



DOSCHEK TO PRESENT SKYLAB SOLAR UPDATE



DR. DOSCHEK

Dr. George A. Doschek of the U. S. Naval Research Laboratory will open the 1977-78 lecture series at the September 10 meeting of National Capital Astronomers. He will bring us an update on *SkyLab* extreme-ultraviolet solar observations.

During the *SkyLab* mission in 1973, a wealth of new solar data were obtained by the instruments comprising the Apollo Telescope Mount. Among the many spectacular phenomena which were observed over a wide spectral range, some surprising results emerged from the extreme ultraviolet images and spectra of solar flares in the range from 170 to 2,000Å. Temperature and density distributions in flare plasmas deduced from these spectra disclosed densities of at least $2 \times 10^{13} \text{ cm}^{-3}$ — almost as high as those of tokamak plasmas investigated for thermo-

nuclear fusion. The corresponding volumes are quite small, typically having lengths on the order of 30km.

Dr. Doschek will discuss a number of flares, with emphasis on the flare of 15 June 1973. He will also describe the spectroscopic methods used.

George A. Doschek received a Ph.D. in physics from the University of Pittsburgh in 1968. At NRL since then, he has worked in solar physics and high-temperature laboratory spectroscopy, his interests centering on interpretation of X-ray and extreme-ultraviolet spectra of the solar atmosphere. He is a member of the American Astronomical Society, the International Astronomical Union, and is a Fellow of the Optical Society of America.

SEPTEMBER CALENDAR — *The public is welcome.*

Friday, September 9, 16, 23, 30, 7:30 PM — Telescope-making classes at American University, McKinley Hall basement. Information: Jerry Schnall, 362-8872.

Saturday, September 10, 6:15 PM — Dinner with the speaker at Bassin's Restaurant, 14th Street and Pennsylvania Avenue, NW. Reservations unnecessary.

Saturday, September 10, 8:15 PM — NCA monthly meeting at the Department of Commerce Auditorium, 14th and E Streets, NW. Dr. Doschek will speak.

Monday, September 12, 19, 26, 7:30 PM — Telescope-making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 362-8872.

Saturday, September 17, 9:00 AM — Smithsonian Monthly Sky Lecture at the National Air and Space Museum. For reservations, call 381-4193.

Saturday, September 17, 8:00 PM — *Exploring the Sky*, presented jointly by National Capital Astronomers and the National Park Service. Glover Road South of Military Road, NW., near Rock Creek Nature Center. Planetarium if cloudy. Information: Bob McCracken, 229-8321.

Sunday, September 25, 4:30 AM — *Exploring the Sky* special — an early morning program presented as a part of the annual Rock-Creek-Park-Weekend festivities. Same location as above. Information: Bob McCracken.

RESPONSE HEAVY TO SIMON TELESCOPE-PURCHASE PLAN

A substantial majority of NCA membership renewals are being accompanied by pledges in amounts that dispell any question of the members' desires.

At his final executive committee meeting, retiring President Benson Jay Simon pointed to the need, the inadequacy of our present facility, and the recent availability of larger retransportable instruments such as the Celestron 14. Citing the historic popularity of our public park programs, the data contributions of NCA observers, and the general interest in improved observational facilities, Simon appointed a committee to study the feasibility of NCA ownership of such an instrument (*Star Dust*, Summer 1977).

Many details of the operation, maintenance, and management are under consideration by the committee; the question of acquisition has been answered by the membership.

Members' inputs to the committee are solicited. Contact James Trexler, Daniel Lewis, Robert Lynn, or Robert McCracken.

To leave the NCA housekeeping in good order, Simon also appointed committees to study the NCA tax exemption, bylaws, and properties.

Treasurer Dr. Robert Lynn and Sergeant-at-Arms, attorney Richard Byrd were asked to examine the legal details of our tax-exemption status to assure our propriety. Secretary William Winkler and Trustee Robert Wright were named to examine the adequacy of our bylaws. Sergeant-at-Arms Richard Byrd has been asked to inventory all NCA property and records.

Simon asks the cooperation of all members in rendering whatever assistance the committees may request.

NCA TO PARTICIPATE IN ROCK-CREEK-PARK-WEEKEND FESTIVITIES

At the request of the National Park Service, a special *Exploring the Sky* program will be held on Sunday morning, September 25, at 4:30 AM, on Glover Road south of Military Road, NW. For a short while before sunrise, Jupiter will be featured, weather permitting. Otherwise, as usual, a planetarium program will be presented in the adjacent Rock Creek Nature Center.

BREAKTHROUGH IN SOLAR DISTURBANCE — WEATHER RELATIONSHIPS?

Surveying the literature, NCA Secretary William Winkler recently has found interesting evidence of the existence of a long-sought relationship between solar activity and tellurian meteorology. Winkler writes:

"For hundreds of years, scientists have attempted to find statistically significant relationships between various measures of solar activity and events in our lower atmosphere. Not until 1959 did a relationship emerge that appeared statistically (1). Troughs and low-pressure areas entering or forming in the Gulf of Alaska region 2-4 days after geomagnetic storms tend to become ultimately stronger than those occurring in that area at other times. Skeptics have criticized this research because of several non-objective aspects, and of course no detailed physical hypothesis has been offered.

"This year a similar form of weather relationship is becoming widely accepted (2). Satellite discovery beginning in 1963 that the solar interplanetary magnetic field is divided into well-defined sectors of like polarity, the development of numerical weather analysis, and better Northern-Hemisphere data have combined to provide the needed objectivity for studies of solar effects on

STAR DUST may be reproduced with proper credit to National Capital Astronomers

OCCULTATION EXPEDITIONS PLANNED

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

September	UT	Place	Vis Mag	Pent Sunlit	Cusp Angle	Min Aper
9	09:25	Landover, MD	8.9*	16	1N	6"
18	00:07	Hagerstown, MD	5.6	25	5S	2"
20	23:19	Ellendale, DE	6.5	58	3S	2"

*Double: 9.1, 10.9.

EXCERPTS FROM THE IAU CIRCULARS

1. April 23 — A meteor shower related to periodic comet Grig-Skjellerup (1977b) was seen in Australia and New Zealand, with counts as high as 40 per hour and some as bright as magnitude -3 or -4.

2. July 5 — G. Clark and F. Li, M. I. T., recorded via the SAS-3 observatory a nova-like increase in X-ray flux from the position of the source MX1609-52 in Norma. Optical observers were urged to search for an optical nova counterpart.

3. July 25 — Cohen, Kuhl, and Harlan, University of California at Berkeley, reported that a cometary nebula near NGC 7023 in Cepheus had continued to brighten and had changed its structure. At magnitude 16.9 in 1976 December 1, it had reached 15.5 on 1977 July 12. The Fe II emission lines were brighter, and higher-member Balmer absorption lines were observed. It was suggested that the object may be an FU Orionis star beginning its rise.

This listing courtesy R. N. Bolster.

WANTED

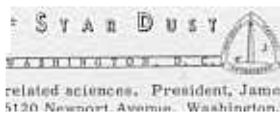
Roommate desired for Citmar 17-day eclipse cruise to Pacific Ocean off Mexico starting 1 October. Cost approximately \$1500. Air fare to Ft. Lauderdale and from Los Angeles included. Cleve Hopkins, 972-0951.

weather. Rigorous statistical tests confirm at the 95-percent confidence level that Northern-Hemisphere circulation strength reaches a minimum a day or so following movement of a solar magnetic polarity sector boundary past the Earth, and becomes maximum 2-4 days later. This effect prevails only during the colder 6 months of the year, primarily in middle and high latitudes, and is independent of longitude (3). Hines, long a noted critic of solar event-weather correlations (4), has offered the outline of a physical cause for the above result: Solar disturbance effects on the higher atmosphere may change its known ability to absorb and reflect lower-atmosphere waves, thus causing a variety of phase changes in weather systems either pre-dating a solar event or forming later from meteorological causes (2), (4).

"I expect the field of solar-terrestrial relationships to produce significant new knowledge in coming years."

References:

1. Roberts, W. and Olson, R.: *Journal of the Atmospheric Sciences* 30, Jan. 1973, 135.
2. Hines, C. and Helevy, I.: *Same J.* 34, Feb. 1977, 382.
3. Wilcox, J. *et al*: *Same J.* 31, March 1974, 581.
4. Hines, C.: *Same J.* 31, March 1974, 589.



Published eleven times yearly for NATIONAL CAPITAL ASTRONOMERS, INCORPORATED, a non-profit, public-service organization promoting interest and education in astronomy and related sciences. President, James H. Trexler, *Star Dust*; Robert H. McCracken, 5120 Newpark Avenue, Washington, DC 20016. Deadline: 15th of preceding month.

FIRST CLASS MAIL