



ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

Organized in 1928

October 2006

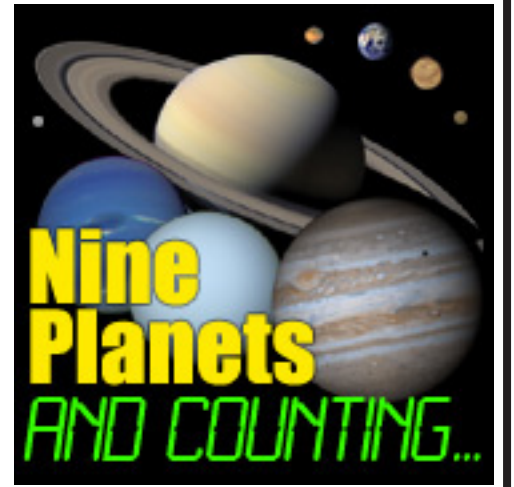
Membership Meeting

**The Membership Meeting will be held on
October 19, 2006 at the
Adventure Science Center at 7:30 pm.**

The program will be a talk by Kris McCall on the demotion of Pluto to a minor planet status. There will also be a viewing of the program called

Nine Planets and Counting.

Come to this meeting, it should be very interesting and educational.



President's Message

This month I would like to report on the just concluded Tennessee Star Party 2006 (TNSP2006). This year we moved to a new location, the Tennessee-Alabama-Georgia Youth Camp (TAG) near Lynchburg, Tennessee. The facilities at TAG are newer than our prior location, and proved to be very popular with attendees, in particular the spacious meeting hall where our programs were held and the dorm style cabins. The skies are relatively dark with a limiting visual magnitude of approximately 6.0 to 6.2.

This year we had an extra night for BSAS members on Thursday September 21st, with the main event beginning mid-day Friday September 22nd and continuing through Sunday morning September 24th. The weather didn't cooperate, however, with Thursday more or less completely clouded out. On Friday, the skies cleared for several hours beginning around 8:30pm, but thunderstorms greeted us on Saturday. As usual we had an excellent program, with excellent speakers including Steve Wheeler, Dr. Spencer Buckner, Dr. Charles McGruder, Dr. David Hathaway and others. Lonnie Puterbaugh educated and entertained attendees for many hours during the weekend with The Astronomy Channel.

Special thanks are due to all the BSAS volunteers who worked so hard to make TNSP2006 a success. In particular, Keith Burneson, BSAS Vice President and the TNSP2006 Coordinator, put in countless hours before and during the event. Some photos from this year's event follow this message.

We hope to see you all next year! Don't hesitate to contact me with any questions or concerns. Best regards,

Mark Manner

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<http://www.spotastro.com>

<http://groups.yahoo.com/group/tnastronomy/>

MTSU Star Parties

The Dept. of Physics and Astronomy would like to invite you and your friends and family to our First Friday Star Parties. The events is free and will occur >rain or moonshine.
Hope to see you under the stars!

MTSU First Friday Star Parties

Dates: First Friday of each Month
Oct 6 The Ring Nebula – the future of the Sun?
Nov 3 The Big Bang
Dec 1 The Sun-Earth Connection

Time: 6:30pm - 8:30pm
Place: Lecture: Wisner-Patten Science (WPS) Building Room 102
Observing: Telescopes are set up at the Uranidrome plaza (behind Cope Bldg.)
Format: 30 - 45 min public lecture followed by Telescope Observing (if clear weather)

Audience:
General public, MTSU students, faculty, and staff (kids are welcome)

Directions:
Free Parking behind the WPS building.

Use Main Street Entrance to MTSU, follow Blue Raider Drive past Cope Building and past Old Main Circle. Left at Friendship Street. Left into 2nd parking lot. WPS building is the 2nd building on the right.

by JanaRuth Ford

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: \$37.00

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).

Contact president@bsasnashville.com 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 Venera 13

by Robin Byrne

This month we celebrate the 25th anniversary of an important event in the study of the planet Venus. From the early 1960's to the early 1990's, more spacecraft have been sent to Venus than to any other planet. Most of those spacecraft have been part of the Soviet Venera fleet. From fly-by's to orbiters to landers, the Venera spacecraft have done it all.

On October 30, 1981, Venera 13 launched upon an ambitious mission. It was followed 5 days later by Venera 14, with a similar goal. Both spacecraft were composed of an orbiter and a lander. The lander was comprised of a sealed container, with all scientific instruments inside, a landing platform, and an antenna to relay data to the orbiter.

Four months after launch, on March 1 1982, Venera 13 arrived at Venus. The orbiter and lander separated. While the orbiter slowed into a stable orbit around Venus, the lander plunged into the thick atmosphere, opened its parachute, and landed on the surface, near Phoebe Regio. Four days later, Venera 14 followed a similar procedure and landed about 590 miles away.

The lander carried instruments to perform several experiments. During the descent through the thick clouds, instruments on board looked for signs of lightning, and also measured how the atmosphere scatters light. While on the surface, the lander used instruments for drilling into the surface and taking soil samples, and to then analyze its chemical and isotopic properties. It also had devices for measuring seismic activity. In addition to these experiments, the lander was also equipped with a camera and color filters for photographing the landing site. Meanwhile, the orbiter was furnished with instruments to detect gamma ray bursts, as well as equipment to act as a communication relay between the lander and Earth.

Once on the surface, the Venera 13 lander began to survey its surroundings. The camera was used to photograph a panorama of the landing site, taking each image through three colored filters. This allowed for the first color images of Venus' surface. The original images looked orange or red, not because the surface was that color, but because the atmosphere filters out most of the shorter wavelengths of light, allowing only the orange and red light to come through. The images show the lander situated on bedrock with dark, sandy soil all around. Meanwhile, a drill was busy sampling the rock and soil. Spectral analysis showed the surface of the landing site to be mostly igneous rocks, with the primary component being basalt (dried lava).

The conditions on the surface of Venus are not hospitable to spacecraft. The temperature is approximately 850 °F (hot enough to melt lead), and the atmospheric pressure is roughly 90x Earth's air pressure. Knowing how harsh it was going to be, the lander was predicted to last no more than 32 minutes. Amazingly, Venera 13 continued to function for almost 4 times its expected lifetime.

The orbiter fared better. The gamma ray detector functioned beautifully. Between November 1981 and March 1983, it confirmed gamma ray bursts occurring approximately once every 3 days. That was a much higher detection rate than on any previous spacecraft. In one four month period, 44 bursts were measured.

Although unmanned exploration of Mars is currently receiving most of the attention, our nearest neighbor has had its time in the spotlight. Without the exploration of Venus' surface by landers and radar mapping from orbit, we would never know what lurked beneath its opaque, cloudy shroud. The Soviet Venera spacecraft missions paved the way to our current understanding of Earth's "Sister", and Venera 13 stands out for giving us a brief glimpse of what that hostile surface holds. Although Venus is mostly hidden in the Sun's glare this month, once it comes peaking back out, think about our nearest neighbor and one of the spacecraft that shed light on its dark secrets: Venera 13.

References:

NSSDC Master Catalog Display: Spacecraft
<http://nssdc.gsfc.nasa.gov/nmc/tmp/1981-106D.html>

The Venera 13 & 14 probes to Venus
<http://heasarc.gsfc.nasa.gov/docs/heasarc/missions/venera1314.html>

Voyages Through the Universe, 3rd Edition by Fraknoi, Morrison & Wolff

2007 RASC Observer's Handbook and Astronomy Calendar

At the meeting of October 19, Randy Smith, BSAS Treasurer, will be taking orders for the 2007 Royal Astronomical Society of Canada Observer's Handbook and the 2007 Deep Space Mysteries Calendar from the publishers of Astronomy Magazine. The costs have not risen: \$20 for the Handbook and \$10 for the Calendar. This year, instead of taking payment upon delivery, each item will need to be paid for at the time of ordering. If you will not be at the meeting, you can mail a check, made out to BSAS, for the full amount of your order to: Randy Smith, 6032 Hagars Grove Pass, Hermitage, Tennessee 37076. The order will be mailed the morning of October 20, so make sure your check gets delivered no later than October 19.



Looking out across the viewing field. Oh yes, it did rain.

Free Telescope Offer!

Did someone say free telescope? Yes, you did read that correctly. The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time. We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books. Some restrictions apply. A waiting list is applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear. For information on what equipment is currently available, contact Lonnie Puterbaugh at 615-661-9540.



The dining hall. A favorite place. Much good food and conversation.



Pam, Karen and Keith, stocking goodies in the “Red Light Saloon”



Preparing the stage for the next speaker



Dr. David H. Hathaway speaking on the Solar Cycles



Dr. Spencer Buckner

Activities and Events

October 1 — 31, 2006

10/4 Uranus 0.5° N of Moon
 10/5 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office
 10/6 FULL MOON; Star Party, MTSU, 6:30-9:00
 10/10 Moon 0.7° N of Pleiades (M45)
 10/13 LAST QUARTER
 10/16 Saturn 2° S of Moon; Mercury greatest elongation E (25°)
 10/19 BSAS monthly meeting at ASC: 7:30 p.m.
 Juno 0.3° N of Moon
 10/20 Zodiacal Light vis. In N lat. In E before morning twilight for next two weeks
 10/21 Private Star Party, Natchez Trace mile 435
 10/22 NEW MOON
 10/24 Mercury 1.4° N of Moon
 10/25 Antares 0.4° N of Moon
 10/29 Daylight Saving Time ends
 FIRST QUARTER

November 1 — 30, 2006

11/1 Uranus 0.5° N of Moon
 11/2 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office
 11/5 FULL MOON
 11/6 Moon 0.6° N of Pleiades (M45)
 11/8 Transit of Mercury
 11/12 LAST QUARTER; Saturn 1.6° S of Moon
 11/14 Iris at opposition
 11/16 BSAS monthly meeting at ASC: 7:30 p.m.
 11/17 Spica 0.6° N of Moon
 11/20 NEW MOON
 11/25 Mercury greatest elongation W (20°)
 11/28 FIRST QUARTER; Uranus 0.3° N of Moon

Note: All times are Central Time Zone

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