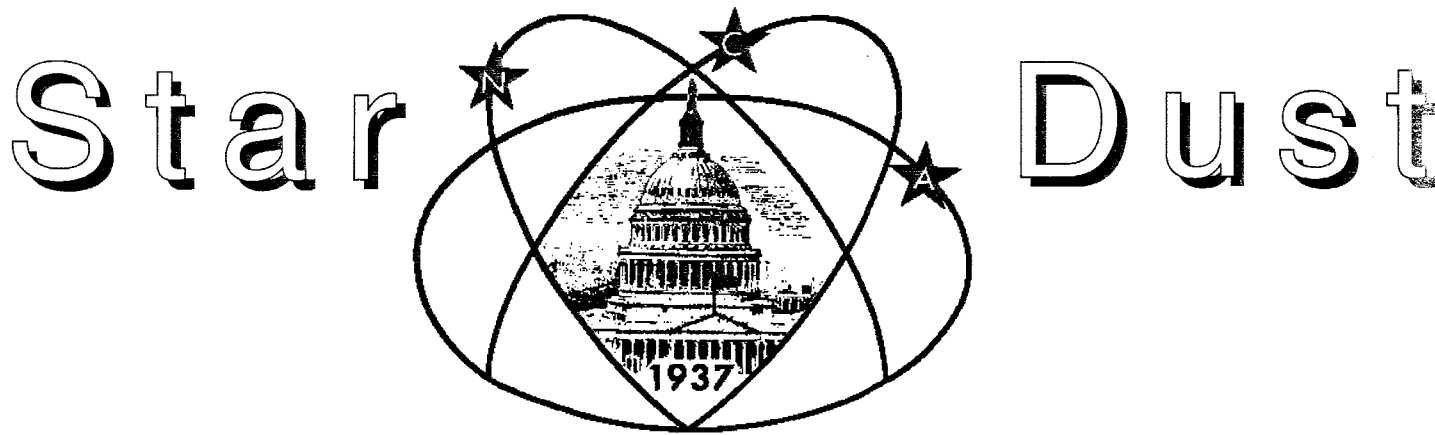


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National Capital Astronomers, Inc.

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The Start of a New Year

by Andrew W. Seacord, II

The first National Capital Astronomers meeting for the 1996-97 year will be held on Saturday, September 7, at 7:30 PM in the Lipsett Auditorium located on the first floor of the Clinical Center (Building 10) of the National Institutes of Health (NIH).

Science Fair Winners

In June, we had the pleasure of hearing from some of the National Capital Area NCA Science Fair winners. They were Natalie S. Olden-Stahl from Germantown, Maryland who presented her project "Great Sunspots! Do They Really Affect Our Climate?" and Valerie J. Warner from McLean, Virginia who presented her project "Seeing Objects in a New Light."

Three of the science fair winners were unable to speak in June; therefore, they are being invited to present their projects at our September meeting. One of the winners, however, will be unable to speak. John W. Kin, whose project was "A Study of the Interior of Mars," will be beginning his studies at the University of Maryland, and therefore, will be unable to attend our meeting.

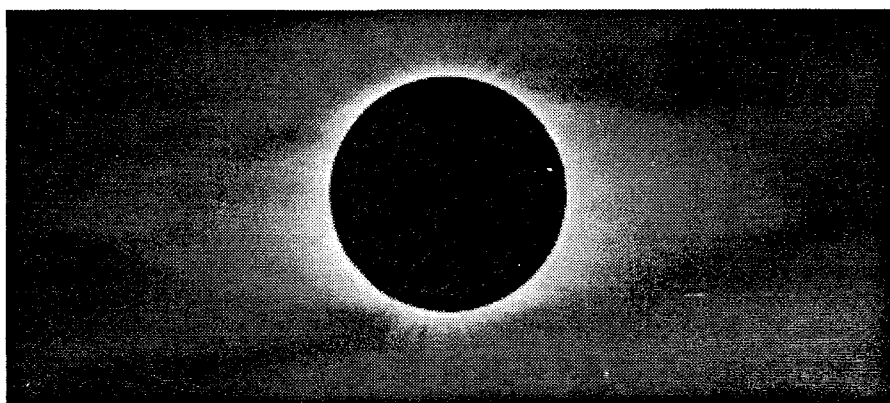
We hope to have the two other projects presented. They are "Comparing Compounds' and Comet's Spectra" by Theresa C. Smith from Laurel, Maryland and "The Effects of Solar Activity on the Earth's Magnetic Field" by Craig R. Wasserstrom from Washington, DC.

The 1998 Total Solar Eclipse

Sue Bassett and Alisa Joaquin have recently visited Curaçao which is the site of the NCA/Greenbelt Travel expedition to the 1998 February 26 Total Solar Eclipse. They will be giving a presentation about the expedition, complete with a slide show of Curaçao. Included is a reservation form on page 5 for signing up for this wonderful trip. (Already the whole island is booked which is about 2000 rooms. We have a block of forty rooms set aside that can be shared.—ed)

Open Discussion

The remainder of our September program will be open for anyone who wishes to speak on an astronomical topic. This may be a good opportunity for showing slides of astronomical interest, especially those taken during the NCA recess. Often slides, usually taken by NCA members, have been shown after meetings while people are talking in small groups. Perhaps, some of these slides can be shown so all attendees can pay attention to them.



Total Solar Eclipse of 1995 October 24 — This image of the Sun's corona was made from a composite of eight separate photographs made by Fred Espenak from Dundlod, India during the eclipse. The photos were made on Kodak Royal Gold 100 with a Nikon FE w/MD-12 motor drive, a Sigma 400mm f/5.6 APO telephoto and a Sigma 2X teleconverter. Exposures were 2, 1, 1/2, 1/4, 1/8, 1/15, and 1/125 seconds. After development, the images were transferred to a Kodak photo-CD. Wendy Carlos then used Adobe PhotoShop and a Macintosh IIfx to combine the right images into one composite image.

Calendar of Monthly Events

The Public is Welcome!

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

Tuesdays, September 3, 10, 17, and 24, 7:30 PM- Telescope making classes at Chevy Chase Community Center, Connecticut Avenue and McKinley Street, NW. Information: Jerry Schnall, 202/362-8872.

Wednesday, September 4-September "Sky Watch" column appears in *The Washington Post* "Style" section. It lists many other events for the month.

Thursday, September 5, 9:00 PM-University of Maryland (UMD) — College Park, MD Observatory open house. Lecture: Markus Aschwanden (UMD), "Avalanches, Earthquakes, Forest Fires, and Solar Flares." Outside observing follows (weather permitting). Details & Directions: 301/405-3001.

Fridays, September 6 and 13, 8:30 PM-Open nights with NCA's Celestron-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.

Saturday, September 7, 9:30 AM -National Air & Space Museum (NASM) Monthly Sky Lecture: Robert Smith and Jim Zimbleman (NASM), "Neptune By Jove." Einstein Planetarium. Outside Solar observing follows (weather permitting), thanks to NCA. Details (recording): 202/357-1550 or 202/357-1686.

Saturday, September 7, 5:30 PM-Dinner with other NCA members at Shakey's, East-West Highway and Wisconsin Avenue. Refer to map and description on back page.

Saturday, September 7, 7:30 PM-NCA meeting, featuring two of the science fair winners and presentations on the NCA trip to Curaçao for the total Solar eclipse on 1998 February 26 by Sue Bassett and Alisa Joaquin. Plus open discussion on other topics of interest from the Summer including information on Comet Hale-Bopp and total Lunar eclipse. For directions, refer to map and description on back page.

Saturday, September 7, Night-Waning crescent Moon provides this month's *second* longest Saturday night "deep night" period, with Moon-free skies from

dusk till Moonrise (2:46 AM Sunday morning). See explanation on page 4.

Saturdays, September 7, 14, 21, and 28, 7:30 PM- Telescope making classes at American University, McKinley Hall Basement. Information: Jerry Schnall, 202/362-8872.

Sunday, September 8 and 22, 11:00 AM & 2:00 PM-Goddard Space Flight Center (GSFC) guided bus tours. Start at Visitors Center; visit full-sized mock-ups of the Space Shuttle and Hubble Space Telescope (bus tour only). Details: Visitor Center 301/286-8981 (TDD 301/286-8103).

Monday, September 9, 7:30 PM-Arlington Planetarium (Arlington, VA) lecture on the current night sky: "Stars Tonight for September." Outside observing follows (weather permitting). Confirmation, Details, & Directions: 703/358-6070.

Mondays, September 9, 16, 23, and 30, 8:30 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, 202/6762-1438

Saturday, September 13, 7:30 to 9:00 PM-Harvest Stars, Historic Bladensburg Waterfront Visitor Center, 4601 Annapolis Rd., Bladensburg, MD. Details & Directions: Geoffery C. Lane (NCA), 301/927-2163, or 301/927-8166 (fax).

Saturday, Sunday, and Monday, September 14, 15, and 16, Dusk-Young (waxing) crescent Moon, with Earthshine, conveniently situated for observation and enjoyment. Easily visible with unaided eye, even from light polluted areas. Particularly impressive from the Mall. Details (recording-call on the above dates): 202/257-2000.

Saturday, September 14, Dusk-(Civil twilight ends around 7:40 PM). Geoff Chester (NASM) conducts sky watching (weather permitting) at Sky Meadows State Park (near Paris, VA). No reservations required. NCA

volunteers always needed! Details & Directions: Sky Meadows, 540/592-3556; Geoff Chester, 202/257-1529.

Saturday, September 14, Night-Waxing crescent Moon provides this month's *longest* Saturday night "deep night" period, with Moon-free skies all night long. See explanation on this page.

Saturday, September 14, 8:00 PM-NCA and National Parks Service (NPS) *Exploring the Sky* program, in Rock Creek Park at parking lot nearest Military and Glover Roads NW (near Nature Center). Bring binoculars and telescopes; some telescopes available, thanks to NCA. Volunteers always needed! If cloudy, planetarium program inside Nature Center. No reservations required. Details & Directions: Nature Center, 202/426-6829; Joe Morris (NCA), 703/620-0996.

Sunday, September 15, 9:00 AM to 4:00 PM-GSFC public Community Day. Numerous tours, lectures, and more. Details: Visitor Center 301/286-8981 (TDD 301/286-8103).

Friday, September 20, 9:30 PM-UMD Observatory open house. Lecture: Stephen White (UMD), "Our Nearest Neighbors." Outside observing follows (weather permitting). Details & Directions: 301/405-3001.

Saturday, September 21, Night-Waxing gibbous Moon provides this month's *third longest* Saturday night "deep night" period, with Moon-free skies from Moonset (1:42 AM Sunday morning) until dawn. See explanation on this page.

Thursday, September 26, 8:00 PM to Midnight-NCA and Patuxent River Park (Upper Marlboro, MD) *Sky Watch* total Lunar eclipse viewing program (weather permitting), in the park. Free, but reservations required. Bring binoculars and telescopes; some telescopes available, thanks to NCA. NCA volunteers always needed! Details & Directions: Park, 301/627-6074; Bob Bolster (NCA), 703/960-9126.

Thursday, September 26, 8:12 PM to Friday, September 27, 1:36 AM-Total Lunar Eclipse. Don't miss it!

Thursday, September 26, 9:30 to 10:30 PM-Lynette Scaffidi (Brookside Nature Center) conducts "Full Moon Eclipse" viewing program at Maydale Park (Silver Spring, MD). No reservations required. Details & Directions: 301/946-9071.

Saturday, September 28, 7:30 PM-Glenn Cummings (Black Hill Regional Park, Boyds, MD) conducts "Moonlight Madness Dinner Cruise" on the park's

Little Seneca Lake. Includes lectures on Moon and astronomy. Reservations required. Details, Cost, & Directions: 301/916-0220.

Wednesday, October 2-October "Sky Watch" column appears in *The Washington Post* "Style" section. Lists many events for the month.

Saturday, October 5, 7:30 PM-October NCA meeting topic will be announced in the next newsletter.

Other events too numerous to mention here are listed in the publications *Sky & Telescope*, the *Astronomical Calendar 1996*, the *Observer's Handbook 1996*, in numerous software packages, and other links available on the NCA Home Page (see page 2). NCA members can purchase all these (and much more) at a discount. To join NCA, use membership application on page 9.

The Calendar's Saturday "Deep Night" Periods-There is no better place to experience the Universe than at a dark-sky site during "deep night" periods. For many, Saturday nights represent the most convenient times to do that. Several relatively dark-sky sites area available for NCA members' use in Maryland, Virginia, and West Virginia. Information: Daniel Costanzo, 703/841-4765. This deep night listing was prepared by Daniel Costanzo and Jay Miller.

Future NCA Meetings — Mark Your Calendar! Below are the next 10 consecutive NCA meeting dates for this NCA fiscal year (July through June). For those new to NCA, our meetings are customarily held (weather permitting) ten times a year. NCA meets once each month, September through June (no meetings in July or August), on the first Saturday night of each month. NCA meetings are held at the National Institutes of Health (NIH). (See back page for map and direction.) The meetings start at 7:30 PM, and are preceded at 5:30 PM by a dinner with the speaker(s) at a restaurant near NIH. All are welcome to come to both the dinner and the meeting:

September 7	February 1
October 5	March 1
November 2	April 5
December 7	May 3
January 4	June 7

During questionable weather, call the IOTA Hotline (Phone: 301/474-4945) for meeting status. The absence of a cancellation notice on the hotline will indicate that the meeting will proceed.

Mid-Atlantic Occultation Expeditions, September - early October Occultations

by David Dunham

Here is a summary of occultation events for September and early October. *Star Dust* will publish definitions of all terms and abbreviations used in the charts below in a future issue. In the meantime, for more information and event coordination, please contact David Dunham at 301/474-4722. You may also obtain the latest corrections to the time and path of these events from the International Occultation Timing Association's (IOTA) recorded message at 301/474-4945 or via their Web site at <http://www.anomalies.com/iota/splash.htm>.

Lunar Grazing Occultations

Date	Day	EDT	Star	Mag	%	alt	CA	Location
Sep 04	Wed	3:13	63 Tau	5.7	55-	38	5N	30 mi. north of Pittsburgh, PA
Sep 04	Wed	3:54	093914	8.0	55-	49	6N	Owings, MD & 5mi.north of Fredericksburg,VA
Sep 04	Wed	5:27	093938	7.1	55-	63	4N	La Plata, MD
Sep 06	Fri	5:48	0934	6.4	35-	53	3N	south of Chesapeake, VA
Sep 26	Thu	23:19	0035	6.1	0E	34	86U	Minneapolis, MN area
Oct 04	Fri	3:08	095985	7.9	52-	34	6N	10 mi.north of Pittsburgh, PA; see next
Oct 04	Fri	4:14	26 Gem	5.1	52-	46	5N	35 mi.northwest. of Pittsburgh, PA
Oct 08	Tue	7:04	Yu Neu	4.9	16-	40	2S	10 mi.north of Westminster, MD; Sun -2

Four-digit star numbers are Zodiacal Catalog numbers, and 6-digit numbers are SAO numbers. Yu Neu on Oct. 8 is pi Leonis; we may observe farther west, such as near Hancock, MD, to get a darker sky.

Asteroidal Appulses and Occultation Possibilities

Date	Day	EDT	Star	Mag	Asteroid	dmag	dur. sec.	ap. inch.	Location (uncertain)
Sep08	Sun	6:34	SAO 108482	8.7	476 Hedwig	3.4	11	5	S Carolina
Sep25	Wed	4:07	SAO 77962	8.4	481 Erita	4.8	7	3	Cuba
Sep30	Mon	23:45	SAO 213053	9.6	247 Eukrate	2.8	11	6	Bermuda

Occultations during the September 26th Total Lunar Eclipse

Below are predictions of occultations during the total lunar eclipse of Thursday evening, September 26th; timing of them is a valuable project for studies of the lunar profile needed for solar eclipse analysis used for solar diameter variation studies. The occultation of ZC 35, especially during totality, will be quite spectacular. For these predictions, longitudes are negative west of Greenwich. The times, computed for Greenbelt, MD, will be good to within a minute throughout the Washington-Baltimore area.

Longitude = -76 52 10

Latitude = +38 59 10

Altitude = 53 metres

Sept. Day	EDT			SAO/ZC/X		SP	mag	% ill	moon		umbral dist.	PA o	WA o	long lib	lat lib	A m/o	B m/o
	h	m	s	P	Star No.				D	alt							
26	22	38	06	D	109117	F8	9.0	0E	40	130	28U	103	128	4.2	0.3	+1.8	+0.5
26	23	00	13	D	ZC 35	G5	6.1	0E	44	136	77U	32	57	4.2	0.3	+1.0	+2.4
26	23	01	18	D	X00288	F8	10.1	0E	44	136	82U	2	27	4.2	0.3	+0.0	+4.1
26	23	09	18	D	X00324	G5	10.8	0E	45	139	66U	84	109	4.2	0.3	+1.7	+0.9
26	23	35	59	R	X00288	F8	10.1	5E	48	148	81U	306	331	4.1	0.3	+3.1	-1.5
26	23	36	22	R	109117	F8	9.0	5E	48	148	33U	206	231	4.1	0.3	+1.0	+2.5
27	0	04	12	R	ZC 35	G5	6.1	52E	51	158	81U	276	301	4.1	0.3	+2.2	+0.2
27	0	20	41	R	X00324	G5	10.8	82E	51	164	82U	223	248	4.0	0.3	+1.4	+1.7

Eclipse '98 in Curaçao

Registration Form and Payment Schedule

Please fill in all of the following information to reserve your place

Number of people in your party: _____ Payment method: _____ Check _____ Credit Card (call Greenbelt Travel)

Name as it appears on passport: _____

Name as it appears on passport: _____

Name as it appears on passport: _____

Home street address: _____

Home city/state/zip: _____

Phones: Daytime: _____ Evening: _____ Fax: _____

Departure airport if other than BWI (extra costs may be incurred): _____

Type of room desired: _____ Single occupancy _____ Double occupancy _____ Triple occupancy

Signature and date: _____

Mail form and check to: NCA, POB 2509, Laurel, MD 20709. Make check payable to Greenbelt Travel (301) 474-1300.

Use a separate sheet for comments, list of special interests, etc.

If you wish to share a room, please fill out the following (leave blank if you don't want to share)

I would like one / two roommate(s).

Gender: m / f.

Smoking preference: yes / no.

The estimated cost for this tour is \$950 for triple occupancy, \$1,000 for double, and \$1,250 for single. Refer to the payment chart below for payment amounts and due dates. A deposit of \$150 received by July 20th, or \$200 received after July 20th, will reserve your seat. Payments must be received by the dates shown in the table. The exact price cannot be determined until airfares are finalized, about March of 1997. A notice will be sent at that time advising the amount of the last payment.

Payment Schedule			
	Triple occupancy	Double occupancy	Single occupancy
Estimated total cost per person	\$950.00	\$1,000.00	\$1,250.00
Deposit (by July 20, 1996)	150.00	150.00	150.00
Deposit (after July 20, 1996)	200.00	200.00	200.00
1st Payment (by November 1996)	250.00	250.00	250.00
2nd Payment (by May 1997)	250.00	250.00	250.00
3rd Payment (by November 1997)	250.00 (300.00)	300.00 (350.00)	350.00 (400.00)

Note: For the third payment, the lesser amount is for those who made a \$200.00 deposit; the larger amount is for those who made a \$150 deposit. The last payment may be adjusted based on the final airfare.

NCA TREASURER'S REPORT

July 1, 1995 to June 30, 1996

(Accepted July 7, 1996)

NCA Welcomes These New Members

Leith Holloway, Secretary and Jeffery Norman, Treasurer

INCOME

Dues	\$7,277.00
Gifts	170.00
Interest	324.59
Sale of Observer's Handbooks	303.00
Telescope-making classes	347.00
	\$ 8,421.59
Total Income	

EXPENSES

Int'l. Dark-Sky Association dues	100.00
Miscellaneous	314.22
Purchase of Observer's Handbooks	315.00
Sky & Telescope subscriptions	3,255.00
Secretary	430.97
Speakers' Dinners	277.80
Star Dust	4,437.88
	\$ 9,130.87
Total Expenses	

Balance on July 1, 1995 \$ 11,045.50

Excess Expenses over Income 709.28

Balance on June 30, 1996 \$ 10,336.22 *

Total number of paying members joining or
renewing from 7/1/94 to 6/30/95 201 **

Total number of paying members joining or
renewing from 7/1/95 to 6/30/96 179 **

Decrease in membership (10.9%) 22

Glenn M. Bock
8715 Persimmon Tree Road
Potomac, MD 20854-4315

Michael & Bill Cannon
(Junior members)
7210 Drifter Court
Burke, VA 22015

Peter Chen
5469 Hound Hill Court
Columbia, MD 21045

Paul Cooney
Mark Cooney (Jr. member)
8 Rice Court
Rockville, MD 20850

Roberto Flores
5312 Portsmouth Road
Bethesda, MD 20816

Philip J. Harding
(Junior member)
10416 Nolan Drive
Rockville, MD 20850

Evelyn Howard
William H. Holland
2201 Dexter Ave.
Silver Spring, MD 20902-5011

Robert G. Humphrey
PO Box 182
Cabin John, MD 20818-0182

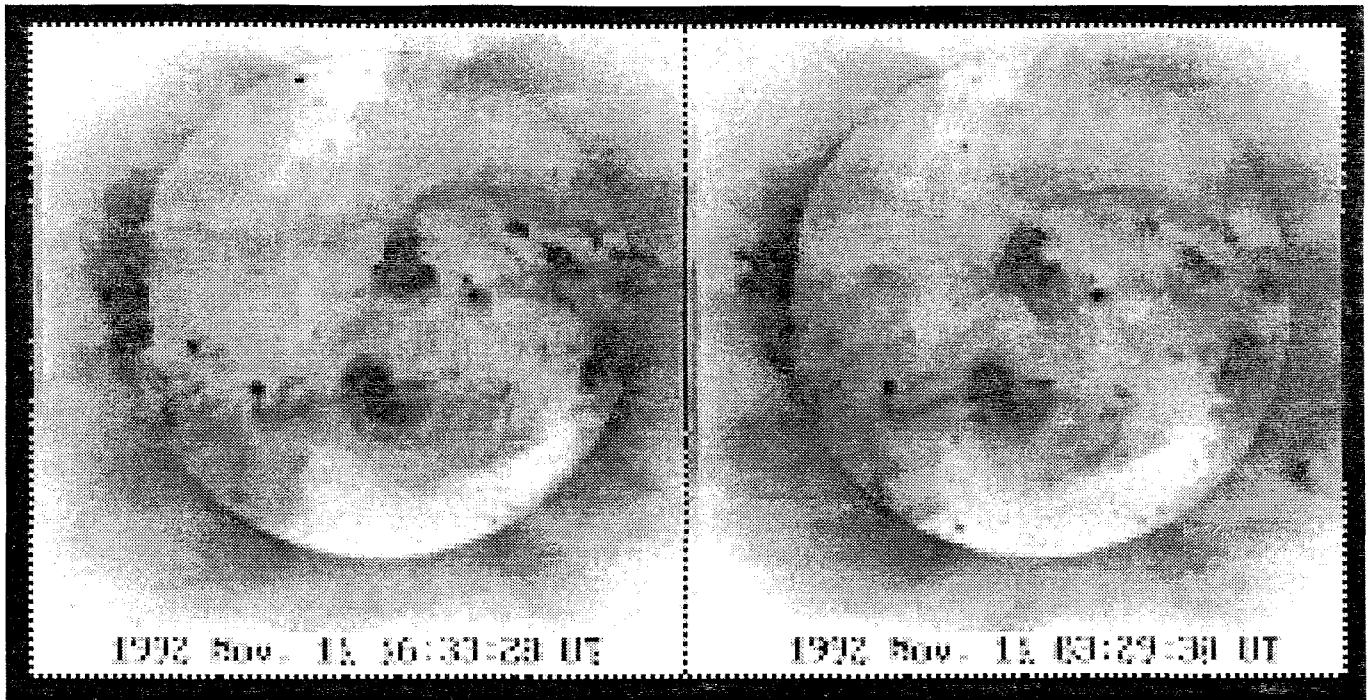
Daniel W. Leubecker
Erika Vogel (Jr. member)
3008 Cunningham Drive
Alexandria, VA 22309-2207

Mike Martinka
7715 Gralnick Place
Springfield, VA 22153-3907

Phoebe Stone
Jerikyn Stone
3614 S Street, NW
Washington, DC 20007

* The Balance includes \$2,371.48 from the NCA Travel account.

** This does not include life members or science fair winners because they receive free memberships.



*This is a stereoscopic pair of images taken by a special telescope on the Yohkoh spacecraft (NCA 1995 March meeting) that "sees" the Sun in the X-ray portion of the spectrum, not visible light like we see with our eyes. The two images were taken about 13 hours apart to maximize the 3-dimensional impression. To create a 3-D image, stare at the images and relax your eyes. Try to make the two images into one. Some people may be able to see 3-D by crossing or diverging their eyes. Be patient, if at first you don't succeed, try again later. — Jack Troeger, jtroeger@cnde.iastate.edu. (Downloaded from the Web Site called *The Sun*.—ed.)*

Other Web Site Locations

Just by using a search engine, i.e., Infoseek or A to Z, you can find thousands of locations and topics related to any subject. That is what I did when I searched for the two images in this issue. Under **The Sun** (no pun intended), I found an excellent list of sites both for the novice and the expert. There were such sites as:

- Index of Sites Providing Solar Images
- YOHKOH Soft X-Ray Telescope
- Total Solar Eclipses, 1994-2010
- National Solar Observatory
- Mauna Loa Solar Observatory
- Meese Solar Observatory
- Ulysses (Solar Spacecraft) Home Page

The above image was found under **The Sun** (again, no pun intended). This site also has updated images of the Sun on a 24-hour basis. So if you plan on going to Curaçao, and if you take your laptop with an internet hookup, you may get the latest information about the eclipse the next day without having to wait to develop your film. — Alisa Joaquin, ed.

Solar Eclipse Viewing Glasses

Rainbow Symphony, Inc. has created Eclipse Shades that provide protection from the harmful Solar Radiation. The lenses are made of Optical Grade, Neutral Density #5, Double Aluminized 2 mil Mylar, Eclipse Shades filter out 100% of harmful Infrared, 100% of harmful Ultra-Violet, and 99.999% on Intense Visible Light. They can be ordered in quantities of 500 to over 10,000. Bulk packaging, 50 per bundle, 3200 shades per case. You can send for a sample of the Eclipse Shade for \$4.00 to test them out before ordering them in large amounts. I will bring complete ordering information with me to the meeting on September 7th.— Alisa Joaquin, ed.

Rainbow Symphony, Inc.
6860 Canby Ave., #120
Reseda, CA 91335

Newsletter Deadline for October *Star Dust* September 15, 1996

*****DO NOT BE LATE!!!*****

Send Submissions to Gary & Alisa Joaquin, at 7821 Winona Ct., Annandale, VA, 22003, Leave a message on voice mail 703/750-1636. Text files or graphic files in .GIF or .TIFF may be sent via E-Mail to ajglj@erols.com or fax submissions to 703/658-2233. **Please note that no submissions will be accepted after the 20th.** There will be no exceptions. We need a reasonable amount of time to design, edit, and review this newsletter. During this last several months, our personal and professional workloads have increased significantly, including dealing with illness in our family. Though we have adequate time and resources to publish this newsletter, it is even more important this year to receive submissions on time. We would appreciate everyone's help in this matter. Thank you.

Searching for Biographical Sketches of NCA Members

By Alisa Joaquin

If you would like members to know you better, please submit a biographical sketch consisting of an article approximately one to two columns in length plus a photo. The photo should be provided on disk in gif or tiff format. Please submit biographies and photos at the same time as regular articles. The article and photo can be sent through the internet. Our E-mail address is provided on the back page of *Star Dust* in the copyright box. Deadlines always fall on the 15th of each month.

Sale of Observer's Handbooks

For many years, NCA has sold these books to its members at a discount. Each year, NCA's Treasurer would try to estimate how many books were needed and order accordingly. Since these sales have declined in recent years, we sometimes ordered more books than were necessary, resulting in a financial loss to NCA. We are starting a new policy. If you wish to purchase any Observer's Handbooks, please call Jeff Norman at (202) 966-0739 no later than September 30, 1996 to place your order. Jeff will purchase only enough books to fill the orders that he has received. At this time, the price is uncertain because we have not as yet received this year's price list from the publisher. We hope to be able to keep the price at \$12; we doubt that it will go above \$14.

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



Important Information Numbers

NCA Meeting Hotline: Will inform members about possible cancellation of meeting due to questionable weather (snow, sleet, freezing rain, thunderstorm and tornado warnings, Doomsday asteroids, etc.). Absence of a cancellation indicates that the meeting will go ahead. The number is the same as the IOTA but worth repeating here: 301/474-4945

Smithsonian Sky Watchers' Report: Nontechnical information recording on astronomical events, objects, and phenomena in the Washington, D.C. region's sky. Updated weekly. 202/357-2000

Sky & Telescope "Skyline": Moderately technical information recording on latest in space technology, astronomy, and related sciences. Updated weekly, or sooner if necessary. 617/497-4168

McDonald Observatory "Star Date": Nontechnical information on space technology, astronomy, and related subjects. Broadcast weeknights, around 8:00 PM, by listener-supported public radio station WAMU-FM 88.5.

Accurate Time Services (via phone line): Eastern Time (in 24 hour mode) and Universal Time given via the U.S. Naval Observatory and the National Institute of Standards and Technology. Excellent for synchronizing clocks and watches. (Voice Recordings) 202/762-1401

"Space Weather" Indices: Highly technical, but quite useful voice recording on Solar activity and its effect on Planet Earth, given via the National Oceanic and Atmospheric Administration. Updated every three hours. 303/497-3235 (anytime) or WWV at 2.5, 5, 10, 15, and 20 MHz (at 18 minutes after every hour)

Local Weather, Sunrise/Sunset, and UV Index: Recording of latest weather forecast out to five days, plus Sunrise/Sunset times, and forecasted Solar ultraviolet radiation index. Covers Washington, DC and vicinity. 703/260-0307

NCA Artificial Satellite Prediction Service: Free customized prediction of viewing opportunities. Satellites frequently are clearly visible to unaided eyes or binoculars, even from heavily light polluted areas. Contact Walter I. Nissen, Jr., (voice phone) 216/243-4980, (e-mail) dk058@cleveland.freenet.edu

Occultation Line: Highly technical, but quite useful voice recording with latest updates on occultations and grazings of stars by the Moon, planets, and asteroids; from the International Occultation Timing Association (IOTA). Many of these events are visible with the unaided eye, binoculars, and small telescopes. 301/474-4945

Other Free Public Science & Technology Lectures: National Air and Space Museum (NASM): 202/357-1552 (ask to receive NASM bimonthly calendar by mail); University of Maryland (Astronomy Department): 301/405-3001; Goddard Space Flight Center (Goddard Visitor Center): 301/286-8981; Carnegie Institution of Washington: 202/328-6988 or 202/265-2752

Science & Technology Public Radio Programs: Quality, informative, and educational radio programs featuring space technology, astronomy, and related sciences are presented at irregular intervals on WAMU-FM 88.5. For program listing, call WAMU Public Radio Listener Talk Show Hotline: 202/885-1200 and Press 3.

"Star Hustler": Completely nontechnical, frequently outrageous, but always informative presentation on astronomical events, objects, and phenomena. Broadcast every night, just before sign-off (generally shortly before 1:00 AM) on Maryland Public Television (MPT) stations. Check your local TV guide for your local MPT Channel. Updated weekly. (MPT can also be picked up in the District and Virginia.

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. For information: 301/320-3621 or 703/841-4765.

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 Workshops 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.

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Enclosed is my payment for the following membership category:

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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 \$22 when it expires.

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

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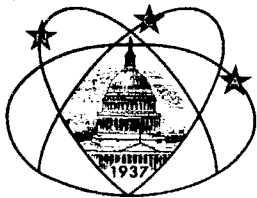
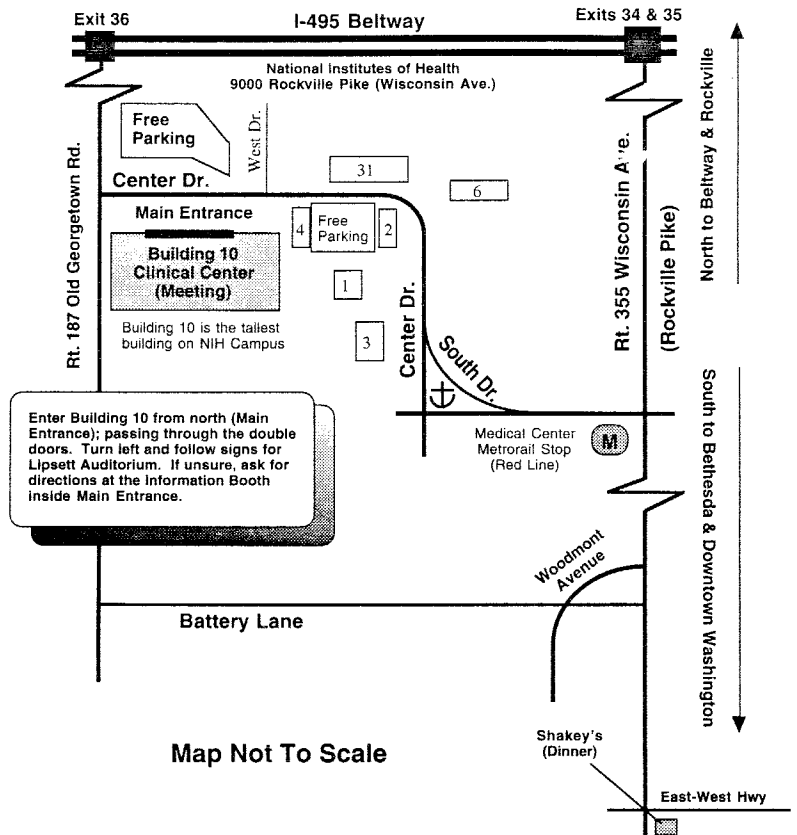
The following information is optional. Please indicate briefly any special interests, skills, education, experience, or other resources which you might contribute to NCA. **Thank you, and welcome to NCA!**

Getting to the NCA Monthly Meeting

Metrorail Riders - From Medical Center Metro Stop: Walk down the hill, pass the bus stops and turn right at the anchor onto Center Drive. Continue uphill to Building 10 (walking time about 10 minutes), the tallest building on campus. 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 Shakey's - Take Wisconsin Avenue north or south to East-West Highway (Route 410). This is one-half block south of the Bethesda Metro stop. Shakey's is on the south side of 410 just east of Wisconsin. Parking is available at no charge in lots directly across from the restaurant. There is also a parking garage around corner on Waverly. Note that you don't have to eat pizza. Shakey's has a variety of other food, including sandwiches, salads, etc.

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