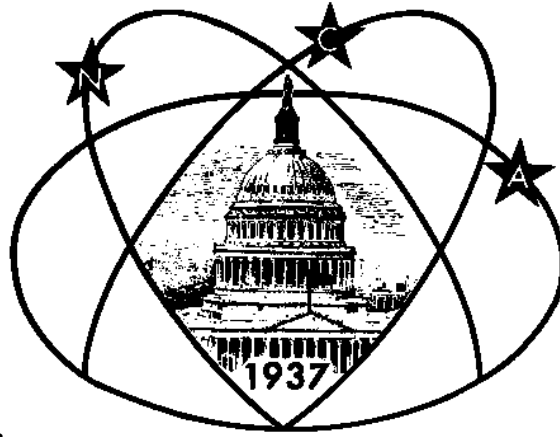


Star



Dust

National Capital Astronomers, Inc.

<http://capitalastronomers.org>

Volume 61, Number 2

October 2002

ISSN 0898-7548

October Talk: Dr. Nicola J. Fox, “The Sun, More Than Just a Star: Its Effect on Life and Society” *Submitted by Gary Joaquin*

Dr. Nicola J. Fox, JHU/APL, will present the featured talk for the October 5 meeting of National Capital Astronomers, “The

Sun, More Than Just a Star: Its Effect on Life and Society”. The meeting will be held in the Bethesda-Chevy Chase Re-

gional Services Center of Montgomery County, 4805 Edgemoor Lane (Second Floor), Bethesda, MD at 3:00 P.M.

Open House at Hopewell Observatory *by Bob Bolster*

NCA members, families, and guests are invited to enjoy the autumn sky at Hopewell Observatory on Saturday evening October 5. View the Milky Way and numerous deep-sky objects as well as the planets Uranus and Neptune. Sunset will be at 6:47 p.m. and astronomical twilight ends at 8:16.

If you wish, come any time after 6:00 p.m. and bring your prepared picnic dinner. Coffee, tea, and cocoa will be provided by the Hopewell Corporation.

Directions:

(1) From the Beltway (I-495) go west on I-66 25 miles to Exit 40 at Haymarket onto U.S. 15. (2) Turn left on U.S. 15 at the end of the exit ramp. (3) Go 0.3 miles to traffic light, turn right onto Va. 55. (4) Go 0.8 miles to Antioch Road (Rt. 681) and turn right. (5) Go 3.2 miles to the end of Antioch Rd. and turn left onto Waterfall Road (601). (6) Go one mile and bear right onto Bull Run Mountain Rd. (Rt. 629). (7) Go 0.9 miles on 629 to narrow paved road at right with an orange pipe gate (Directly

across from an entrance gate with stone facing). (8) Turn right through pipe gates, go 0.3 miles to top of ridge, and around the concrete building and towers. (9) Continue on dirt road through the white gate and woods a few hundred feet to the observatory. Park along the road short of the buildings.

If it is raining or hopelessly cloudy the event will be canceled.

For further information call (703) 960-9126. Observatory phone: (703) 754-2317.

A Primer for Timing Occultations *by Dr. David Dunham*

From: David Dunham
To: Steve Gemeny
Subject: Primer for timing occultations
Date: Friday, September 20, 2002 01:44
Steve,

You asked about a primer for occultations, so I'll attempt to give one below. Besides the main IOTA site, <http://www.lunar-occultations.com/iota>, there is some more basic information in the sights/occultations section of Sky and Telescope's web site, <http://www.skyandtelescope.com>

Basically, make timings with whatever resources you have. First, for time signals, it's most convenient to use a shortwave receiver that can pick up WWV time signals at 5.0 and 10.0 megahertz. But for the Clarissa event, I plan to record WTOP at 1500 on the AM dial along with WWV to create a master tape; then anyone with a car or transistor radio in the area can record that standard-broadcast station for a time base. For those who want WWV, Radio Shack sells a digital short-wave receiver for between \$70 and \$100, depend-

ing on sales; a digital-tuning radio is much preferred to an analog one since it's so much easier to quickly find the station. Another time source is the self-setting clocks (that use WWVB), but beware of their LCD visual display; there is a delay in those displays, especially in cold weather, so they are not suitable for accurate timing. However, the clock itself is accurate and its alarm can be used as a time reference; set the alarm for a couple of minutes before the occultation, start recording before

(Continued on page 3)

NCA Events This Month

The Public is Welcome!

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

Fridays, October 4, 11, 18, and 25, 6:30 to 9:30 P.M., NCA Telescope/Mirror-making Classes at the Chevy Chase Community Center, at the northeast corner of the intersection of McKinley Street and Connecticut Avenue, NW. See more information at right. Contact instructor Guy Brandenburg at gfbranden@earthlink.net or 202-262-4274.

Fridays, October 4, 11, and 25, 8:30 P.M., Open nights with NCA's 14-inch telescope at Ridgeview Observatory near Alexandria, Virginia. See below.

Saturday, October 5 at 7:30 P.M. Exploring the Sky session in Rock Creek Park in the field just south of the intersection of Military and Glover Roads NW, near the Nature Center. See the article "Come See the Stars" by Joe Morris in this issue.

Saturday, October 5, 3:00 P.M. NCA meeting in the Bethesda-Chevy Chase Regional Services Center of Montgomery County, 4805 Edgemoor Lane, (Second Floor), Bethesda, MD. See map and directions on Page 8. Dr. Nicola J. Fox, JHU/APL "The Sun, More Than Just a Star: Its Effect on Life and Society."

Saturday, October 5, following the meeting, dinner with the speaker and NCA members at the North China Restaurant 7814 Old Georgetown Road Bethesda, MD 301-656-7922

Saturday, October 5 Evening Open House at Hopewell Observatory: NCA members, families, and guests are invited to enjoy the autumn evening sky at Hopewell Observatory. See directions to Hopewell Observatory on next page.

See Page 6 for more National Capital Area astronomical doings.

NCA Telescope/ Mirror-making Workshop Guy Brandenburg

Classes for amateur telescope-makers continue on Friday nights at the Chevy Chase Community Center in Washington, D.C., on October 4, 11, 18, and 25. We have Pyrex blanks and tools in sizes from 6" through 12.5", though if you are REALLY brave we can get larger ones as well. We have all of the abrasives and pitch you will need, as well as the Foucault and Ronchi testers needed to test your mirror to within about a millionth of an inch. We even have an aluminizer, to put that ultra-thin reflective coating on the front face of your mirror. We have some wood-working tools available, such as a band saw and a drill press, and even a metal-working lathe, so that you can make some of the other parts of your telescope as well.

Classes are very informal, and are hands-on, not lecture. We average somewhere between 4 and 8 people per session, so we are not crowded, and you can start and finish your project at any time. When you are done, you will not only have made an excellent telescope, but you will have made the telescope that YOU want to have, and with which you can begin to delve into the mysteries of the universe. You could buy one as good, perhaps, but a really good mirror costs a LOT. You will also notice that a decently-made Newtonian reflector will almost always give brighter and clearer views of objects than a Schmidt-Cassegrain telescope (SCT) of the same aperture — and the SCT will cost many times as much.

Our fees are only for the materials and for the aluminizing. For more information, either show up one Friday night between 6:30 and 9:30 P.M. at the Chevy Chase Community Center, on the northeast corner of McKinley Street and Connecticut Avenue, NW, or else contact class leader Guy Brandenburg at gfbranden@earthlink.net or 202-262-4274.

The deadline for the November *Star Dust* is October 15.

**(Your cooperation in adhering to the
deadline would be appreciated.)**

Please send submissions to Elliott Fein at elliott.fein@erols.com.
Text must be in ASCII, MS Word, or WordPerfect.

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

Observing with the NCA C-14 by Bob Bolster

Date, Time: All 8:30 p.m.

Friday, October 4,
Friday, October 11
Friday, October 25

Prime Objects

Uranus, Neptune, M13, M57, M11
Uranus, Neptune, M13, M11
Uranus, Neptune, M13, M57, M11

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 before 6:00 p.m., to let him know you are coming.

***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 ngroman@erolscom or 301-656-6092 (home).

A Primer for Timing Occultations, continued

(Continued from page 1)

then, and then record the alarm, and say the time that the alarm was set for. Then, after the occultation, reset the alarm to one or two minutes in the future, and keep the recording going until the alarm sounds; that will allow the recording rate to be determined.

A few observers use stopwatches for timing, just starting the watch at the occultation and stopping it to a time signal. But for an asteroid occultation, where there are two events to time, you need either two stopwatches, or one with a split arm, or digital method for two timings. But I do not recommend stopwatches for timing events; they can be used to determine times from a recording of a visual observation.

It is better to make at least an audio recording during the occultation, so that either WWV or WTOP can be recorded along with the observer's calls of the occultation events. Tape recorders are relatively inexpensive, selling for about \$25 at numerous stores. These days, many tape recorders use voice activation to save tape, only recording when there is sound; that, of course, makes them useless for timing. So, if someone buys a tape recorder for timing, be sure to get one that either doesn't have voice activation, or that can turn off that feature. After the occultation, the recording can be played back several times with a stopwatch (even the stopwatch function available on most digital wrist watches) to time from a WWV minute tone, or a distinct syllable in a word in the WTOP broadcast, to the event call. Also, when you record the observation, you can give some estimate of your reaction time, or at least say something like "I think I was about a full second slow in calling out the event".

These days, many families are more likely to have camcorders than tape recorders. A camcorder records audio as well as video, so they can be used like tape recorders to record a visual observation. Those with large telescopes, about 12 inches or larger, could even video record the Clarissa occultation by pointing the camcorder into a low-power eyepiece. If you do that, practice beforehand, first on the Moon, then on bright stars. It's best to use manual focus rather than automatic focus; you can maintain the proper focus better if it is fixed. Video recordings eliminate the reaction time uncertainties of visual observations and so are preferred for timing occultations, when they can be made to work. But visual observations are better than no observations, since the shape of an asteroid, especially near the path edges, is best determined by observations from many locations.

The best observations are made with a small video camera attached to the telescope, with its output, and audio from a microphone, recorded with either a VCR, or a camcorder that accepts input lines for recording in VCR mode (inexpensive camcorders don't have that capability). IOTA recommends the PC-164C camera, available for about \$130 from <http://www.supercircuits.com> (get their phone number from that site to place orders quickly). That camera can see about as well as you can with an eyepiece with most any telescope, and in some cases even better; it is very sensitive, and for a 9th-mag. star, it should be able to record it with a 3-inch telescope or larger. For this, you also need a C-mount to eyepiece adaptor so the camera, which only weighs a few ounces and is about 2 inches long and 1.3 inches wide, can be inserted into a standard 1.25" eyepiece holder; Adirondack Video sells such

an adaptor for about \$35. The PC-164C has a BNC male for the video, so you need to get a female BNC to female RCA adaptor from Radio Shack to connect to standard video (RCA) wires. You also need a video microphone; tape recorder microphones are too weak (mismatched impedance) to work with VCRs. Supercircuits (above) sells a small video microphone called the PA3 for about \$8; if you order one, you should also ask for an adaptor, about \$3 more, to use it with the standard small 9-volt batteries. Also recommended for those with SCTs is a focal reducing lens to obtain a wider field of view with the small camera chip; best is the f/3.3 Meade focal reducer sold by FocusCamera in New York for about \$150 (and available from some other sources of Meade products); also useful and less expensive is an f/6.4 focal reducing lens available from Orion and other sources. For more on video, see the main IOTA Web site, especially the item near the top by Richard Nugent, and the items right after it that give some additional information. I will help answer questions from those who start to get into this.

Most important is being able to locate the star. Print the detailed finder chart from the main IOTA Web site and practice locating the star well before the occultation, preferably some night before the event. If your telescope doesn't have a good go-to capability, then it should have a good finder scope, 50mm or larger aperture, so that it can see 7.5 to 8th-mag. stars in a 4 deg. or larger field of view.

As you suggest, I'm copying this to others (Bcc:) to help them get started for the Clarissa occultation, too (and maybe the other good events later in the fall).

David

Come See the Stars! by Joe Morris

Exploring the Sky 2002 Schedule

Date	Time
October 5	7:30 P.M.
November 2	7:00 P.M.

Exploring the Sky is an informal program that for nearly fifty years has offered monthly opportunities for anyone in the Washington area to see the stars and plan-

ets through telescopes from a location within the District of Columbia.

Sessions are held in Rock Creek Park once each month on a Saturday night from April through November, starting shortly after sunset. We meet in the field just south of the intersection of Military and Glover Roads NW, near the Nature Center. A parking lot is located immediately next to the field.

Beginners (including children) and experienced stargazers are all welcome—and it's free!

Questions? Call the Nature Center at (202) 426-6829 or check the Internet sites: <http://www.nps.gov/rocr/planetarium> and <http://www.capitalastronomers.org>.

A presentation of the National Park Service and National Capital Astronomers.

Other National Capital Area Meetings

Attention: 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.

NASA/GSFC LEP Seminar Laboratory for Extraterrestrial Physics (aka 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 8) in Building 2 at Goddard. The topics cover the interests of the Laboratory, including astrochemistry, interplanetary physics, planetary systems, planetary magnetospheres, and electro-dynamics. Since the seminar is conducted during the lunch hour, the audience often brings their lunch, hence the moniker "brown bag seminar." For more information contact the organizer, currently Mei-Ching Fok, 301-286-1083,

mei-ching.fok@gsfc.nasa.gov.

October 4, Dr. Steve Slinker, NRL

October 11, Dr. Mona Kessel, GSFC

October 18, Dr. Doug Hamilton, UMD

October 25, Dr. Simon Wing, JHU/APL

November 8, Dr. Dennis Haggerty, JHU/APL

The duration of the seminar is typically one hour, with questions asked during and after the seminar. The audience is usually diverse, including scientists with interests ranging throughout the heliosphere.

Source: http://lepjas.gsfc.nasa.gov/~seminar/lep_seminar.html

Observatory Open House, Department of Astronomy, University of Maryland

Our Open House program will continue this fall just as it has for the last 30 years. Come see local astronomers give a short 25-minute presentation about their research or other new developments in astronomy! The talk is then followed by observing through the telescopes, weather permitting.

All observatory events are free and do not require reservations for groups smaller than 15 people. If you have a group larger than 15 people, please call 301-405-6555 to make special arrangements at least five days in advance.

October 5, 9:00 p.m., Stef McLaughlin, "Deep Impact Mission Update"

October 20, 9:00 p.m., Dr. Cole Miller,

"Goldilocks Black Holes

For more information, please call 301-405-6555 or check out the Observatory web pages at <http://www.astro.umd.edu/openhouse>

University of Maryland at College Park Astronomy Colloquia

All Astronomy Colloquia are held in Room CSS 2400 at 16:00-17:00 unless otherwise noted.

Wednesday, October 2, 16:00-17:00, Larry Nittler, DTM, "Meteoritic Stardust and the Evolution of the Galaxy"

Wednesday, October 16, 16:00-17:00, Neil Gehrels, Goddard, "Gamma Ray Burst Discoveries and the Upcoming Swift Mission"

Wednesday, October 23, 16:00-17:00, Brent Tully, IfA, "Structure in the Universe: From Big to Small"

Wednesday, October 30, 16:00-17:00, Alycia Weinberger, DTM, "Nearby Stellar Associations as Proto-planetary Disk Laboratories"

Wednesday, November 6, - 16:00-17:00, Karl Glazebrook, JHU, TBD
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. More information is available from the Department of Campus Parking.

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

Goddard Scientific Colloquia

All colloquia will be held in the Building 3 auditorium at the Goddard Space Flight Center except as noted.

Coffee and tea will be served at 3:00 p.m., courtesy of GEWA. If you plan to attend and do not have a NASA badge,

please contact Carol Krueger, at (301) 286-6878, at least 24 hours beforehand. To be added to our mailing list, call the same number.

October 4, Floyd Stecker, GSFC,

"Exploring Galaxy Evolution with High Energy Gamma Rays"

October 18, Ray Jayawardhana, University of California, Berkeley, "Substellar Companions and Circumstellar Disks in Young Sunlike Stars"

October 25, John Mather, GSFC, "The James Webb Space Telescope and Beyond"

Source: <http://heawww.gsfc.nasa.gov/users/djt/colloq/>

Solar Physics Talks

Talks are Wednesday at 3:30 in Building 26, Rm. G10 of Goddard Space Flight Center, unless otherwise specified.

October 2, Tom Moran, CUA, "Waves in Coronal Holes: Alfvén or Ion Cyclotron?"

October 9, Alex Young, L3, TBA

October 23, Valery Nakariakov, U. Warwick, "Slow Magnetoacoustic Waves in the Solar Corona"

October 30, Alex Klimas, GSFC, "Self-organized criticality in Earth's Magnetospheric Dynamics"

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

The Northern Virginia Astronomy Club (NOVAC) - Meetings.

October 13, 7:00 P.M., Elizabeth Warner, "Deep Impact and Amateur Astronomers." On July 4, 2005, the eighth NASA Discovery mission Deep Impact is going to excavate a crater in comet 9P/Tempel 1. This talk will briefly describe the mission and will then highlight the role small telescope facilities/amateur astronomers have had and will have in the mission.

General membership meetings are open to the public, and are held at Enterprise Hall, Room 80, on the campus of George Mason University (directions) in Fairfax, Virginia. It is best to park in Parking Lot B and walk up the hill to the rear of Enterprise Hall.

Source: novac.com

Mid-Atlantic Occultations and Expeditions

by David Dunham

Asteroidal Occultations through Early November 2002

Date	Day	EDT/ EST	Star	Mag	Asteroid	dmag	dur.	Ap. s in.	Location
Oct 15	Tue	1: 30	SAO 076241	9.3	Athor	3.6	7	3	Georgia, Texas
Oct 15	Tue	19: 41	TYC68811521	11.3	Beatrix	2.5	4	8	Mich., Ontario
Oct 16	Wed	0: 30	zeta Arietis	4.9	Wangshouguan	10.1	5	.2	n. New York
*** Dates and times above are EDT, those below are EST ***									
Oct 27	Sun	3: 29	SAO 97305	8.9	Alagasta	6.4	5	2	central VA
Oct 28	Mon	0: 53	TYC11580420	11.4	Dysona	3.2	20	8	s. Florida
Oct 29	Tue	20: 35	TYC28491172	11.4	Urhi xi dur	2.0	6	8	s. Florida
Nov 2	Sat	20: 48	ZC 0593	5.9	Nephele	7.3	9	1	WV, w. MD, e. PA

Grazing Occultations

Date	Day	EDT/ EST	Star	Mag	% alt	CA	Location
Oct 3	Thu	5: 08	eta Leonis	3.5	13- 25	8N	Indian River, MI
*** Dates and times above are EDT; those below are EST ***							
Oct 27	Sun	3: 52	ZC 1046	7.0	70- 73	6N	Westminster, MD & Newark, DE
Oct 27	Sun	5: 44	SAO 078824	7.9	69- 76	1N	Beltsville & n. Bowie, MD

Total Lunar Occultations

Date	Day	EDT/ EST	Ph Star	Mag	% alt	CA	Sp.	Notes
Oct 3	Thu	4: 40	D eta Leonis	3.5	13- 25	-46N	A0	cl. dbl.
Oct 3	Thu	6: 33	R eta Leonis	3.5	13- 35	64N	A0	ZC 1484; Sun alt. -7
Oct 9	Wed	20: 03	D ZC 2327	6.7	17+ 8	22N	G3	
Oct 16	Wed	1: 00	D ZC 3227	6.3	77+ 15	70S	K0	
Oct 17	Thu	1: 17	D tau2 Aqr	4.1	85+ 23	58S	K5	ZC 3349
Oct 18	Fri	18: 56	D ZC 0018	5.8	95+ 13	9S	K1	Sun -7; 3" to terminator
Oct 21	Mon	22: 30	R xi Arietis	5.5	99- 41	7S	B7	at terminator; difficult
Oct 25	Fri	23: 56	R TU Tauri	8?	79- 30	74S	M5	SAO 77502; var. 5.9-9.2
Oct 26	Sat	1: 24	R ZC 0880	6.8	79- 47	88N	K2	
Oct 26	Sat	1: 53	R 132 Tauri	4.9	79- 52	50S	G8	ZC 882; maybe close dbl.
Oct 27	Sun	0: 22	D epsilonGem	3.1	70- 25	-59S	A3	ZC 1030
Oct 27	Sun	1: 09	R epsilonGem	3.1	70- 34	33S	A3	ZC 1030; binoculars
*** Dates and times above are EDT; those below are EST ***								
Oct 27	Sun	3: 45	R SAO 078778	6.8	69- 73	80S	K0	probable close double
Oct 27	Sun	4: 03	R ZC 1046	7.0	69- 73	21N	F8	graze, Westminster, MD
Oct 27	Sun	5: 04	R ZC 1049	6.8	69- 75	57N	A2	
Oct 27	Sun	5: 07	R SAO 078824	7.9	69- 75	7N	F0	graze, Beltsville, MD
Oct 27	Sun	5: 45	R SAO 078827	7.4	68- 70	43S	A	Sun alt. -9 deg.
Oct 28	Mon	4: 52	R ZC 1180	7.1	59- 73	53S	F5	
Oct 30	Wed	4: 43	R ZC 1435	6.5	37- 51	38N	K0	
Oct 30	Wed	5: 44	R ZC 1436	6.8	36- 61	54N	K0	Sun alt. -10 deg.
Oct 31	Thu	3: 19	R SAO 099207	8.2	27- 23	74S	F8	
Oct 31	Thu	4: 09	R SAO 099223	8.3	26- 32	85S	F5	
Oct 31	Thu	4: 12	R SAO 099225	8.1	26- 33	75N	K0	

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. Cusp Angle is described more fully at <http://www.lunar-occultations.com/iota>. Sp. is 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, October 5

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. Nicola J. Fox will present the featured talk “The Sun, More Than Just a Star: Its Effect on Life and Society.”

Following the meeting, dinner with the speaker and NCA members at the North China Restaurant
7814 Old Georgetown Road
(near Cordell)
Bethesda, MD
301-656-7922

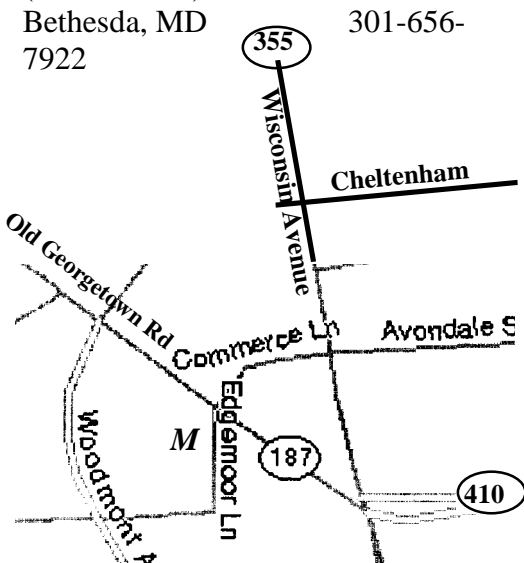
Directions to the New Meeting Place From North of Bethesda

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

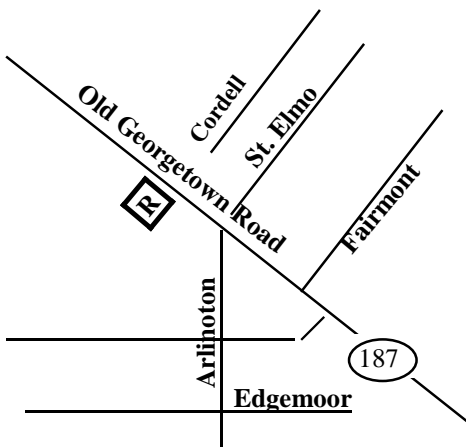
1. Take MD-355/Wisconsin Ave. North.
2. Turn slight left onto MD-187/Old Georgetown Rd.
3. Turn next left onto Edgemoor Ln. 4805 is the second entrance on the right. (See **M** on map.)
4. To get to public parking, continue on Edgemoor Lane which will make a sharp right turn. The parking garage is then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



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. Turn left onto MD-187/Old Georgetown Rd.
5. The restaurant is almost on the corner of Cordell and Old Georgetown Road.
6. There is a free, public parking garage very close to Old Georgetown Road between Cordell and St. Elmo.



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.
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National Capital Astronomers, Inc.

Jay H. Miller, NCA President, jhmiller@os2bbs.com, 301-530-7942 (home).
Gary Joaquin, NCA Vice-president, glj1@erols.com, 703-750-1636 (home).
Dr. Nancy Grace Roman, NCA Secretary, ngroman@erols.com, 301-656-6092 (home).
Jeffrey Norman, NCA Treasurer, Jeffrey.Norman@ferc.gov, 5410 Connecticut Avenue, NW, Apt. #717,
Washington, DC 20015-2837.
Trustees: Jeff Guerber, Dr. Andrew W. Seacord, II, Dr. Wayne H. Warren, Dr. Harold Williams
NCA Webmaster, Dr. Harold Williams, hwilliam@mc.cc.md.us, 301-650-1463 (planetarium), 301-565-3709 (home).
Elliott Fein, NCA *Star Dust* Editor, elliott.fein@erols.com, 301-762-6261 (home), 5 Carter Ct. Rockville, MD 20852-1005.
NCA Web Page: <http://capitalastronomers.org/>.
Appointed Officers and Committee Heads: Exploring the Sky - Joseph C. Morris; Meeting Facilities - Jay H. Miller;
Observing - Robert N. Bolster; Telescope Making - Guy Brandenburg; Travel Director - Sue Bassett; *Star Dust* Editor - Elliott Fein

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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".

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___ \$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*) (\$43 tax-deductible).

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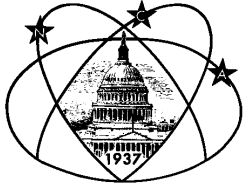
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