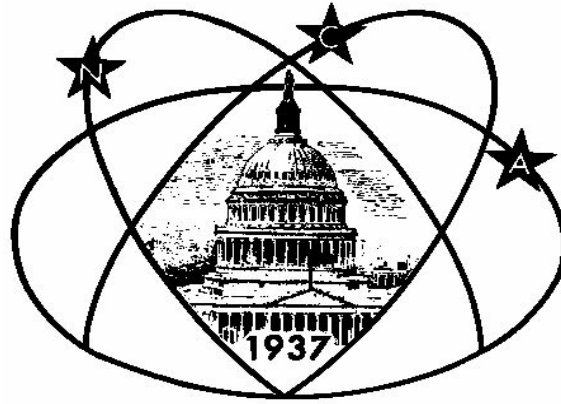


Star



Dust

National Capital Astronomers, Inc.

<http://capitalastronomers.org>

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The President's Corner

There is going to be a meeting location and time change beginning with the January 3, 2004 meeting. For at least January through March, we will be meeting at 7 P.M. at the University of Maryland observatory on Metzert Rd. off University Blvd. in College Park, at the invitation of Elizabeth Warner, the director. If this is successful, we will make it permanent. The primary reason is that our membership has been decreasing partially because we have been forced to meet in the afternoon and this has cut into peoples' other activities. We had previously met at 7:30 P.M. for at least 40 years. The county center has said we have to be out by 5 P.M. and we have been looking into switching venues. While this is farther from the center of the metropolitan area, it is still accessible by

public transportation. The subway serves College Park and there is a UMD shuttle which can take you to the campus. If you let us know beforehand, someone can pick

time also allows us the potential for observing through one of the observatory's telescopes after the meeting. They have a C-14, a 20" Ritchey-Chretien reflector and a 7" Astrophysics refractor as their primary instruments.

“Change in Time and Place for January, February, and March Meetings”

For those wishing to join the speaker and other members for dinner before the meeting, we will dine at 5 P.M. at the Garden Restaurant located conveniently at the University College on University Blvd. Maps to both of these locations will be in the January Stardust. There are also a number of restaurants in College Park which

you up on campus and take you to and from the observatory. There are several benefits to being at the university. One is the association with one of the major schools in the area. The later 7 P.M. start-

we can try in later months. I also want to bring up one other item. Bob Bolster has been the keeper of NCA's 14" Celestron

(Continued on page 2)

December Speaker: Dr. Kim Weaver, “Beyond the Dragon’s Lair: Black Holes Disturbing the Neighborhood”

Submitted by Jeff Guerber

Dr. Kim Weaver will present the featured talk “Beyond the Dragon’s Lair: Black Holes Disturbing the Neighborhood” at the December 6 meeting of the National Capital Astronomers.

The meeting will be held at 3:00 P.M. in the Bethesda-Chevy Chase Regional Services Center of Montgomery County, 4805 Edgemoor Lane (Second Floor), Bethesda, MD.

Abstract

Einstein didn’t believe they existed, but in

the last 40 years, black holes have progressed from mathematical curiosity to reality. Astronomers are now finding them everywhere. More than that, black holes shape their surroundings by producing explosive events that wreak havoc on their host galaxies and beyond. Dr. Weaver will review the current evidence for black holes and show why they may be fundamentally important in the birth and evolution of galaxies, including our own Milky Way. She will also discuss NASA’s future plans for learning even more about these remarkable denizens of our Universe.

Bio

Dr. Kimberly Weaver is an astrophysicist at NASA's Goddard Space Flight Center in Greenbelt, MD, and is also an adjunct assistant professor in the Department of Physics and Astronomy at the Johns Hopkins University in Baltimore, MD. She graduated from West Virginia University in 1987 and received her Ph.D. in Astronomy from the University of Maryland at College Park, MD in 1993. She specializes in studies of black holes, active galactic nuclei and starburst galaxies.

NCA Events This Month

The Public is Welcome!

NCA Home Page: <http://capitlastronomers.org>

Fridays, December 5, 12, and 19, at 6:30 to 9:30 P.M. NCA mirror- and telescope-making classes at the Chevy Chase Community Center, at the north-east corner of the intersection of McKinley Street and Connecticut Avenue, N.W. Contact instructor Guy Brandenburg at 202-635-1860 or email him at gfbrandenburg@yahoo.com.

Saturday, December 6 and Fridays, December 12, 19, and 26, at 8:30 P.M. Open nights with NCA's 14-inch telescope at Ridgeview Observatory near Alexandria, Virginia. For more information, see the article below.

See Page 3 for more National Capital area astronomical doings. To join NCA, use the membership application on Page 7.

Saturday, December 6 at 3:00 P.M. NCA meeting in the Bethesda-Chevy Chase Regional Services Center of Montgomery County, 4805 Edgemoor Lane, (Second Floor), Bethesda, MD.

Dr. Kim Weaver will present the featured talk, "Beyond the Dragon's Lair: Black Holes Disturbing the Neighborhood."

Saturday, December 6, following the meeting, dinner with the speaker and NCA members at the Bangkok Garden Restaurant
4906 Saint Elmo Ave,
Bethesda, MD 20814
(301) 951-0670

President's Corner

(Continued from page 1)

for a number of years. He is no longer able to bring it to Exploring the Sky and members have not been going to the weekly observing sessions at his house. Ideally, we would like to store it at the Rock Creek Nature Center, but this may not be possible. We would like someone who would be willing to store it and bring it to Exploring the Sky. If you can help us, please contact me.

Support the IDA

Join the International Dark-Sky
Association

3225 N. First Avenue Tucson, AZ
85719-2103

www.darksky.org

We are Looking for a New Meeting Place

By Nancy Grace Roman

As you know, we are looking for a new meeting place where we could meet without charge, preferably on Saturday evening. Do you have a contact who could provide a suitable place? It should hold about 50 people comfortably. If so, please contact Jay Miller (301-530-7942 or jhmiller@os2bbs.com)

Elizabeth Warner has generously invited us to the University of Maryland and we shall probably accept for several months as we continue to search. However, it is rather far for our Virginia members and is not very accessible by public transportation, so we are still looking.

Observing with the NCA C-14 Bob Bolster

All at 8:30 p.m.

Saturday, December 6
Friday, December 12
Friday, December 19
Friday, December 26

Prime Objects

Mars, Gibbous Moon
CCD Imaging Workshop
M31, Double Cluster
M31, Double Cluster, after 10:30, Saturn, M42

At Ridgeview Observatory in Bob Bolster's backyard, 6007 Ridge View Drive, Franconia, Virginia (off Franconia Rd. between Telegraph Rd. and Rose Hill Dr.). Call Bob at 703-960-9126 to let him know you are coming.

The deadline for the January
Star Dust is December 15.
Please send your material to Elliott
Fein by that date to
ensure inclusion.

Send submissions to Elliott Fein at
elliott.fein@erols.com.

Text must be in ASCII,
MS Word (97 or earlier),
or WordPerfect.

All articles submitted may be
edited
to fit the space available.

Other National Capital Area Meetings, etc.

Montgomery College's Planetarium

Fenton St. in Takoma Park, MD.

Exciting public planetarium programs are offered at Montgomery College at Takoma Park. Please come to a public planetarium program and explore the universe with us. Some of the public planetarium programs for the 2003-2004 academic year:

Monday, December 22, 2003 at 7:00 P.M. "The Day of the Sun's Return, the Winter Solstice." The winter solstice is at 7:04 UT December 22 which is 2:04 A.M. (EST=Eastern Standard time).

Saturday, January 24, 2004 at 7:00 P.M. "How are Stars Born?"

Saturday, February 14, 2004 at 7:00 P.M. "African Skies"

How to get to Montgomery College's Planetarium at Takoma Park, Maryland: From I-495, the capital beltway, go south on George Avenue (Route 97). Turn left on Sligo Avenue. Continue to Fenton Street; turn right. The parking garage is on the right and the campus is on the left. The campus is easily accessible from the Silver Spring and Takoma Park Metro stations and local Ride-On buses as well.

Parking while visiting the planetarium: If you are coming for a Saturday evening public planetarium program you may park in the faculty staff lot. Please do not park in the faculty/staff lot at any other time unless you have a Montgomery College faculty/staff parking sticker; you may be ticketed. Coming to the planetarium for a public program not on a Saturday, please park in the Montgomery College parking garage on Fenton Street. Source: <http://www.mc.cc.md.us/Departments/planet/>

Northern Virginia Astronomy Club

General membership meetings are open to the public, and are held at Enterprise Hall, Room 80, on the campus of George Mason University in Fairfax, Virginia. The meeting hall is in the basement floor of the building. It is best to park in Parking Lot B and walk up the hill to the rear of Enterprise Hall. Meetings start at 7:00 P.M., on the second Sunday of every month.

Sunday, December 14 Roboscope demonstration. Craig Tupper. This will be a live demonstration of NOVAC's Roboscope, which already has over 20 users. If the weather is good, we will be remotely driving the telescope and imag-

ing targets in real time, via the web. If the weather is lousy, we will still be doing a demo, using the web to drive a telescope and camera simulator. Applications for access to the Roboscope will also be taken.

Sunday, January 11 LASIK surgery for amateur astronomers. Myron Wasiuta, optometrist, astronomy professor and former NOVAC President will present a talk on LASIK, with emphasis on selection guidelines, details of the surgical procedure itself, recovery expectations, and finally, what's just around the corner (custom ablation using wavefront analysis!). Should be of interest to ATM's, as well as anyone with less than diffraction-limited eyesight.

Source: <http://novac.com>

University of Maryland College Park Astronomy Department Colloquia

Coming from off-campus? Please note parking information at the bottom of this announcement. All Astronomy Colloquia are held in Room CSS 2400 at 16:00-17:00 (4:00-5:00 p.m.) unless otherwise noted.

Wednesday, December 3 16:00-17:00 Dr. Virginia Trimble, UC Irvine/U Maryland "Review of Astrophysics in 2002"

Wednesday, December 10 16:00-17:00. Dr. Margaret Meixner, Space Telescope Science Institute, "Results from the BIMA CO Survey on Evolved Stars." Special accommodations for individuals with disabilities can be made by calling (301) 405-3001. It would be appreciated if we are notified at least one week in advance. Parking for visitors is available in the Cashier-Attended Parking Lot at the intersection of Paint Branch & Technology Drive. It is a 5-10 minute walk from the parking lot to the Computer & Space Sciences building. There are a limited number of parking meters in Lot DD; there are no parking meters in Parking Garage 2. Parking at non-metered spaces in Lot DD and PG2 is free after 4 p.m. and on weekends.

Source: <http://www.astro.umd.edu/colloquia/>

National Air & Space Museum –

December 2003 NASM Events
Curator's Choice: Talks typically last 10-15 minutes and begin at the Museum "Great Seal," in the Milestones of Flight gallery on the first floor.

Wednesday, December 03 12:00 P.M. "Inside the Bomber" The Martin B-26 Marauder "Flak Bait." World War II Aviation. Gallery 205.

Wednesday, December 10 12:00 P.M. "The First U.S. Rocket-Assisted Take-off: The Ercoupe JATO" Rocketry and Space Flight. Gallery 113.

Monday, December 15 10:00 A.M. to 5:30 P.M. Steven F. Udvar-Hazy Center (UHC) Official Opening. The Steven F. Udvar-Hazy Center, the spectacular companion facility to the museum's flagship building on the National Mall, opens to the public. Join the staff of the museum for a memorable day of exciting events.

Curator's Choice

Wednesday, December 17 12:00 P.M. "The Aerial Age Begins: Cultural Responses to the Invention of Flight." The Wright Brothers and The Invention of the Aerial Age. Gallery 209.

Saturday, December 20 10:00 A.M. to 3:00 P.M. The first big event at the new Steven F. Udvar-Hazy Center. Just for kids of all ages! There will be precision indoor kite flying demonstrations, the Great Paper Airplane contest, collectible flight related postcards, live music and much, much more.

Saturday, December 27 5:30 P.M. to 7:00 P.M. Monthly Star Lecture. "A Star Shines on the Hour of Our Meeting." Celestial Sights in the World of JRR Tolkien. Albert Einstein Planetarium. How accurate are the celestial happenings of Middle Earth? Staff astronomer Sean O'Brien, uses the unique capabilities of the planetarium to simulate some of the celestial phenomena used within the great, created mythology of JRR Tolkien, author of "The Lord of the Rings." To add to the fun, passages and poetry by Tolkien will be read. Source: <http://www.nasm.edu>.

Goddard Scientific Colloquia

All colloquia will be held at 3:30 p.m. on Fridays in the Building 3 (Goett) auditorium, except as noted. If you plan to attend and do not have a NASA badge, please contact Carol Krueger, at (301) 286-6878, at least 48 hours beforehand. Access to Goddard Space Flight Center is limited to those holding Goddard badges or official visitors. You can become an official visitor by finding a badged Goddard employee to escort you.

(Continued on page 4)

Other National Capital Area Meetings, etc.

(Continued from page 3)

The Scientific Colloquium Committee cannot promise to provide escorts. We regret the inconvenience to our regular guests.

December 5 Riccardo Giacconi, Associated Universities, Inc., "The Development of X-Ray Astronomy."

Solar Physics Talk Calendar

Talks are Wednesdays at 3:30 in Building 26, Rm. G10 of Goddard Space Flight

December 17 Hong Xie, CUA, "Cone Model for Halo CMEs: Application to Space Weather Forecasting."

Source: http://orpheus.nascom.nasa.gov/~kucera/solar_talks/

Stellar & Extragalactic Astronomy

Lunch

Talks are Wednesdays at 12:00 Noon, in Room 242 of Building 21.

December 3 Katya Verner, GSFC/CUAF, "e+ Emission in PG1626+554: Model Predictions and HST/FOS Observations."

December 10, Jon Gardner, GSFC. "Initial Results from the Great Observatories Origins Deep Survey."

Source: <http://survey.gsfc.nasa.gov/seal>

NASA/GSFC LEP Seminar Laboratory for Extraterrestrial Physics Brown Bag Seminar

The Laboratory for Extraterrestrial Physics (LEP) at NASA's Goddard Space Flight Center conducts weekly science seminars.

They are held on Fridays at noon in the Conference Room (Room 183) in Building 21 at Goddard. The topics cover the interests of the Laboratory, including astrochemistry, interplanetary physics, planetary systems, planetary magnetospheres, and electrodynamics.

December 05 Dr. Roberto A. Fernandez-Borda, NRC NASA/GSFC.

December 19 Dr. Thomas E. Moore, Code 692, NASA/GSFC.

Source: <http://lep694.gsfc.nasa.gov/seminar/>

Star Dust is Now Available Electronically

Any member wishing to receive *Star Dust*, the newsletter of the National Capital Astronomers, via e-mail as a PDF file attachment, instead of hardcopy via U.S. Mail, should contact Nancy Grace Roman, the NCA Secretary, at nancy.roman6@verizon.net or 301-656-6092 (home).

Laboratory for High Energy Astrophysics (LHEA) Goddard's Tuesday Seminar Series

Building 2, Ground Floor Conference Room

3:30 P.M. Cookies, Coffee and Tea; 3.45 P.M. Seminar. NOTE: Foreign visitors should obtain prior approval to enter Goddard.

December 2 Dr. Pepi Fabbiano, CfA, TBA
Monday, December 8 1:00 P.M. Rm. 8, Dr. Curt Cutler, Albert Einstein Inst., Potsdam, "Data Analysis for LISA Capture Sources."

December 9 Dr. Christopher Kochanek, OSU, "The Other Microlensing and the Structure and Composition of Galaxy Halos."

Monday, December 15 Dr. Joe Mohr, U. of Illinois, "Galaxy Clusters, Dark Energy and Structure Formation."

December 16 Dr. Diego Torres, LLNL, "Gamma-ray Sources from Regions of Star Formation."

Source: <http://lhea.gsfc.nasa.gov/docs/seminar.html>

Goddard Engineering Colloquia

All colloquia are held at 3:30 p.m. on Mondays in either the Building 3 Auditorium or the Building 8 Auditorium, as indicated below.

December 1 Building 3 Auditorium Murray Hirschbein, NASA HQ, "Once and Future NASA Technologies."

December 8 Building 3 Auditorium, Ron Weiss, Princeton University, "Engineering Living Cells with Computation."

December 15 Building 3 Auditorium, Bill Jeffrey, White House Office of Science Technology Policy (OSTP), "Technical Roadmap to Reach the Outer Planets."

Source: <http://ecolloq.gsfc.nasa.gov/>

Meteor Showers

December Radiants

Full Moon: December 8

Major Activity

Radiant	Duration	Maximum
Geminids (GEM)	Dec. 6 - 19	Dec. 14 at 15:10 UT

Moderate Activity

Radiant	Duration	Maximum
Ursids (URS)	Dec. 17 - 25	Dec. 22 @ 23:30 UT

Minor Activity

Radiant	Duration	Maximum
Delta Arietids	Dec. 8 - Jan. 2	Dec. 8/9
11 Canis Minorids	Dec. 4 - 15	Dec. 10/11
Coma Berenicids (COM)	Dec. 8 - Jan. 23	Dec. 18-Jan. 6
Sigma Hydrids (HYD)	Dec. 4 - 15	Dec. 11/12
December Monocerotids (MON)	Nov. 9 - Dec. 18	Dec. 11/12
Northern Chi Orionids (XOR)	Nov. 16 - Dec. 16	Dec. 10/11
Southern Chi Orionids (XOR)	Dec. 2 - 18	Dec. 10/11
Phoenicids (PHO)	Nov. 29 - Dec. 9	Dec. 5/6
Alpha Puppids (PUP)	Nov. 17 - Dec. 9	Dec. 2-5

Source: <http://comets.amsmeteors.org/meteors> ^S

Mid-Atlantic Occultations and Expeditions

by David Dunham

Asteroidal Occultations

Date	Day	EST	Star	Mag	Asteroid	dmag	s	in.	Location	dur. Ap.
Dec 7	Sun	18:00	ZC 0003	8.2	Portlandia	5.8	3	2	cen. & n.e. Ohio	
Dec 11	Thu	19:27	TYC58260451	11.1	Bandusia	2.8	2	7	wVA, cen. MD, sePA	
Dec 18	Thu	3:34	TYC18720458	11.9	Sigrid	3.4	2	8	cen. Maryland	
Dec 20	Sat	20:22	TYC46651041	11.8	Kassandra	2.0	9	8	Pennsylvania	
Dec 21	Sun	23:15	TYC18940143	10.2	Anchises	6.1	8	6	n&w Maryland	
Dec 24	Wed	3:25	TYC49561167	11.8	Frigga	2.3	3	8	Georgia	
Dec 27	Sat	1:14	TYC18970172	10.8	Pythia	1.9	3	7	Virginia	
Dec 30	Tue	4:59	TYC18951758	12.2	Chloris	1.3	8	9	DC, MD, n. VA	

Lunar Grazing Occultations

DATE	Day	EST	Star	Mag	% alt	CA	Location
Dec 16	Tue	2:52	SAO 118873	8.9	55- 38	9S	Thornburg, VA
Dec 17	Wed	3:18	SAO 119305	8.9	43- 31	10S	Triangle, VA & La Plata, MD
Dec 17	Wed	3:52	ZC 1767	7.6	43- 36	11S	Fredericksburg, VA
Dec 20	Sat	5:18	ZC 2136	6.6	13- 11	15S	Stafford & Melfa, VA
Dec 21	Sun	6:19	delta Sco	2.3	6- 8	18S	Woodstock, NJ & NYC; Sun -11
Dec 27	Sat	18:02	SAO 165227	8.1	25+ 32	17S	DC; CollegeP., MD; Sun -13

Total Lunar Occultations

DATE	Day	EST	Ph	Star	Mag	% alt	CA	Sp.	Notes
Dec 5	Fri	22:46	D	ZC 0413	6.7	94+ 64	31N	K0	
Dec 8	Mon	0:28	D	72 Tauri	5.5	100+ 69	51S	B7	ZC 664; term. 4" away
Dec 11	Thu	4:27	R	ZC 1089	6.7	94- 57	77S	K0	
Dec 12	Fri	0:52	R	omega Cnc	5.9	89- 62	50N	G8	ZC 1206
Dec 12	Fri	1:36	R	4 Cancri	6.3	89- 69	65S	A1	ZC 1211
Dec 14	Sun	0:19	R	ZC 1435	6.5	74- 34	88S	K0	
Dec 14	Sun	1:10	R	ZC 1436	6.8	74- 44	72S	K0	
Dec 14	Sun	23:07	R	46 Leonis	5.4	65- 9	34S	M2	ZC 1544
Dec 16	Tue	1:27	R	ZC 1659	6.7	54- 23	10N	K0	
Dec 16	Tue	4:34	R	ZC 1669	6.7	53- 53	44S	F5	
Dec 17	Wed	1:40	R	ZC 1758	6.9	43- 13	48S	G5	azimuth 98 deg.
Dec 17	Wed	3:27	R	SAO 119305	8.9	43- 32	25S	A2	graze La Plata, MD
Dec 17	Wed	4:03	R	ZC 1767	7.6	42- 38	30S	A2	graze Frederiksburg VA
Dec 18	Thu	5:58	R	SAO 139195	7.6	31- 41	66N	F2	
Dec 19	Fri	6:13	R	SAO 158317	8.0	21- 32	41N	K2	
Dec 20	Sat	4:38	R	ZC 2132	7.3	12- 6	74N	F3	azimuth 117 deg.
Dec 20	Sat	5:27	R	ZC 2136	6.6	12- 13	32S	K1	azimuth 126 deg.
Dec 25	Thu	17:43	D	SAO 189703	7.9	9+ 14	6N	M2	az. 223 deg.; Sun -10
Dec 26	Fri	18:06	D	SAO 164654	7.7	16+ 22	50S	F6	
Dec 27	Sat	18:02	G	SAO 165227	8.1	25+ 32	17S	K0	Graze DC, College Park
Dec 28	Sun	21:54	D	SAO 146786	7.4	36+ 10	75N	K4	azimuth 251 deg.
Dec 28	Sun	22:24	D	ZC 3478	6.4	37+ 5	45N	G5	azimuth 256 deg.
Dec 29	Mon	17:21	D	SAO 128661	6.6	45+ 48	61N	M0	Sun alt. -6 deg.
Dec 30	Tue	17:35	D	ZC 0137	7.6	55+ 52	88N	K2	Sun alt. -8 deg.

Explanation of codes:

D following the time denotes a disappearance, while R indicates that the event is a reappearance. When a power (x; actually, zoom factor) is given in the Notes, the event can probably be recorded directly with a camcorder of that power with no telescope needed. The times are for Greenbelt, MD, and will be good to within +/-1 min. for other locations in the Washington-Baltimore metropolitan areas unless the cusp angle (CA) is less than 30 deg., in which case, it might be as much as 5 minutes different for other locations across the region.

Mag is the star's magnitude. % is the percent of the Moon's visible disk that is sunlit, followed by a + indicating that the Moon is waxing and - showing that it is waning. So 0 is new moon, 50+ is first quarter, 100+ or - is full moon, and 50- is last quarter. The Moon is crescent if % is less than 50 and is gibbous if it is more than 50. On Nov. 8, there will be some occultations during a lunar eclipse, where the "sign" following the % sunlit is "E", indicating that the percent is the percent of the Moon's disk that is NOT covered by the umbra. Cusp Angle is described more fully at the main IOTA Web site - see above.

Sp. is the star's spectral type (color), O,B,blue; A,F,white; G,yellow; K,orange; M,N,S,C red

Phone the IOTA occultation line, 301-474-4945, for updates, or check the local IOTA Web site at <http://iota.jhuapl.edu>
David Dunham, e-mail dunham@erols.com, phone 301-474-4722

Getting to the NCA Monthly Meeting

Saturday, December 6

3:00 P.M. - NCA Meeting in the Bethesda-Chevy Chase Regional Services Center of Montgomery County, 4805 Edgemoor Lane (2nd Floor), Bethesda, MD.

Dr. Kim Weaver will present the featured talk for the December 6 meeting of National Capital Astronomers, "Beyond the Dragon's Lair: Black Holes Disturbing the Neighborhood."

Following the meeting, dinner with the speaker and NCA members at the Bangkok Garden Restaurant
4906 Saint Elmo Ave,
Bethesda, MD 20814
(301) 951-0670

Directions to the Meeting From North of Bethesda

1. Take Rockville Pike/MD-355 South.
2. Rockville Pike/MD-355 S becomes MD-355/Wisconsin Ave.
3. Shortly after Cheltenham Dr. (and one block before reaching Rt. 410), turn right onto Commerce Lane.
4. Commerce Lane becomes Edgemoor Lane.
5. After crossing Old Georgetown Rd., 4805 is the second entrance on the right. (See **M** on map.)
6. To get to public parking, continue on Edgemoor Lane which will make a sharp right turn. The parking garage is then on your right. See note below.

From South of Bethesda

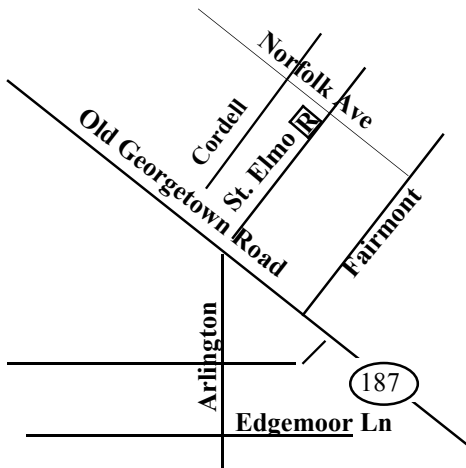
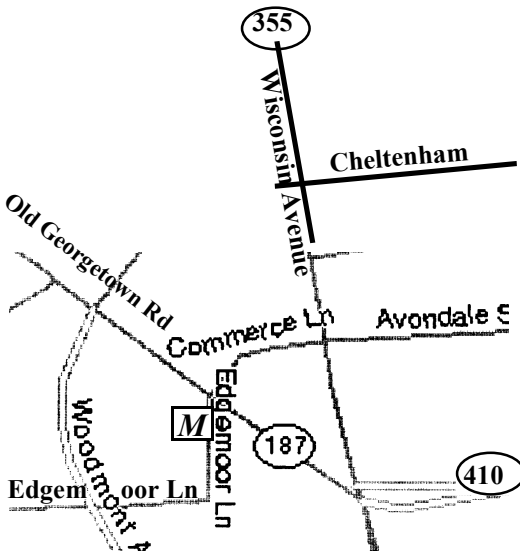
1. Take MD-355/Wisconsin Ave. North.
2. Turn slight left onto MD-187/Old Georgetown Rd.
3. Turn next left onto Edgemoor Ln. 4805 is the second entrance on the right. (See **M** on map.)
4. To get to public parking, continue on Edgemoor Lane which will make a sharp right turn. The parking garage is then on your right.

Note: there are two parking lots. The one on Woodmont is for the apartments and may have a fee. The one on Edgemoor is marked "Public" and does not charge on weekends.

From Metro

The Bethesda Metro station on the Red Line is directly across the street from our current meeting place. When you reach the top of the escalators exiting the Bethesda Metro station, you arrive at a Metro bus depot, which is under a building. Walk in a northwesterly direction through the bus depot until you exit the bus depot onto Edgemoor Lane and then cross the street and you will be at the meeting place (the Bethesda Community Center). See **M** on the map.

(Jeff Norman)



Directions to the Restaurant

1. Following the meeting, turn right out of the parking garage.
2. Continue on Edgemoor Lane and cross Woodmont Ave.
3. Turn right onto Arlington Blvd.
4. Move into the right lane as you approach the traffic light at MD-187/Old Georgetown Rd.
5. At the green light, go straight and you will be on St. Elmo Ave.
6. The Bangkok Garden Restaurant (#4906) has a purple awning and will be on your right, just before the corner at Norfolk Ave. Have change available for meters (still in operation at that time) or use the public parking garage near the restaurant.

Star Dust is published ten times yearly, September through June, by the National Capital Astronomers, Inc. (NCA).
Editor: Elliott Fein, Co-editor: Adele Fein, Editorial Advisor: Nancy Byrd. Consultant: Jeffrey Norman
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National Capital Astronomers, Inc.

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Observing - Robert N. Bolster; Telescope Making - Guy Brandenburg; Travel Director - Sue Bassett; *Star Dust* Editor - Elliott Fein

SERVING SCIENCE & SOCIETY SINCE 1937

NCA is a nonprofit, membership-supported, volunteer-run, public-service corporation dedicated to advancing astronomy, space technology, 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 in a number of capacities. Many members serve as teachers, clinicians, and science fair judges. Some members observe total or graze occultations of stars occulted by the Moon or asteroids. Most of these NCA members are also members of the International Occultation Timing Association (IOTA).

Publications received by members include the monthly newsletter of NCA, *Star Dust*, and an

optional discount subscription to *Sky & Telescope* magazine.

Consumer Clinics: Some members serve as clinicians and provide advice for the selection, use, and care of binoculars and telescopes and their accessories. One such clinic is the semiannual event held at the Smithsonian Institution National Air and Space Museum.

Fighting Light Pollution: NCA is concerned about light pollution and is interested in the technology for reducing or eliminating it. To that purpose, NCA is an Organization Member of the International Dark Sky Association (IDA). Some NCA members are also individual members of IDA.

Classes: Some NCA members are available for educational programs for schools and other organizations. The instruction settings include star parties, classroom instruction, and schoolteacher training programs that provide techniques for teaching astronomy. NCA sponsors a telescope-making class, which is described in the *Star Dust* "Calendar of Monthly Events."

Tours: On several occasions, NCA has sponsored tours of astronomical interest, mainly to observatories (such as the National Radio Astronomy Observatory) and to the solar eclipses of 1998 and 1999. Contact: Sue Bassett wb3enm@amsat.org

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, and others. Contact: Joe Morris, joemorris@erols.com or (703) 620-0996.

Members-Only Viewing Programs periodically, at a dark-sky site.

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

Fine Quality Telescope, 14-inch aperture, see "Calendar of Monthly Events."

Yes! I'd like to join the NATIONAL CAPITAL ASTRONOMERS

Date:

Name(s): _____

Address: _____

Telephone: _____ E-mail: _____

Other family members who should receive a membership card: _____

_____ I prefer to receive *Star Dust* by e-mail

Dues:

___ \$60 With *Star Dust* and a discount subscription to *Sky & Telescope*.

___ \$27 With *Star Dust* ONLY.

___ \$45 Junior membership with *Star Dust* and a discount subscription to *Sky & Telescope*.

___ \$15 Junior membership with *Star Dust* ONLY.

___ \$100 Contributing member (with *Sky & Telescope*) (\$40 tax-deductible).

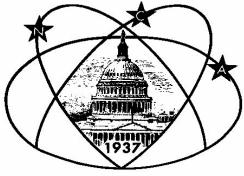
___ \$150 Sustaining member (with *Sky & Telescope*) (\$90 tax-deductible).

Junior members only: Date of Birth: _____ Only members under the age of 18 may join as juniors.

Tax deductible contribution: _____ Thank You.

Please send this form, with your check payable to National Capital Astronomers, Inc., to:

Mr. Jeffrey Norman, NCA Treasurer, 5410 Connecticut Ave NW #717, Washington DC 20015-2837



National Capital Astronomers, Inc.

If undeliverable, return to
NCA c/o Nancy Roman
4620 N. Park Ave., #306W
Chevy Chase, MD 20815-4551

**FIRST CLASS
DATED MATERIAL**

**Change in
Time and
Place for
January,
February,
and March
Meetings!
See
Page 1.**

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