



ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

Celebrating our 77th Year

October 2005

**The Membership meeting will be held on October 20, 2005
at the Adventure Science Center at 7:30 pm.
The speaker will be Dr. William Keel**

Living in Einstein's Universe

This year, 2005, marks the centenary of Einstein's "miracle year", when relativity entered our experience. Its insights have illuminated the last century of astronomical discovery perhaps more deeply than in any other field. Dr. William Keel will review some of these insights, and how we have used them to probe yet more deeply into the Universe. Cosmic jets, gravitational lensing, matter near the speed of light, the expansion of space, and the mysteries of black holes can all be understood only through the views Einstein showed us. Find out how we're now using Fritz Zwicky's telescope, why the USSR needed a safety review before launching the third cosmonaut, why we deliberately look through very busy galaxy

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FROM THE PRESIDENT

I'd like to open this message by saying a big, loud "farewell and thank you!" to my fellow BSAS officers and board members, and to the entire membership of our club. As many of you know, I have accepted a transfer with my company to the Indianapolis area and will be moving in the next few weeks. While this means I will no longer be able to serve as club president, I still intend to stay informed on BSAS activities through that wonderful invention, the internet. I have thoroughly enjoyed serving as president, in large part due to the enthusiasm, energy and good fellowship of so many BSAS members, and I will miss seeing all of you (though I hope to be back for a few activities per year in the future, especially TNSP). I know that Pam Thomas will do an excellent job as my successor, and I ask that all of you give Pam your support as we go through this unexpected transition.

I think the last year has been a moderately successful one for the club, and I'd like to look back and see where we've been. When I came to office, my highest priority was to arrange for an increased number of private star parties, and I'm pleased to say that we've had one scheduled almost every month since last November (Mother Nature has kept us from actually holding several of them, unfortunately). A prerequisite to holding private star parties on the Natchez Trace was to obtain a permit from the Park Service granting us after-hours access to the Trace. After some doing, a permit was finally obtained, and I am very happy to say that we now enjoy excellent relations with the local Park Service Rangers.

We also enjoy excellent relations with the Adventure Science Center and Sudekum Planetarium Director (and long-serving BSAS board member) Kris McCall, as well as with the Cumberland Astronomical Society (CAS) and its very hospitable president, Scott Smith. I'm hopeful that we can hold additional joint activities with the ASC and CAS in the future, as well as with other neighboring astronomy clubs.

Other achievements of the last year include an expansion by the Equipment, Facilities and Grants Committee in the fleet of loaner telescopes, so that we now have a total inventory of one 4-inch, two 6-inch and one 8-inch Dobsonian 'scopes available, as well as two equatorial tracking tables for the Dobs and a donated 8" Schmidt-Cassegrain and a 2.3 inch refractor. That's an excellent collection and should serve our members well for many years to come.

Looking ahead, I think our club is in generally good shape. Preparations for TSNP '05 are in full swing and this year's event promises to be an excellent one (hopefully the hurricanes will stay far, far away). Our club treasury has a solid balance of around \$5,000 (after subtracting some outstanding bills still to be paid).

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clusters to see our farthest into the Universe, and why the difference in color between gold and silver reflects an aspect of relativity.

Dr. Keel received a BA in Physics/Astronomy from Vanderbilt University. This was followed by a Ph.D. from the University of California, Santa Cruz and work at the Lick Observatory. He spent time as a Postdoc at Kitt Peak National Observatory, two years at the Leiden Observatory in the Netherlands, and also served as a visiting scientist at the USSR Academy of Sciences utilizing their 6-meter telescope. He has lived in Tuscaloosa for the last 18 years and is a Professor of Astronomy at the University of Alabama.

Dr. Keel has been working on assorted pieces of the puzzle of galaxy evolution since the mid-1980s, first concentrating on how galaxy collisions affect their victims and recently on the populations of galaxies observed at high redshift in the early Universe. This work has involved observations with large ground-based telescopes as well as spaceborne facilities such as Hubble, ESA's Infrared Space Observatory, FUSE, and a small UV telescope carried on the shuttle Discovery during STS-95. He has worked with Hubble data since its first year of operation.

Dr. Keel has been on allocation committees for the Hubble telescope, ROSAT X-ray satellite observatory, NASA Infrared Telescope Facility, National Optical Astronomy Observatories, Chandra X-ray Observatory, and Astro-2 Shuttle-based package. He has published more than 120 refereed research papers, plus popular articles on galaxies, telescopes, spaceplanes, and the science/religion debate. He also manages a popular astronomical image collection on the Web and is translating a book on binary galaxies from Russian. He has written two books including "The Road to Galaxy Formation" (2002) and "The Sky at Einstein's Feet" due out this October.

Unlike many professional astronomers, Dr. Keel started out as a backyard amateur. He still has a yen for eyeballing the universe and has 5- to 10-inch reflecting telescopes sitting by his front door. Once in a while he does research on a galaxy that can actually be seen with these. Some of his favorite sights in the sky over the years have included a total solar eclipse (Oregon 1979), seeing the center of the Milky Way overhead from Chile, the globular cluster 47 Tucanae, the dark spots left on Jupiter by Comet Shoemaker-Levy 9's demise, and watching the orbital movement of Comet Hyakutake minute by minute.

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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BSAS Logo by Tony Campbell

Happy Birthday Yerkes Observatory

by Robin Byrne

This month we celebrate one of the foremost observatories in the world. The story of Yerkes Observatory is also the story of George Ellery Hale. Shortly after graduating from college, Hale was hired to teach at the University of Chicago, which had just recently been founded. In 1890, Hale learned about a large piece of glass that the University of Southern California had planned to use to build a telescope. Their plans fell through, so Hale looked into getting the glass and got the two disks for \$20,000.

Alvan Clark found the glass to be perfect, and proceeded to grind the glass into what would become the world's largest refractor (a title the telescope still holds today). Meanwhile, a location for an observatory needed to be found. A 53 acre parcel of land was donated to the University about 76 miles north of Chicago near William's Bay, Wisconsin. The weather conditions were favorable, and it was even conveniently located near a railroad line for easy access by visiting astronomers.

Next a building needed to be designed. Unlike previous observatories, which solely housed a telescope, Hale envisioned this new observatory to be a complete research facility. Funding for the project (\$349,000) was provided by Charles T. Yerkes, a Chicago streetcar tycoon. The building was largely designed by Hale. Shaped like a cross, the main observatory, housing the 40 inch Clark refractor, is located at the west end of the longer, east-west, axis. At the east end are two small domes and a meridian transit observatory. Two smaller observatories are located at the ends of the smaller, north-south, axis. The northern dome originally contained Hale's 24 inch refractor. With the exception of the main Clark refractor, all the other instruments have been replaced with more modern equipment. Also located in the building are found offices, classrooms, a library, a darkroom, machine shop, maintenance rooms, storage for archival materials, sleeping quarters and various locations for experimental work.

Construction began in 1895. One of the more innovative design features concerns the floor of the main observatory. With an instrument as long as the 40 inch refractor, the height of the eyepiece will go through a large range, from observing at the zenith to looking at the horizon. Rather than building an observing platform that raises and lowers, the entire floor moves. The floor is 75 feet in diameter and weighs 37.5 tons. Cables connected to counter balancing weights can raise and lower the floor over a range of 23 feet. The observatory was completed in 1897, and was dedicated on October 21 of that year.

Being home of the world's largest refractor, Yerkes quickly attracted some of the top astronomers of the time. A sample of the work completed at the observatory includes Hale's observations of the Sun and his development of a spectroheliograph. Edwin Hubble received his Ph.D. from the University of Chicago, where he used the Yerkes telescope for his study of photographing faint galaxies. Edward Barnard took a series of photographs of the Milky Way region, which he compiled into the book *Photographic Atlas of Selected Regions of the Milky Way*. He also discovered and mapped the dark nebulae found in the Milky Way's disk. Albert Michelson used his interferometer to measure stellar parallaxes, increasing the accuracy of the distance measurements by a factor of 10. Otto Struve, who later became director of Yerkes, made spectroscopic observations of stars to study their atmospheres, rotations, and to study binary stars. Gerard Kuiper, while using the Yerkes telescope, discovered the atmosphere of Saturn's moon Titan.

Although refractors are no longer favored by professional astronomers, and the ever growing population of the Chicago region has encroached upon the once remote location, Yerkes Observatory will always remain an astronomical landmark. The 40 inch Clark refractor has yet to be surpassed and stands as an icon of an earlier era of astronomy. Hale's vision of what a modern observatory should be set the standard for all professional observatories since. The scope of discoveries made at Yerkes range from our solar system to the far reaches of the universe. Only a handful of observatories capture the imagination of the general public, but Yerkes is most definitely one of them. With all that it has offered over the years, take a moment to honor the granddaddy of observatories by saying, "Happy Birthday Yerkes!"

References:

History of Yerkes Observatory <http://astro.uchicago.edu/vtour/history/>

National Park Service: Astronomy and Astrophysics (Yerkes Observatory) http://www.cr.nps.gov/history/online_books/butowsky5/astro4p.htm

**Barnard-Seyfert Astronomical Society
Minutes of a Regular Meeting of the Board of Directors
Held On Thursday, September 1, 2005**

The board of directors of the Barnard-Seyfert Astronomical Society met in regular session at the Jefferson Square Club House in Nashville, Tennessee on September 1, 2005. A sign-in sheet was circulated in lieu of a roll call. President John Harrington declared a quorum to be present and called the meeting to order at 7:40 P.M. Board members Mike Benson, Joe Boyd, Tony Campbell, JanaRuth Ford, Bill Griswold, John Harrington, Bob Rice, Randy Smith, Pam Thomas, and Gary Wilkerson were present. Board member Kris McCall was absent. In addition to members of the board, BSAS Equipment Committee Chair Lonnie Puterbaugh was also present.

John Harrington, who is resigning as BSAS President due to an out-of-state workplace transfer, announced that this board meeting would be his last. Mr. Harrington thanked the board, committee chairs, and members for their encouragement and support during his tenure. BSAS Treasurer Randy Smith reported that the Society's checking account balance was \$5,920.78. Mr. Smith asked board and committee members to submit invoices or other documentation for expense reimbursement. He also announced that the upcoming September 15 membership meeting would be the last time for ordering 2006 Observers Handbooks and Astronomy Magazine calendars.

TNSP Treasurer Bob Rice reported that at August 31 the star party had 27 pre-registrations with a total income of \$1,649.00, total expenses of \$110.28, and a bank balance of \$1,738.72. Mr. Rice noted that the number of pre-registrations compared very closely with that for the same period before the 2004 TNSP. Long Range Planning Committee Chair Joe Boyd announced that this committee met on August 9 and would meet again in October. Equipment Committee Chair Lonnie Puterbaugh announced that, because of his upcoming absence to aid Hurricane Katrina victims, the committee would have to either find a different location or cancel the meeting previously scheduled for next week.

John Harrington expressed his concern about the BSAS' declining membership. Mr. Harrington said that he hoped the Astronomy 101 presentation on September 8 and upcoming Mars parties would help to reverse this trend. He commented that the BSAS' permanent display was being renovated with new text and photos and that an updated prototype of the BSAS' informative brochure had been produced. Mr. Harrington also reminded the board about the private star party scheduled for Saturday night, September 3, at the 433.5 mile marker site off the Natchez Trace Parkway. Regarding the Astronomy 101 presentation, Mr. Harrington suggested that attendees' providing their own food might be a good idea and noted that the exact starting time – either 5:30 P.M. or 6:00 P.M. – needed to be worked out with Warner Park.

John Harrington announced that the BSAS might participate in the Opry Mills Regal Theater's premier of "Magnificent Desolation: Walking on the Moon" by setting up telescopes and informational displays on September 23 with the 24th as an alternate date in case of unfavorable weather. Mr. Harrington noted that the moon would not be visible that evening until after midnight. Pam Thomas suggested that the mall might be persuaded to reduce the outside lighting to permit viewing fainter objects. Mr. Harrington also informed the board that the BSAS' broker had not yet proved a requested certificate of liability insurance. He also commented that the BSAS could participate in the September 7 performance of Gustav Holst's "The Planets" at the Tennessee Performing Arts Center. However, Mr. Harrington pointed out that securing a means for storing participants' telescopes was a critical issue at this performance. He suggested that more details needed to be ironed out before the BSAS committed to participating in either event.

Bill Griswold reported that Gary Wilkerson and Heinrich Tischler were working on additional signs for the TNSP. Tony Campbell announced that he might be able to set up a low powered FM transmitter at the TNSP to provide information to the attendees. Lonnie Puterbaugh announced that he had found an Automated External Defibrillator (AED) that had received good reviews and came with a four-year battery for \$1,275.00. John Harrington asked Tony Campbell to arrange a mass emailing about the TNSP; Pam Thomas agreed to draft the wording. Mr. Harrington also asked Mr. Campbell to reset the September 3 private star party location shown on the BSAS website to denote the 433.5 mile marker site.

John Harrington commented that having a swap table for TNSP attendees would be a good idea. Mr. Harrington noted that the silent auction had worked well at the last BSAS Christmas Dinner and suggested adding a swap table at that event. Pam Thomas announced that she would have a sign-up sheet for TNSP volunteers at the

Regular Meeting of the Board of Directors, continued from page 4

September 15 membership meeting. Lonnie Puterbaugh announced that he would order 100 T-shirts for the 2005 TNSP and that the color would probably be a shade of green.

Lonnie Puterbaugh reported that the TAG Church Camp near Lynchburg might be a potential location for the 2006 TNSP. This site offers a five-acre field with 6.2 limiting-magnitude skies along with eleven 16-bed cabins equipped with electricity, water, and restrooms. The facility also has a lodge and auditorium with classrooms. Catering may be available; Mr. Puterbaugh will investigate this and other details. Joe Boyd reported that his preliminary inquiry into using Pickett State Park near Jamestown for future TNSPs indicated that the size of the assembly hall and dining room might be a limiting factor. Mr. Boyd will try to get more definitive information from the park's management.

Lonnie Puterbaugh announced that he was working on the TNSP schedule and suggested having two speakers on Saturday morning and three on Saturday afternoon. Tony Campbell moved that the next board meeting date be changed from October 6 to October 13 to avoid being just before the TNSP on October 7. Randy Smith seconded the motion and, following a brief discussion, it was passed by a unanimous voice vote. Joe Boyd said that he would check on a location for the meeting.

John Harrington suggested that, due to high gasoline prices, the board might investigate setting up car pools for the TNSP. Lonnie Puterbaugh suggested showing DVDs in the wigwam for the Friday afternoon TNSP program. Bill Griswold suggested that the board consider setting a tentative date for the next TNSP. After a brief discussion, the board decided to hold the 2006 TNSP on either October 26 – 29 or October 27 – 29 with the site to be determined later. Pam Thomas suggested holding a TNSP planning session around 5:30 P.M. just before the membership meeting on September 15; this arrangement would still allow plenty of time before the TNSP if another session were necessary.

There being no further business to discuss, President Harrington declared the meeting adjourned at 9:10 P.M.

Respectfully submitted,
Bob Rice
Secretary

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So what challenges lie ahead? I see two key issues. First and foremost, our membership rolls have declined a bit. I think that BSAS membership is a great bargain, especially when you consider the wide array of excellent monthly presentations (thanks JanaRuth!) and loaner equipment (thanks Lonnie!) available, not to mention the monthly star parties and other events plus this excellent newsletter (thanks Bill!). So please encourage everyone you know who has an interest in science generally to attend a club meeting or event and see how much fun we have—I think many of them will get “hooked!” We also really need someone to step up the plate and serve as chair of the Publicity and Outreach Committee; publicity is vital to reaching all of the science-minded people in middle Tennessee.

The next topic is equally difficult—the debate over whether or not to undertake the weighty commitment to build a permanent (or mobile) observatory. Either one will take a very substantial amount of effort and will represent a continuing financial and managerial challenge to the club. Reasonable minds can and do differ on the wisdom of acquiring some form of observatory, particularly in an age when light pollution ruins the skies further and further from our cities, while large telescopes located in remote places can be accessed rather easily over the internet. I personally think the BSAS would benefit by having a permanent observing “home,” but that is an issue that the club's leadership—and all of you—will have to grapple with in the future. Perhaps one or more neighboring clubs might participate in a joint effort with the BSAS to create a permanent observatory (whether fixed or mobile).

In closing, let me just again thank you for all your support. I wish each of you clear, dark skies and good fellowship under the stars.

John Harrington,
President

**Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held on Thursday, September 15, 2005**

Vice-President Pam Thomas called the meeting to order at 7:38 P.M. in the Adventure Science Center and welcomed new members and visitors. The minutes of the previous membership meeting held on August 18, 2005 were approved without exception as published in the September 2005 issue of the *Eclipse* newsletter.

Pam Thomas introduced BSAS member Mark Manner who delivered a presentation on CCD Imaging. Mr. Manner explained that Charge Coupled Devices or CCDs were special cameras that used digital chips for imaging and employed cooling to reduce signal noise. He described the use of red, green, and blue filters to create the major components of a CCD image noting that observational transparency in middle Tennessee was typically bad. Mr. Manner pointed out that, besides the CCD camera, having a steady telescope mount with a smooth, accurate drive was also important. In addition to general performance and exposure techniques, he also touched upon difficulties encountered during focusing. Mr. Manner graciously answered questions from the audience both during and after his presentation.

Pam Thomas recalled the meeting to order at 8:47 P.M. and, reporting for Treasurer Randy Smith, announced that the BSAS' bank balance was \$5,890.74. Equipment Committee Chair Lonnie Puterbaugh called the audience's attention to the remodeled BSAS portable display on view at one side of the room. This display featured completely updated text and pictures to be exhibited at events in which the BSAS participates. Mr. Puterbaugh invited members to submit their Mars photos; the best will be selected for addition to the display at the annual Christmas dinner. He also announced that an Automated External Defibrillator (AED) to treat cardiac arrest would be available at the TNSP in October.

Joe Boyd reported that 45 people attended the BSAS Astronomy 101 presentation at Warner Park on September 8th. Intended for beginning amateur astronomers, this presentation included lectures by BSAS members John Harrington on the solar system, JanaRuth Ford on general astronomy, and Mark Manner on comets and equipment. BSAS member Chuck Schlemm also brought an informative educational display. Three telescopes were set up for observing following these presentations. Mr. Boyd announced that Warner Park management was very pleased with this event that was available to the general public.

Pam Thomas reminded the audience about these upcoming events:

- October 1: BSAS Private star party at mile 435.5 loop parking lot on the Natchez Trace Parkway
- October 7-9: The Tennessee Star Party at Camp Nakanawa near Crossville
- November 4: BSAS public Mars party at the Adventure Science Center
- November 5: BSAS Public Star Party at Warner Park

Pam Thomas related information from Bob Norling that the Renaissance Center in Dickson had a planetarium and that more details were available on their website. Chuck Schlemm announced that the BSAS' providing telescopes at the IMAX Theater in the Opry Mills shopping center on September 23rd had apparently fallen through due to the Mall's restrictions on sidewalk usage. Mr. Schlemm said that he still hoped to set up an educational display inside the theater lobby.

Lonnie Puterbaugh announced these upcoming non-BSAS events of interest:

- September 24: Scope Out in Cincinnati that will feature John Dobson
- October 14-16: Volunteer State Star Party near Hohenwald
- October 21-23: Bays Mountain Star Fest near Kingsport
- October 29: Von Braun Astronomical Society in Huntsville will host a Mars observing event for Scouts
- November 29: Middle Tennessee University will host a public observing event

Lonnie Puterbaugh announced that the TNSP speakers list was posted on the tnastronomy website. Joe Boyd announced that he would pick up completed membership survey forms at the close of the meeting. Bill Griswold reminded members to turn in their name tags at the conclusion of the meeting.

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Monthly Membership Meeting, continued from Page 6

There being no further business to discuss, Vice-President Thomas declared the meeting adjourned at 9:08 P.M.

Respectfully submitted,
Bob Rice, Secretary

**Barnard-Seyfert Astronomical Society
Minutes of a Special Meeting of the Board of Directors
Held On Thursday, September 15, 2005**

The board of directors of the Barnard-Seyfert Astronomical Society met in special session on September 15, 2005 at the Adventure Science Center in Nashville, Tennessee immediately following the monthly membership meeting that ended at 9:08 P.M. The purpose of this meeting was to briefly discuss several pending topics in advance of the upcoming Tennessee Star Party (TNSP) on October 7-9 and the next regularly scheduled board meeting on October 13, 2005. A quorum was present that included board members Joe Boyd, Tony Campbell, JanaRuth Ford, Bill Griswold, Bob Rice, Pam Thomas, and Gary Wilkerson. Board members Mike Benson, Randy Smith, and Kris McCall were absent. In addition to members of the board, BSAS Equipment Committee Chair Lonnie Puterbaugh and Committee Member Keith Burneson were also present.

JanaRuth Ford announced that several Middle Tennessee State University (MTSU) students wanted to attend the TNSP and asked the board to consider granting them the same \$5.00 registration discount as afforded BSAS members. Tony Campbell put this suggestion into a motion that was seconded by Bill Griswold and, following a brief discussion, passed by a unanimous voice vote.

Bill Griswold displayed a prototype of the newly revised four-panel BSAS informational brochure and announced that it could be printed at a cost of sixty-nine cents per copy. Joe Boyd moved that the Society order 750 copies and Tony Campbell seconded this motion. During the discussion several members commented that because of the cost, these brochures should be handed out very judiciously. Tony Campbell suggested that selected portions of this brochure could be inexpensively copied onto letter-sized paper for more massive distribution. All agreed that this would be a good idea. The motion was then put to a voice vote and passed unanimously.

The board discussed and decided that inquiries to the BSAS website should follow this routing sequence: (1) Webmaster Tony Campbell, (2) Vice-President Pam Thomas, and (3) Immediate Past-President Joe Boyd. Pam Thomas commented that the Society's agreement with the National Park Service to use the Natchez Trace Parkway dark sky sites would have to be renewed following the last scheduled private star party in October. Bill Griswold volunteered to make this contact for next year.

TNSP Treasurer Bob Rice reported that the TNSP's bank balance was \$2,917.72 at September 14, 2005 and that 45 people had registered. Mr. Rice also announced that he would bring the raffle tickets and door prizes to Camp Nakanawa. Bill Griswold reported that Heinrich Tischler and Gary Wilkerson were helping with the signs and that Mr. Tischler would email his anticipated schedule. Mr. Griswold also announced that he would be able to track attendee cabin assignments during registration. JanaRuth Ford commented that approximately 10 MTSU students might attend the TNSP. Joe Boyd agreed to be the central contact person with Camp Nakanawa Owners Ann and Pepe Perron during the TNSP.

There being no further business to discuss, Vice-President Thomas declared the meeting adjourned at 9:28 P.M.

Respectfully submitted,
Bob Rice, Secretary

Activities and Events

October 1 — 31, 2005

- 10/1 Private Star Party, Natchez Trace (approx. mile 435 parking lot)
- 10/3 NEW MOON, annular solar eclipse
- 10/4 Jupiter 2° N of Moon
- 10/7 Venus 1.4° N of Moon; Antares 0.2° S of Moon
- 10/7-9 TNSP 2005 (2005 Tennessee Star Party) Camp Nakanawa, near Crossville
- 10/10 FIRST QUARTER
- 10/13 BSAS Board of Directors mtg., 7:30 p.m.
- 10/16 Venus 1.6° N of Antares (46° E)
- 10/17 FULL MOON, partial lunar eclipse
- 10/19 Moon 0.3° S of Pleiades (M45)
- 10/20 BSAS monthly mtg., 7:30 p.m., at Adventure Science Center
- 10/24 LAST QUARTER
- 10/29 Mars closest approach
- 10/30 Daylight Saving Time ends
- 10/29 Private Star Party, Natchez Trace, Water Valley Overlook (approx. Mile 412)
- 10/31 Spica 1.2° S of Moon, occultation

November 1 — 30, 2005

- 11/1 NEW MOON
- 11/3 Mercury greatest elongation E (24°); Venus greatest elongation E (47°); Mercury 1.3° N of Moon
- 11/3 BSAS Board of Directors mtg., 7:30 p.m.
- 11/4 Antares 0.2° S of Moon; Public Star Party, Adventure Science Center
- 11/5 Venus 1.4° N of Moon
- 11/6 Venus 3° S of Lagoon (M8) (46° E)
- 11/7 Mars at opposition
- 11/8 FIRST QUARTER
- 11/9 Mercury 1.9° N of Antares (22° E)
- 11/15 FULL MOON
- 11/16 Moon 0.3° S of Pleiades (M45)
- 11/17 BSAS monthly mtg., 7:30 p.m., at Adventure Science Center
- 11/17 Leonids meteor shower peaks
- 11/23 LAST QUARTER
- 11/28 Spica 1.1° S of Moon

Note: all dates & hours according to Central Time

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