

February, 2010  
Volume 77, Issue 2  
www.iasindy.org



# The Bulletin

**The January General Meeting, February 6, 2009 7:00 PM  
Holcomb Observatory**

## **New Views of Saturn's Tumultuous Rings** Professor Richard Durisen

A great deal has been learned about Saturn's rings over the past decade through a combination of Cassini Spacecraft observations and advanced computer simulations. The rings exhibit complex structures on a remarkable range of spatial scales, and these structures evolve and change on an even wider range of time scales. Some ring features, both classically known and newly discovered, are reasonably well understood as consequences of a collisional multi-body system orbiting inside and near Saturn's Roche limit and

sculpted by gravitational interactions with embedded and nearby moons and moonlets. Many other ring features still remain mysterious. Saturn's ring system is a remarkable example of complex behavior arising from a few relatively simple processes. Similar complex behavior probably occurs in disks around young stars when planets are forming. This description may sound rather technical, but I think the images and animations I will show are worth seeing for their own intrinsic beauty.

I'm a Professor of Astronomy at Indiana University. My current research interest is supercomputer simulations of planet formation, but I have also done some work on how structure can be produced

in Saturn's rings through meteoroid impacts. I earned my Ph.D. at Princeton in 1972 and enjoyed postdoctoral positions at UC Santa Cruz and NASA-Ames Research Center before joining the IU faculty 33 years ago.

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### **IAS Calendar of Events for February**

February 2 – Board Meeting

February 6 – General Meeting at Holcomb Observatory

## **ALCor Observations**

By Bill Conner

The North Central Region of the Astronomical League (NCRAL) will hold its annual meeting on April 16-17, 2010 at the Holiday Inn hotel at the Bloomington-Normal, Illinois Airport. The meeting will be hosted by the Twin City Amateur Astronomers. Members of the Indiana Astronomical Society are welcome to attend this adjacent AL Region meeting. We are located in the Great Lakes region.

Online registration and additional information about the conference, including speakers, is available at <http://www.ncral2010.org>.

The theme of the conference is Generations: Past, Present and Future of the Telescope. We start discussing the beginnings of modern astronomy to Galileo, his life and instruments and his tragic end. We will follow through the Evolution of Modern

Astronomy discussing the people and their scientific instruments that have expanded our understanding of the universe. We will give you a peek at the Future of Modern Astronomy discussing the current and planned developments astronomy.

The conference registration fee of \$75 includes attendance at the conference as well as a banquet with a keynote address.

The unique resources offered by the location in Bloomington, IL offers a surprising variety of activities. The local Challenger Center for Space Science Education will hold a Mission to Mars for attendees of NCRAL 2010 on Friday evening April 16. You can fly simulated space missions, offering the next best thing to actual space flight with a Mission Control room designed after NASA Johnson Space Center and an orbiting space station

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## **NASA Space Place**

### **Building a Case Against Ozone**

by Patrick Barry

When it comes to notorious greenhouse gases, carbon dioxide is like Al Capone—always in the headlines. Meanwhile, ozone is more like Carlo Gambino—not as famous or as powerful, but still a big player.

After tracking this lesser-known climate culprit for years, NASA's Tropospheric Emission Spectrometer (TES) has found that ozone is indeed a shifty character. Data from TES show that the amount of ozone—and thus its contribution to the greenhouse effect—varies greatly from place to place and over time.

"Ozone tends to be localized near cities where ozone precursors, such as car exhaust and power plant exhaust, are emitted," says Kevin Bowman, a senior member of the TES technical staff at the Jet Propulsion Laboratory. But the ozone doesn't necessarily stay in one place. Winds can stretch the ozone into long plumes. "Looking out over the ocean we can see ozone being transported long distances over open water."

Unlike CO<sub>2</sub>, ozone is highly reactive. It survives in the atmosphere for only a few hours or a few days before it degrades and effectively disappears. So

ozone doesn't have time to spread out evenly in the atmosphere the way that CO<sub>2</sub> does. The amount of ozone in one place depends on where ozone-creating chemicals, such as the nitrogen oxides in car exhaust, are being released and which way the wind blows.

This short lifespan also means that ozone could be easier than CO<sub>2</sub> to knock off.

"If you reduce emissions of things that generate ozone, then you can have a quicker climate effect than you would with CO<sub>2</sub>," Bowman says. "From a policy standpoint, there's been a lot of conversation lately about regulating short-lived species like ozone."

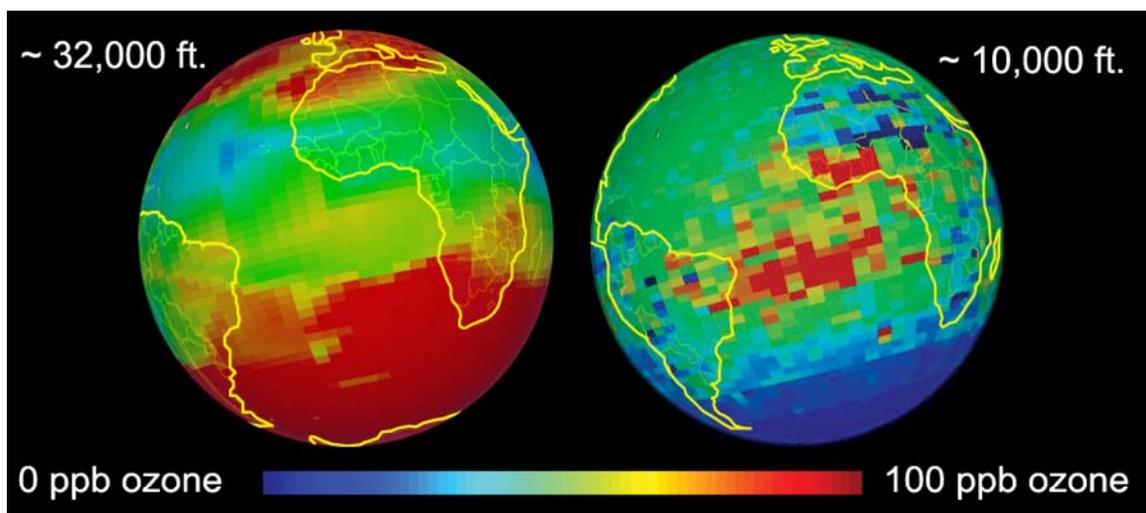
To be clear, Bowman isn't talking about the famous "ozone layer." Ozone in this high-altitude layer shields us from harmful ultraviolet light, so protecting that layer is crucial. Bowman is talking about ozone closer to the ground, so-called tropospheric ozone. This "other" ozone at lower altitudes poses health risks for people and acts as a potent greenhouse gas.

TES is helping scientists track the creation and movement of low-altitude ozone over the whole planet each day. "We can see it clearly in our data," Bowman says. Countries will need this kind of data if they decide to go after the heat-trapping gas.

Ozone has been caught red-handed, and TES is giving authorities the hard evidence they need to prosecute the case.

Learn more about TES and its atmospheric science mission at [tes.jpl.nasa.gov](http://tes.jpl.nasa.gov). The Space Place has a fun "Gummy Greenhouse Gases" activity for kids that will introduce them to the idea of atoms and molecules. Check it out at [spaceplace.nasa.gov/en/kids/tes/gumdrops](http://spaceplace.nasa.gov/en/kids/tes/gumdrops).

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



*These images are TES ozone plots viewed with Google Earth. Colors map to tropospheric ozone concentrations. The image on the left shows ozone concentrations at an altitude of*

*approximately 32,000 feet, while the one on the right shows ozone at approximately 10,000 feet. The measurements are monthly averages over each grid segment for December 2004.*

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## How to Make \$1000 with Your Telescope

February, 2010

By Tom Koonce

Antelope Valley Astronomy Club, Inc.

Lancaster, California

So... You've observed the Moon and the planets in detail. You've awed your family with close-up views of craters, rings, and subtle hues of color. You've used your observational successes to justify "investment" in the purchase of a bigger, better telescope and sharper eyepieces with wider fields of view so that you can observe deep-sky objects like remote galaxies and faint nebulae. You know what a SCT is and know and understand cool down times, stellar magnitude, seeing, and why every serious amateur needs a Telrad. Perhaps you invested in imaging equipment and are starting to produce night sky pictures like those in the magazines. Does this fit you?

Now you're asking yourself, "How can I make some money with my telescope to recoup my investment? ...*How can I make \$1000 with my telescope?*"

The weather will be warming up soon, and the opportunity to feel that sense of sustained excitement you always get as you head back out under the stars. More importantly, you'll soon have opportunities to interact with others who don't have your knowledge of astronomy, and certainly don't have the kind of telescope equipment you've put together! Sharing nighttime views with others is the key to getting a big payoff from your telescope. No, not by *charging* people to view through your eyepiece, but instead by getting a charge out of someone's first spectacular view through your telescope!

How can you make \$1000 from your telescope? If you want *fast* cash, I suggest that you start out with a telescope worth \$2500 and offer it for sale on AstroMart.com. But by offering views of the night sky to people who have never had the opportunity, you'll easily get \$1000 of value for every adult who gasps in astonishment when seeing the Ring Nebula or a distant galaxy, comprehending their physical significance. You'll get a million dollars of satisfaction each child that sees the craters on the Moon and the rings of Saturn for the first time and cries out with joy.

How can you make money in amateur astronomy? The truth is, if you're involved in this hobby to make cash, you can either sell your amazing astrophotos, meteorites that you found, or maybe invent the next Telrad. But if you want the real payoff, then share your love of astronomy with others as the weather turns warmer. You will provide them inspiration and enrichment worth \$1000 and more.

Outreach Resources:

For individuals:

<http://www.noao.edu/education/>

[http://astronomywebguide.com/links\\_amateurastronomers.html](http://astronomywebguide.com/links_amateurastronomers.html)



For Clubs:

<http://www.astrosociety.org/education/resources/AAISASurveyResults.pdf>

<http://kepler.nasa.gov/education/amateurAstronomersResourceKits/>

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## Activities for February:

### Link Observatory

None Scheduled

### McCloud Activities–

None Scheduled –

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 Gary Schoppenhorst 1 317 297-1405.

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 month during our 2009 observing season, in celebration of the International Year of Astronomy. 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.

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## UP Coming Star Parties

**Winter Star Party** – February 8-14, 2010- Registration is currently going on. Check [www.scas.org](http://www.scas.org) or call the registrar at 386-362-5995. This party is always sold out and you need to get a ticket early. This is a premium party and the weather is generally fantastic in the Florida Keyes in February.

**The North Central Region of the Astronomical League (NCRAL)** will hold its annual meeting on April 16-17, 2010 at the Holiday Inn hotel at the Bloomington-Normal, Illinois Airport. The meeting will be hosted by the Twin City Amateur Astronomers. Members of the Indiana

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Astronomical Society are welcome to attend this adjacent AL Region meeting. We are located in the Great Lakes region.

Online registration and additional information about the conference, including speakers, is available at <http://www.ncral2010.org> .

**Mid-South Stargaze** April 14-18 Mississippi The Observatory is one mile southeast of the Natchez Trace Parkway at French Camp. French Camp is about half-way between Jackson and Tupelo, Mississippi, at Natchez Trace mile marker 181.  
<http://www.rainwaterobservatory.org/stargaze>

**Tennessee Spring Star Party 2010** - Fall Creek Falls State Park TBD  
<http://personal.bna.bellsouth.net/s/p/spsmith/default.htm>

**Indiana Astronomy Day** (IAS/PGO) - TBD  
<http://jmmahony.home.insightbb.com/pgo/schedule.html>

**Apollo Rendezvous** – Dayton, Ohio June 11 and 12  
<http://mvas.org>

**Texas Star Party** West Texas May 9-16, 2010. This is a premier party with very dark skies and a great site. Just a long way. Online registration will open November 15.  
[www.texasstarparty.org](http://www.texasstarparty.org)

**Two Rivers Spring Star Party** May 13-16  
[www.freewebs.com/tworiversstarparty](http://www.freewebs.com/tworiversstarparty)

**JEPC Star Gazing Event** IL June 10-13  
<http://www.mikewolford.com/JEPC%20Event.htm>

**Cherry Springs Star Party** Cherry Springs State Park, PA June 10-13  
<http://www.astrohbg.org/cssp/information>

**Nebraska Star Party – August 8th - 13th, 2010** - North Central Nebraska - This is a premier dark site and has fantastic observing. However, the weather can be brutal. Temperatures can reach 105-110 degrees. However you can cool off in the shade of the tree. All activities will be at the Snake Creek Campground at Merritt Reservoir. <http://www.nebraskastarparty.org/>

**Earth Wind and Sky Star Party** August 5-8  
[www.freewebs.com/earthwindsky](http://www.freewebs.com/earthwindsky)

**Indiana Family Star Party** Camp Cullum, Frankfort, IN August 5-8, 2010  
<http://jmmahony.home.insightbb.com/pgo/starparty/>

**Astrofest** Kankakee IL Date To be announced  
[www.chicagoastro.org](http://www.chicagoastro.org)

**Black Forest Star Party** PA Date To be announced  
<http://www.bfsp.org/starparty/>

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**Okie-Tex Star Party** – October 2-10 This is reported as one of the darkest sites in the US. It is a great deep sky event.

**Twin Lakes Star Party** October 2-10 This is a great party very close to home  
[www.wkaa.net](http://www.wkaa.net)

If you know of events coming up let me know and I will get them in the Bulletin

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## Membership Status

**The following changes in membership took place in January:**

**Renewals: 11**

**New student members: 0**

**New Members: 0**

**Inactive status: 2**

Dennis Rhyne - Indianapolis

Martin Lien - Stilesville

**Renewed from Inactive status: 0**

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## IAS LIBRARY:

The complete list can be found (<http://www.iasindy.org/memonly/iasfiles.php>, which is password protected). We have a new additions for the 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. The only problem is that you will have to have high speed internet to observe these video streams. 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 at 317 663-3289 or [greg@ultrasoundconsulting.net](mailto:greg@ultrasoundconsulting.net) .

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## IU Kirkwood Observatory

SEE JUPITER AT KIRKWOOD OBSERVATORY THIS FALL

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

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[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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### **Easy Listening:**

Weekly pod casts are available at <http://www.astronomycast.com/> for those who love astronomy and want to learn, yet have no time (or desire) to do extra reading. They cover a variety of topics, and feature a different topic each week, so you can choose your flavor. The cast includes Fraser Cain, the publisher of Universe Today (<http://www.universetoday.com/>), and Dr. Pamela Gay, an assistant professor of physics at Southern Illinois University Edwardsville. You do not need an iPod or portable device to enjoy these.

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### **Mentor Program**

We are reinstating the mentor program, which will provide the new member with lots of information and help them assimilate into the Society. Thad Hatchett has volunteered to lead this program. We need your help. If you are interested in becoming a mentor please contact me at Jeff Patterson [KB9SRB@hotmail.com](mailto:KB9SRB@hotmail.com) or Thad Hatchett at [astronomynut@comcast.net](mailto:astronomynut@comcast.net). We will put your name on the list and assign a new person to you. Our goal is to retain people and make this hobby a lot more fun.

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

We are establishing 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 ([KB9SRB@Hotmail.com](mailto:KB9SRB@Hotmail.com)) – Observatory design and construction

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### **Public Outreach Programs – If you want to schedule a program at the Link Observatory or at your 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 1 317 826-2680.

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 Link, please contact Gary Schoppenhorst at 1-317-297-1405 or at [schoppy@att.net](mailto:schoppy@att.net)

## **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: - Astro-Physics 400 German Equatorial Mount**

Near new condition. Used less than a dozen times.

**9 lb. Stainless Steel Counterweight**

**6 lb. Stainless Steel Counterweight**

Wood AP case

AP Encoders and cables

NGC-MAX DSC Computer

**\$1700**

Contact: Jim Rinehart 317-881-3475

### **For Sale:**

2 eyepieces for sale:

3mm Televue Radian

7mm Pentax SMC

Both for \$300

Jim Zdobyak

zobel@aol.com

317-862-4715

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## **Onions and Orchids**

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### **Equipment Loaner 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. John Molt 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.

John Molt ([lstargazer@indy.rr.com](mailto:lstargazer@indy.rr.com)) or (317) 989-1875

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## Board Meeting – Board Meeting Feb 2, 2010

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 Brian P. Murphy on his cell phone 716-8124 or Jeff Patterson 317 506-0325.

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## IAS Calendar Dates 2010

	<b>NAG</b>	<b>General</b>	<b>Board</b>
January		9-Jan	12-Jan
February		6-Feb	2-Feb
March		13-Mar	9-Mar
April	24-Apr	10-Apr	13-Apr
May	22-May	8-May	4-May
June	19-Jun	5-Jun	8-Jun
July	24-Jul	10-Jul	13-Jul
August	21-Aug	14-Aug	17-Aug
September	18-Sep	11-Sep	14-Sep
October		16-Oct	19-Oct
November		13-Nov	16-Nov
December		18-Dec	

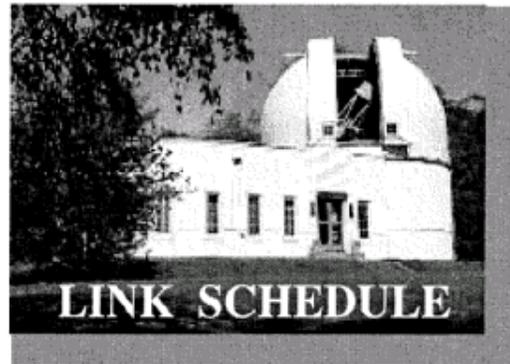
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## Goethe Link Observatory

### Observatory Address

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

**Observatory 's 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: Gary Schoppenhorst (317)297-1405. DON'T WAIT UNTIL THE LAST MINUTE TO MAKE YOUR REQUEST OR YOU MAY NOT GET ACCESS.*

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## Bulletin Stats

### Accessing the Bulletin

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

### **Bulletin - Bulletin deadline on the 20th of every month**

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 any IAS officer or the Treasurer John Shepherd (317) 862-3442 or Vicki Switzer [vswitzer42@verizon.net](mailto:vswitzer42@verizon.net) 1 812-835-2251

### **Link Observatory**

Latitude: 39 degrees, 33 minutes north

Longitude: 86 degrees, 24 minutes west

Phone: (317) 831-0668

IAS Internet address

<http://www.iasindy.org>

### **Executive Officers**

President: Jeff Patterson (317) 300-0449

Vice-President and Program Director: Doug Brown (317) 872-4050

Secretary: Betsy Brown 1-317-872-4050

Treasurer: John Shepherd (317) 862-3442

### **Board of Directors**

Tom Borlik (2010)

John Switzer (2010)

Ron Burgess (2010)

Greg McCauley (2011)

John Molt (2011)

Bill Conner(2012)

Gerald Venne (2012)

### **Webmaster**

Gary Schoppenhorst 1 317 297-1405

### **Observatory Manager**

Gary Schoppenhorst 1 317 297-1405

### **Public Event Coordinator**

Gerald Venne [gvenne@iquest.net](mailto:gvenne@iquest.net) 1 317 826-2680

### **Equipment Loan Program Coordinator**

Philip Dimpelfeld [philip.dimpelfeld@comcast.net](mailto:philip.dimpelfeld@comcast.net) 812-764=0620

### **Library Committee Coordinator**

Greg McCauley [greg@ultrasoundconsulting.net](mailto:greg@ultrasoundconsulting.net)

### **Astronomical League Coordinator**

Bill Conner [wmtconner@att.net](mailto:wmtconner@att.net) 1-812 828-0449

### **Membership Coordinator**

Vicki Switzer [vswitzer42@verizon.net](mailto:vswitzer42@verizon.net) 1 812-835-2251

<b>February Calendar, 2010</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
	<b>1</b>	<b>2</b> <b>Board Meeting</b>	<b>3</b>	<b>4</b>	<b>5</b> 3rd QTR ☾	<b>6</b> General Meeting
<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b> General Meeting
<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b> New Moon ●	<b>20</b>
<b>21</b> 1 <sup>st</sup> QTR ☾	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b> Full Moon ○
<b>28</b>						

## Membership Application to the IAS

### Benefits:

- Use of the Goethe Link Observatory
- Formal monthly programs with guest speakers
- Local and regional astronomical functions
- Discounted Astronomy publications
- New Moon observing activities
- Access to IAS member experts and problem solving
- The Bulletin monthly newsletter
- Membership in the Astronomical League
- Free admission to the Holcomb planetarium
- Star party events and observing sessions

Please mark whether this is a new or renewal application

New

Renewal

Note: Magazine subscription renewals forms and payment must be submitted to the Treasurer in order to maintain publisher's club discount.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

For the “membership only” section you need to provide a user name and a password:

User name: \_\_\_\_\_ Password \_\_\_\_\_

List Server - This service is our main communication tool. The list server is accessible only by IAS members and only for IAS related business. It is controlled very carefully to prevent spam. Unless you opt out for the List server, you will automatically have access to it when you are approved for the “members only” section.

I do **not** want to receive IAS communications via the List Server

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How do you want to receive the IAS monthly newsletter?

Downloadable from Website  Hard Copy\*

\* Please note that hard copy costs the Society about \$1.50 per issue. Please consider this when selecting mode of receiving the newsletter.

Annual Regular Membership (\$30.00)	
Annual Student Membership (\$10.00)	
Astronomy Magazine Renewal (\$34.00)	
Sky and Telescope Magazine (\$33.00) (New Subscription)	
Total Enclosed	

Make checks payable to: The Indiana Astronomical Society, Inc

Please complete Member Profile and include with the application

Mail Application to:

Vicki Switzer Membership Coordinator  
2115 N. Private Rd 50 E  
Centerpoint, IN 47840

### Member Profile

Spouse's Name: \_\_\_\_\_

Children's names and ages: \_\_\_\_\_

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Note: Profile information is not a requirement for membership to the Society.