

SUDING TO DESCRIBE AUTOMATED OBSERVATORY



SUDING'S OBSERVATORY

Dr. Robert Suding, Chief Scientist for GTE SNP of Tyson's Corner, VA, will present a slide show and description of his observatory and 18-inch telescope on October 3.

The observatory is a structure 16 feet wide by 28 feet long. The roof rolls off to the north to expose the 18-inch Newtonian telescope inside. The slides will show the construction details. The computerized finder guide system will also be discussed.

Dr. Suding has a Ph.D. in system analysis from Florida State University. He has been designing microprocessor-based systems since 1974. Other interests include amateur radio and building a home pipe organ. Visitors are welcome on clear nights at his home in Herndon, Virginia for some spectacular deep sky observing.

OCTOBER CALENDAR — *The public is welcome.*

Friday, October 2, 9, 16, 23, 30, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-9972.

Friday, October 2, 23, 30, 8:00 PM — Observing with the NCA 14-inch telescope with Bob Bolster, 6007 Ridgeview Drive, south of Alexandria off Franconia Road between Telegraph Road and Rose Hill Drive. Call Bob at 960-9126.

Saturday, October 3, 6:15 PM — Dinner with the speaker at the Thai Room II, 527 13th Street, NW. Reservations unnecessary.

Saturday, October 3, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Suding will speak.

Tuesday, October 6, 13, 20, 27, 8:15 PM — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Saturday, October 24, 7:30 PM — *Exploring the Sky*, presented jointly by NCA and National Park Service. Glover Road south of Military Road, NW, near Rock Creek Nature Center. Planetarium if cloudy.

Saturday, October 31, Mid afternoon to . . . NCA outing at Hopewell Observatory. See page 7.

SEPTEMBER LECTURE

Dr. David S. Leckrone, Goddard Space Flight Center, spoke on the Space Telescope to be launched in 1985. He began with a historical review of the astronomical limitations supporting the justification for the Space Telescope project. He described generally the telescope and its instrument package, and gave some of the characteristics and capabilities of the five focal-plane instruments. He closed with slides of celestial objects such as might be studied with the Space Telescope.

The telescope is an F/24 Richey-Chretien of 2.4-meter aperture. At the 6328-Å (Ne) test wavelength the figure is within $\lambda/77$ with active primary figure control. The secondary figure is within $\lambda/110$. A limiting magnitude of 28 is expected. The MgF-coated optics will perform over the spectral range from 1100 Å to 1mm. Unhindered by atmospheric seeing (turbulence), useful resolution of 0.1 arcsec is expected at the test wavelength; it should approach the diffraction limit at the (somewhat shorter) optimum wavelength. This will yield an advantage of about 4 magnitudes over surface background noise, thus providing an observational radius of about 1.4×10^{10} ly. This corresponds to an increase in the volume of the observable universe by about 350 times!

The instrument package comprises the faint-object camera (FOC), the wide-field/planetary camera (WF/PC), a faint-object spectrograph (FOS), a high-resolution spectrograph (HRS), and high-speed photometer (HSP). The latter instrument also serves as a photopolarimeter.

Pointing capability is provided by reaction wheels. Rate gyroscopes provide reference information, star trackers bring the instrument within the field of the three fine-guidance sensors. An interferometrically derived error signal provides a pointing accuracy of 0.01 arcsecond; overall guidance stability is 0.007 arcsecond rms. Two of the fine-guidance sensors are normally used for pointing, leaving the third available for astrometry, thus supplementing the instrument package.

The WF/PC detectors are two sets of four each, 800x800-pixel charge-coupled devices (CCD's) which are annularly disposed around the optical axis. A pyramidal mirror on the axis deflects one quarter of the field to each CCD of one set of four. Either the WF or PC set can be selected by rotating the pyramid 45 degrees about the axis. The spectral sensitivity of the intrinsically red-sensitive CCD's is extended to 1150 Å by a fluorescent coating. Fifty filters, gratings, and polarizers will be selectable. The wide spectral range, dynamic range, linearity, sensitivity, and resolution of the WF/PC are expected to provide more information than the other instruments of the ST.

The FOC, provided by the European Space Organization, will utilize the full capability of the ST, reach the faintest magnitude, and yield the highest resolution. Its characteristics complement those of the WF/PC.

The FOS is a slitless type which should yield a spectral resolution of 10^3 to magnitude 23, 10^2 to magnitude 26, over a 0.1 arcsecond field, and a spectral range of 1150 to 7000 Å.

The HRS uses an eschelle in the first order to provide a spectral resolution of 10^5 over the range 1100 to 3200 Å to magnitude 16.

The HSP is a simple photometer-polarimeter which will cover the range 1100 to 9000 Å with a time resolution of 32 μseconds.

Leckrone named a wide variety of areas in which very substantial contributions are expected from the ST. The superior characteristics of the exospheric observatory will yield vastly improved studies of many types of objects and associated phenomena. Synoptic observations of planetary detail, early comet studies, extrasolar planet searches, high-resolution photometry of nebulae, Bok globules, protostar dynamics in H-II regions, supernova chemistry, accretion disks, X-ray clusters, galaxy populations, interstellar medium, active galaxies,

Questions regarding program priorities developed subtle evidence of an important underlying factor during the question period: the brilliant NASA management of the coordination of many space and surface programs for their effective mutual support. (This same NASA synergism was brought out by a previous lecture.)

OCCULTATION EXPEDITIONS PLANNED

Dr. David Dunham is organizing observers for the following grazing lunar occultations in October. For further information call Dave at 585-0989.

Date	UT Time	Place	Vis Mag	Pent Sunlit	Cusp Angle	Min Aper
10-04-81	23:19	Gist, MD	8.8	37	4N	20 cm
10-06-81	00:16	Ceresville, MD	8.2	47	1N	13 cm
10-18-81	09:24	Beaver Creek, MD	8.5	69	8N	15 cm
10-20-81	05:32	Richmond, VA	7.7	48	12N	8 cm
10-24-81	10:29	Ruther Glen, VA	8.5	10	6N	13 cm
ASTEROIDAL APPULSE (Occultation if sufficient south shift.)						
10-06-81	03:02	Miss: 1"2 N	8.9	(88)	Thisbe - dM=2.9	8 cm

WILLIAM HOWARD RITTER TELESCOPE AVAILABLE TO NCA MEMBERS

The Ritter Telescope, a gift to NCA, is a 6-inch Newtonian with equatorial semi-portable mount. Arrangements can be made to check out the telescope by contacting Jim Trexler, (office) 767-3305, or (home) 839-3490.

NCA WELCOMES NEW MEMBERS

Alexander Colcord
3435 North Roberts Lane
Arlington, VA 22207

Sue Marie Gaspar
1361 Iris Street, NW
Washington, DC 20012

Lawrence and Elizabeth Gulick & Family
2398 Forecastle Court
Woodbridge, VA 22192

Joel Korshover Apt 4040
4201 Massachusetts Avenue, NW
Washington, DC 20016

Robert P. Kozon Apt 701-S
5597 Seminary Road
Falls Church, VA 22041

Mr. & Mrs. Tom Marshall
4600 John Hancock Court Apt 102
Annandale, VA 22003

Norman Modine
Box 131
Garrett Park, MD 20766

David R. Nordin
201 Fourth Street, SE
Washington, DC 20003

Peter J. Rutledge
13204 Nickleson Drive
Woodbridge, VA 22193

Frank R. Scott
11907 Reynolds Avenue
Potomac, MD 20854

Randolph B. Sim
4242 East-West Highway
Chevy Chase, MD 20815

NCA INVITED TO HOPEWELL OBSERVATORY OCTOBER 31

Bring your prepared picnic dinner, telescopes, and friends and enjoy clear October sky away from the mercury vapor and neon aurora!

Go west on I-66 about 25 miles from the Beltway to the Haymarket exit. Turn left (onto Route 15) 0.25 mile to traffic light, right (Route 55) 0.75 mile to County Road 681 on right. Follow 681 3 miles to end. Left on County 601 (dirt) 1.2 mile to County 629 on right. One mile on 629 to small paved road on right. (Easier to see, on left side, is an iron gate with stone surround) Turn right, follow paved road 0.3 mile to top of ridge. Go around microwave station to dirt road through woods at the rear. Continue about 600 feet to site.

There is room, but orderly parking is a problem; carpooling is strongly recommended.

The Hopewell Corporation will furnish coffee, tea, cocoa, and soft drinks. There are no sanitary facilities, no fireplaces — just dark sky. Enjoy!

EXCERPTS FROM THE IAU CIRCULARS

1. August 21 — Ladislav Brozek, Klet Observatory, discovered a fast-moving asteroidal object (1981 QA) of 13th magnitude in Aquila. The orbital elements by Marsden indicate a period of 3.18 years.

2. August 28 — Charles Kowal, California Institute of Technology, discovered a fast-moving asteroidal object (1981 QB) of 16th magnitude in Aquarius with the 1.2-m telescope at Palomar. The orbital elements by Marsden indicate a period of 3.55 years.

3. August 29 — Ellen Howell, California Institute of Technology, discovered a 15th-magnitude comet (1981k) in Cetus with the 46-cm Schmidt at Palomar. The orbital elements by Marsden indicate that Comet Howell is a short-period comet (5.4 years) which passes perihelion in 1981 May. It may have had a larger orbit before a 1978 passage 0.6 AU from Jupiter.

FOR SALE

Edmund Scientific 4.25-inch F/11 reflector. With 1-, 0.5-, 0.25-inch and wide-angle oculars and adjustable Barlow. Equatorial mount, finder, sun screen, camera mount, Norton Star Atlas, star chart, observing handbooks, Excellent condition. With instructions. \$85.00. Larry Stedman, 229-6302.

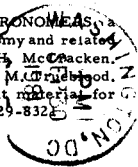
Cave Astrola, 8-inch F/4.5. Pedestal mounted, essentially new. Clock drive, Barlow lens, two oculars: 6- and 16-mm, 6x30 finder. \$825.00. Tom Keifer, (703) 281-2909 evenings.

Cave Astrola, 1973 model A, 6-inch F/8. 8x50 finder, 3 orthoscopic oculars; 4-, 12.5-, and 25-mm, clock drive and dual-axis slow-motion controls. 12vdc or 115vac. Six-inch setting circles, camera adaptor, Six Optica BC Spectrol filters in nesting, threaded mounts — can be adapted to oculars, but not a direct fit. Heavy, stable mount with added removable wheels. \$750.00. Mark Meadows, Annandale, VA. (703) 256-7524.

★ STAR DUST



Published eleven times yearly by NATIONAL CAPITAL ASTRONOMICAL SOCIETY, a non-profit public-service corporation for promotion of astronomy and related sciences. President, Daniel G. Lewis. Editor, Robert H. McCracken. Lecture reviews, James K. Crowley, John B. Lohman, Mark M. T. Wright. IAU Excerpts, Robert N. Bolster. Deadline 15th of each month. For information or to submit material for publication, Robert H. McCracken, 5120 Newport Avenue, Bethesda, Maryland 20816. (301) 229-8328



FIRST CLASS

