



# ECLIPSE



*The Newsletter of the Barnard-Seyfert Astronomical Society*

Celebrating our 77th Year

January 2005

## The January Membership Meeting will be on January 20, 2005 at 7:30 pm at the Adventure Science Center

The program for our January membership meeting will focus on low-cost observing tricks and techniques, just in time for use with your new Christmas 'scopes. Several members of the BSAS will make presentations, including:

\*Lonnie Puterbaugh on free astronomy software and inexpensive wheelie bars to make telescopes mobile;

\*John Harrington on inexpensive tricks for planetary observing.

In addition, Mike Benson will speak on the Astronomical League's various observing programs, for which the AL awards certificates of achievement.

### FROM THE PRESIDENT

Happy New Year! I hope all of you had a wonderful Christmas and are looking forward to a good year packed with lots of star-gazing.

For my first topic, I'd like to call attention to a new feature in the *Eclipse*, which of course is the **monthly photo contest**. I think we have two excellent winners this month, one of which even graces the current issue of *Astronomy* magazine. Astrophotography is clearly the fastest-growing area in amateur astronomy currently, and I hope all of you will give it a try sometime soon. I'm on the same learning curve as you are — after years of trying to get good planetary images with a 35mm camera, I finally took the plunge and bought a (used) webcam. I look forward to the challenge of learning how to obtain and stack images with it.

Just to recap, here are the rules for the monthly astrophoto contest: entries should be submitted via e-mail to Bill Griswold or me and can focus on any astronomical object; the sun, moon, solar system objects, deep sky objects or even satellites. The only requirement is that images be shot by a BSAS member with amateur equipment.

Switching subjects, I'd like to thank all of you who turned out for our first **private star party** back on December 4<sup>th</sup> at the loop parking lot located at about mile 435.5 of the Natchez Trace. Most of those who attended the event indicated they enjoyed it and thought the experimental site was reasonably good. Although we were occasionally disturbed by the headlights of a car going northwards on the Natchez Trace, the interruptions only came every 15 – 20 minutes, and I think the proximity of the site for most BSAS members justifies continuing to use it. I still hope we can find a better, darker spot that is closer to town, and encourage all of you to keep your eyes open for one.

I think we had an excellent club **Christmas party**! Turnout was around 50 people, and we had lots and lots of great food and drink. I'd particularly like to thank Pam Thomas for organizing the event and arranging for the key entrees. The silent auction for astronomy items was also a great hit, thanks in large part to Kris McCall's and Chuck Schlemm's contribution of a vast array of astronomy-related books. The club made a total of approximately \$170 from the silent auction.

I hope you're all as excited as I am about the amazing images of Saturn and its rings and moons that the NASA/ESA **Cassini space probe** continues to beam back! The photos of the intricate, even twisted rings are particularly incredible to me, testimony to the power of gravity to affect the course of objects in space. Remember to watch NASA's website at <http://saturn.jpl.nasa.gov/home/index.cfm> as well as the mass media on January 14<sup>th</sup>, when the Huygens probe (released by Cassini back on December 24<sup>th</sup>) will plunge into the atmosphere of Saturn's largest moon, Titan and hopefully make a safe landing (or splashdown, as the case may be). Hopefully Huygens will survive long enough to beam back sufficient data to help explain the bizarre surface markings on Titan that have been imaged by Cassini. As Chief Scientist Carolyn Porco recently noted with regard to Cassini's images of Titan, "I have to report that we are still mystified and we are not quite sure what we're looking at. There isn't much we are absolutely, definitively confident about right now." Hopefully we'll all find out on the 14<sup>th</sup>, or shortly thereafter!



Tahoma Peak and Venus (see details on page 7)

**Barnard-Seyfert Astronomical Society**  
**Minutes of a Regular Meeting of the Board of Directors**  
**Held On Thursday, December 2, 2004**

The Board of Directors of the Barnard-Seyfert Astronomical Society met in regular session at the Jefferson Square Club House in Nashville, Tennessee on December 2, 2004. A sign-in sheet was passed around in lieu of a roll call. President John Harrington declared a quorum to be present and called the meeting to order at 7:45 P.M. Board members Mike Benson, Joe Boyd, Tony Campbell, JanaRuth Ford, Bill Griswold, John Harrington, Bob Rice, Randy Smith, and Pam Thomas were present. Board members Kris McCall and Gary Wilkerson were absent. In addition to members of the board, BSAS member Keith Burneson was also present. The minutes of the previous regular board meeting held on November 4, 2004 were approved as published in the December 2004 issue of the Eclipse newsletter.

John Harrington reported that the December 4 private star party at the potential new dark sky site off the Natchez Trace Parkway might be clouded out. Mr. Harrington also reported that the Equipment Committee met on November 17 and had begun compiling an updated inventory. Joe Boyd announced that the Long Range Planning Committee would meet on December 15. Program Committee Chair JanaRuth Ford reported that the January 2005 membership meeting would showcase the BSAS' talent with presentations from several members.

Eclipse Editor Bill Griswold reported that membership had dropped from 140 to 111 active members. Mr. Griswold said that he would email all inactive members. Mr. Griswold gave the board lists of all delinquent members by month and in total. The board divided up the delinquent members' names to personally call and encourage them to renew. Webmaster Tony Campbell said that he would install a feature on the BSAS' website to allow members to easily check their membership status. Mr. Campbell also suggested emphasizing the part delinquent members could play in the work of the BSAS if they renewed.

John Harrington reported that the BSAS had signed a contract with Anne and Pepe Perron to use Camp Nakanawa for the next TNSP on October 7-9, 2005. Mr. Harrington noted that the contract provided for an advance party of up to five BSAS members to arrive on Thursday, October 6, 2005. Keith Burneson volunteered to review and make suggestions for modifying the TNSP 2004 registration form for use during TNSP 2005. TNSP Treasurer Bob Rice reported that he was closing the books for TNSP 2004 and gave BSAS Treasurer Randy Smith a check for \$1,112.63 to transfer that balance to the Society's checking account.

Since a Chairperson had not been found, Mr. Harrington recommended that the Public Relations, Outreach, and Mentoring Committee be divided into separate committees ñ a Publicity Committee along with an Outreach and Mentoring Committee. Mr. Harrington said that he would contact Dr. David Fields about a possible BSAS field trip to Tamke-Allan Observatory on January 22 or 23, 2005.

John Harrington announced that he and Equipment Chair Lonnie Puterbaugh would write a letter to the responsible member requesting payment for damage to one of the BSAS' dobsonian loaner scopes. Tony Campbell volunteered to inform Sky & Telescope, Astronomy, and the Reflector magazines about the upcoming TNSP scheduled for October 7-9, 2005. John Harrington said he would contact Dr. Dave Ernst at Vanderbilt University about scheduling the Seyfert Lecture. Secretary Bob Rice commented that all fees were paid to the Tennessee Secretary of State's office last month to renew the BSAS' charter as a non-profit corporation.

John Harrington again encouraged everyone to attend the 7:00 PM star party at the new Natchez Trace dark sky site on Saturday night, December 4, if the weather was not too cloudy. Mr. Harrington reminded the board about the December 9 Outreach star party at Grassland Elementary School from 6:00 to 8:00 PM and the December 11 Public star party at Warner Park at 7:30 PM.

Vice-President Pam Thomas reported that the BSAS' annual holiday potluck supper would start at 6:00 PM on Thursday, December 16, at the Adventure Science Center (ASC). She noted that we would begin eating at 6:30 PM with the Society supplying a main course of turkey along with plates, flatware, and soft drinks. Members will bring side dishes of their choice. Mike Benson commented that, although one was not scheduled this year, he preferred having a speaker during this event. John Harrington reminded the board that a silent auction would be held at the supper and suggested that donated items be dropped off at the ASC.

Continued on Page 4

**Minutes of a Regular Meeting**, continued from page 3

Joe Boyd suggested that, once a new BSAS brochure was prepared, copies be provided to businesses that sold telescopes. JanaRuth Ford asked Mike Benson, the Society's Astronomical League (AL) Correspondent, to speak about the AL's Observing Clubs at the January membership meeting. Mr. Benson agreed, noting that many BSAS members were probably unaware that pins and awards could be earned by participating in these League programs. Finance & Budget Committee Chair Bob Rice reported that this committee would begin developing a 2005 budget via email communication during December.

JanaRuth Ford asked the board to consider participating in Middle Tennessee State University's upcoming star parties on the first Fridays of designated months as official BSAS activities. Joe Boyd put this suggestion into a motion that was seconded by John Harrington and, following a very brief discussion, passed by a unanimous voice vote of the board.

Treasurer Randy Smith reported that he had received shipments of the Royal Astronomical Society of Canada's Observers Handbook and Astronomy Magazine's Deep Sky Mysteries calendar. The board decided to sell these publications to BSAS members at below normal retail cost with the *Observers Handbook* priced at \$20.00 each and the *Deep Sky Mysteries* calendar at \$10.00. All of these publications will be available at the December 16 holiday potluck supper. Webmaster Tony Campbell said that he would place an appropriate announcement on the BSAS' website.

There being no further business, President Harrington declared the meeting adjourned at 9:15 P.M.

Respectfully submitted,  
Bob Rice  
Secretary

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**Barnard-Seyfert Astronomical Society  
Minutes of the Monthly Membership Meeting  
Held on Thursday, December 16, 2004**

BSAS members began gathering at the Adventure Science Center (ASC) around 6:00 PM for the Society's annual holiday potluck supper. Dining began at 6:30 PM with the Society providing the main course of sliced ham and turkey along with eating utensils, plates, and soft drinks. Members provided a sumptuous variety of side dishes including salads, casseroles, and desserts. There was even a surprise visit from Santa Claus who bore an uncanny resemblance to BSAS director Mike Benson!

A new feature this year was the silent auction of donated books, games, and other astronomy related materials that ran concurrently with the dinner and other activities. Members shuffled among the auctioned items throughout the evening to examine these items and record their bids.

President John Harrington called the session to order at 7:32 PM for a very brief business meeting. Mr. Harrington welcomed new members and guests. Joe Boyd recognized his daughter Martha who had just returned from active duty in Iraq as a major in the United States Army. Major Boyd received a round of applause as Mr. Harrington thanked her for her service to our country. The minutes of the previous membership meeting held on November 18, 2004 were approved as published in the December 2004 issue of the *Eclipse* newsletter. Mr. Harrington thanked Kris McCall and Chuck Schlemm for donating the lion's share of the items for the silent auction.

John Harrington reported that the December 4<sup>th</sup> star party held at the proposed dark sky site at mile marker 435.5 on the Natchez Trace Parkway went fairly well with about two dozen members attending. Mr. Harrington noted that there were headlights from northbound traffic about every 15 minutes and suggested that this location might better serve as an alternate site.

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**Minutes of the Monthly Membership Meeting**, continued from Page 4

John Harrington announced that BSAS past-president Joe Boyd had been awarded the Solar System Ambassador designation by the Jet Propulsion Laboratory (JPL). This award recognizes motivated volunteers across the nation who have actively brought the solar system to the public.

John Harrington announced that the club's field trip to Temke-Allan Observatory at Roane State Community College had been tentatively scheduled for early spring when the weather would be warmer.

Program Committee Chair JanaRuth Ford announced that the January 2005 program was designed to help new telescope owners and would showcase the BSAS' talent. Ms Ford noted that Mike Benson, our Astronomical League Correspondent, would also discuss the League's observing awards program. Ms Ford asked for anyone interested in volunteering to assist with the January program to contact her.

BSAS Treasurer Randy Smith reported that the Society's checking account balance was \$5,537.00. Dark Sky Committee Chair Powell Hall reported that he recently spoke about the IDA's newly proposed model lighting ordinance to the Orion Astronomy Club at Roane State Community College. Mr. Hall noted that the Dark Sky Committee regularly meets on the first Tuesday of each month with the next meeting scheduled for January 5, 2005.

John Harrington announced that the 2005 budget would be the main topic for discussion at the next board of directors meeting on January 6<sup>th</sup> and invited all interested members to attend. This meeting will be held at 7:30 PM at the Jefferson Square Club House. Since there was no further business to consider, President Harrington declared the meeting adjourned at 7:44 P.M.

Following the business meeting, members explored the ASC and enjoyed the many exhibits. At 8:30 PM Sudekum Planetarium Director Kris McCall presented an informative planetarium show about the Hubble Space Telescope. Members then returned to Wood Hall at 9:00 PM for the conclusion of the silent auction.

Last, but not least, many thanks go to BSAS director Kris McCall for her hard work and especially for making the ASC's facilities and displays available to us. Needless to say, good fellowship befitting the holiday season was enjoyed by one and all.

Respectfully submitted,

Bob Rice  
Secretary

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MAGAZINE SUBSCRIPTIONS FOR  
BSAS MEMBERS

We are always able to accept requests for new and renewal yearly subscriptions to SKY AND TELESCOPE and ASTRONOMY from our members in good standing.

The current yearly rates are as follows:  
SKY AND TELESCOPE: \$32.95  
ASTRONOMY: \$29.00

Checks or Money Orders should be made out to the Barnard-Seyfert Astronomical Society (BSAS) and sent to the following address:

BSAS  
P. O. Box 150713  
Nashville, TN 37215-0713

DUES INFORMATION

On your Eclipse mailing label is the expiration date for your current membership in the BSAS. There will be a two month grace period before any member's name is removed from the current mailing list. You will be receiving a number of warnings informing you that your membership is expiring.

Dues per year are \$20.00 Regular (1 vote); \$30 Family (2 votes); \$15.00 Student (under 22 years of age)(1 vote); \$15 Seniors ( 65 years or older)(1 vote); \$25 Senior Family ( 65 years or older)(2 votes). Please call President, John Harrington, (615) 269-5078 if you have questions. Dues can be sent to:

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THE ECLIPSE NEWSLETTER

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Randy Smith, Treasurer  
Joe Boyd, Immediate Past President

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Tony Campbell  
JanaRuth Ford  
Bill Griswold  
Kris McCall  
Gary Wilkerson

BSAS website: [www.bsasnashville.com](http://www.bsasnashville.com)  
BSAS information line: 615 252-4091

BSAS Logo by Tony Campbell

## Happy Birthday Explorer 1

by Robin Byrne

This month we mark a milestone in the United States space program. The year 1957 was designated the International Geophysical Year (IGY), which was extended to include 1958, as well. One way to study the Earth was from space, so both the United States and the Soviet Union were motivated to launch their first Earth orbiting satellites. The USSR launched Sputnik October 4, 1957, and Sputnik II November 3 of the same year, beating the US into space. The first attempt by the US, a Vanguard rocket carrying a satellite, failed spectacularly. The backup plan was to launch one of Wernher Von Braun's Jupiter C rockets.

On January 31, 1958, the Explorer 1 satellite successfully launched into orbit. The satellite was designed by a team of scientists from the University of Iowa, led by James Van Allen, who was involved in the original development of the IGY. The Jet Propulsion Laboratory built and operated the satellite.

While Sputnik proved the Soviets could go into orbit, and Sputnik II was the first satellite to carry a living animal (the dog, Laika), Explorer 1 was the first satellite to carry scientific instrumentation to measure the near Earth environment. The scientific experiments included: a measurement of micrometeorite impacts, an analysis of the density of Earth's upper atmosphere, and a study of cosmic rays. Although data was constantly being broadcast, only data sent while the satellite was above one of the monitoring stations was retrieved.

The micrometeorite experiment used two detection techniques. One was a tightly wound wire grid. If an impact occurred, a wire would be broken, breaking a circuit. Each time a circuit was broken, it was recorded. The other detector was an acoustic detector, which was in contact with the outer cover of the satellite and recorded information that would allow scientists to determine the mass and velocity of the impactor. Over an 11-day period, 145 impacts were monitored and recorded. The detector later failed, which may have been due to a meteor shower.

To study the upper atmosphere, the orbital motion of the satellite was used. The spacecraft was monitored using both a camera network and by radar tracking. Since the spacecraft remained in orbit until 1970, several years of data were obtained. With a highly elliptical orbit (varying its altitude between 220 and 1563 miles above Earth), Explorer 1 was able to pass through a wide range of atmospheric layers. From this, the density of the atmosphere at various altitudes, latitudes, seasons and solar activity levels, was measured.

However, the most famous of Explorer 1's scientific discoveries involved the cosmic ray experiment designed by James Van Allen. Explorer 1 carried a Geiger counter to measure the number of high energy charged particles striking the satellite. The results varied with altitude. When the satellite was near a low point, the number of counts were within the expected range, but at high altitudes almost no high energy particles were detected. Van Allen suggested that at the highest point, the detector was saturated by a region of charged particles trapped in Earth's magnetic field. This region of charged particles was later confirmed by other satellites. In honor of the man responsible for its discovery, we now call that region the Van Allen Belts. Ironically, the Soviets could have discovered this radiation belt with Sputnik II. That satellite did carry instruments capable of detecting it, but was at the right altitude while over Australia. Since the Soviets wouldn't give the Australians the broadcast code (being right in the middle of Cold War paranoia), the data was not retrievable by those in the right place to record it.

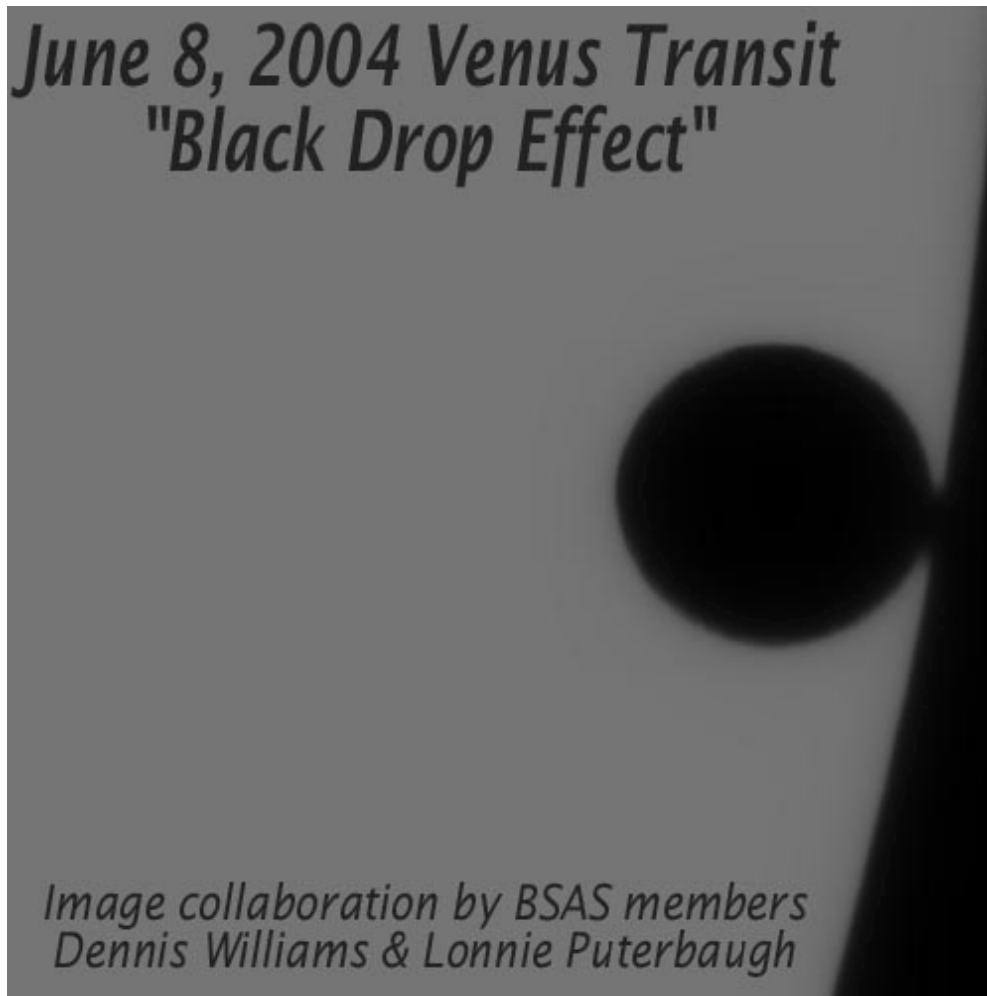
Explorer 1's last broadcast of information was on May 23, 1958. It remained in orbit until March 31, 1970, when it burned up on reentry after completing over 58,000 orbits. Explorer 1 paved the way for America's venture into space; a venture we continue to this day. It is worth taking a moment to remember the spacecraft that ultimately led to Cassini orbiting Saturn and men living on ISS. Well done, Explorer 1!

### References:

Jet Propulsion Laboratory <http://www.jpl.nasa.gov/missions/past/explorer.html>

Explorers 1 and 3 <http://www-spf.gsfc.nasa.gov/Education/wexp13.html>

NSSDC Master Catalog: Spacecraft <http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1958-001A>



### Details of the Image

This image was taken from atop the Army Corps. of Engineers dam, at Buck Creek State Park in Springfield, OH. <sup>o</sup>Dennis and Lonnie were guests of the Miami Valley Astronomical Society. The equipment used for this shot was Dennis Williams' 10" Meade LX200 and a Baader Planetarium white-light solar filter stopped down to ~80mm. <sup>o</sup>The focal length used was about 2500mm optical coupled with a 1.3X digital zoom. The camera equipment used was Dennis' Stellacam EX video camera and the signal was fed to Lonnie's Hi8 camcorder. <sup>o</sup>Lonnie used an ImperX frame grabber to capture the video to a computer and then used Registax and Photoshop for processing. <sup>o</sup>Dennis and Lonnie note that the conditions were excellent that morning. <sup>o</sup>They were shooting over water with an excellent horizon. <sup>o</sup>Dennis & Lonnie both say they will do it again in 2012 and they highly recommend this event to everyone with a solar filter.

by Dennis Williams & Lonnie Puterbaugh

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### Tahoma Peak and Venus (See Page 2 for the Photograph)

I submit this picture of mine taken with a Canon PowerShot G1 on July 7, 2004 at about 3 am PST. I was with a group who were climbing Mt. Rainier in Washington, and I snapped this pic from about 11,600ft up an hour or so before sunrise. I happened to be lucky enough to have this picture published in the January issue of Astronomy.

Taken at about 11,600 ft from Ingraham Glacier on Mt. Rainier (14,110 ft) in Mt. Rainier National Park, Washington Exposure Time: 8 sec. F-number: F/2 Subject: (Center) Venus to the left of Aldebaran in Taurus before sunrise; (Below Venus) Little Tahoma Peak (11,138 ft); (Above Center) M45- The Pleiades; (Upper Left) Capella and other stars of Auriga; (Foreground) Snow/ice of the glacier; (Behind Little Tahoma Peak) Cloud cover reaching about 8,000 ft; Zeta Persei visible at center top and Beta Tauri visible left of Venus

By Phillip Bracikowski

## Activities and Events

January 1 – 31, 2005

- 1/1 Location of the planets:  
Pluto, in Serpens Cauda; Neptune in Capricornus;  
Uranus in Aquarius; Saturn in Gemini; Jupiter  
in Virgo; Mars in Scorpius; Venus in  
Ophiuchus; Sun in Sagittarius
- 1/2 Earth @ perihelion
- 1/3 Quadrantid meteors, LAST QUARTER
- 1/4 Conj., Moon and Jupiter, occultation; Dark Sky  
Committee, 7:30
- 1/6 Conj., Saturn and Pollux
- 1/6 BSAS Board Meeting, Jefferson Square, 7:30
- 1/7 Conj., Moon and Mars, Mars and Antares; Moon  
occults Antares
- 1/8 Conj., Moon and Mercury; Moon and Venus
- 1/10 NEW MOON
- 1/11 Conj., Moon and Neptune
- 1/13 Conj., Moon and Uranus; Saturn at opposition
- 1/14 Conj., Mercury and Venus
- 1/17 FIRST QUARTER
- 1/20 BSAS Membership Meeting, 7:30 ASC
- 1/24 Conj., Moon and Saturn
- 1/25 FULL MOON
- 1/31 Conj. Moon and Jupiter, occultation

February 1 – 28 2005

- 2/1 Dark-sky committee, 7:00
- 2/2 LAST QUARTER
- 2/3 Conj., Sun with Neptune & Moon with Antares
- 2/3 BSAS Board Meeting, Jefferson Square, 7:30
- 2/5 Conj., Moon, & Mars
- 2/8 NEW MOON
- 2/9 CHINESE NEW YEAR
- 2/12 Public Star Party at Percy Warner Park, 7:30 – 9:30
- 2/14 Conj., Venus with Neptune; Mercury at sup. conj.
- 2/15 FIRST QUARTER
- 2/17 BSAS Membership Meeting, 7:30 ASC
- 2/18 75th anniversary of the discovery of Pluto
- 2/20 Conj., Moon & Saturn
- 2/22 Venus at aphelion
- 2/23 FULL MOON
- 2/25 Conj., Sun & Uranus
- 2/27 Conj., Moon & Jupiter

Note: all dates &amp; hours according to Central Time

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