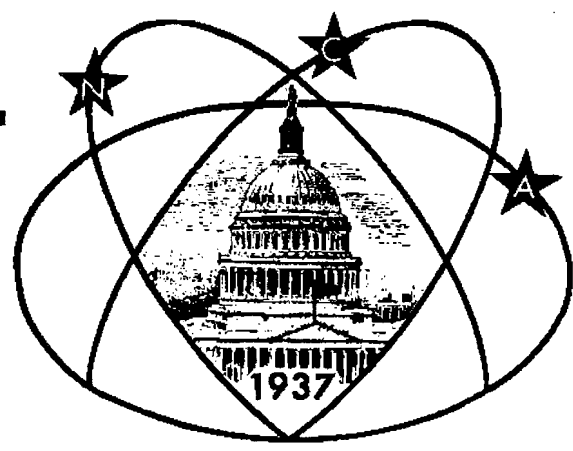


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Star Dust



National Capital Astronomers, Inc.

Phone: 301/565-3709

Volume 57, Number 5

January, 1999

ISSN 0898-7548

The Role of the Sun in Climate Change

by Kenneth H. Schatten

At the Saturday, January 9, 1999 meeting of National Capital Astronomers (NCA), Dr. Kenneth Schatten will talk to us on the subject of the role of the sun in climate change. Currently at AI Solutions, Dr. Schatten draws on an illustrious career exploring the subject, and has over 100 published publications to his credit, including a recent (1997) book coauthored with Douglas V. Hoyt, *The Role of the Sun in Climate*. A few of his many achievements include his serving as National Science Foundation (NSF) Program Director of the Solar Terrestrial Program, Goddard Space Flight Center (GSFC) co-investigator for the Voyager GSFC Magnetometer Experiment and organizing a NASA Conference on Sun/Climate Effects. He earned his B.S. in physics at the Massachusetts Institute of Technology in 1964, and his Ph.D. in space physics in 1968 at the University of California, Berkeley.

Dr. Schatten submits the following abstract of his talk:

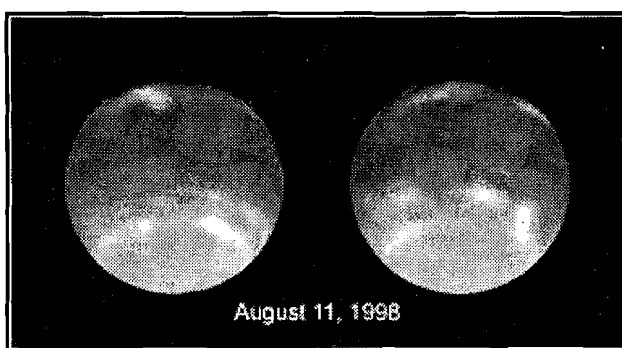
Loosely based upon a recent book with Doug Hoyt on this topic, this talk discusses solar influences on climate change. In the scientific community, it is generally accepted that man made "greenhouse gases" are causing a warming of the Earth. Yet another view has also emerged: that the natural changes associated with the Sun's light output could be causing some (or even all) of the terrestrial warming seen. Some climatologists have argued that significant

changes in past terrestrial temperatures were associated with variations in solar activity. For example, in the 11th and 12th centuries, when solar activity was exceptionally high; the Earth was significantly warmer, so much so that Vikings inhabited Greenland, and in the 17th century, the "Little Ice Age" was associated with the "Maunder Minimum" in solar activity. This talk will provide an overview of climate change and possible solar influences.

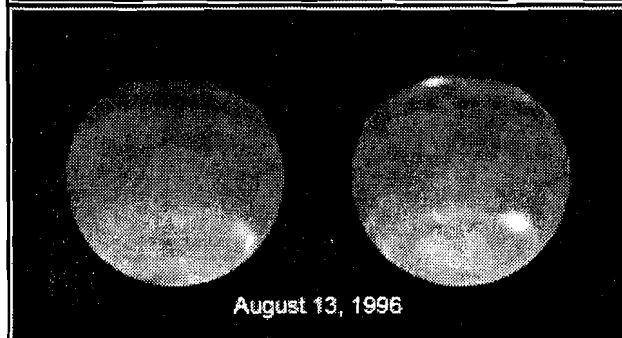
Given our record breaking December heat wave coming on the heels of el niño, this is indeed a timely talk.

Submitted by Nancy Byrd

Note to members - Leave extra time to find parking at NIH; parking and entrance will be at the south side of building; see article on page 2 for directions.



August 11, 1998



August 13, 1998

Opposite Hemispheres of Neptune HST • WFPC2
PRC98-34 • ST ScI OPO • October 12, 1998
L. Sromovsky (University of Wisconsin) and NASA

Using powerful ground- and space-based telescopes, scientists have obtained a moving look at some of the wildest, weirdest weather in the solar system. Combining simultaneous observations of Neptune made with the HST and NASA's Infrared Telescope Facility on Mauna Kea, Hawaii, a team of scientists captured the most insightful images to date of a planet whose blustery weather — monster storms and equatorial winds of 900 mph — bewilder scientists.

Calendar of Monthly Events

The Public is Welcome!

NCA Home Page: <http://myhouse.com/NCA/home.htm>

Mondays, January 4, 11, 18, and 25, 7:30 PM - Public nights at U.S. Naval Observatory (USNO), in Northwest Washington, D.C. (off Massachusetts Avenue). Includes orientation on USNO's mission, viewing of operating atomic clocks, and glimpses through the finest optical telescopes in the Washington-Baltimore region. Held regardless of cloud cover. Information: USNO Public Affairs Office, 202/762-1438. Home page: <http://www.usno.navy.mil>.

Fridays, January 8, 15, and 22, 8:30 PM - Open nights with NCA's Celestron C-14 telescope at Ridgeview Observatory; near Alexandria, Virginia; 6007 Ridgeview Drive (off Franconia Road between Telegraph Road and Rose Hill Drive). Information: Bob Bolster, 703/960-9126. Call before 6:00 PM.

Fridays, January 8, 15, 22, and 29, 7:30 PM - Telescope making classes at American University, McKinley Hall Basement. Information: Jerry Schnall, 202/362-8872.

Saturday, January 9, 5:30 PM-Dinner with the speaker, and NCA members at O'Donnell's, 8301

Wisconsin Ave., Bethesda, MD. See map and directions on back page.

Saturday, January 9, 7:30 PM-NCA meeting, will feature Dr. Kenneth Schatten, speaking on "Role of the Sun in Climate Change," See map and directions on back page.

Tuesdays, Closed - Telescope making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Classes from November 10th through April will be cancelled due to construction and will resume in May. Information: Jerry Schnall, 202/362-8872.

See page 4 for more Washington area astronomical events. Other events too numerous to list in *Star Dust* are listed in the publications, *Sky & Telescope*, the *Astronomical Calendar 1998*, the *Observer's Handbook 1998*. NCA members can purchase all these (and much more) at a discount. Information can also be found in numerous software packages, and links available on the NCA Home Page (see above for address). To join NCA, use the membership application on page 5.

Parking at NIH

by Jay H. Miller

I just heard from NIH on when the south entrance to the Clinical Center will be opened. The day *after* our January meeting, Sunday the 10th! Therefore parking for the January meeting will be the same as it is now. I've been parking in the lot at the corner of Center Dr. and Convent Dr. It's one block (stop sign) in from Old Georgetown Rd. along Center Dr. People can go into the garage off Convent Dr. and park under the Clinical Center.

For February and for the next several years the south entrance will be the main entrance. There is a parking lot across from the entrance. The garage under Bldg. 10 may be open. I'll have to check. One can get to the south lot from Rockville Pike at the subway and go straight ahead until forced to make a left turn at the third stop sign. The lot will then be on the right. From O.G. Rd. enter NIH at the first street, Lincoln, across from Suburban Hospital. At the "T", the second stop sign, make a left and the lot will be on the left.

There are maps and construction info at the web site: des.od.nih.gov/projects.htm. If you have any questions contact me at this email address or voice at 301-530-7942. I checked and the rights and lefts seem to be correct. Sometimes the dyslexia kicks in!

Newsletter Deadline for February *Star Dust*, January 15, 1999

Send Submissions to Alisa & Gary Joaquin, at ajglj@erols.com or fax submissions to 703/658-2233. Text must be in ASCII and graphics submitted must be in TIFF, GIF, or JPEG. Thank you.

Views From Galileo by Dr. Gordon Bjoraker

Reviewed by Gladys Fuller

This was primarily a talk of beautiful images from the Galileo orbiter. This mission was planned from 1977 to 1978 to be launched in 1982. Space shuttle delays caused it to be rescheduled to 1986, but the Challenger disaster caused another delay. Finally the over 2-ton orbiter was launched in October 1989 and had to take the scenic route to Jupiter. When it arrived on December 7, 1995, the probe was dropped into the

Jovian atmosphere and the orbiter went into an elliptical orbit around Jupiter.

Ganymede is the largest moon in the solar system, just a little larger than Saturn's Titan. Its surface seems to be mostly dirty water-ice with some bright areas which are interpreted as fresh impacts causing clean watery ice. The ice is not static but subject to stretching forces.

The image of Callisto showed a long line of craters, which is thought to be possibly from impacts of a broken-up comet, much like Shoemaker-Levy. The 3 or 4 craters in a row, also seen, could be explained by a process of secondary craters, caused by the ejecta from the original crater.

Asteroidal and Lunar Occultations for January, 1999

by David Dunhum

Below is general information about 1999 IOTA predictions. Since the Moon is nearly full, there are no good lunar events in the area right away; the next relatively bright events are listed below. Of most concern are two good asteroidal occultations for the area:

DATE	Day	EST	Star	Mag	Asteroid	dmag	dur. s	ap. in.	Occultation Location
Jan 5	Tue	19:44	ACT29671618	9.6	Bettina	2.2	8	6	n.VA, s. & e. MD, DE, s. NJ
Jan 7	Thu	1:13	59 Orionis	6.0	Chaldea	5.4	14	1	NY, s. New England

For these events, finder charts can be found at <http://members.home.net/dega/astchart.htm>. ACT 2967 1618 is at J2000 RA 7h 43m 14.3s, Dec. +41 deg. 15' 57" near the Lynx-Auriga border, while 59 Orionis is at 5h 58m 24.4s, Dec. +1 deg. 50' 14". If the weather cooperates (the long-range forecast, however, is pessimistic), we will undertake expeditions for both of these events from the DC area; the first (Bettina) event is nominally predicted to be visible from the Mid-Atlantic States/DC metropolitan area, so observers in the region should plan to at least monitor that conveniently-timed event from their home or observatory. The nominal paths are shown on my map on p. 107 of the 1999 Feb. issue of Sky and Telescope. Some good astrometry has been obtained for both of these events, and updated predictions will be issued in a day or two. The Chaldea event is the best in North America during all of 1999, an easy binoculars event if the sky clears for it.

The better total lunar occultations during the rest of the current (early Jan.) lunation and good camcorder opportunities during the rest of 1999 visible from throughout the Washington-Baltimore greater metropolitan area are listed below (times are for Greenbelt, MD, but should be good to within a minute across the region).

DATE	Day	EST	Star	Mag	%	alt	CA	Notes
Jan 2	Sat	20:01	R 81 Gem	4.9	99-	22	60N	Term.dist.19";n.ofM.Crisium
Jan 4	Mon	3:36	Romicron2 Cnc	5.7	94-	60	32S	
Jan 5	Tue	2:29	R 23 Leonis	6.5	88-	63	58N	Spec. M0, good for video
Jan 5	Tue	6:46	R nu Leonis	5.3	87-	35	17N	Sun alt. -8 deg.
Jan 11	Mon	4:31	R ZC 2089	6.7	33-	26	70N	
Jan 26	Tue	18:25	D gamma Tau	3.9	74+	58	53S	need 20x camcorder; Hyades
Jan 27	Wed	0:36	D ZC 0677	4.8	76+	29	51S	need 35x camcorder; Hyades
Jan 27	Wed	2:52	D Aldebaran	0.8	77+	4	84N	12x; shortly before moonset
Jan 28	Thu	1:55	D 119 Tauri	4.2	85+	26	22N	Graze near Aberdeen, MD
*** Dates and times below are EDT ***								
Apr 19	Mon	21:15	D 119 Tauri	4.7	20+	29	80S	need 20x camcorder
May 22	Mon	0:19	D Regulus	1.3	49+	19	87N	8x; naked eye event

National Capital Area Astronomical Events

Free Lectures at the Einstein Planetarium and Other Daily Events
National Air & Space Museum

202/357-1550, 202/357-1686, or 202/357-1505 (TTY)
Home page: <http://www.nasm.edu>

Other Area Astronomical Events

Carnegie Institute of Washington, Capital Science Lectures — Seminars held Tuesdays in the Main Building.

“Planetary Perspectives on Life in the Solar System”, Speaker, Christopher F. Chyba, Jan. 26, 6:30 PM.

Maryland Space Grant Observatory — Open House every Friday evening (weather permitting), Bloomberg Center of Physics and Astronomy, Johns Hopkins University, Baltimore, MD. Information: 401/516-6525 or check their web site at www.pha.jhu.edu/facilities/observatory/telescope.html.

Montgomery College's Planetarium, Takoma Park — “Astrolabes”, Jan. 23, 7:00 PM.

NASA Goddard Scientific Colloquia — All colloquia will be held in the Building 3 Auditorium at 3:30 pm.

“Exploring the Giant Planets with Hubble Space Telescope”, Speaker, Heidi Hammel, Jan. 15.

“Rocks and Shocks: High Resolution Photographic Investigation of Mars”, Speaker, Michael Malin, Jan. 29.

US Naval Observatory Colloquia — All Colloquia will take place in Bldg. 52, Room 300, with coffee and cookies at 10:00, talk at 10:30, and lunch at 12:00

“Finding and Forming Giant Planets”, Speaker Dr. Alan Boss, Jan. 15.

“Future of Origins Program,” Speaker, Dr. Harley Thronson, Jan. 29.

Current Comets for January 1999

C/1998 M5 (LINEAR)

- Perihelion: 1999, January 24
- Maximum magnitude about 9.5

52P/Harrington-Abell

- Perihelion: 1999, January 27

Poems by Nancy Roman

A Bright Meteor

A falling star; rapid
Billiant; beautiful;
Luminous like molten steel.
Unexpected; impressive;
Exciting; fleeting; memorable.
A grain of sand,
A dreg from creation.
A little thing can matter
In the glory of the heavens.

A Clear, Dark Sky

Glorious, awe-inspiring.
Countless bright diamonds on black velvet
Silent, vast, beautiful.
The hunter and his dogs chase the bull
In the crisp nights of winter
As the seven sisters watch.
In summer, the swan flies along the Milky Way,
Accompanied by bright Vega.
A dark rift splits the luminous band.
Clusters of stars bejewel the scorpion.
The dippers pour into one another
As the hours and months race by.
Ever changing, ever the same.
A quiet dependability over our hectic world.

Meteor Showers

Full Moon(s)

1999 January 2, 31 (Blue Moon)

Major Activity

Radiant	Duration	Maximum
Quadrantids (QUA)	Dec. 28--Jan. 7	Jan. 3 between 17 hrs and 21 hrs. UT

Minor Activity

Radiant	Duration	Maximum
January Bootids	Jan. 9-18	Jan. 16-18
Delta Cancrids (DCA)	Dec. 14-Feb. 14	Jan. 17
Canes Venaticids	Jan. 13-30	Jan. 24/25
Eta Carinids	Jan. 14-27	Jan. 21/22
Eta Craterids	Jan. 11-22	Jan. 16/17
January Draconids	Jan. 10-24	Jan. 13-16
Rho Geminids	Dec.- 28-Jan. 28	Jan. 8/9
Alpha Hydrids	Jan. 15-30	Jan. 20/21
Alpha Leonids	Jan. 13-Feb. 13	Jan. 24-31
Gama Velids	Jan. 1-17	Jan. 5-8



Don't throw this newsletter away. If you're finished with it, pass it on to someone else to read or recycle it. It's right for astronomy and the environment.

National Capital Astronomers, Inc.

SERVING SCIENCE & SOCIETY SINCE 1937

NCA is a non-profit, membership supported, volunteer run, public-service corporation dedicated to advancing space technology, astronomy, and related sciences through information, participation, and inspiration, via research, lectures, presentations, publications, expeditions, tours, public interpretation, and education. NCA is the astronomy affiliate of the Washington Academy of Sciences. All are welcome to join NCA.

SERVICES & ACTIVITIES:

Monthly Meetings feature presentations of current work by researchers at the horizons of their fields. All are welcome; there is no charge. See monthly *Star Dust* for time and location.

NCA Volunteers serve as skilled observers frequently deploying to many parts of the National Capital region, and beyond, on campaigns and expeditions collecting vital scientific data for astronomy and related sciences. They also serve locally by assisting with scientific conferences, judging science fairs, and interpreting astronomy and related subjects during public programs.

Discussion Groups exchange information, ideas, and questions on preselected topics, moderated by an NCA member or guest expert.

Publications received by members include the monthly newsletter of NCA, *Star Dust*, and an optional discount subscription to *Sky & Telescope* magazine.

NCA Information Service answers a wide variety of inquiries about space technology, astronomy, and related subjects from the public, the media, and other organizations.

Consumer Clinics on selection, use, and care of binoculars and telescopes, provide myth-breaking information, guidance, and demonstrations for those contemplating acquiring their first astronomical instrument.

Dark-Sky Protection Efforts educate society at large about the serious environmental threat of light pollution, plus seek ways and means of light pollution avoidance and abatement. NCA is an organizational member of the International Dark-Sky Association (IDA), and the National Capital region's IDA representative.

Classes teach about subjects ranging from basic astronomy to hand-making a fine astronomical telescope. NCA's instructors also train educators in how to better teach astronomy and related subjects.

Tours travel to dark-sky sites, observatories, laboratories, museums, and other points of interest around the National Capital region, the Nation, and the World.

Discounts are available to members on many publications, products, and services, including *Sky & Telescope* magazine.

Public Sky Viewing Programs are offered jointly with the National Park Service, the Smithsonian Institution, the U.S. Naval Observatory, and others.

NCA Juniors Program fosters children's and young adults' interest in space technology, astronomy, and related sciences through discounted memberships, mentorship from dedicated members, and NCA's annual Science Fair Awards.

Fine Quality Telescopes up to 36-cm (14-inch) aperture are available free for member's use. NCA also has access to several relatively dark-sky sites in Maryland, Virginia, and West Virginia.

YES! I'D LIKE TO JOIN THE NATIONAL CAPITAL ASTRONOMERS

Enclosed is my payment for the following membership category:

Regular

Sky & Telescope and *Star Dust*. (\$54 per year)

Star Dust only (\$27 per year)

Junior (Only open to those under age 18) Date of birth: _____

Sky & Telescope and *Star Dust*. (\$42 per year)

Star Dust only (\$15 per year)

_____	_____	() _____	_____	
First name(s)	Last name	Telephone	E-mail	
_____	_____	_____	_____	
Street or Box	Apartment	City	State	Zip Code + 4

If family membership, list names of additional participating immediate family members in same household, with birthdates of all those under 18 years old: _____

Note: If you already subscribe to *Sky & Telescope*, please attach a recent mailing label. You may renew this subscription through NCA for \$27 when it expires.

Make check payable to: **National Capital Astronomers, Inc.**, and send with this form to:

NCA c/o Jeffrey B. Norman, 5410 Connecticut Avenue, NW, Apt. #717, Washington, D.C. 20015-2837.

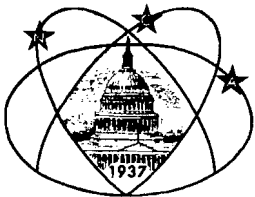
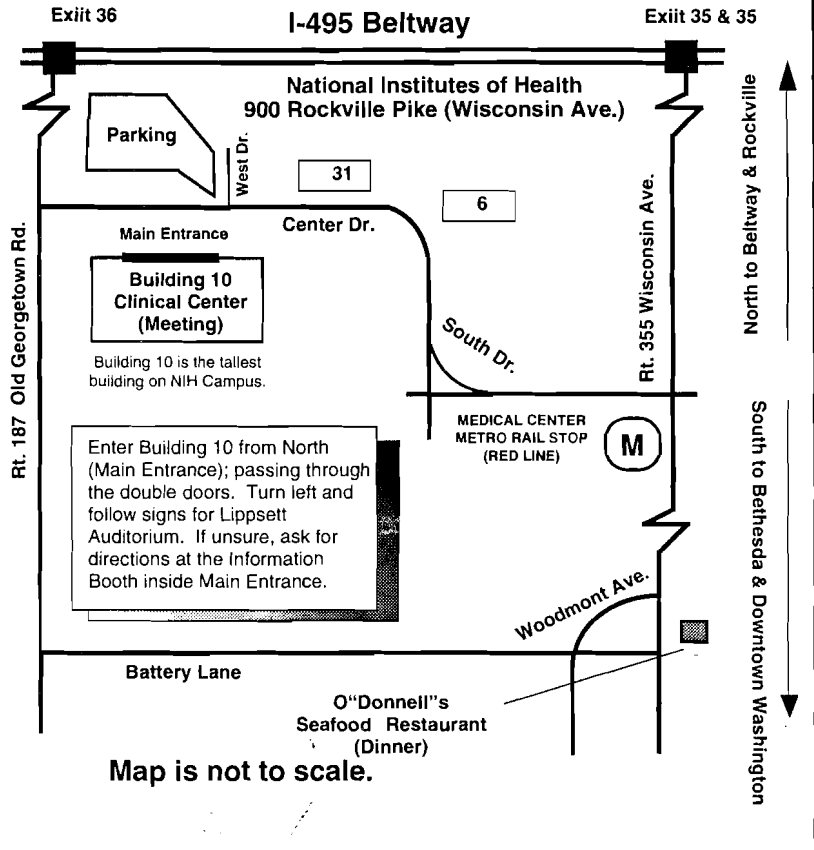
The following information is optional. Please indicate briefly any special interests, skills, education, experience, or other resources which you might contribute to NCA. **Thank you, and welcome to NCA!**

Getting to the NCA Monthly Meeting

Metrorail Riders - From Medical Center Metro Station: Walk down the hill, pass the bus stops and turn right at the anchor onto Center Drive. Continue uphill to Building 10, the tallest building on campus (walking time about 10 minutes). Also, the J2 bus line connects the Bethesda (7:16 PM) and NIH (7:23 PM) Metro stops with Building 10 (7:25 PM).

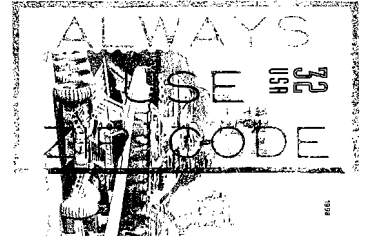
To O'Donnell's Seafood Restaurant- Take Wisconsin Avenue past Woodmont ave., toward Battery Lane. It is located on the corner of Rosedale and Wisconsin Ave., on the left hand side of the street. There is free parking across the street on Rosedale. Address is 8301 Wisconsin Ave., Bethesda, MD. Seats are not guaranteed after 5:30 PM.

Star Dust is published ten times yearly (September through June) by the National Capital Astronomers, Inc. (NCA), a nonprofit, astronomical organization serving the entire National Capital region, and beyond. NCA is the astronomy affiliate of the Washington Academy of Sciences and the National Capital region's representative of the International Dark-Sky Association. President: Andrew Seacord, 301/805-9741. Deadline for *Star Dust* is the 15th of the preceding month. Editors: Alisa & Gary Joaquin, 4910 Schuyler Dr., Annandale, VA 22003, 703/750-1636, E-mail: ajglj@erols.com. Editorial Advisor: Nancy Byrd *Star Dust* © 1998, *Star Dust* may be reproduced with credit to National Capital Astronomers, Inc.



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