



The IAS News & Views

Volume 80, Issue 10

www.iasindy.org

**Remember the Public General Meetings are held at Butler's
Holcomb Observatory, beginning in October**

Rocks from space! and Should you wear a hard hat?

Dr. Fritz Kleinhans

Indiana Astronomical Society/Butler University Observatory

Public Meeting

October 26, 2013

7:00 PM

Holcomb Observatory

I will discuss common (irons and stones), pretty (pallasites), and rare (martian and lunar) meteorites and pass a few examples around. We will discuss where most meteors come from (the asteroid belt) and how radiometric methods allow us to determine many details of their journey from formation to the earth. The recent Chelyabinsk fireball over Russia has renewed interest in the threat posed by large meteoroids/small asteroids. I will give you my personal take on this. Be prepared for some surprises. Some additional specimens will be available for viewing after the talk.

Fritz Kleinhans was born under the dark skies of rural Pennsylvania long, long ago. This is where his love of the stars was born. Fritz came to Indianapolis and IUPUI Physics in 1972 and started teaching astronomy classes in 1975. It was also about this time that he became a member of the IAS. He retired from IUPUI in 2007 but still teaches an IUPUI one hour short course entitled "Back Yard Astronomy". This because he is still trying to get people to turn out their lights at night! Indeed, he is a lifetime member of the International Dark Skies Association.

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Some of his student astrophotography work can be seen at:

http://www.physics.iupui.edu/~fkleinha/Astrophoto_home.htm

Some of his own work (if he would just update it) is at:

http://www.physics.iupui.edu/~starman/Starman/AP_home.htm

In his 'other life' he is a biophysicist/cryobiologist.

New Astronomer's Group Fritz Kleinhans

Meteorites and Meteor Wrongs

Every year rocks are brought to me which the owners are sure are meteorites. Alas, no. In 40 years of teaching not one real meteorite has shown up. I will discuss the field identification of meteorites with many examples of common meteorites and meteor wrongs. Be sure to bring your magnets (actually I have plenty). And remember, that pretty rock in the museum has been cleaned up quite a bit over what you will find in the field. I also have thirty meteorite kits which we will use to sharpen our identification skills.

From the President's Desk

Many thanks to all who responded to our request for Hog Roast RSVPs. Your cooperation is appreciated and you helped us plan for adequate food.

We will be electing new officers and board members in December.

— All officers; President, Vice President, Secretary and Treasurer; are elected each year.

— Three board members, Eric Allen, Bruce Bowman and Phil Dimpelfeld will be completing their 3-year terms.

We must post our slate in November in order to give you all time to contemplate whom you want to guide our Society in the years to come. Voting will occur at our Christmas party at Holcomb Observatory.

I would appreciate nominations from you, for any and all positions. It is appropriate that you ask the member if they are willing to serve before you submit their name to the nominating committee.

For those of you who would like to participate in guiding the Indiana Astronomical Society over the next year or so, please let me know the officer or board position that you are interested in before October 15th. Your Board meets once a month, at 7 PM at Holcomb Observatory on the Tuesday prior to our general meeting. Holcomb observatory is a relatively convenient place for us to meet

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courtesy of the Astronomy Department at Butler University. We coordinate our activities with Butler's Astronomy Department there and do our business in 1 to 2 hours.

The duties of the officers and board members only require a modest commitment of your time. We are always interested in new ideas and programs for our members and guests. Bring yours to our Board.

I urge you to consider running for office. Several of the officers and board members have served for many years and would like to see more members step forward. You are eligible if you are 18 years old and a member in good standing in the Society.

As President, I must submit to the Board for approval, the names of members who will act as Observatory Manager, Editor of the "News & Views," Web Supervisor, Associate Web Supervisor, Web Content Manager and Coordinators for: Library, Equipment Loan, Public Events, Astronomical League Correspondent, Membership, New Astronomer's Group and McCloud Star Gaze. If you have an interest in one of these positions please contact me or one of the members of the Nominations committee.

Help steer the direction of the Society by being part of the governing body. Contact a member of the Nominations committee today.

Elections are coming

It is time to begin thinking about elections again in earnest. Our elections will be held in December. There will be three Board members up for election as well as the four officers. In addition the coordinator's positions will be open for appointment after New Years. Please contact the Nominations Committee if you would like to run for office or act as one of the appointed coordinators. Let us know of anyone that you know who would be a good candidate or has expressed an interest in a position.

Bill Conner, Chairman - president@iasindy.org
Jeff Patterson (KB9SRB@Comcast.net)
Mike Newberg - mike.newberg@iasindy.org
John Molt - john.molt@iasindy.org

Duties of the Officers:

- (1) Except as provided by these bylaws or required by law, the entire control of the Society and its affairs shall be vested in the Board of Directors.
- (2) The Board of Directors shall consist of seven (7) members elected from and by the membership at large. In addition, each Executive Officer shall be a voting member of the Board during their terms of office. In the event of a tie vote upon any matter, the President of the Society shall cast a second vote to break the tie.
- (3) The age requirement for members of the Board of Directors and Executive Officers shall be 18 years or older.
- (4) A member of the Board of Directors or an Executive Officer may be re-elected after their term of office expires.

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(5) If a vacancy occurs in any office for any reason, including failure to attend meetings, the Board of Directors shall elect a member of the Society to fill the unexpired term of the vacant office. Failure by a Director to attend six (6) meetings of the Board of Directors during any twelve (12) month period may constitute a vacancy at the discretion of the Board.

(6) At each December meeting, here designated as the "Annual Meeting," the Directors shall be elected by the membership to succeed those whose terms expire.

(7) The Executive Officers of the Society shall be President, Vice President, Secretary, and Treasurer, all of whom shall be elected by written ballot or voice vote at the Annual Meeting. The term of office for the executive officers will be for one year starting January 1st of the next year.

(8) No person shall hold more than one Executive Office at a time.

(9) Members of the Board of Directors shall hold office for three years. Their terms shall be staggered so that two directors are elected at each annual meeting, with the exception of a year in which a third director is to be elected.

(10) The **President** shall preside at all meetings of the members and ensure that the purposes of the meeting are accomplished. The President shall annually nominate the Observatory Manager, Editor of the monthly newsletter, the Web Supervisor of the official website, the Associate Web Supervisor, the Web Content Manager, the Librarian, the Equipment Loan Program Coordinator, the Public Events Coordinator, the Astronomical League Correspondent, the Membership Coordinator, the NAG coordinator, and the McCloud Stargaze coordinator. The nominations will be ratified by the Board of Directors. The President will be responsible for communication with Indiana University.

(11) The **Vice President** shall preside in the absence of the President and shall act as Program Coordinator. The Vice president's principal responsibility is to obtain speakers or to develop a specific program for each of the general meetings.

(12) The **Secretary** shall keep minutes of all Business/Board meetings, initiate such Society correspondence as shall be directed to the President, and ensure that records of the Society's business are maintained in permanent form.

(13) The **Treasurer** shall be responsible for all monies belonging to the Society. The Treasurer shall keep accurate records of all transactions and hold Society funds ready for disbursement at the order of the Board of Directors. The Treasurer shall also maintain insurance documents and prepare and submit all required state and federal tax returns.

(14) **The Board of Directors** shall compile and approve an annual inventory report showing the whole amount of real and personal property owned by the Society. The report shall be presented to the President at the January Board meeting. The Secretary shall file the report with the Society's records.

(15) **The Board of Directors** and **Executive Officers** shall establish official Standard Operating Procedures (SOPS) for operation of the Link Observatory, to clarify the requirements of these bylaws, detail agreements between the Society and other parties and to comply with any city, state, or federal rules or regulations. These procedures may be altered by the Board of Directors without a general members' vote. Such operating procedures shall be filed with the Society's records and shall be posted where deemed appropriate.

Coordinators Appointed by the President each January

(16) The **Observatory Manager** shall be responsible for routine management of the Link Observatory. The Observatory Manager shall maintain an inventory of the IAS property at the observatory and schedule the use of the Link Observatory facilities. It is the Observatory Manager's responsibility to notify the President of any situation at the Link Observatory that requires the attention of Indiana University. The Observatory Manager is responsible for the security of the keys he holds for the Society, accounting for all keys issued to the Society, reporting of the status of the keys to the Board and issuance of keys in accordance with the directions of the Board.

(17) The **Editor** shall be responsible for publishing the monthly newsletter. The electronic copy is to be transferred to the Web Supervisor for placement on the website. The Editor shall be responsible for printing and mailing copies to members who have designated that they prefer "hard copies" and to Friends of the Society. It is the Editor's responsibility to maintain a high level of excellence in the newsletter.

(18) The **Web Supervisor** shall be responsible for the operation and maintenance of the IAS website at the highest level of excellence.

(19) The **Associate Web Supervisor** shall assist the Web-Supervisor in their duties and know the system well enough to act as Web-Supervisor if needed.

(20) The **Web Content manager** will function as the Society's liaison with the Web Supervisor. Duties include maintaining information on the website that is NOT design related and serve as the administrator of the two IAS Yahoo groups.

(21) The **Librarian** shall be responsible for the Society's library including the maintenance of an inventory of all media, and check in/out records for the Society. The Librarian shall be responsible for recommendations to the Board for additional media.

(22) The **Equipment Loan Program Coordinator** shall be responsible for maintaining the loaner equipment and overseeing loan activities.

(23) The **Public Events Coordinator** is responsible for evaluating, scheduling and coordinating events requested by public and private institutions and individuals.

(24) The **Astronomical League Correspondent (ALCor)** shall serve as the Society's contact person for Astronomical League matters. The ALCor will coordinate with the Membership Coordinator to ensure that membership rosters are sent to the League in accordance with Astronomical League procedures. The ALCor is also responsible for communicating League benefits and programs to the Society's members.

As a collateral duty, the ALCor shall serve as the Society's Awards Coordinator (AC) for the League. The Awards Coordinator will carry out these duties in accordance with directives from the Astronomical League National Observation Program Coordinator.

(25) The **Membership Coordinator** shall collect dues from the members, keep accurate records of all transactions and transfer these funds to the Treasurer. The Membership Coordinator shall update and maintain Membership, Inactive membership and IAS Astronomical League databases. Each month the Membership Coordinator will send Notices of Pending Membership Expiration and Notices of

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Membership Expiration. In addition, the Membership Coordinator will send letters of welcome and introduction to all new members upon receipt of the application and dues.

(26) The **New Astronomer's Group (NAG) coordinator** is responsible for coordinating the development of NAG programs at the general meetings. His primary duty is to develop an archive of NAG presentations that can be used in our NAG events and find people to present and lead the activities.

(27) The **McCloud Star Gaze coordinator** is responsible for developing public programs at McCloud Nature Park. Primarily he is to liaison with the parks department and co develop the programs with them.

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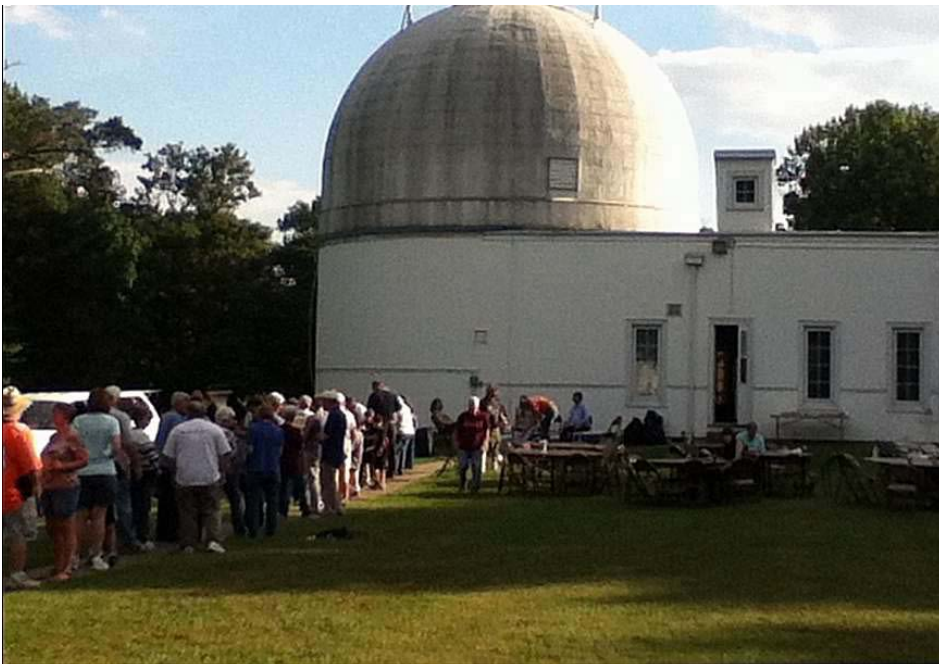
Recent Events for the IAS

Annual Hog Roast

The hog roast was a great success. We had somewhere in the neighborhood of 50-60 members and families. The food was great. Good weather, good food, good companionship: What more could one ask for?

When posting the link to the pictures I took of the hog roast I neglected to express my gratitude to all those who were involved in the planning and execution of the hog roast this year; those who got there early to help set up and stayed late to shut things down. Thanks especially to Mike Kirsch and his family for handling the main course. Great job again Mike!

Thanks to those who brought scopes. Upon gazing at M13 through Eric's 24" scope (The Beast), my son Jack exclaimed, "I see a whole new universe!" It was nice to see families and kids as well; letting them see the observatory and look through eyepieces gets them excited about astronomy and science in general. I harbor no illusions about either of my kids becoming astronomers (though it would be cool). All I want for them is to have a deeper appreciation of what's around them. — *Mike Newberg*



Photos courtesy Mike Newberg

September McCloud Monthly Star Gaze

We had 110 people at the Stargaze Saturday night! Stephanie, the McCloud Naturalist, told me she had to turn people away from my presentation in the nature center due to overcrowding.

There were four of us there: Steve McSpadden, Eric Teske, Shashi Penumarthy, and myself. All of us had long lines. Thanks for showing up guys! We had a Girl Scout troop and a Boy Scout who was working on his Astronomy merit badge. He asked me a few questions as part of his qualifications. The skies weren't that great so we had to stick to the brightest objects and double stars. Fortunately M31 showed up tonight as we lost Saturn below the treeline.

We have one more Stargaze on October 12th so mark your calendars. Please, in case 110 people show up again. — *Mike Newberg*

Newcomer's Guide to Star Parties

Star Parties are sponsored by local astronomy clubs throughout the United States and they are generally scheduled near new Moon each month. In most cases, the parties are held where there is little or no light pollution so they are well away from cities or other "light islands." Their duration can be from a three day weekend to a full week during new Moon.

If you are typical, you want to see how well your own equipment performs under pristine, dark skies and enjoy the comradery of fellow amateur astronomers. There is also the opportunity to check out telescopes, eyepieces and mounts that are on your "upgrade" wish list. In most cases you will have acres of scopes to check out. All you have to do is ask the owner for a peek and an opinion of the equipment. There will also be vendors there to show you astro equipment and trinkets to bring home to the family. Lastly, you want to be comfortable while you are there.

Registration: Most star parties request that you register in advance so they have an idea of how many plan to attend. To encourage this, they give you a significant discount. The flip side is that, if you don't go for personal or weather reasons, you forfeit the registration, but you don't spend money on gas to go look at clouds. You can also pay when you get there, but check to see if this option is available.

Equipment: It is best to do a full dress rehearsal to make certain that you have everything you will need and that it all works together. Set up your mount and scope and give it a careful workout. Do you have all your adapters and cables? How about a scope cover, since it will be set up for several days. You will want to keep the sun from heating the scope and keep dust away. In areas prone to sudden winds and dust devils, you will want to anchor your mount to the ground or take the optical tube off when you are not attending it. Ground augers used to tether dogs work great in those areas with soil. Dob owners frequently lock their scopes in the horizontal position and tether the cage to a water filled gallon milk jug so the scope can "weathervane" as the wind shifts. The jug will allow the scope to rotate and it will prevent the scope from popping up and blow over. Bring ¼ inch and ½ inch shims for your tripod in case you cannot find level ground. Some like to spread a tarp on the ground first then set the mount on the tarp. You can sweep the tracked-in dirt/grass away and easily find small parts that you accidentally drop. Yes, a small collapsible broom is handy to have. If you have excess gear, take it and trade for what you want at the swap meet.

Reference Material/Logs: Bring the instruction manuals for your gear as well as your reference books, star atlas and logs that you will use while observing. I also bring along restore disks for the computer and backup disks for the programs I'm using since I have experienced computer crashes.

Power: Many major star parties lay out strings of 120VAC receptacles throughout the observing fields to power telescopes and chargers only. Connections to RVs are not allowed. Bring 100 to 150 feet of heavy duty extension cord if you need to hook up. At short weekend parties, power is what you bring with you. For extended general observing overnight & several days you may want to bring a 17 to 34 ampere-hour, 12 volt battery and a small 2 to 6 amp charger. Personally, I have found that AC on an observing field can be iffy due to people tripping over the lines. For all night imaging, I connect everything to a 12 volt battery and float the battery on a charger. My mount will shut down on low battery voltage if I don't. Bring spare batteries for your red flashlight and battery powered items.

Tools: Most of us bring a small tool kit to repair or adjust our equipment. Allen wrench sets, metric and/or US Standard, screwdrivers, long nose pliers, wrench sets, metric and/or standard, are handy to have around. Don't despair if you don't have all of this. Someone near you will have what you may need. Duct tape, rubber bands and rope are always handy around a campsite.

Shelter: Since most star parties are located at remote sites away from civilization, you will have to camp. A simple tent and dining fly or canopy will do. The Texas Star Party has bunk rooms available. The Winter Star Party has "Chikees" where you can bunk. Civilization is a long way away from the Okie-Tex, Nebraska and Heart of America Star Party sites. Check web sites for local housing options at other parties. For those who have not experienced scout or family campouts in your youth, you will want to talk to someone who routinely camps. Fall is a great time to buy a tent on sale. Many people have a small pop-up trailer or light weight transport trailer to haul their gear plus, with a little ingenuity, it doubles as a bunk house. Small RVs are popular for those who can afford them. My VW camper is the epitome of small, but from the point of view of an ex-submariner it is spacious! A foot mat will help you keep tracked-in debris out of your abode. A folding or roll-up table and chair are handy for eating as well as for observing and relaxing with friends.

Food: Some parties have caterers or you can cook for yourself. Check the web site. Be aware that the menu will have local flavor and sometimes the choices are limited. For those parties that have published menus, you may have to sign up for and pay in advance. The catered meals give you the opportunity to visit with other astronomers while you eat. Be aware that you will be tethered to the caterer's schedule. Bring a couple of gallons of drinking water with you. You can generally refill your jugs at a pump or spigot nearby.

Personal Comfort: For local star parties, you are probably well aware of the vagaries of the weather. For western, desert sites it may be a whole different story. I've experienced 80 degree days and 40 degree nights. Just before you leave home, check the 10 day weather forecast so that you can verify that your gear is appropriate. Layering is a great way to handle wide temperature swings. Hooded sweatshirts work well in that there is no bill to get in the way when you observe. Sunscreen and mosquito repellent are appropriate in season as are a poncho, rain suit or umbrella. A laundry will not be available so bring sufficient changes for the duration. Footwear can range from boots to sandals & clogs for the shower.

Make up your own checklist and update it after each star party. You invariably will forget some things each time, so add them to your list.

Enjoy the star party! — *Bill Conner*

Black Forest Star Party Cherry Springs State Park (near Coudersville, PA)

The Black Forest Star Party is definitely one to put on your to-do list. It is held in the fall of the year at Cherry Springs State Park, just outside of Coudersville, PA. The 82-acre state park is surrounded by the 262,000-acre Susquehannock State Forest and has been designated as an International Dark Sky Site.

Vicki and I attended this year for the first time and came away with a “must attend again” attitude. Located in the north central part of Pennsylvania, it was about a 600 mile one way trip. It is easily the best dark sky site that we have visited east of the Mississippi River.

We arrived about noon on Thursday, a day early, and it is a good thing we did. By nightfall, almost every spot had been taken. We were told that there were over 500 registered attendees this year, one of the largest turnouts in the 15 year history of the star party. Also in attendance was another of our other members, Joe Wambo, along with his 32 inch DOB.

Other than the Winter Star Party, Black Forest had the best vendor attendance that we have seen. You definitely had an opportunity to spend your astro-bucks. A food vendor with extremely reasonable prices kept your stomach happy.

Thursday night was absolutely fantastic, albeit a bit on the cold side. (Early Friday morning there was ice on the windshield of our vehicle). I was able to view a number of the Herschel objects, all of the IAS September Observing List as well as visiting a lot of “old friends” in the sky.

Friday night was hazy along with partly cloudy skies which limited observing to some of the brighter objects in the sky. Even though, we stayed up until after 1:00 in the morning enjoying the night. It was not nearly as cold, just cool and very comfortable when dressed appropriately.

The forecast for Saturday night and Sunday was for thunder storms so we decided it was in our best interest to pack up and leave on Saturday before everything became wet. — *John Switzer*



Photos courtesy John Switzer

Webmaster Role Changes Hands

After many years of diligent service, Doug Sangunetti has passed the reigns of IAS webmaster to Shashi Penumarthy. We hope to make the website even more user-friendly. If you see Doug tell him thank you for his service. — *Jeff Patterson*

Upcoming Public Events for October

IAS/Holcomb Observatory Program Planning Meeting — 7:00 PM, October 22, at Holcomb Observatory

IAS Board/Program Planning Meetings are held at Holcomb Observatory on Butler's Campus. IAS Members are welcome to attend. Should you like to attend and/or have an issue that you would like the Board to address, please contact Bill Conner at president@iasindy.org

IAS/Butler Public Lecture and General Meeting — 8:00 PM, October 26, at Holcomb Observatory

Observing Activities

Activities for October:

McCloud Activities—

McCloud Monthly Star Gaze October 12. This is the last McCloud stargaze of 2013.

Link Activities—

Impromptu observing as sky conditions allow. Check Yahoo site for information.

Dark Sky Observing Site Information

We are able to observe at the Link Observatory, Prairie Grass Observatories, and McCloud Nature Park during non-scheduled times if they do not conflict with reserved activities:

The Link Observatory is open for observing during IAS functions held there from early spring to late fall. For scheduled events, see our calendar of events under the "Events Schedule" tab on the website www.iasindy.org. Impromptu observing opportunities are announced on the IAS Yahoo group site by our telescope operators as weather permits.

For those interested in observing at McCloud Nature Park, please call the park office 765 676 5437 before 4PM on the day you want to go. The administrators will give you permission to be there at night and make arrangements to turn off the lights.

For those interested in observing at Prairie Grass Observatory, call Hoppe at 1-765-296-2753.

IU Kirkwood Observatory Bloomington

The Kirkwood Observatory Solar Telescope is open on the "First Saturday" of each month from 1-3 PM. Viewers may even be able to see a solar prominence or two, weather permitting. Updated weather conditions and closings will be posted at the Kirkwood Observatory Hotline at (812) 855-7736, and at the Observatory webpage, <http://www.astro.indiana.edu/kirkwood.shtml>.

Monthly openings of the solar telescope are planned for the first Saturday of each month during our 2013 observing seasons. And if you want to follow the Sun in between our monthly Solar Telescope openings, the website www.spaceweather.com provides daily updates.

Kirkwood Observatory on the IU campus is open each Wednesday evening from Spring Break until mid-November, weather permitting! Join us for a night of observing the night sky with the Kirkwood 12" refractor. Please visit our schedule at <http://www.astro.indiana.edu/kirkwood.shtml>, for a list of dates and times.

For updated weather conditions and closings, please call the Kirkwood Observatory Hotline at (812) 855-7736.

OCTOBER DEEP-SKY CHALLENGE

Bruce Bowman

Below please find a list of ten (10) objects to view this month. Those who complete the primary objects will receive a certificate via email and be recognized in the News and Views. We're also providing a challenge object to help push the limits of your observing skills. It's not necessary to successfully view the challenge object to receive the certificate; we only ask that you try.

Please complete the following list to receive the October certificate:

- NGC7177 (spiral galaxy in Pegasus)
- NGC7217 (spiral galaxy in Pegasus)
- NGC7448 (spiral galaxy in Pegasus)
- NGC7457 (elliptical galaxy in Pegasus)
- NGC7465 (barred spiral in Pegasus)
- NGC7469 (barred spiral in Pegasus)
- NGC7479 (barred spiral in Pegasus)
- NGC7619 (elliptical galaxy in Pegasus)
- NGC7626 (elliptical galaxy in Pegasus)
- NGC7625 (spiral galaxy in Pegasus)

Challenge object for October 2013: NGC7335 in Pegasus

The above objects are located between 22 and 0 hours of right ascension and so are well-placed for evening viewing this month.

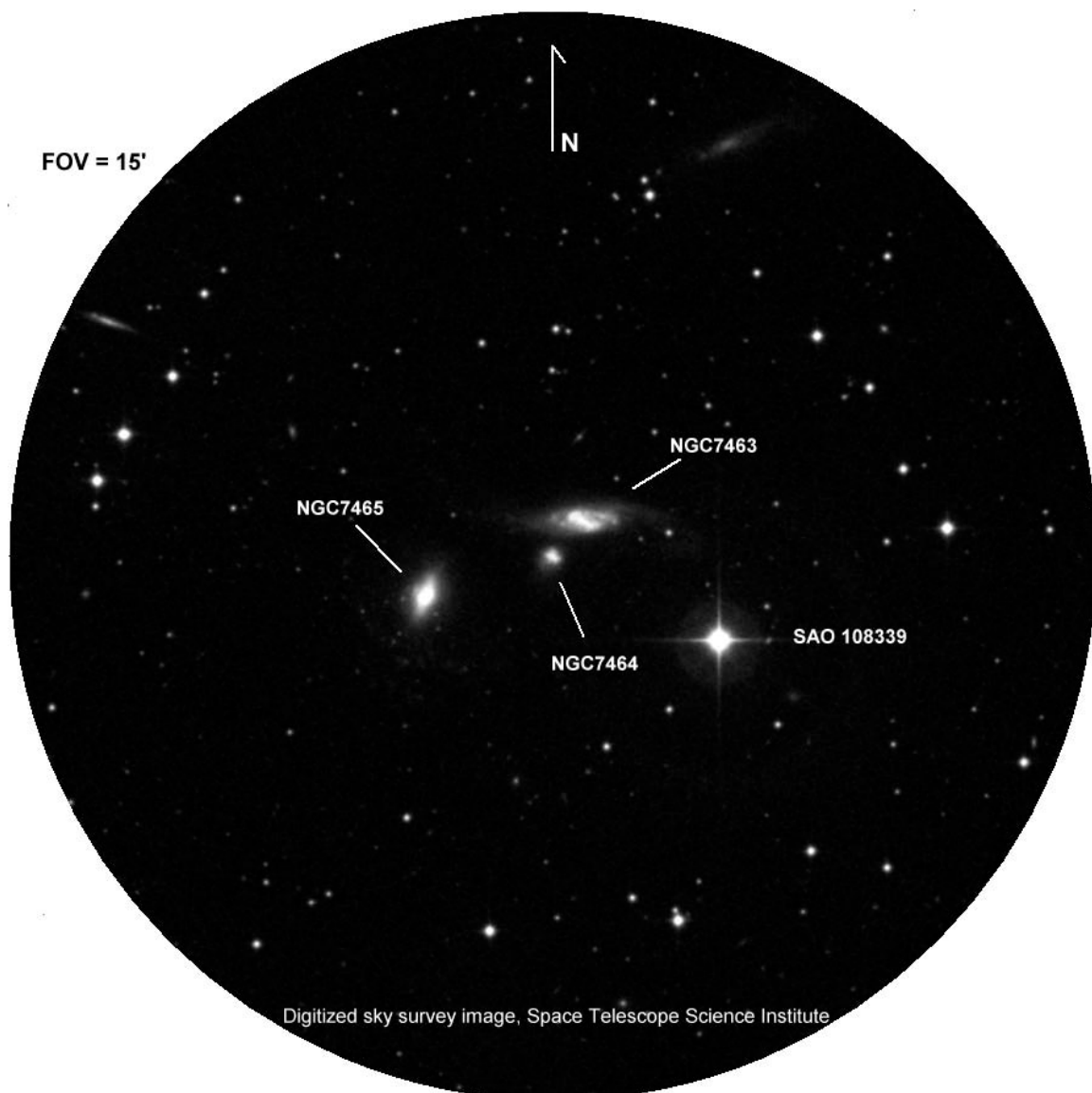
Many autumn constellations are associated with the ancient Greek myth of the hero Perseus, slayer of both Medusa and the Kraken (aka Cetus). One of those constellations is Pegasus, the winged horse; which fortuitously passes almost directly overhead at mid-northern latitudes. Pegasus' body is delineated by four stars of 1st and 2nd magnitude; a conspicuous asterism that has acquired the [somewhat unimaginative] moniker "the Great Square of Pegasus," although one of the stars is actually in Andromeda. One way to determine sky transparency at your site is to count stars within the Great Square; more than seven visible stars suggests a very good viewing location by Indiana standards.

Deep-sky-wise, Pegasus harbors many diminutive galaxies, several of which are well within reach of amateur telescopes. [NGC7177](#) can be found about 3 degrees ENE of the 5th-magnitude star 13 Pegasi.

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This object has a fairly bright core despite being 12th magnitude. Look for a hazy glow about 1.5' in size that's a little elongated east-west. Further north, [NGC7217](#) is located the same distance SSE of the wide double pi Pegasi. This spiral is somewhat brighter, nearly round, about 2' in diameter, and gradually brighter towards the center. A 10th-magnitude star can be found about 3' to the SE.

Starting at Markab (alpha Pegasi), [NGC7448](#) can be located by slewing your scope about 2 degrees to the NE. Its small, uniform halo is elongated north-south, and is flanked by 10th-magnitude stars on the east and west. About 20' due east of NGC7448, a nice triad of galaxies can be found: NGC7463, NGC7464 and [NGC7465](#). Look for this collection just ENE of the 8th-magnitude star SAO108339. Our target galaxy is the easternmost of the three and has a high surface brightness. You should readily detect a small oval – less than 1' in length – elongated NNW-SSE with a stellar nucleus. It won't hurt to attempt the other two while you're here, as you won't even have to move the scope to do it! Use the photo below to guide your search.



Return to Markab and slew 3 degrees south to find [NGC7479](#). You should see a pretty bright, diffuse halo, elongated north-south, about 3' in the long dimension. It shows no further details other than a

moderate brightening toward the center. If a 10th-magnitude star is found about 3' to the south of the galaxy you'll know you're in the right place. Another 5 degrees further south lies the much smaller barred spiral [NGC7469](#). Look for a bright nucleus surrounded by a diffuse halo that's only about an arc-minute across. IC5283 lies only 1.5' to the NE but is much harder to detect. Slew 5 degrees east from here to find [NGC7619](#), and another 7' in the same direction lies its companion [NGC7626](#). Like M84 and M86 in Virgo, this pair of giant elliptical galaxies marks the center of the Pegasus I galaxy cluster. You'll find NGC7619 to be fairly easy, very slightly elongated, only 1' in diameter, with a star-like nucleus. NGC7626 is similar but slightly fainter. You should also see a 10th-magnitude star to the north that forms an equilateral triangle with these two galaxies. While in the area you might try a side trip to the tiny elliptical galaxy NGC7617, less than 3' to the SW of NGC7619.

[NGC7625](#) is easily found just 7' WSW of the 6th magnitude star SAO108560. Like many of the objects we've been viewing in this constellation, you'll find a bright, round halo only about 1' in size surrounding a tiny core. Consider moving the bright star just outside of the field of view to get a better look at the galaxy. Moving back north, [NGC7457](#) is located 3 degrees NNW of the red giant star Scheat (beta Pegasi). No, I didn't make that up. Look for a somewhat larger, hazy patch elongated NW-SE; having a bright, extended nucleus and placed in a field peppered with glittering stars.

Our challenge object for October 2013, found about 5' northeast of the core of NGC7331, is the brightest of several satellite galaxies of the showpiece spiral. Taken together, this collection is popularly known as the Deer Lick Group, for no apparent reason. Fainter than 14th magnitude, [NGC7335](#) should definitely present a challenge; at best you will probably detect only the core, which I'm told is about 30" in the long dimension. Despite many attempts, I've never been able to detect this one using apertures up to 13" from my semi-rural back yard, but hopefully it will be visible in the 36" at Link. As is typical for observing targets of this kind, crystal-clear skies on a moonless night will likely also be necessary.

If you complete this list prior to the end of October, contact Bruce Bowman to ensure you receive recognition. At this time only IAS members are eligible. Congratulations to the following seven (7) IAS members for completing the August challenge: Mike Birch, Bill Conner, Fred Keller, Laura Keller, Steve McSpadden, Wayne McSpadden, and John Shepherd. Everyone listed above also successfully viewed or photographed the challenge object...it's on that basis that I've made this month's target a little more difficult. Paybacks are heck. :^)

OCTOBER NOVICE/URBAN OBSERVING CHALLENGE

Phil Dimpelfeld

Xi Cephei, Double Star in Cepheus, 22h 03.8m, +64° 38', mag = 4.4, 6.5, sep = 7.7"

NGC 7243 (Caldwell 16), Open Cluster in Cassiopeia, 22h 15.3m, +49° 53', mag = 6.4, size = 21.0'

Zeta Aquarii, Double Star in Aquarius, 22h 28.8m, -00° 01', mag = 4.3, 4.5, sep = 1.8"

Delta Cephei, Variable/Double Star in Cepheus, 22h 29.2m, +58° 25', mag = (v3.5 – 4.4), 6.3, sep = 41". Primary is the prototype of famed Cepheid variables – period 5.4 days.

94 Aquarii, Double Star in Aquarius, 23h 19.1m, -13° 28', mag = 5.3, 7.3, sep = 12.7"

NGC 7662, "The Blue Snowball" Nebula, Planetary Nebula in Andromeda, 23h 25.9m, +42° 33', mag = 8.3, size = 32" x 28"

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NGC 7789, "The White Rose" Cluster, Open Cluster in Cassiopeia, 23h 57.0m, +56° 44', mag = 6.7, size = 15.0'

Sigma Cassiopeiae, Double Star in Cassiopeia, 23h 59.0m, +55° 45', mag = 5.0, 7.1, sep = 3"

Mare Undarum, first quarter Moon

Gassendi, third quarter Moon

Challenge Object:

8 Lacertae, Double(Quadruple) Star in Lacerta, 22h 35.9m, +39° 38', mag = 5.7, 6.5/10.5, 9.1, sep = 22.4"/49", 82". Nice blue-white pair. The two fainter companions form a delicate quadruple system with bright pair.

CONGRATULATIONS to the following for completing the August 2013 Novice/Urban Observing List:

Eric Teske
Fred and Laura Hintz
Philip Rone
Eric and Berta Allen

Notes:

To qualify for the Novice/Urban Observing List, you must observe at least 6 of the objects. Members are encouraged to find these objects without the use of GoTo so that they become more familiar with the night sky.

AL/COR OBSERVATIONS

Chris Cordell

Bright Nebula Observing Program

Introduction

Welcome to the Astronomical League's Bright Nebulae Observing Program.

Bright nebulae are interstellar clouds of gas and dust where stars are born and have died. Their complex shapes and rich colors make them objects of great interest and beauty to amateur astronomers. If you don't already have an appreciation of these magnificent objects, it is hoped that this program will inspire you to study them and gain an understanding of stellar evolution.

Bright nebulae, also called diffuse or Galactic nebulae, occur in two main classes depending on their source of illumination: emission and reflection, although they occasionally are a combination of the two (R+E). Much less common is a third type of the bright nebula, the supernova remnant (SNR).

Emission nebulae are clouds of dust and glowing hydrogen gas, sometimes referred to as H II regions. The atoms in the cloud are ionized by nearby hot stars and when the excited electrons fall back to their previous energy state, the process releases energy in the form of visible light. Since most of the light visible from emission objects comes from just the three bright lines produced by hydrogen (H β at

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4861A) and oxygen (OIII) at 5007A and 4959A, the use of narrow band nebula filters can be helpful in viewing them. Emission nebulae typically appear red in images, but not to the naked eye.

Reflection nebulae have the same composition as emission objects, but lack stars sufficiently hot to cause the gas comprising them to fluoresce. Therefore, they shine merely by the dust in the nebula scattering starlight (the gas does not actually reflect any light). Because these objects scatter starlight of all colors, filters are not generally helpful in viewing them. Reflection nebulae appear blue in images.

A supernova remnant is the remains of a catastrophic stellar explosion, wherein much of a star's material is ejected, often as a highly-structured cloud. These objects have strong lines similar to emission nebulae, hence also benefit from the use of nebula filters.

List of Objects

Among the more than 160 bright nebulae chosen for this program are some of the most famous showpieces in the northern and southern skies. The list also contains examples across the entire range of bright nebulae. Some are bright and large enough to be visible with naked eye or binoculars from a dark site. Others will appear in a telescope as ghostly apparitions that will severely test your powers of observation. You will need a telescope 8" or larger to complete this program.

Nebulae are easily washed out by light pollution, so find a dark location from which you can observe will greatly assist the amount of detail that you can see. Make sure to allow time for your eyes to become dark-adapted. Use averted vision and slight tapping of the telescope to detect the subtlest variations in brightness and contrast. Nebulae filters (UHC and OIII) will help you expand the level of detail you can discern. Beware that even if you use these tips, there is much you will miss if you do not take your time with an observation.

There is the possibility that a few of the objects may simply be beyond detection for some observers and we will allow negative observations in completion of the advance program. Evidence of diligent efforts to observe an object is required (see Rules and Regulations).

The list has been developed to offer objects that will allow observers in both the northern and southern hemispheres to complete the Bright Nebulae Observing Program.

Nebulae vary in brightness according to Lynd's Catalog of Bright Nebula, which uses a scale of 1-6, where 1 is brightest and 6 is barely detectable. Provided sufficient aperture is used under dark skies, experience suggests most category 1 and 2 emission nebulae and SNR's are within visual range. Category 3 objects will prove difficult, while those rated 4 and above are likely to be beyond visual range and thus candidates for imaging instead. When compared with the same scale, reflection nebulae are generally considered to be more difficult to observe visually. In this program, you are to estimate the brightness of the nebulae using the Lynd's Brightness Scale. This will give you an additional way to describe and compare the bright nebulae you observe.

Rules and Regulations

You must be a member of the Astronomical League, either through membership in an affiliated astronomical society or as a Member-at-Large.

Device-aided searches are allowed. Observers reporting that 100% of the objects observed were located manually by traditional star-hopping techniques will receive special recognition on their certificate. Use of publicly available remote controlled telescopes via internet connection is not allowed.

“Negative observations” will be accepted for the ADVANCED visual program only if sufficient evidence is submitted to establish that the proper field was examined on at least two separate attempts and every reasonable effort was made to detect the object. The maximum number of negative observations accepted is limited to 5.

To record a negative observation, the observer must make at least two observing attempts on different nights, record all of the data required for a standard observation and describe in detail the methodology used to confirm that the proper position was examined. Each negative attempt **MUST** include a sketch of the star field. Observers are encouraged to make as many attempts to detect the object as possible and to submit negative observations only as a last resort. Negative observations will not be accepted for the basic program.

The observer may use the log sheet provided with this guide or may use a log of his/her own design so long as all of the required information is recorded. The record of observations shall include for each object:

- Location of the observer’s site, including longitude and latitude.
- Date and time of the observation (either UT or local time).
- Sky conditions including seeing, transparency, darkness of the site and degree to which moon interferes with the observation.
- Instrument used including aperture and focal length of the telescope, binocular specs.
- Eyepiece and magnification.
- Filters used.
- Estimate of nebula brightness compared to other nebula using Lynd’s scale with 1 being brightest and 6 dimmest.
- A detailed description of the object that includes at a minimum:
 - Does the edge of the nebula stand out clearly from the background or fade away without sharp boundaries?
 - Are there stars embedded in the nebula? How many?
 - Is the nebula a uniform glow or uneven, with bright patches or dark lanes?
 - What is the shape and size of the nebula?
 - How does the nebula respond to different filters and magnifications?
 - Is the object visible by direct vision or does it require averted vision?
 - What else is visible in the field (clusters, bright stars, other bright nebula)?
 - Detailed descriptions of the object in the observer’s own words, or a detailed sketch of the object.

If you choose to make a sketch of the nebula, please note that artistic talent is not required. Just draw what you see as well as your ability allows. Use a number 2A lead pencil for best results. To make a drawing first mark the brightest field stars, then use these to guide you to the area you shade in to represent the shape and extent of the cloud of gas and dust. To indicate a brighter area simply shade that spot more darkly with the pencil. A dark lane through the nebula would be indicated by simply leaving the area blank white.

The record of observations for imaging is the same as for the visual certification, except that instead of a detailed description of the object, the specifics of the instrument used to make the image should be recorded. Exposure times, image software, number of stacked images and the like should also be provided. Any camera that records an image through the optics of a telescope may be employed. In

cases where there is more than one nebula present in an image. An overlay, companion sketch or other method must be used to clearly identify the nebula.

The Awards

The program offers three levels of accomplishment: a basic and advanced visual level and an imaging level. The basic visual program requires you to observe at least 60 objects on the list. A certificate is awarded for the basic program. The advanced visual program requires you to attempt to observe at least 100 objects for which you will receive a certificate and pin, which sports a colorful image of the Great Orion Nebula. To complete the program by imaging, 100 objects must be successfully imaged. An advanced certificate and pin will be awarded for the imaging program.

Once you have made the necessary observations and sketches, mail the copies of your logs to the Program Coordinator, along with your name, address, astronomy club or Astronomical League affiliation, e-mail, and phone number. Please do not send your original logs, as they will not be returned. Upon verification of your observations, your certificate and pin may be forwarded either to you or the Indiana Astronomical Society Awards Coordinator, for presentation, as you so choose.

For Observing Manual and Object List details, access: www.astroleague.org, click on the "Observe" tab at the top of the home page, and select "Clubs by Experience Level". Bright Nebula Observing Program is listed in the Intermediate section.

NASA SPACE PLACE

How to Hunt for Your Very own Supernova!

By Dr. Ethan Siegel

In our day-to-day lives, stars seem like the most fixed and unchanging of all the night sky objects. Shining relentlessly and constantly for billions of years, it's only the long-term motion of these individual nuclear furnaces and our own motion through the cosmos that results in the most minute, barely-perceptible changes.

Unless, that is, you're talking about a star reaching the end of its life. A star like our Sun will burn through all the hydrogen in its core after approximately 10 billion years, after which the core contracts and heats up, and the heavier element helium begins to fuse. About a quarter of all stars are massive enough that they'll reach this giant stage, but the *most* massive ones -- only about 0.1% of all stars -- will continue to fuse leaner elements past carbon, oxygen, neon, magnesium, silicon, sulphur and all the way up to iron, cobalt, and, nickel in their core. For the rare ultra-massive stars that make it this far, their cores become so massive that they're unstable against gravitational collapse. When they run out of fuel, the core implodes.

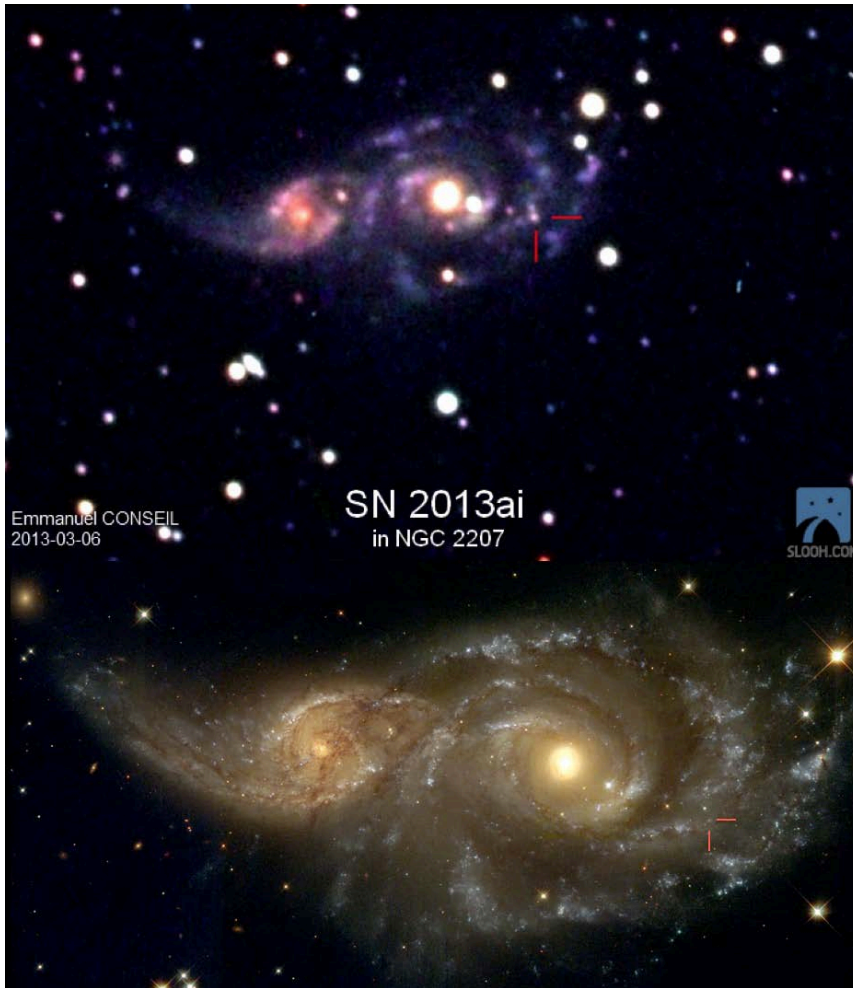
The intruding matter approaches the center of the star, then rebounds and bounces outwards, creating a shockwave that eventually causes what we see as a core-collapse supernova, the most common type of supernova in the Universe! These occur only a few times a century in most galaxies, but because it's the most massive, hottest, shortest-lived stars that create these core-collapse supernovae, we can increase our odds of finding one by watching the most actively star-forming galaxies very closely. Want to maximize your chances of finding one for yourself? Here's how.

Pick a galaxy in the process of a major merger, and get to know it. Learn where the foreground stars are, where the apparent bright spots are, what its distinctive features are. If a supernova occurs, it will appear first as a barely perceptible bright spot that wasn't there before, and it will quickly brighten over

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a few nights. If you find what appears to be a "new star" in one of these galaxies and it checks out, report it *immediately*; you just might have discovered a new supernova!

This is one of the few cutting-edge astronomical discoveries well-suited to amateurs; Australian Robert Evans holds the all-time record with 42 (and counting) original supernova discoveries. If you ever find one for yourself, you'll have seen an exploding star whose light traveled millions of light-years across the Universe right to you, and you'll be the *very first* person who's ever seen it!



SN 2013ai, via its discoverer, Emmanuel Conseil, taken with the Slooh.com robotic telescope just a few days after its emergence in NGC 2207 (top); NASA, ESA and the Hubble Heritage Team (STScI) of the same interacting galaxies prior to the supernova (bottom).

Read more about the evolution and ultimate fate of the stars in our universe:
<http://science.nasa.gov/astrophysics/focus-areas/how-do-stars-form-and-evolve/>.

While you are out looking for supernovas, kids can have a blast finding constellations using the Space Place star finder: <http://spaceplace.nasa.gov/starfinder/>.

PUBLIC OUTREACH PROGRAMS

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

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

Goethe Link Observatory tour: To schedule a tour of the Link Observatory, contact the Link Observatory Manager by sending an email to link-observatory@iasindy.org

ASTRO ADS

Are you changing or upgrading your equipment? Do you have or are you looking for astronomical materials and equipment? The Indiana Astronomical Society, as a service to its members, will publish non-commercial ads at no charge. The ad will stay in the Newsletter for 4 months and may be renewed at the owner's request. Please be sure to notify us when the item sells. **To place an ad, send an email to editor@iasindy.org:**

For Sale: I have a telescope system for sale and wondered if you'd like to publish it in your latest astro ads?

Scope:

- CPC 925 GPS (XLT) Computerized Telescope (\$2499)

<http://www.celestron.com/astronomy/celestron-cpc-925-gps-xlt.html>

Included Accessories:

- NexGuide Autoguider (\$299.95)

<http://www.celestron.com/astronomy/celestron-nexguide-autoguider.html>

- 80 mm Guidescope Package (\$189.95)

<http://www.celestron.com/astronomy/celestron-80-mm-guidescope-package.html>

- Televue Nagler Type 6 EN6-13.6 Lens (Paid \$280.00)

http://www.televue.com/engine/TV3b_page.asp?id=21&Tab=EP_EN6-13.0

- Celestron X-Cel 1.25" Eyepiece Set of 6 (Paid \$314.00)

- Telescope & Tripod Case (\$460)

<http://casesandcovers.com/telescopecases.html>

- 9.25-inch Dovetail bar (CGE) (\$39.95)

<http://www.celestron.com/astronomy/celestron-9-25-inch-dovetail-bar-cge.html>

- Star Pointer Finderscope (\$17.95)

<http://www.celestron.com/astronomy/celestron-finderscope-star-pointer.html>

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- Night Vision Flashlight (\$15.95)

<http://www.celestron.com/astronomy/celestron-flashlight-night-vision.html>

I'm going to miss this system, but I've had to make some financial changes and need to sell as a result.

Asking \$3800 obo

Thank you
Richard Good
cell: 817-897-4449

EQUIPMENT LOAN PROGRAM

The Loan Program has been helpful to those new to the hobby and others in need of observing equipment.

Did you know you could borrow a scope or piece of astronomy equipment from the Society and take it for a test drive? The Society has a program where members who are trying to determine what kind of equipment to buy can borrow one of the Society's scopes for a month or two and see how they like it. Philip Dimpelfeld is the chairman of the program and can arrange for your pickup and training on the use of the particular instrument. This is a great way to see what telescope you want to purchase. We have several scopes, eyepieces and binoculars to loan.

We will consider donations of equipment that are appropriate for this program. The IAS is classified as a public charity under section 509(a)(2) of the internal revenue code. We will be happy to provide you with an acknowledgement of your gift. Please contact our Equipment Loan Coordinator by sending an email to: equipment@iasindy.org

2013 Calendar of Monthly Meetings

Month	Board	General	NAG	McCloud
January	8	12	12	
February	5	9	9	
March	5	9	9	
April	2	6	6	20
May	28	June 1	June 1	18
June	25	29	29	15
July	23	27	27	13
August	27	31	31	17
September	24	28		14
October	22	26	26	12
November	19	23	23	
December	None	14		

IAS MEMBERSHIP REPORT FOR AUGUST 2013

On 8/31/13 the IAS had a total of 157 members.

During August there were 9 renewals and 4 new memberships.

The IAS welcomes the following new members:

Eric Teske - Brownsburg, IN
Michael Downs - Englewood, FL
Chris Mendoza - Indianapolis, IN
Richard Hamm - Indianapolis, IN

Report submitted by Roberta Allen, IAS Membership Coordinator

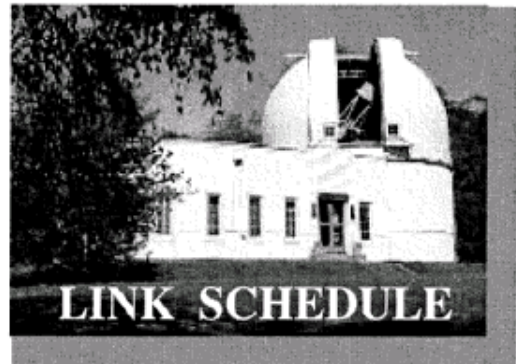
MISCELLANEA

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 over-ride these sessions. It is the purpose of this listing to prevent activity conflicts.

To schedule the use of the 36-inch telescope: two criteria must be met:

- 1) *There must be a telescope operator and assistant available*
- 2) *Contact the Observatory Manager for scheduling by sending an email to link-observatory@iasindy.org*

DON'T WAIT UNTIL THE LAST MINUTE TO MAKE YOUR REQUEST OR YOU MAY NOT GET ACCESS.

IAS News and Views

IAS News & Views — Monthly Newsletter for the IAS

The monthly newsletter can be found on the website www.iasindy.org. The *News and Views* welcomes articles of local astronomical interest, follow-up on IAS events, and want/for sale ads. Please submit articles to the editor in an email to editor@iasindy.org:

Membership information

You may contact our membership coordinator by sending an email to membership@iasindy.org. Contact any IAS officer or the Treasurer via the webpage iasindy.org under the “Contact us” section.

Pay Your Dues by PayPal

We can now pay dues on our website using Paypal. There is a cart system where you can pay dues, order magazines, or donate to the Society. The cart is found in the “Join the Society” section of the website. You will have to establish a PayPal account for yourself to make the transactions.

Requests for Information

You may contact our officers, Board members, and Coordinators via our website at www.iasindy.org. Place your cursor on the “Home” tab and then select “Contact us”. You may then page down to the person you desire to contact and send an email message requesting information or a telephone call back. We will be happy to respond within a reasonable time frame.

Logo Clothing

The Board has developed a supply of logo ware using Mid Central Trophy in Kokomo, IN. Typically T shirts, sweatshirts, polo shirts, and caps are available. Call Linda, 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 to your home directly.

Linda
Mid-Central Trophy
422 Arnold Ct
Kokomo, IN 46902
765-453-5494

All major credit cards are accepted. Hours 9-5 EST

October Calendar, 2013

For a more detailed Calendar of Events see the webpage www.iasindy.org

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	October 1	2	3	4 New Moon ● Deep Sky Observing Link Observatory	5 Deep Sky Observing Link Observatory
6	7	8	9	10	11 1st Qtr ☾	12 McCloud Stargaze
13	14	15	16	17	18 Full Moon ○	19
20	21	22 Board Meeting 7PM	23	24	25	26 IAS/Holcomb Observatory Public Meeting 3rd QTR ☾
27	28	29	30	31		