

November 2024 General Meeting

July 2024 General Meeting

May 2024 General Meeting

April 2024 General Meeting

April 2024 General Meeting

March 2024 General Meeting February 2024 General Meeting

— Dave Collier

### APM 08279+5255

I enjoyed Chuck Allen's talk about distance scales in the universe at the meeting on Saturday. I was looking at adding one of the very distant objects he mentioned to my imaging list and realized I'd already imaged APM 08279+5255 in 2023. It's the red dot in the center of the attached image.

APM 08279+5255 is likely the most distant object accessible to small telescopes, through imaging at least, at an astounding redshift of 3.9. It's bright enough because it's an extremely bright quasar (QSO) but also because it's gravitationally lensed and magnified by an intervening massive galaxy.



33 120 sec. exposures, Feb. 18, 2023 from suburban Bloomington, Ind.

Celestron Edge 8HD 203mm f/10 SCT, Celestron 0.7x reducer/flattener

ZWO ASI294MC Pro cooled color CMOS camera, gain 200, -30°C

ZWO UV/IR cutoff filter

Losmandy GM811G mount

ZWO ASIAir Pro controller

Processed in Astro Pixel Processor & Lightroom

Photo by Zolt Levay

— Zolt Levy

# **IAS Board Meeting Highlights**

IAS Board of Directors Meeting Highlights: March 2025

The IAS BOD meeting was called to order at 7:00 pm on March 19, 2025. There were four officers, and six board members present.

Program Report: The April general meeting will be at Link Observatory with Larry Cates, Kerry Cates, and Fritz Kleinhans presenting on their trip to Namibia for astrophotography.

Equipment Loan: Since the last meeting, no telescopes were loaned and none returned. There is currently one telescope out on loan.

Facility Reports: At Link, the Wi-Fi and water heater are back on for the summer.

McCloud: We are looking for speakers for June, July, and October.

IAS Membership: As of January, there are 328 current members.

— Larry Cates, IAS Secretary



Here's M96 an intermediate spiral galaxy approximately 31 million light years away in the constellation Leo home to about 100 billion stars.

Imaged with the Seestar S50 smart telescope

200 minutes of integration time

Stacked and processed in Siril, GraXpert, and Cosmic Clarity

Photo of M96 by Kabel Rainbolt

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# April's Night Sky Notes: Catch the Waves!



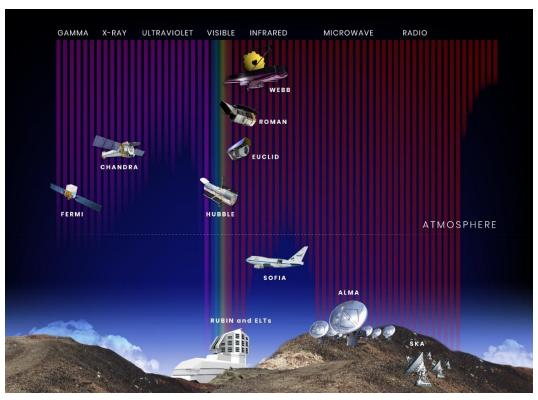
### This article is distributed by NASA's Night Sky Network (NSN).

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit <a href="mailto:nightsky.jpl.nasa.gov">nightsky.jpl.nasa.gov</a> to find local clubs, events, and more!

By Kat Troche

### The Electromagnetic Spectrum

If you've ever heard the term "radio waves," used a microwave or a television remote, or had an X-ray, you have experienced a broad range of the electromagnetic spectrum! But what is the electromagnetic spectrum? According to Merriam-Webster, this spectrum is "the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light." But what does that mean? Scientists think of the entire electromagnetic spectrum as many types of light, only some that we can see with our eyes. We can detect others with our bodies, like infrared light, which we feel as heat, and ultraviolet light, which can give us sunburns. Astronomers have created many detectors that can "see" in the full spectrum of wavelengths.



This illustration shows the wavelength sensitivity of a number of current and future space- and ground-based observatories, along with their position relative to the ground and to Earth's atmosphere. The wavelength bands are arranged from shortest (gamma rays) to longest (radio waves). The vertical color bars show the relative penetration of each band of light through Earth's atmosphere. Credit: NASA, STScI

# **Telescope Types**

While multiple types of telescopes operate across the electromagnetic spectrum, here are some of the largest, based on the wavelength they primarily work in:

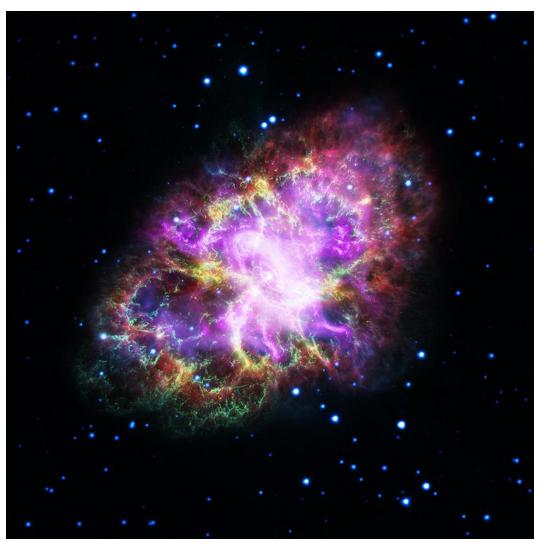
- Radio: probably the most famous radio telescope observatory would be the Very Large Array (VLA) in Socorro County, New Mexico. This set of 25-meter radio telescopes was featured in the 1997 movie Contact. Astronomers use these telescopes to observe protoplanetary disks and black holes. Another famous set of radio telescopes would be the Atacama Large Millimeter Array (ALMA) located in the Atacama Desert in Chile. ALMA was one of eight radio observatories that helped produce the first image of supermassive black holes at the center of M87 and Sagittarius A\* at the center of our galaxy. Radio telescopes have also been used to study the microwave portion of the electromagnetic spectrum.
- Infrared: The James Webb Space Telescope (JWST) operates in the infrared, allowing astronomers to see some of the earliest galaxies formed nearly 300 million years after the Big Bang. Infrared light allows astronomers to study galaxies and nebulae, which dense dust clouds would otherwise obscure. An excellent example is the <a href="Pillars of Creation">Pillars of Creation</a> located in the <a href="Eagle Nebula">Eagle Nebula</a>. With the side-by-side image comparison below, you can see the differences between what JWST and the Hubble Space Telescope (HST) were able to capture with their respective instruments.



NASA's Hubble Telescope captured the Pillars of Creation in 1995 and revisited them in 2014 with a sharper view. Webb's infrared image reveals more stars by penetrating dust. Hubble highlights thick dust layers, while Webb shows hydrogen atoms and emerging stars. You can find this and other parts of the Eagle Nebula in the Serpens constellation. Credit: NASA, ESA, CSA, STScI, Hubble Heritage Project (STScI, AURA)

• **Visible:** While it does have some near-infrared and ultraviolet capabilities, the Hubble Space Telescope (HST) has primarily operated in the visible light spectrum for the last 35 years.

With over 1.6 million observations made, HST has played an integral role in how we view the universe. Review Hubble's Highlights here.



The Crab Nebula, located in the Taurus constellation, is the result of a bright supernova explosion in the year 1054, 6,500 light-years from Earth. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI; Infrared: NASA/JPL/Caltech; Radio: NSF/NRAO/VLA; Ultraviolet: ESA/XMM-Newton

• **X-ray:** Chandra X-ray Observatory was designed to detect emissions from the hottest parts of our universe, like exploding stars. X-rays help us better understand the composition of deep space objects, highlighting areas unseen by visible light and infrared telescopes. This image of the <a href="Crab Nebula">Crab Nebula</a> combines data from five different telescopes: The VLA (radio) in red; Spitzer Space Telescope (infrared) in yellow; Hubble Space Telescope (visible) in green; XMM-Newton (ultraviolet) in blue; and Chandra X-ray Observatory (X-ray) in purple. You can view the breakdown of this multiwavelength image <a href="here">here</a>.

### **Try This at Home**

Even though we can't see these other wavelengths with our eyes, learn how to create multiwavelength images with the <u>Cosmic Coloring Compositor</u> activity and explore how astronomers use representational color to show light that our eyes cannot see with our <u>Clues to the Cosmos</u> activity.

— Kat Troche, NASA's Night Sky Network

# **Celestial Events for April**

- 05 Venus, the "Evening Star" dazzles in the early evening sky.
- 07 The Big Dipper, this familiar asterism is visible on clear nights throughout the month.
- 08 Arcturus in Bootes, one of the brightest stars, this orange giant stands out in the early evening.
- 10 Mars, Look for the red planet in the early evening sky with its distinctive hue.
- 10 Deneb in Cygnus, a brilliant anchor of the Summer Triangle, clearly visible in the early evening.
- 11 Zodiacal Light, under truly dark skies, observe this faint, diffuse glow along the ecliptic in the pre-dawn hours.
- 12 Crescent Moon, a beautiful waxing crescent is best seen just after the new moon.
- 12 The Double Cluster in Perseus, a delightful binocular target, offering a spectacular view of twin clusters.
- 14 The Open Cluster M35 in Gemini, a loose collection of stars that's a fun target for amateur astronomers.
- 15 Jupiter, bright and unmistakable, Jupiter shines in the early evening sky.
- 16 The Globular Cluster M13 in Hercules, a classic deep-sky target for telescope users, densely packed with stars.
- 17 The Northern Cross in Cygnus, an impressive asterism formed by stars in Cygnus, best viewed in the early evening.
- 18 The Beehive Cluster (M44) in Cancer, a rich open cluster resembling a hive of stars, perfect for wide-field views.
- 19 The Pleiades (M45) in Taurus, also known as the Seven Sisters, this open cluster is striking in the early morning sky.
- 20 Saturn, admire Saturn's iconic rings during twilight or in the early morning hours.
- 21 The Milky Way, in dark, rural skies, the bright band of our galaxy arcs dramatically across the heavens.
- 22 Lyrids Meteor Shower, peak meteor activity provides a spectacular light show across the sky.
- 25 The Constellation Leo, with Regulus as its brightest star, Leo begins to emerge in the early hours.

### Astro Ads

Do you have or are you looking for astronomy-related materials and equipment? The IAS, as a service to its members, will publish non-commercial ads at no charge. For sale, exchange, or want ads are all accepted. Each ad runs in the newsletter for four months and may be renewed at the owner's request.

To place an ad, send an email to editor@iasindy.org. Be sure to notify us when the item sells.

# **Public Outreach Programs**

To schedule a program at the Link Observatory or at your site, please contact the following people:

<u>Public Outreach Programs</u>: To schedule a public event, contact the IAS Events Coordinator Steve Haines by sending an email to <u>events-coordinator@iasindy.org</u>.

<u>Goethe Link Observatory tour</u>: To schedule a tour of the Link Observatory, contact Link Observatory Manager Robert Aull by email at <u>link-observatory@iasindy.org</u>.

# **Equipment Loan Program**

Did you know you could borrow a scope or piece of astronomy equipment from the Society and take it for a test drive? Members trying to determine what kind of equipment to buy are welcome to borrow one of the Society's scopes for a month or two and see how they like it. Dave Howard is the program coordinator and can arrange for pickup and training.

We will also consider donations of equipment appropriate for this program. The IAS is a public charity under section 501(c)(3) of the internal revenue code. We would be happy to provide acknowledgement suitable for documentation as a tax deduction.

The Equipment Loan Coordinator may be contacted at equipment@iasindy.org

2025 Meetings and Events Calendar

Month	BOD	General	Pitch In/	DSO @ Link	McCloud	West	Koteewi
	Meeting	Meeting	Holiday Party			Park	Park
Apr	16	19 Link		18,19,25,26		-	18
May	14	17 Link		2,3,16,17,23,24,30,31	3	23	-
June	18	21 Link		13,14,20,21,27,28	28	-	27
July	16	19 Link		18,19,25,26	26	18	-
Aug	13	16 Link		1,2,15,16.22,23,29,30	23	-	15
Sep			20 Link	12,13,19,20,26,27	27	12	-
Oct	15	18 Link		10,11,17,18,24,25	25	-	17
Nov	12	15 MPL		7,8,14,15,21,22		14	-
Dec			6 MPL	12,13,19,20,26,27			19

**Bold** entries are DSO nights with greater than optimal moon

### Miscellanea

### **Goethe Link Observatory**

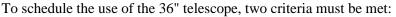
Observatory Address:

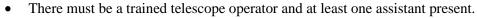
Goethe Link Observatory 8403 N. Observatory Lane Martinsville, IN 46151

Latitude: 39 degrees, 33 minutes north Longitude: 86 degrees, 24 minutes west

Phone: (317) 831-0668

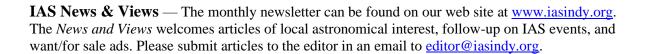
Training programs are scheduled by the Observatory Manager as instructors are available and time permits, although other requests can override these sessions.





• Send an email to the Observatory Manager (<u>link-observatory@iasindy.org</u>) to confirm availability.

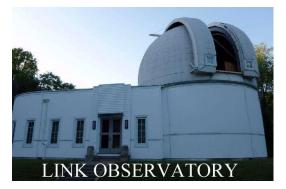
Please plan ahead! Last-minute scheduling requests may not get access.



**Membership information** — Please send an email to <a href="membership@iasindy.org">membership@iasindy.org</a>; our membership coordinator will respond promptly. Full instructions are also available under the "Join the Society" tab on our web site, where you can submit a <a href="membership form">paperless membership form</a>, e-pay your dues and/or make a donation.

**Requests for Information** — You may contact our officers, Board members, and Coordinators via our website at <a href="www.iasindy.org">www.iasindy.org</a>. Place your cursor on the "Home" tab and then select "Contact us." Page down to the person you desire to contact and send an email message requesting information or a return telephone call. We will be happy to respond within a reasonable time frame.

**Logo Clothing** — The IAS has a supply of logo ware using Mid-Central Trophy in Kokomo, IN. Typically, T-shirts, sweatshirts, polo shirts, and caps are available. Call Linda (765-453-5494), tell her this is an order for the IAS logo ware, discuss what you want and give her the size. She can determine the cost and shipping and mail the order directly to your home. All major credit cards are accepted.



# **Messier Marathon Word Find**

М Ι Ε Н Ι G В Ε Ι Ι Ε F D S S Ε Ι В J w т D Ι S 5 J S в G U Ε 5 S Ε D В Ν Υ w Z К Ε Υ Ν Ε S J F G Ε C Ε Т S Ι Z 5 D Ν О М О Ν Ε т Ι В В В Ε S 0 U Ε Ν М R R D 0 0 М д R н Ν Ν Ν R Ι × В D S Т А R Н Ι Ρ К Ν 0 S Ι А т Ι G S F R т Υ G J G J

**DEEPSKY GALAXY MESSIER** MARATHON TELESCOPE **NEBULA CLUSTER CONSTELLATION OBSERVATION STARHOP NIGHT DUSK DAWN SAGITTARIUS ANDROMEDA VIRGO ORION COMET ZENITH** DARKSKY

Answers on last page

April Calendar, 2025						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	1 April Fools	2	3	4 Deep Sky Observing at Link Observatory	5 Daffodil Days Deep Sky Observing at Link Obs.
6 Daffodil Days First Quarter	7	8	9	Girl Scouts Space Badge 6:00 PM	11	12 Daffodil Days
13 Daffodil Days Full Moon	14	15	16 IAS BOD Meeting 7 PM	17	18 DSO at Link Observatory Koteewi Park	19 Daffodil Days, IAS Gen. Meeting 7 PM, DSO at Link
20 Daffodil Days Easter Sunday	21 Last Quarter	22 Earth Day	23	24	25 Deep Sky Observing at Link Observatory	26 Daffodil Days DSO at Link Observatory
27 Daffodil Days	28 New Moon	29	30	1	Deep Sky Observing at Link Observatory	3 DSO at Link Observatory



Photo by John Musick

# Which Website Do I Use?

Website

IAS Facebook

Indiana Astronomical Society

https://www.iasindy.org/

Use website to

FAQ

New member application

Dues payment

Planetarium Virtual Sky Observing Information

AstroNews

<u>ias-indy.groups.io</u> Members' directory

For members only Files on:

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Newsletter Archives

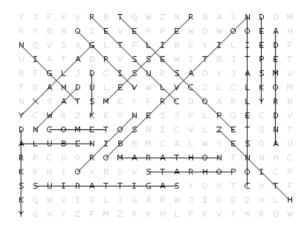
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Sharing stories and photos

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