

# The IAS News & Views



The monthly publication of the Indiana Astronomical Society, an amateur non-profit educational organization ([www.iasindy.org](http://www.iasindy.org))

March, 2011

Volume 78, Issue 3

**The March General Meeting  
March 26, 2011  
7:00 PM  
Holcomb Observatory  
Butler University**

## **The Mars Science Laboratory Mission**

**Greg McCauley**

Greg will be presenting a prepared presentation on the Mars Science Laboratory. Scheduled to launch in the fall of 2011, Mars Science Laboratory is part of NASA's Mars Exploration Program, a long-term effort of robotic exploration of the red planet. The Mars Science Laboratory "Curiosity" is a rover that will assess whether Mars ever was, or is still today, an environment able to support microbial life. It is the most ambitious and one of the most important missions to the red planet to date. The rover "Curiosity" will carry the biggest, most advanced suite of instruments for scientific studies ever sent to the Martian surface. The rover will analyze dozens of samples scooped from the soil and drilled from rocks. The rover's onboard laboratory will study rocks, soils, and the local geologic setting in order to detect chemical building blocks of life on Mars.

"Finding life or the fossilized remains of past life outside planet Earth will be one of the most important discoveries in human history, and the Mars Science Lab may be the mission that accomplishes just that. Come and participate in this entertaining, full multimedia presentation that includes images of the space craft, discussions of the individual scientific instruments, and computer-animated videos of the mission in action on the Martian surface. You will also receive specific information on reference materials that will allow you to follow the development of this historic mission."

Greg has been a member of the IAS since 2008 and is currently the IAS librarian and a member of the Board of Directors. In the early 1970's, Greg worked as a NASA contractor at the Manned Spacecraft Center (now Johnson Space Center) in Houston Texas in Mission Planning and

Analysis for Apollo 15 and 16, and was a member of the Lunar Launch Team for Apollo 17. In recent years Greg exercised his life-long enthusiasm for manned space exploration by speaking to high school students about the history of the Apollo Lunar Program.

In January of this year, Greg became a Solar System Ambassador for NASA/JPL. The Solar System Ambassadors Program is sponsored by the Jet Propulsion Laboratory in Pasadena, CA, an operating division of the California Institute of Technology (Caltech) and a lead research and development center for the National Aeronautics and Space Administration (NASA). The Solar System Ambassadors Program is a public outreach designed to work with trained volunteers across the nation. These volunteers communicate the excitement of JPL's space exploration missions and information about recent discoveries to people in their local communities.

## ***IAS NEWS***

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### **IAS Calendar of Events for March**

General Meeting March 26

Board Meeting March 29

Campout at Camp Cullom April 29-31

April General Meeting April 23

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### **The President's Corner**

We are beginning to get more and more requests for public outreach programs as Spring begins to hit. We need people to help with these events. It only takes a couple of hours usually and they are actually fun. If you are interested yet feel that you might be inadequate. Let us know and we can set up some training. The main thing is to transfer your zest for your hobby to those interested in what up in our skies.

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### **Bill Conner Has an Image Published in Astronomy Magazine's online image section - M-83**



Nice image Bill. Congratulations.

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### **Brook's School Science Night**

The IAS participated in Brooks School's Science night. Gerald Venne, Doug and Betsy Brown, Ron Burgess, and Jeff Patterson manned a booth and talked about what's up in the sky, moon phases and telescopes. Unfortunately the clouds kept us from going outside. We had approximately 1000 students and parents that came to visit

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### **Pike Schools Math and Science Night**

The IAS participated in Pike Schools Math and Science night. Greg McCauley, Gerald Venne, Doug and Betsy Brown and Jeff Patterson manned the booth and talked to students about amateur astronomy. We all had a ball.



Gerald Venne, Betsy Brown and Jeff Patterson prepare Exhibit



Greg McCauley with his Exhibit of Images

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## NAG

### **New Astronomer's Group Meeting McCloud Nature Park Saturday April 9 7:30 PM**

It's spring again and time to look at the sky and see the wonders of our Indiana skies. Have you ever looked up and wondered what that bright "star" was gleaming in the sky? Have you heard that an event was going to happen in a specific constellation, but you did not know how to find it?

The Indiana Astronomical Society and Hendricks County Parks Department will begin another year of monthly New Astronomer's Group meetings by hosting an evening of learning about our spring sky and then, weather permitting, actual observation of some of the April night sky objects. We will be meeting on Saturday April 9, at McCloud Nature Park starting at 7:30 pm. This first event may be cold so prepare for the temperatures. If it is clear, we will be observing.

### **THE NAG MEETING WILL BE HELD - RAIN OR SHINE.**

Discussion topics for this month:  
Learning the April Night Sky

- learn to recognize the Spring Constellations
- find Saturn

- learn to use a Star Wheel
- find Deep Sky Objects
- Question and answer session

The purpose and intent of the NAG is to introduce new astronomers to observing the night sky. All types of observing will be discussed including naked eye, binocular, and telescope.

If the weather cooperates, following the meeting, IAS members will have telescopes set up and attendees will have an opportunity to view some of the night sky objects discussed during the meeting. If you have binoculars or a telescope, please bring them.

The night sky can be an intimidating place. With a little help everyone can enjoy the celestial beauty that we have all taken for granted our whole lives. From the constellations to the deep sky; with the naked eye or with a telescope, there is something for everyone to enjoy.

We look forward to seeing you on the 9th.

Our understanding is that there may be a newspaper photographer coming out that night to do a story on McCloud, the Society and our public outreach events. We need scopes there and people to man them.

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### **Planetary and Lunar Observing**

Several people have expressed an interest in planetary and lunar observing. As spring begins to roll around and we can begin observing again let's get some observing programs together. Let me know if you are interested.

The Pres

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### **Astronomical League**

#### **GLOBE at Night 2011, Feb 21 – March 6, March 22 – April 4**

Members of the Indiana Astronomical Society are invited to participate in the 6<sup>th</sup> annual global campaign to measure night sky brightness known as "GLOBE at Night." GLOBE at Night provides us with an opportunity to go outside between 8 and 10 PM on a clear, moonless night, and observe the constellation Orion. With the new moon occurring on the 4<sup>th</sup>, the best opportunity will be during the weekend of 5 & 6 March and April 2 & 3. Let's hope for clear nights during these periods.

Participation does not require any special training or instruction. The GLOBE at Night web site provides all the information needed so visit: [www.globeatnight.org/](http://www.globeatnight.org/) In 2010, citizen scientists from 86 countries submitted over 17,800 observations.

To participate, all you have to do is compare your view of the nighttime sky with the 7 Magnitude Charts in the downloadable Family Activity Packet. These charts will help you determine the magnitude of faintest stars that you can see at your location. You are also encouraged to observe from more than one location, for example, your home and a favorite dark site. Submit your report on the GLOBE at Night web site.

Bill Conner AL/Cor

## Observing Activities

### Link Campouts

The dates of the Link campouts have been set;

June 24-June 26 (same weekend as General Meeting)

Moonrise 2:05 AM June 25

Moonrise 2:35 AM June 26

August 26 - 28 Moonrise 5:22 AM Aug 27

Moonrise 6:35 AM Aug 28

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### Activities for March:

#### Link Observatory

None planned

#### McCloud Activities—

NAG –There is no NAG. See you April 9.

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

For those interested in going to The Link Observatories for observing call John Shepherd at 1 317-862-3442.

For those interested in going to McCloud to observe, please call the park office 765 676 5437 before 4PM on the day you want to go out. They will give you permission to be there at night and make arrangements to cut off the lights.

For those interested in going to Prairie Grass Observatories for observing call Hoppe at 1-765-296-2753.

### Other Observing Activities

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 monthly during our 2010 observing season. And if you want to follow the Sun in between our monthly Solar Telescope openings, the website [www.spaceweather.com](http://www.spaceweather.com) provides daily updates.

## IU Kirkwood Observatory

Kirkwood Observatory on the IU campus will be open each Wednesday evening through the summer, 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.

The IU Astronomy Department has an electronic bulletin to let people know about local astronomy activities and events. If you would like to subscribe, send an email to [astdept@indiana.edu](mailto:astdept@indiana.edu) and we'll put you on the distribution list. Information about activities and events to be included in the e-bulletin should be sent to [catyp@astro.indiana.edu](mailto:catyp@astro.indiana.edu).

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### NASA Space Place

## GOES-R, Zombie Fighter

by Dr. Tony Phillips

On April 5, 2010, something eerie happened to the Galaxy 15 telecommunications satellite: It turned into a zombie.

The day began as usual, with industry-owned Galaxy 15 relaying TV signals to millions of viewers in North America, when suddenly the geosynchronous satellite stopped taking commands from Earth. It was brain dead! Like any good zombie, however, its body continued to function. Within days, Galaxy 15 began to meander among other satellites in geosynchronous orbit, transmitting its own signal on top of the others'. Satellite operators scrambled to deal with the interference, all the while wondering *what happened?*

In horror movies, zombies are usually produced by viruses.

"In this case, the culprit was probably the sun," says Bill Denig of the National Geophysical Data Center in Boulder, Colorado. He and colleague Janet Green of NOAA's Space Weather Prediction Center recently led a study of the Galaxy 15 anomaly, and here are their conclusions:

On April 3<sup>rd</sup>, a relatively minor solar flare launched a cloud of plasma toward Earth. Galaxy 15 had experienced many such events before, but this time there was a difference.

"Galaxy 15 was just emerging from the shadow of Earth when the cloud arrived and triggered a geomagnetic storm," explains Denig. Suddenly exposed to sunlight and the ongoing storm, "the spacecraft began to heat up and charge [up]."

Electrons swirling around Galaxy 15 stuck to and penetrated the spacecraft's surface. As more and more charged particles accumulated, voltages began to rise, and—zap!—an electrostatic discharge occurred. A zombie was born.

“At least, this is what we suspect happened based on data collected by GOES satellites in the vicinity,” he says. “We’ll be able to diagnose events like this much better, however, after GOES-R is launched by NASA in 2015.”

GOES-R is NOAA’s next-generation Geostationary Operational Environmental Satellite. One of the instruments it will carry, a low-energy electron counter, is crucial to “zombie fighting.” Low energy-electrons are the ones most likely to stick to a spacecraft’s surface and cause brain-frying discharges. By monitoring these particles in Earth orbit, GOES-R will provide better post-mortems for future zombie outbreaks. This could help satellite designers figure out how to build spacecraft less susceptible to discharges. Also, GOES-R will be able to issue alerts when dangerous electrons appear. Satellite operators could then take protective action—for example, putting their birds in “safe mode”—to keep the zombie population at bay.

Meanwhile, Galaxy 15 is a zombie no more. In late December 2010, after 9 months of terrorizing nearby spacecraft, the comsat was re-booted, and began responding to commands from Earth again.

All’s well that ends well? True zombie fighters know better than to relax. Says Denig, “we’re looking forward to GOES-R.”

You and the kids in your life can learn about space weather at <http://scijinks.gov/space-weather-and-us>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



*The Galaxy 15 communication satellite was “brainless” for several months in 2010 after being exposed to a geomagnetic storm. The new GOES-R satellite will warn of such dangers.*

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## **STARGAZER #552 for Mar. 11, 2011**

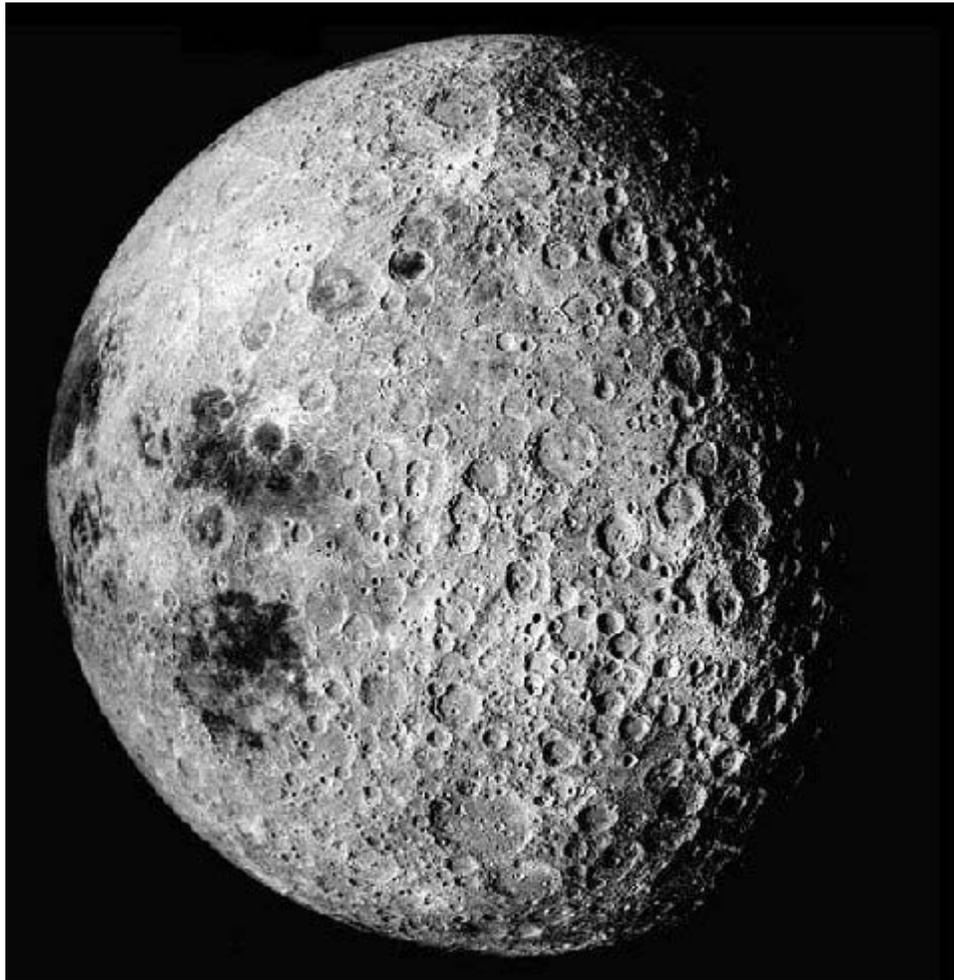
### **Getting to Know Our Solar System: Moon**

Until the beginning of the Space Age in 1957, our only knowledge of the other members of our solar system came from viewing and studying objects from Earth – with naked eyes for most of human history, and then with Earth-bound telescopes for 350 years. What we learned from these observations – especially telescopic – was considerable, yet there were still great mysteries surrounding our own neighbors. Many still wondered if there might be life on Venus, or at least conditions hospitable to life. Was the Moon as dry as it appears, and was it covered with a deep layer of dust that would engulf anyone landing on its surface? And did Mars have city-linking canals or any other evidence of Martian life, living or extinct?

In this and future columns we'll look at some of what we've learned about our solar system neighbors in the last half century, and since our first Space Age explorations were of our nearest neighbor, the Moon, that's where we'll start with this column.

In January 1959, the USSR's *Luna 1* became the first human-made craft to escape Earth's gravity; designed to crash-land on the Moon, it missed but became the first spacecraft to fly by the Moon and go into orbit around the Sun. Nine months later, *Luna 2* did successfully crash-land on the Moon, becoming the first human-made object to come into contact with another solar system body.

The Moon is locked in synchronous rotation in its orbit around Earth so the same side always faces us, with the result that no human had ever seen the Moon's other side – until December 1959 when *Luna 3* circumnavigated the Moon and gave us our first looks at the Moon's farside. As might have been expected, being more exposed to incoming meteoroids and other space debris, it was found to be far more crater-covered than the nearside.



In 1964 NASA's *Ranger 7* returned the first high-resolution TV images of the Moon before its planned crash onto the Moon's surface. Then in 1966 USSR's *Luna 9* soft-landed and returned the

first panoramic TV images of the Moon's surface, dispelling concerns about a deeply dust-covered lunar surface. Later in 1966 NASA's *Surveyor 1* also soft-landed and generated many more images of the Moon's surface as well as data about lunar soil.

Momentous history was made in July 1969 when *Apollo 11* astronauts Neil Armstrong and Buzz Aldrin landed and walked on the Moon. In addition to providing truly close-up images and accounts of the Moon's surface, they returned with over 50 pounds of lunar soil and rocks for scientific study.

In 1970 USSR's *Luna 17* landed the first successful robotic rover (*Lunakhod 1*) on the Moon which during its several months of operation returned thousands of images and more data about lunar soil. Unfortunately this important feat was overshadowed by NASA's manned *Apollo* missions.

After the final *Apollo* mission in December 1972, lunar exploration lost some of its glamour until 1994 when NASA's *Clementine* orbiter returned data suggesting the existence of large quantities of frozen water in the Moon's permanently shadowed polar regions. NASA's *Lunar Prospector* orbiter returned more data supporting the possibility of lunar water ice in 1998.

The past decade has seen several more successful lunar orbital and impactor spacecraft from a growing number of countries. While these missions continue to add to our knowledge about the Moon, including more evidence of lunar water, none has yet produced any dramatic new discoveries – but some missions are ongoing and others are in the works, so stay tuned.

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Stargazer appears every other week in the *Waco Tribune-Herald* and other newspapers. Paul Derrick is an amateur astronomer who lives in Waco. Write him at 918 N. 30th St., Waco, TX 76707, call or fax at (254) 753-6920, or e-mail at [paulderrickwaco@aol.com](mailto:paulderrickwaco@aol.com).

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**\* \* See the Stargazer Web site at <http://www.stargazerpaul.com>. \* \***

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## **Membership Status**

The following changes in membership took place in February:

Total Membership: 154

Renewals: 8

New student members:

New Members:

Mark Fletcher – Zionsville  
Mike Newberg – Indianapolis

Inactive status:

James Brown - Fairland

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### **IAS LIBRARY:**

There is now a link on our website page for our new Multi-Media Library. Greg has built this library of a multitude of videos that are on the web. We think it will be a great addition to our library for both novices and experienced observers. Greg has many more sources to go through so the library will continue to grow. If you have comments or questions about the library please contact Greg McCauley. (Contact Greg via the webpage [iasindy.org](http://iasindy.org) under the contact us section)

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### **Do you have a question or need?**

We have established a list of members who would be willing to receive calls for help on specific objects. If you have a specific skill and would be willing to help others please contact Jeff Patterson [KB9SRB@hotmail.com](mailto:KB9SRB@hotmail.com).

Based upon the responses we received to your intro question recently, perhaps we should add a section to the bulletin naming those members who would be willing to receive calls for help on specific subjects.

William Conner ([wmtconner@att.net](mailto:wmtconner@att.net)) - for CCD imaging and film photography.

Jeff Patterson (Contact Jeff via the webpage [iasindy.org](http://iasindy.org) under the contact us section) –

Observatory design and construction

Eric Allen ([ericandoberta@sbcglobal.net](mailto:ericandoberta@sbcglobal.net)) - Telescope making and mirror grinding

Brian Murphy ([bmurphy@monumentcompanies.com](mailto:bmurphy@monumentcompanies.com)) - "telescope construction and collimation".

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### **Public Outreach Programs – If you want to schedule a program at the Link Observatory or at you site, please contact the following people:**

**Gerald Venne is our Public Events Coordinator.** He will be responsible for coordinating Public Events for the IAS. To schedule a public event contact Gerald Venne (Contact Gerald via the webpage [iasindy.org](http://iasindy.org) under the contact us section).

He needs your help. Let Gerald know if you would like to show the public our sky. We need people to help at Link and elsewhere. It is actually a lot of fun.

If you would like to schedule the Goethe Link Observatory, please contact

John Shepherd. Contact John via the webpage [iasindy.org](http://iasindy.org) under the contact us section)

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### **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 Bulletin for 4 months and may be renewed at the owner's request.

**To place an ad, contact:**

Bulletin Editor  
Jeff Patterson  
1780 S. Morgantown Rd.  
Greenwood, IN 46143  
(317) 300-0449  
E-Mail: [KB9SRB@Hotmail.com](mailto:KB9SRB@Hotmail.com)

**For Sale:** MEADE 8" F/4.5 NEWTONIAN

Includes German Equatorial Mount with three counterweights, felt-lined mounting rings, RA and Dec slow motion controls, accessory tray and 6x30 finder scope. Eyepieces include 25mm MA and 9mm Ortho. All instruction manuals are included.

Additional Accessories:

- \* Quartz RA motor drive incl battery pack
- \* Polar alignment viewfinder
- \* 12.5mm illuminated reticle eyepiece
- \* Meade 60mm guidescope with mounting rings and 1.25" diagonal
- \* 1.25" camera adapter
- \* Meade 2x Barlow
- \* Piggyback camera bracket

Aluminized mirror has been cleaned and collimated. Optics are excellent, like new.

Telescope is in very good condition. A complete package for wide-field astrophotography and deep sky observation.

Asking \$550.00 – Call Bill at 892-2036 or e-mail at [bwilhite@tds.net](mailto:bwilhite@tds.net).

**For Sale**

Celestron Celestar 8" with tripod mount, Dec. motor & hand controller, & instruction manual.

Also included in the package...

Counter balance weight system, Celestron 25mm SMA 1-1/4 eyepiece, Orion Dew Zapper 20w 12v, 8" glare shroud, Full scope astro system's weather cover, Antares right angle finder scope, Celestron Star Diagonal 1-1/4" , Stellarvue Red-dot unity finder, Celestron (Pelican style) Hard Case for scope. \$750.

Contact Thad Hatchett at [astronomynut@comcast.net](mailto:astronomynut@comcast.net) or give me a call at home at 812-375-0192.

**For Sale:**

2 eyepieces for sale:  
3mm Televue Radian  
7mm Pentax SMC  
Both for \$300

Jim Zdobyak  
[zobe1@aol.com](mailto:zobe1@aol.com)  
317-862-4715

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**Equipment Loan Program**

The Loan Program has been helpful to those new to the hobby and others in need of observing equipment. We consider offers of equipment you may not have need for any longer.

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. Philip Dimpelfeld **Contact via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

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### **Board Meeting –March 29, 2011**

The IAS Board Meeting is being held at 430 Massachusetts Avenue in downtown Indianapolis. The building is at the point of convergence of Mass. Ave., Vermont and Alabama Streets. There is a Starbucks located in the frontage of the building. The coffee shop stays open late into the evening. Try to park as close to Starbucks as possible, preferably in a metered space. On-street parking is free after 5pm. Handicapped parking is directly in front of Starbucks entrance. The entrance to the building is to the left of Starbucks around on the side. We meet in the basement. Ride the elevator (around the corner to your left) to the basement. Turn right as you exit the elevator and go through the first door on your right. This is the conference/meeting room. If you need further assistance, please contact Jeff Patterson via the webpage [iasindy.org](http://iasindy.org) under the contact us section

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### **2011 Calendar of Meetings**

	<b>NAG</b>	<b>General</b>	<b>Board</b>
January		22-Jan	25-Jan
February		19-Feb	22-Feb
March		26-Mar	29-Mar
April	9-Apr	23-Apr	26-Apr
May	7-May	21-May	24-May
June	11-Jun	25-Jun	28-Jun
July	9-Jul	23-Jul	26-Jul
August	6-Aug	20-Aug	23-Aug
September	3-Sep	17-Sep	20-Sep
October		22-Oct	25-Oct
November		19-Nov	22-Nov
December		17-Dec	

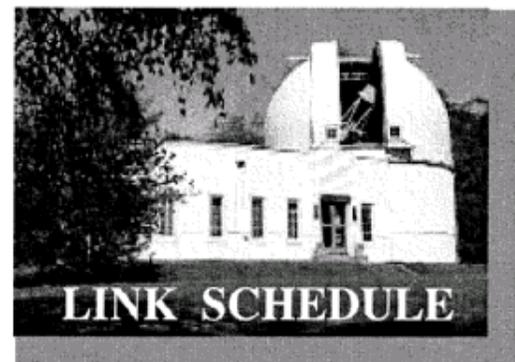
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### **Goethe Link Observatory**

#### **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



This schedule is being published to assure proper access to the Link Observatory for programs that are designed as observational, general education, astronomy conferences, or amateur research projects. Training programs are tentatively scheduled for Saturday evenings only. Although other requests can over-ride these sessions. It is the purpose of this listing to prevent activity conflicts.

If you need to acquire use of the 36-inch telescope: remember two important IAS guidelines: 1) *There has to be two or more IAS members present.....2) contact the Observatory Manager: John Shepherd* **Contact via the webpage [iasindy.org](http://iasindy.org) under the contact us section.** DON'T WAIT UNTIL THE LAST MINUTE TO MAKE YOUR REQUEST OR YOU MAY NOT GET ACCESS.

## **IAS News & Views Stats**

### **Accessing the IAS News & Views**

The current bulletin can be found on the website [www.iasindy.org](http://www.iasindy.org)

### **IAS News & Views**

The monthly newsletter welcomes articles of local astronomical interest information and want ads:

Please submit to

The Indiana Astronomical Society, Inc

Jeff Patterson, editor

1780 S. Morgantown Rd

Greenwood, IN 46143

Phone: (317) 300-0449

[KB9SRB@hotmail.com](mailto:KB9SRB@hotmail.com)

### **Membership information Contact via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

Contact any IAS officer or the Treasurer John Shepherd or Vicki Switzer

### **Observatory Manager**

John Shepherd **Contact via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

### **Public Event Coordinator**

Gerald Venne **Contact via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

### **Equipment Loan Program Coordinator**

Philip Dimpelfeld **Contact Phil at [philip.dimpelfeld@comcast.net](mailto:philip.dimpelfeld@comcast.net)**

### **Membership Coordinator**

Vicki Switzer **Contact Vicki via the webpage [iasindy.org](http://iasindy.org) under the contact us section**

### March Calendar, 2011

**For a more detailed Calendar of Events see the webpage [www.iasindy.org](http://www.iasindy.org)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4 New Moon ●	5
6	7	8	9	10	11	12 1 <sup>st</sup> QTR ☾
13	14	15	16	17	18	19 Full Moon ○
20	21	22	23	24	25	26 General Meeting 3rd QTR ☾
27	28	29 Board Meeting	30	31		