

Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

May 2015

Volume 73, Issue 9

Next Meeting

When: Sat. May 9th, 2015

Time: 7:30 pm

Where: UMD Observatory

Speaker: Brigette Hesman

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Directions to Dinner/Meeting

Our time and location for dinner with the speaker before this meeting is 5:30 pm at "The Common," the restaurant in the UMD University College building located at 3501 University Blvd.

The meeting is held at the UMD Astronomy Observatory on Metzger Rd about halfway between Adelphi Rd and University Blvd.

Need a Ride?

Please contact Jay Miller, 240-401-8693, if you need a ride from the metro to dinner or to the meeting @ observatory. Please try to let him know in advance by e-mail at rigel1@starpower.net.

Observing after the Meeting

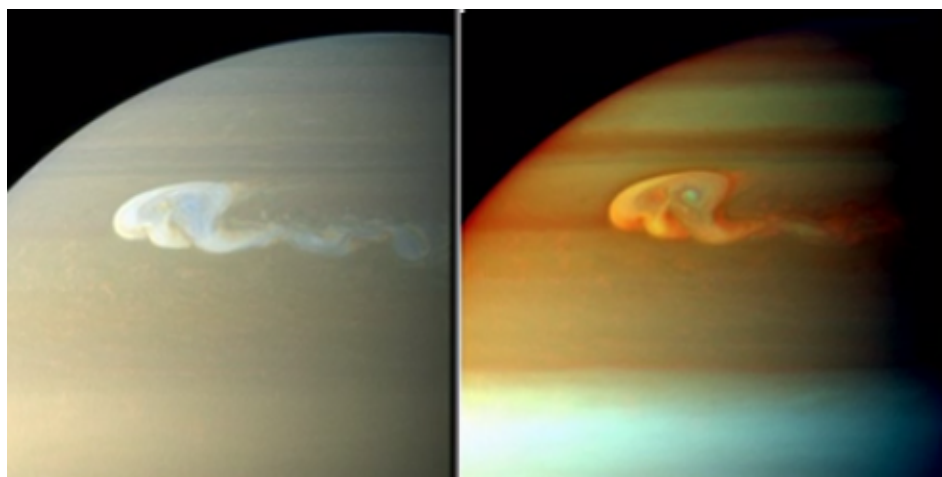
Following the meeting, members and guests are welcome to tour through the Observatory. Weather-permitting, several of the telescopes will also be set up for viewing.

Saturn's Great Northern Storm of 2010-2011: from Storm Clouds to Hot Vortices

*Brigette E. Hesman,
University of Maryland & Goddard Space Flight Center*

Abstract: The massive eruption at 40° N on Saturn in December 2010 produced significant and lasting effects on the temperature and on the abundances of chemical species in the atmosphere in Saturn's northern hemisphere. The storm clouds were sheared as they erupted into the troposphere and, over the next three months, wrapped around the entire planet. This eruption also sent waves into the stratosphere, heating it significantly.

In 2011 and 2012 the Cassini spacecraft had multiple occasions to observe the effects of the storm at a variety of wavelengths. The Composite Infrared Spectrometer (CIRS) on Cassini "chased" the storm in order to follow the unexpected changes in the normally quiet stratosphere. This month's talk will address the "beacons" in the



Courtesy NASA

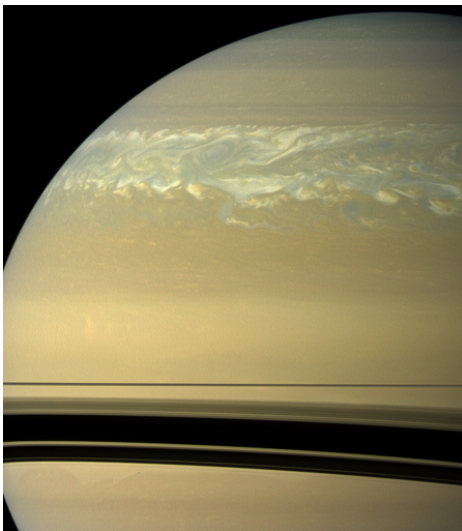
Cassini catches the formation of a white spot, the onset of Saturn's Great Northern Storm. The left image is visible light and the right image is near infrared.

continued on page 2

Reminder

After the meeting, everyone is invited to join us at Plato's Diner in College Park. Plato's is located at 7150 Baltimore Ave. (US Rt. 1 at Calvert Rd.), just south of the university's campus. What if it's clear and you want to stick around and observe? No problem -- just come over when you're through. This is very informal, and we fully expect people to wander in and out.

Stormy Weather



Courtesy NASA/JPL-Caltech/Space Science Institute

Cassini's image of the expansion of the 2010 storm in Saturn's northern hemisphere, which raised temperatures 150° F above normal.



Cassini spacecraft's original 4-year mission to explore Saturn was completed in 2008. That was followed by an extended mission called Equinox, completed in 2010. The current extended mission is called Solstice and is scheduled to last until 2017. Learn more about Cassini's current mission at:

<http://saturn.jpl.nasa.gov/>

Saturn's Great Northern Storm – continued from page 1

stratosphere that resulted from the storm, how these beacons changed over time, the changes in the amounts of hydrocarbons, and the effects Cassini was able to “see” in the northern hemisphere long after the storm clouds subsided.

Biographical Sketch:



Brigette Hesman is an Assistant Research Scientist at the University of Maryland, working at NASA's Goddard Space Flight Center. Her research focuses on the chemical composition of the atmospheres of the giant planets in the Solar System. Currently, she is analyzing data from the Cassini spacecraft, which is in orbit around Saturn. She earned her PhD from the University of Saskatchewan in 2005, and started as a post-doctoral researcher at Goddard that same year. She has

worked as part of the Cassini's Composite Infrared Spectrometer (CIRS) team, doing both operations and science. Brigette's recent research has focused on using infrared spectra to investigate the effects that Saturn's storm systems have on Saturn's atmosphere.

AWB Concert



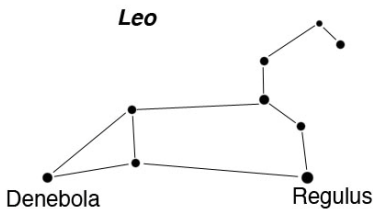
Courtesy Astroconcert

Musician Angelina Yershova performing for Global Astronomy Month

Angelina Yershova and Stefano Giovanardi performed live on April 25th in honor of Global Astronomy Month and transmitted worldwide via the Astronomers without Borders (AWB) website. The focus of their musical compilation was Comet 67P/Churyumov-Gerasimenko; therefore, the title of the concert was *Icy Rose 67P*. If you missed it, Livestream replays of the event are in the works. Dates have yet to be determined, but will be announced on the band's social media page:

<https://www.facebook.com/Astroconcert>

“Can You See the Stars?”



Leo is one of the oldest constellations. In Egypt/Kemet, there were heavy rains when the Sun was in Leo. Therefore, the constellation was associated with life-giving waters and the flooding of the Nile.

Exploring the Sky

“Exploring the Sky” is an informal program that, for over 60 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. Presented by the National Park Service and National Capital Astronomers, sessions are held in Rock Creek Park once each month on a Saturday night from April through November, Beginners (including children) and experienced stargazers are all welcome—and it’s free!

Hosted by: [National Capital Astronomers, Inc](#) and [Rock Creek Park](#)

Sky Watchers

Spring Schedule

May

5-6	Pre-dawn – Meteors , N & S. Hemispheres. <i>Eta Aquariids</i>
9-18	Evening – Globe at Night , Global. Features: <i>Constellation Leo</i> (N. Hemisphere), <i>Constellation Crux</i> (S. Hemisphere)
11	9:00 pm – Planets , N. Hemisphere. Mercury 8° north of Aldebaran
22	10:00 pm – Planets , N. Hemisphere. Saturn (24° tilt to line of sight, magnitude = 0.0)
23	8:30 pm – Exploring the Sky , Local. Features: <i>Saturn Rising</i> , <i>Crescent Moon & Big Dipper</i>
24	3:00 am – Planets , N. Hemisphere. Jupiter 5° north of Moon

June

2	12:19 pm – Full Moon , Global. Other Moon Names: <i>Full Strawberry Moon</i> , <i>Full Rose Moon</i> , <i>Full Hot Moon</i>
6	9:00 pm – Exploring the Sky , Local. Features: <i>Jupiter</i> , <i>Venus & Vega</i>
8-17	Evening – Globe at Night , Global. Features: <i>Constellation Boötes</i> (N. Hemisphere) & <i>Scorpius</i> (S. Hemisphere)

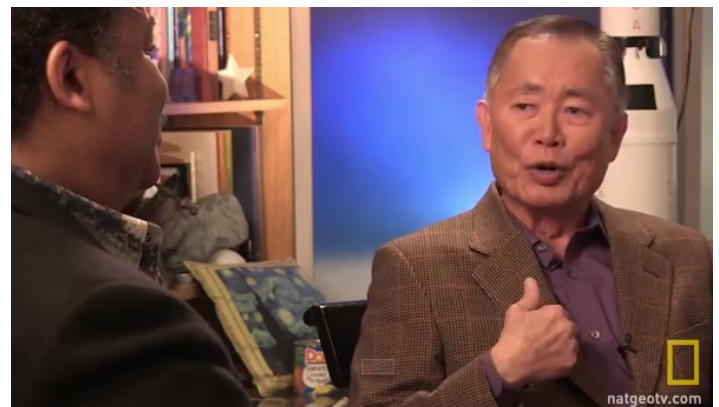
Times EDT

Star Talk

Hosted by Neil deGrasse Tyson

Mondays 11 pm (EDT)

National Geographic Channel



June Election Information

John Hornstein

Although the NCA elections are a month away, following is an early list of candidates, appointments and policy questions for consideration.

Executive Officers

<u>Position</u>	<u>Current</u>	<u>Candidate(s)</u>
President	Alexander Klein	Joseph Morris
Vice President	John Hornstein	John Hornstein
Secretary-Treasurer	Henry Bofinger	Henry Bofinger
Assistant Secretary-Treasurer	Jeff Norman	Jeff Norman

Trustees

	<u>Current</u>	<u>Candidate(s)</u>
Trustee	Harold Williams (to June 2016)	Harold Williams (to June 2020)
Trustee	Benson Simon (to June 2017)	N/A
Trustee	Joe Morris (to June 2018)	Andrew Seacord (to June 2018)
Trustee	Wayne Warren (to June 2019)	N/A

Appointed Officers and Committee Heads

<u>Committee</u>	<u>Officer/Head</u>	<u>Contact Information</u>
Exploring the Sky	Jay Miller	rigel1@starpower.net
Telescope Making	Guy Brandenburg	gbrandenburg@yahoo.com 202-635-1860
NCA Webmaster	Elizabeth Warner	warnerem@astro.umd.edu
Star Dust Editor	CA Brooks	NCAstardust@gmail.com

Policy Decisions

<u>Topic</u>	<u>Policy</u>
Science Fairs	The NCA <ul style="list-style-type: none"> • should • should not continue judging at the local regional science fairs.

Note: Before the show-of-hands vote, members are welcome to argue for or against a policy position.

• **Star Dust** is published ten times yearly
 • September through June, by the National
 • Capital Astronomers, Inc. (NCA).

• **ISSN: 0898-7548**

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Please Get Star Dust Electronically

• NCA members able to receive Star Dust,
 • the newsletter of the NCA, via e-mail as a
 • PDF file attachment, instead of hardcopy via
 • U.S. Mail, can save NCA a considerable
 • amount of money on the printing and
 • postage in the production of Star Dust (the
 • NCA's single largest expense), save some
 • trees and have one-click access to all the
 • embedded links in the document. If you can
 • switch from paper to digital, please contact
 • Henry Bofinger, the NCA Secretary-
 • Treasurer, at hbofinger@earthlink.net

Thank you!



INTERNATIONAL
YEAR OF LIGHT
2015



• UNESCO's 2015 International Year
 • Theme is "**Light and Light-Based
 • Technologies.**" A segment of this
 • theme has been allocated to the night
 • sky, including star gazing, dark sky
 • awareness issues, cosmic radiation and
 • the centenary anniversary of the general
 • theory of relativity.

• <http://www.light2015.org/Home/CosmicLight.html>

Occultation Notes

- 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.
- Some stars in Flamsteed's catalog are in the wrong constellation, according to the official IAU constellation boundaries that were established well after Flamsteed's catalog was published. In these cases, Flamsteed's constellation is in parentheses and the actual constellation is given in the notes following a /.
- 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 the main IOTA Web site.
- Sp. is the star's spectral type (color), O,B,blue; A,F,white; G,yellow; K,orange; M,N,S,C red.
- Also in the notes, information about double stars is often given. "Close double" with no other information usually means nearly equal components with a separation less than 0.2". "mg2" or "m2" means the magnitude of the secondary component, followed by its separation in arc seconds ("), and sometimes its PA from the primary. If there is a 3rd component (for a triple star), it might be indicated with "mg3" or "m3". Double is sometime abbreviated "dbl".
- Sometimes the Watts angle (WA) is given; it is aligned with the Moon's rotation axis and can be used to estimate where a star will reappear relative to lunar features. The selenographic latitude is WA -270. For example, WA 305 - 310 is near Mare Crisium.

Mid-Atlantic Occultations

David Dunham

Asteroidal and Planetary Occultations

2015							dur.	Ap.	
Date	Day	EDT	Star	Mag	Asteroid	dmag	s	"	Location, Notes
May 10	Sun	1: 58	TYC72791917	9.9	Davehiggin	6.2	1	4	OH, wPA; wMD, wVA?
May 13	Wed	22: 58	2UC39473343	11.8	Hygiea	0.7	13	8	KY, WV, VA, NC, SC
May 20	Wed	23: 42	TYC04340484	12.4	Oiga	1.1	12	8	e&nVA, nWV, cOhio
May 22	Fri	23: 27	2UC36642260	12.2	Hesperia	0.8	4	8	WV, n&eVA, DC; MD?
May 24	Sun	12: 39	Regulus	1.4	Dagmar	15.0	2	1	nVA, DC, MD, DE; SA
May 28	Thu	21: 41	2UC35028945	12.4	Velleda	2.2	3	8	cOH, WV, scVA, neNC
May 29	Fri	1: 05	2UC33400463	12.2	Tabora	3.6	17	8	eMD, eVA, eNC; DE?
May 29	Fri	3: 58	2UC16056470	11.3	Natalie	3.3	5	7	ePA, cMD, cVA; DC?
Jun 2	Tue	1: 01	TYC62370850	12.0	Eurynome	0.7	6	8	e&cVA, OH; DC, MD?
Jun 6	Sat	21: 50	TYC08960151	11.6	Ulysses	5.5	7	7	NJ, DE, MD, DC, VA

Lunar Grazing Occultations

2015									
Date	Day	EDT	Star	Mag	% alt	CA	Location & Remarks		
May 19	Tue	21: 36	115 Tauri	5.4	4+	-4N	Leesb&GrtFls, VA; DC; Ptm&UM, MD		
May 21	Thu	21: 40	SAO 96720	7.9	17+	OS	Duncann&Paxtnia, PA; Claymnt, DE		

Interactive detailed maps at <http://www.iota.timerson.net/>.

Total Lunar Occultations

2015									
Date	Day	EDT	Ph Star	Mag	% alt	CA	Sp.	Notes	
May 11	Mon	5: 42	R SAO 164359	8.0	50-	35	77S B2	Sun altitude -4 degrees	
May 12	Tue	6: 13	R rho Aqr *	5.4	39-	36	45N B8	Sun alt. +2, ZC 3278	
May 14	Thu	5: 09	R ZC 16	7.5	18-	16	88S K2	Sun -9, mg2 0.2", PA 212d	
May 20	Wed	20: 22	D ZC 970	6.3	9+	25	70N G9	Sun altitude -2 degrees	
May 20	Wed	21: 02	D ZC 975	6.8	10+	18	80S A0	Sun -8, mg2 8 2.4", PA13d	
May 20	Wed	21: 30	D SAO 95609	8.0	10+	12	37S F8	Azimuth 283 degrees	
May 20	Wed	22: 10	D SAO 95645*	8.9	10+	5	26N F5	Az 289, close double??	
May 21	Thu	21: 30	D lambda Gem	3.6	17+	21	86N A3	ZC 1106, close dbl??	
May 21	Thu	22: 29	R lambda Gem	3.6	17+	10	-85N A3	Az 283, AA 280 \prob. not	
May 22	Fri	21: 39	D SAO 97618	7.6	25+	28	63S F5	close double??	
May 22	Fri	21: 59	D ZC 1234	6.2	25+	24	76N A1	close double??	
May 24	Sun	16: 14	D omicron Leo	3.5	42+	46	51N A5	Sun +46, ZC1428, spec. bin	
May 26	Tue	19: 49	D 75 Leonis	5.2	62+	53	29S M0	Sun +5, ZC1635, close dbl	
May 27	Wed	0: 28	D 79 Leonis	5.4	63+	21	86S G8	ZC1652, spec. binary	
May 28	Thu	2: 01	D ZC 1753	6.7	73+	9	48S K0	Azimuth 259 degrees	
May 31	Wed	22: 48	D omicron Lib	6.1	97+	34	86N F2	ZC 2193	
Jun 6	Sat	1: 13	R SAO 163249	7.6	85-	20	81N K5		
Jun 7	Sun	0: 38	R 9 Aquarii	6.6	76-	8	75N G6	Az 115, ZC 3072	
Jun 7	Sun	4: 32	R ZC 3088	8.0	75-	37	25N K1	Sun altitude -12 deg.	
Jun 9	Tue	2: 18	R SAO 146389	7.2	54-	12	64S K5	Azimuth 108 degrees	
Jun 9	Tue	6: 07	R ZC 3380	5.9	53-	45	41N K0	Sun +3, close dbl??	
Jun 10	Wed	5: 06	R SAO 146974	8.4	42-	36	8N G5	Sun altitude -7 deg.	

*The star is in the Kepler 2 exoplanet search program so lightcurves of the occultation are desired to check for close stellar duplicity.

Further explanations & more information is at

<http://iota.jhuapl.edu/exped.htm>.

David Dunham, dunham@starpower.net, phone 301-526-5590



Celebrate the 25th Anniversary of the Hubble Telescope!

<http://hubble25th.org/>

June 11: Looking Back in Time at the Distant Universe

June 30: The Agony and the Ecstasy

National Air and Space Museum
8 pm (Lecture), 9 pm (Stargazing)

<http://airandspace.si.edu/events/lectures/>

2014-2015 Officers

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- Benson Simon (2017)
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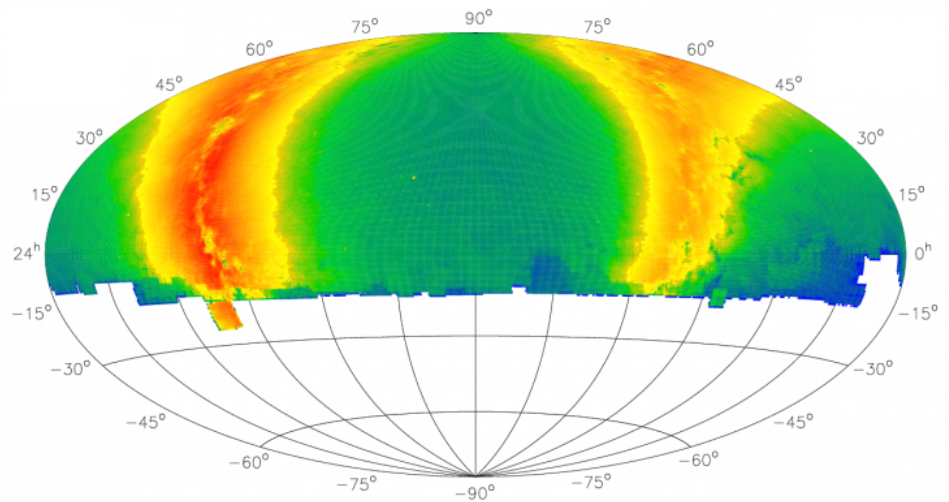
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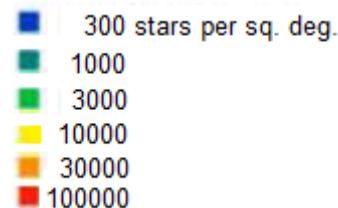
USNO Star Catalog Release

US Naval Observatory

The United States Naval Observatory (USNO) has released the First Edition of its USNO Robotic Astrometric Telescope star catalog, URAT1. This catalog is the follow-on to the Observatory's previous USNO CCD Astrograph Catalog (UCAC4). The new catalog contains positional data on about 228 million stars with a magnitude range of 3.0 to 18.5 for a bandpass of 680 to 750 nanometers between declinations of +89.5 degrees to -15 degrees. Longer integration times and more sensitive, backside CCDs allowed for a substantial increase in limiting magnitude, resulting in a nearly 4-fold increase in the average number of stars per square degree as compared to UCAC.



Courtesy USNO
 URAT1's Density on the Sky



URAT1 will be available to users through the astrometric catalog server at the Strasbourg Astronomical Data Center (CDS, <http://cdsarc.u-strasbg.fr/cats/I.htm>) as Catalog I/329.

Current plans call for a second URAT2 data release in about a year, which will include 3+ years of operations, proper motions and parallaxes (of nearby stars) derived from URAT data.

For more information, see:

<http://www.usno.navy.mil/USNO/tours-events/usno-releases-first-version-of-newest-star-catalog/view>

Get ready for the first, official

Asteroid Day

June 30th 2015



<http://www.asteroidday.org/>

The submission deadline for the June issue of Star Dust is May 29th.

This will be the last issue of Volume 73. Be a part of history!

Clear Skies!

Calendar of Events

- **NCA Mirror- or Telescope-making Classes:** Tuesdays and Fridays, from 6:30 to 9:45 pm at the Chevy Chase Community Center (intersection of McKinley Street and Connecticut Avenue, N.W.) Contact instructor Guy Brandenburg at 202-635-1860 or email him at gfbrandenburg@yahoo.com.
- **Open house talks and observing at the University of Maryland Observatory** in College Park on the 5th and 20th of every month at 9:00 pm (May-Oct.) or 8:00 pm (Nov.-Apr.). Details: www.astro.umd.edu/openhouse
- **Phoebe Waterman Haas Public Observatory** at the National Air & Space Museum, Solar viewing, Wed. - Sun., 12 - 3 pm (weather permitting).
- **Owens Science Center Planetarium:** "Looking Over Our Shoulder," Fri. May 8, 7:30 pm; \$5/adult; \$3/students/seniors/teachers/military; children under 3 free. www1.pgcps.org/howardbowens
- **Mid-Atlantic Senior Physicists Group:** "The Higgs Boson & Big Science" with Sarah C. Eno (UMCP), Wed. May 20, at 1 pm at the American Center for Physics (1st floor conference room). <http://www.aps.org/units/maspg/>
- **Astronomy Festival on the National Mall:** Fri. June 19, 6 - 11 pm at the Washington Monument. <http://www.hofstra.edu/Academics/Colleges/HCLAS/PHYSIC/physic-nationalmall.html>
- **Upcoming NCA Meetings** at the University of Maryland Observatory:
13 June: Science Fair Winners, IDA Speakers, Astrophotography & Elections!

National Capital Astronomers Membership Form

Name: _____ Date: ___/___/___

Address: _____ ZIP Code: _____

Home Phone: ___-___-___ E-mail: _____ Print / E-mail Star Dust (circle one)

Membership (circle one): Student..... \$ 5; Individual / Family.....\$10; Optional Contribution.....\$__

Please indicate which activities interest you:

- Attending monthly scientific lectures on some aspect of astronomy _____
- Making scientific astronomical observations _____
- Observing astronomical objects for personal pleasure at relatively dark sites _____
- Attending large regional star parties _____
- Doing outreach events to educate the public, such as Exploring the Sky _____
- Building or modifying telescopes _____
- Participating in travel/expeditions to view eclipses or occultations _____
- Combating light pollution _____

Do you have any special skills, such as videography, graphic arts, science education, electronics, machining, etc.?

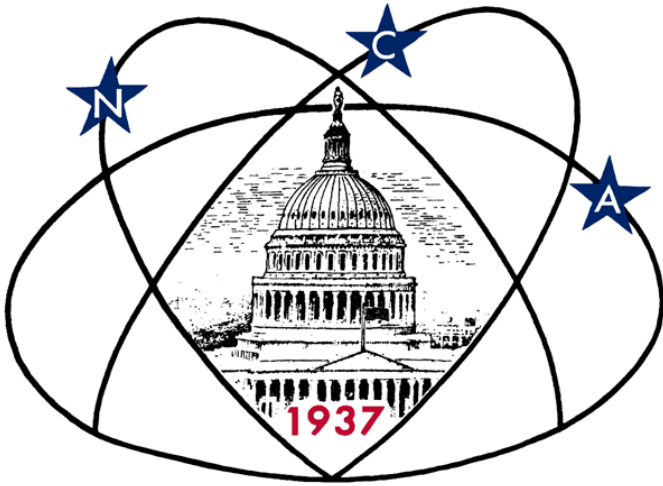
Are you interested in volunteering for: Telescope making, Exploring the Sky, Star Dust, NCA Officer, etc.?

Please mail this form with check payable to **National Capital Astronomers** to:
 Henry Bofinger, NCA Treasurer; 727 Massachusetts Ave. NE, Washington, DC 20002-6007

National Capital Astronomers, Inc.

If undeliverable, return to
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Alexandria, VA 22314

First Class
Dated Material



Next NCA Meeting:

2015 May 9th

7:30 pm

@ UMD Observatory

Dr. Brigette Hesman

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