

Star



Dust

National Capital Astronomers, Inc.

<http://capitalastronomers.org>

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The President's Letter

Welcome to the last meeting of the 2003-2004 meeting year. Note that we are meeting on the second Saturday of the month, because the first Saturday is a regular open house at the observatory*.

The regular June meeting on the 12th will be different from any meeting I can remember in my 40+ years of membership. We're going to try something different and have an NCA star party. There will be no dinner prior to the meeting and no formal speaker. Instead, the meeting will start at its usual 7:30 P.M. You can either bring your own food or choose to purchase pizza and drinks. There will be a \$5 charge for the pizza and soda. Please call Elizabeth Warner prior to the meeting to tell her what you would like on your pizza. You can reach her at warnerem@astro.umd.edu (preferred) or leave a message at 301-405-6555.

Bring your astrophotos, your questions, maybe videos from the Venus transit. This is a great opportunity to get assistance in setting up and using your telescope. This will also give us a chance to informally get together and discuss astronomy. We will end the evening by setting up our telescopes for viewing, though you aren't required to bring a telescope. You are welcome to observe through any of the scopes, including the C-14 from the ob-

servatory. If the sky isn't clear enough for observing, I guess we'll go home early.

Come out and join us. While armchair astronomy can be rewarding, astronomy is a visual science and the fun is in the observing. If this is successful, we'll do it next year, and maybe have one around October, when the sky can be very clear. This is primarily an NCA event and we are not widely publicizing it in the media. I don't know what to expect and don't want to be inundated by people. However, we will not turn anyone away. After all, these could be future NCA members.

For the Venus transit, Harold Williams and I will be at the Takoma Park campus of Montgomery College on the top of the parking garage at the corner of Fenton and King Streets from 5:30 to 7:15A.M. on June 8, if the sky is clear. Everyone is invited to join us, with or without a telescope. Also, Jim Roy will have a small telescope on the Mall in front of the Natural History Museum.

During the summer get out your telescope and do some observing. Exploring the Sky will be continuing as will the open houses at the observatory. For the schedule of the former, check our web site. For the latter, go to www.astro.umd.edu/openhouse

Lastly, the June meeting will also feature

Elections at June 12 Meeting

The candidates for NCA offices for 2004-2005 are as follows:

President: Jay H. Miller

Vice-president: Jeffrey R. Guerber

Secretary: Dr. Nancy Grace Roman

Treasurer: Jeffrey B. Norman

Trustee: Guy F. Brandenburg,
Dr. Andrew W. Seacord, II,
Dr. Harold A. Williams

Additional nominations may be made prior to or at the Annual NCA Meeting, June 12

Submitted by the Nominating Committee, Michael McNeal and Jack Gaffey

the election of officers for the coming year. The slate is given elsewhere in this issue. This is another reason for attending the June meeting.

Contact me at rigell@starpower.net or 301-530-7942 (home) if you have any questions.

Jay Miller, President NCA

*I invite you to attend. The speaker at the
(Continued on page 2)

*The June NCA Meeting is on the
2nd Saturday in June!*

NCA Events This Month

The Public is Welcome!

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

Fridays, June 4, 11, 18, and 25, 6:30 to 9:30 P.M. NCA mirror- and telescope-making classes at the Chevy Chase Community Center, at the northeast corner of the intersection of McKinley Street and Connecticut Avenue, N.W. Contact instructor Guy Brandenburg at 202-635-1860 or email him at gbrandenburg@yahoo.com.

Saturdays, June 5, 26; July 3, 10, 17, 31; August 14, 21, 28 at 8:45 P.M. Observing with NCA's 14-inch telescope in Chevy Chase, MD. For more information, see article this page.

Tuesday, June 8, 5:30 A.M. NCA Venus transit observing at Montgomery College Takoma Park and at the Mall.

See President's Letter, Page 1.

For viewing on the UMD campus, see <http://www.astro.umd.edu> (Enter "venus transit" (without the "" marks) in the *search* box.)

Saturday, June 12 at 7:30 P.M. NCA meeting at the University of Maryland Astronomy Observatory on Metzert Road in College Park, MD.

See maps below and on Page 5 and directions on Page 6

To join the National Capital Astronomers, use the membership application on Page 7.

Pizza Preferences

Elizabeth Warner

Please let me (Elizabeth Warner warnerem@astro.umd.edu 301-405-6555) know your preferences for:

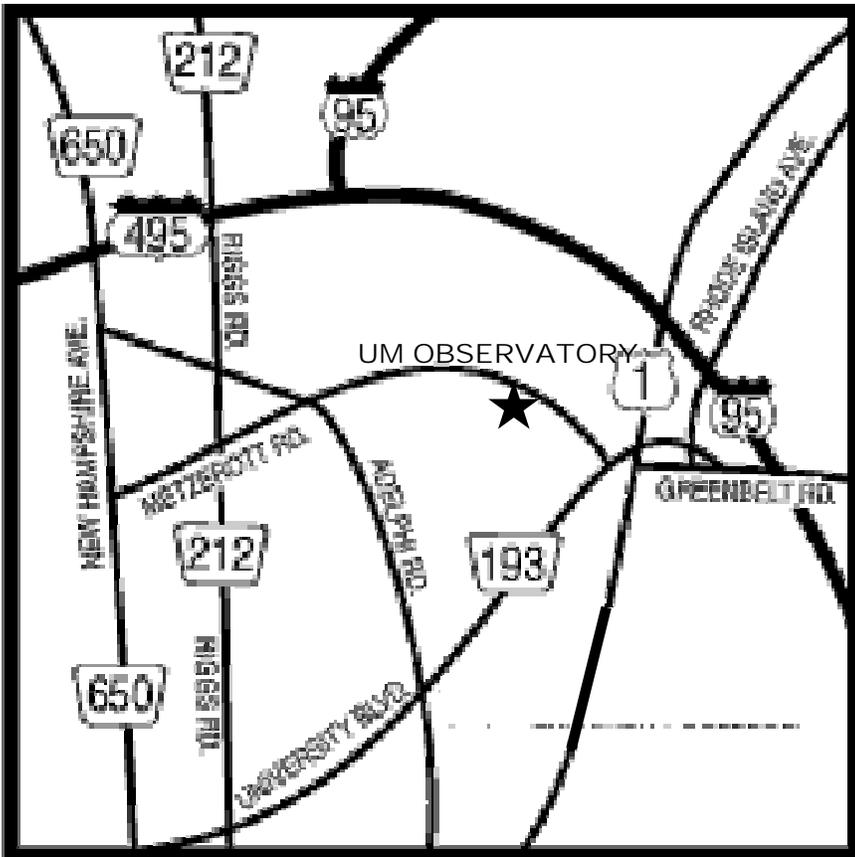
- pizza company that delivers (and is in the College Park area; I've dealt with Papa John's in the past and they are pretty good, but if I get lots of people suggesting someone else, we'll go with the majority)
- pizza toppings (be very clear as to what you like, i.e., 3 favorite toppings, or don't like). If you have allergy constraints, please let me know!
- how many slices you'd like
- drink (soda, juice) preferences

Feel free to bring your own dinner, but if you plan to partake of the pizza, you should let us know. There will be a small charge to cover the cost of the pizza and drinks; see Jay Miller's President's Letter.

The President's Letter, continued

(Continued from page 1)

observatory open house on June 5 will be Dr. Ed Shaya who will give a brief talk on the Space Interferometry Mission. This will be followed by observing through the observatory's telescopes if the sky is clear. The other regular open house at the observatory is on the 20th.



See written directions on Page 6.

Apology to Jeff Guerber

Elizabeth Warner

At the May meeting, as we were discussing duties of the officers, it was suggested that people affiliated with various institutions in the area should try to get contact names for the VP. While I agree with the idea, I got quite mad at Jeff because I felt that I had helped him in this way and that he did not follow up on it. I was incorrectly remembering the details of an email from late January. My outburst at Jeff was wrong and I would like to apologize to him and the club for the incident.

Observing with the NCA C-14

Mike McNeal

<u>All at 8:45 p.m.</u>	<u>Prime Objects</u>
June 5	Mizar, comet NEAT?
June 26	M63, M92
July 3	M13, NGC4565
July 10, 17, 31	tbd
Aug 14, 21, 28	tbd

In Mike McNeal's backyard, 5410 Grove St, Chevy Chase, MD, (Friendship Heights Metro). Please make reservations by 10 p. m. the Friday before. Call Mike at 301-907-9449 or email him at mcnealmi@verizon.net to let him know you are coming.

Support the IDA

Join the International
Dark-Sky Association
3225 N. First Avenue
Tucson, AZ 85719-2103
www.darksky.org

The deadline for the
September Star Dust is
August 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.

Come See the Stars! by Joe Morris

Exploring the Sky 2004-2005 Schedule

Date	Time	Notes
6/19	9:00 P.M.	Summer Solstice 6/21
7/24	9:00 P.M.	Moon at first quarter
8/7	8:30 P.M.	Perseid meteor shower 7/17-8/24
9/18	8:00 P.M.	Equinox 9/22
10/16	7:30 P.M.	Orionid meteor shower 10/2-11/7
11/13	7:00 P.M.	Leonid meteor shower 11/14-11/21

Exploring the Sky is an informal program jointly sponsored by National Capital Astronomers and the National Park Service that for nearly fifty years has offered monthly opportunities for anyone in the Washington area to see the stars and planets 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) 895-6070, or check the Internet sites:
<http://www.nps.gov/rocr/planetarium>
or
<http://www.capitalastronomers.org>

Senatorial Star Party, April 7, 2004 Jim Roy, NCA and Smithsonian Volunteer

In early April, Sen. Charles Schumer, D-NY and Sean O'Brien of the Air & Space Planetarium organized a star party right on the roof of the Dirksen Senate Office Building. Those participating included Jay Miller with his 6" refractor, John Avellone with a 6" Dobsonian, David DeVorkin of NASM with "Afrika Korps Artillery" binoculars, and Jim Roy with his 3" Tele View Ranger, brought for its lightness and the fact that it is the only telescope made in New York. We were there at 7 P.M., and it was not easy - we had to car pool because of limited parking, then tote the gear (after inspection) up 3 flights of narrow stairs, a fairly impressive tonnage of clumsy boxes. We succeeded, and the the Senators clomped up as well, to a neglected tennis court bulging with

craters and valleys. Very quickly after sunset (7:37) we dug up Venus, Jupiter, and Saturn easily, and Mars after a greater battle. It was murky near the sunset, but after 8 P.M. David DeVorkin even found Mercury! to get us to 5 planets. Senators present in rare bipartisan-ship included Schumer, Hillary Clinton (D-NY), Mike Enzi (R-WY), Jim Jeffords (D-VT), and Ted Stevens (R-AK). There were also several relatives and staffers, about 25 all told. We were delighted to give them looks at 5 planets, and later Sen. Schumer sent Sean O'Brien a nice thank you note. We packed up about 9 P.M. and had a bit of a trek down the stairs. The "Rommel" binocs are at least 25 pounds - I carted them down the stairs, and went back to NASM where several of us were parked.

Presentations by NCA Science Fair Winners

Three of the winners in the NCA 2004 science fair judging gave presentations at the May NCA meeting. They are:

Fairfax County Regional Science and Engineering Fair

Nikita V. Kohli, *Effect of Time of Day on Gamma Ray Trajectories*

Montgomery Area Science Fair

Joshua Stern, Montgomery Blair High School, *Water Indicators in Sirenum Terra and Around the Argyre Impact Basin, Mars*

Allison Arai, Tacoma Park Middle School, *How A Refractor Telescope Works*

Judges: Bob Bolster, Jay Miller, Andrew Seacord, and Wayne Warren.

These science fair winners were honored at the May NCA meeting. Each student was presented with a certificate and was awarded a one-year membership in NCA with a one-year subscription to *Sky and Telescope*.

Mid-Atlantic Occultations and Expeditions

by David Dunham

Asteroidal Occultations

Date	Day	EDT	Star	Mag	Asteroid	dmag	s	in.	Location
Jun 8	Tue	23:40	TYC62681788	11.5	Arenda	4.2	3	8	neNC, sVA, sWV
Jun 23	Wed	23:03	SAO 118999	9.6	Clari ssa	6.4	2	5	Maryl and
Jul 18	Sun	0:26	TYC05312020	11.9	Daphne	0.4	20	8	DC, MD, VA, DE, NJ
Jul 24	Sat	23:49	TYC62330665	11.6	Erigone	2.7	13	7	seNC?, eSC, sGA
Jul 31	Sat	5:43	TYC51620581	10.2	Olga	1.7	8	5	n. Florida
Aug 3	Tue	23:58	ZUC26778998	13.8	Chiron	3.4	10	11	Venezuela
Aug 4	Wed	1:41	ZUC267	98061	13.7	2000 PA30	10.8	3	11 Brazil
Aug 14	Sat	23:54	TYC22510999	9.7	Angol a	5.3	9	5	Quebec
Aug 22	Sun	5:55	ZUC29940532	12.7	2002 PD155	10.1	7	10	Ontario
Sep 4	Sat	5:16	TYC24130137	11.7	Lumen	1.5	5	8	Pennsylvani a
Sep 5	Sun	4:52	TYC52440017	11.8	Camilla	1.0	16	8	sWI, cenMI, Ont.
Sep 12	Sun	1:09	SAO 36280 A	7.2	Palisana	2.2	13	2	DC, MD, nVA, sePA

Grazing Occultations

DATE	Day	EDT	Star	Mag	% alt	CA	Location
Jun 14	Mon	4:08	ZC 0423	6.3	11-	7	9N Seaford, DE
Jul 5	Mon	4:56	ZC 3202	6.2	89-	32	20N Williamsburg, VA; Salisbury, MD
Jul 11	Sun	4:29	SAO 93055	8.9	30-	22	15N Bryantown, MD& BowlingGreen, VA
Jul 13	Tue	5:25	SAO 76555	7.2	14-	31	17N Varina Grove, VA; Sun -7
Jul 28	Wed	22:57	ZC 2583	5.8	89+	24	10N Carmel Church, VA
Aug 3	Tue	4:21	psi 1 Aqr	4.2	91-	37	22N Rodanthe, NC; Sun alt. -10
Aug 11	Wed	5:09	X78218	10.2	19-	34	17N Largo & s. Bowie, MD
Aug 12	Thu	4:48	SAO 78641	8.3	12-	20	17N Amaranth, PA Sun alt. -17
Sep 4	Sat	3:52	ZC 0429	7.0	72-	62	18N Frederick, MD&Hanover&York, PA
Sep 4	Sat	5:07	rho Ari	5.6	72-	70	16N Cary, NC; Yorktown&NewChurch, VA
Sep 8	Wed	2:44	SAO 78239	9.0	34-	21	14N Cumberland, MD; Millville, PA
Sep 9	Thu	4:38	SAO 79256	7.8	25-	32	14N Urbana & Mt. Airy, MD; NYC
Sep 10	Fri	5:08	SAO 80006	8.8	17-	26	13N Frostburg, MD; Emmaville, PA

Total Lunar Occultations

DATE	Day	EDT	Ph Star	Mag	% alt	CA	Sp.	Notes
Jun 3	Thu	22:18	R X Sgr	4.5	98-	5	89S F7	ZC 2554; Az132; double?
Jun 21	Mon	22:05	D ZC 1393	6.5	15+	17	87S G7	
Jun 25	Fri	0:31	D ZC 1808	7.0	54+	9	50S F5	Az 259
Jun 27	Sun	21:25	D EV Vir	6.7-7.1	74+	37	78S M3	ZC 2034; Sun -9
Jun 28	Mon	23:19	D iota Lib	4.5	84+	28	85N A	close dbl; m3 9.8, 58", 109
Jun 29	Tue	23:27	D ZC 2328	6.4	92+	26	81S B6	mg2 10.3, 1.7", PA 221
Jul 4	Sun	23:53	R ZC 3178	6.2	89-	9	32N A0	Az 124
Jul 7	Wed	4:11	R ZC 3478	6.4	70-	39	85N G5	
Jul 11	Sun	3:01	R ZC 0391	7.3	31-	16	51S F7	mag. 2 9.5, 6.8", PA 74
Jul 25	Sun	23:23	D ZC 2120	6.3	61+	13	60S K0	Az 233
Jul 26	Mon	21:10	D ZC 2249	6.7	71+	28	77S K1	Sun -9; Close double
Aug 3	Tue	6:39	R psi 2 Aqr	4.4	91-	26	58S B5	Sun +4; maybe close dbl
Aug 6	Fri	4:23	R ZC 0247	6.3	65-	58	3S F2	terminator 14" away
Aug 8	Sun	0:50	R UW Arietis	6.1	47-	8	61S B1	ZC 455; Az73; close dbl.
Aug 8	Sun	4:51	R ZC 0467	6.5	45-	54	76N K5	
Aug 10	Tue	4:19	R ZC 0733	7.2	27-	33	74N A0	mg2 8.8, ".2; mg3 10, ".5
Aug 12	Thu	4:58	R SAO 78641	8.3	12-	23	38N M0	Graze, Amaranth, PA
Aug 12	Thu	5:13	R ZC 1028	7.5	12-	25	54S G8	
Aug 21	Sat	21:14	D SAO 158642	7.2	35+	15	67S A2	Az 233
Aug 23	Mon	21:15	D ZC 2364	7.0	57+	21	48N A1	
Aug 25	Wed	20:57	D ZC 2702	6.8	78+	22	63N K0	
Aug 28	Sat	0:29	D ZC 3052	6.4	95+	26	36S K0	mg2 8.6 1.6", PA 18

(Continued on page 5)

Meteor Showers

June, July, & August Radiants

Full Moon: June 3, July 2, July 31, August 30

June			July, continued		
Moderate Activity			July, continued		
Radiant	Duration	Maximum	July Phoenicids (PHE)	July 9-17	July 14/15
June Lyrids	June 10-21	June 15/16	Alpha Pisces Australids	July 16-August 13	July 30/31
Minor Activity			Sigma Capricornids	June 18-July 30	July 10-20
Radiant	Duration	Maximum	Tau Capricornids	June 2?-July 29	July 12/13
June Aquilids	June 2-July 2	June 16/17	Omicron Draconids	July 6-28	July 17/18
June Boötids	June 27-July 5	June 28/29	Daylight Activity - None		
Corvids	June 25-July 3	June 27/28	August		
Tau Herculids	May 19-June 19	June 9/10	Major Activity		
Ophiuchids	May 19-July 2	June 20/21	Radiant	Duration	Maximum
Theta Ophiuchids	May 21-June 16	June 10/11	Perseids (PER)	July 23-August 22	Aug. 12 @ 09:20 UT
Sagittariids	June 10-16	June 10/11	Moderate Activity		
Phi Sagittariids	June 1-July 15	June 18/19	Radiant	Duration	Maximum
Chi Scorpiids	May 6-July 2	May 28-June 5	Northern Iota Aquarids (NIA)	August 11-September 10	August 25/26
Omega Scorpiids	May 19-July 11	June 3-6	Southern Iota Aquarids (SIA)	July 1-September 18	August 6/7
June Scutids	June 2-July 29	June 27/28	Alpha Capricornids (CAP)	July 15-September 11	August 1/2
Daylight Activity			Northern Delta Aquarids (NDA)	July 16-September 10	August 13/14
Radiant	Duration	Maximum	Kappa Cygnids (KCG)	July 26-September 1	August 18
Arietids	May 22-July 2	June 7/8	Minor Activity		
Zeta Perseids	May 20-July 5	June 13/14	Radiant	Duration	Maximum
Beta Taurids	June 5-July 18	June 29/30	August Eridanids	August 2-27	August 11/12
July			Upsilon Pegasids	July 25-August 19	August 8/9
Moderate Activity			Alpha Ursa Majorids	August 9-30	August 13/14
Radiant	Duration	Maximum	Daylight Activity		
Southern Delta Aquarids (SDA)	July 14-August 18	July 28/29	Radiant	Duration	Maximum
Minor Activity			Gamma Leonids	August 14-September 12	August 25/26
Radiant	Duration	Maximum	Source: http://comets.amsmeteors.org/meteors		
Alpha Lyrids	July 9-20	July 14/15			

Mid-Atlantic Occultations and Expeditions, continued

(Continued from page 4)

Sep 5 Sun	0: 39 R ZC 0525	6. 5 63- 23	75S A
Sep 8 Wed	2: 10 R ZC 0958	6. 7 34- 16	53S K1 spectroscopic binary
Sep 9 Thu	2: 05 R 47 Gem	5. 8 26- 6	89S A4 ZC 1088; Az 60 deg.
Sep 9 Thu	4: 27 R ZC 1105	6. 5 25- 31	24S G7 close double
Sep 9 Thu	6: 02 R ZC 1108	7. 0 24- 49	56S G8 Sun -9; close double?
Sep 10 Fri	4: 17 R SAO 79980	7. 3 17- 19	37S G8

David Dunham, e-mail dunham@erols.com. My Web site, <http://iota.jhuapl.edu> has data for many other mid-Aug. & Sep. events - crescent Moon in Milky Way. Phone home 301-474-4722; office 240-228-5609; car 301-526-5590

Getting to the NCA Monthly Meeting

The Meeting

Join us for the NCA Meeting at 7:30 p.m.

Directions and maps compliments of Elizabeth Warner. The maps are on the proceeding page and Page 2.

Directions to the Meeting Place

The meeting will be held at the University of Maryland Astronomy Observatory located on Metzertott Rd.

From the Beltway

The Observatory is located on Metzertott Rd. between Adelphi Rd. and University Blvd. in College Park. From the beltway (I-495) take the College Park/Route 1 exit. You will head south on Route 1 for about a mile until you see a sign for 193 West. You want to get on 193 West. The first light you come to will be Metzertott Rd. Take a right onto Metzertott Rd. Once on Metzertott, you will go through a stop light

and the observatory is about a quarter of a mile on the left side of the road after the stop light. Our entrance is slightly hidden, but you should slow down to turn left as soon as you pass a large "System Administration" sign. We are almost directly across the street from the UM System Admin. (3300 Metzertott Rd.).

Parking

The MD Observatory lot has only twenty parking spaces. There is an overflow lot across the street at the University System of Maryland Administration Building. Parking is free in both lots. Please follow the directions of our volunteers in the parking lot and they will assist you. Please be extremely careful crossing the street.

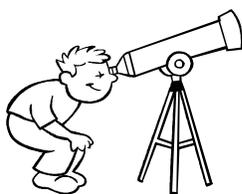
Reserve your Ride

Please contact Jay Miller, 301-530-7942, if you need a ride from the metro to the meeting at the observatory. (Please try to let him know in advance by email at jhmiller@os2bbs.com)

Observing after the Meeting

Elizabeth Warner

With the meeting on June 12, we manage to get out of the full moon rut (somehow, the first Saturdays have been coinciding with the nearly full moon the last several months!). Venus of course has transited the sun and is in the morning sky. Saturn and Mars are still in Gemini but they will be pretty low in the sky. That leaves Jupiter! All four Galilean moons will be visible (two on each side). And the Red Spot will be rotating out of view but we may be able to catch a glimpse of it. Technically, Comet NEAT will be about 10 deg from Merak (in UMa) and LINEAR will be down low in the WSW. I doubt we will see either. Instead we'll try for other faint fuzzies. The Realm of Galaxies will still be prominent so we might try for M51 and M64. And the summer sky with its bright stars, clusters and nebulae, is rising over in the east. M13 and M57 are bright easy to find favorites.

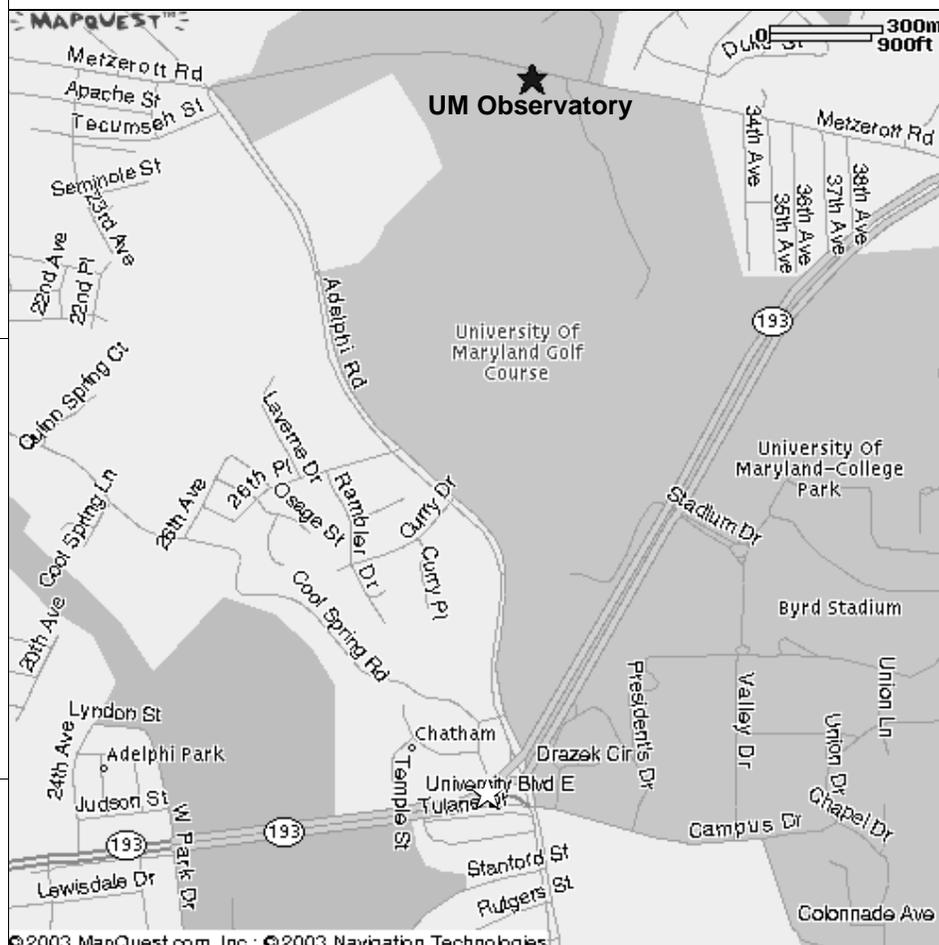


Star Dust is Now Available Electronically

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).

Getting to the NCA Monthly Meeting

See next page for written directions.



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<http://capitalastronomers.org>

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Appointed Officers and Committee Heads: Exploring the Sky - Joseph C. Morris; Meeting Facilities - Jay H. Miller;
Observing - Michael McNeal, mcnealmi@verizon.net; Telescope Making - Guy Brandenburg; *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.

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**

*The June
NCA
Meeting is
on the
2nd
Saturday
in June!*

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