

**Celebrating 80 Years
of Astronomy
1937-2017**

Star Dust

Newsletter of National Capital Astronomers, Inc.

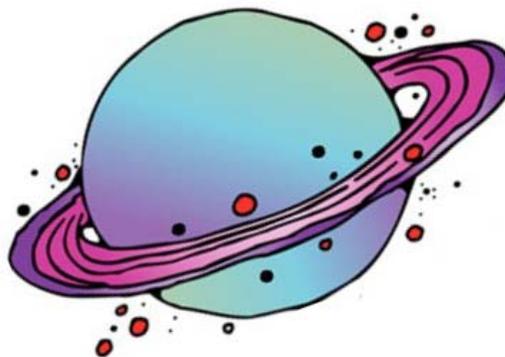
capitalastronomers.org

June 2017

Volume 75, Issue 10

Science Fair Winners

John Hornstein



Next Meeting

When: Sat. June 10th, 2017

Time: 7:30 pm

Where: UMD Observatory

Speakers: Science Fair
Winners!

Table of Contents

Science Fair Winners.....	1
Eclipse Observing Advice.....	2
Michael A'Hearn.....	2
Sky Watchers.....	3
Occultations.....	5
Election Information.....	6
Editor's Last Words.....	6
Calendar.....	7

Directions to Dinner/Meeting

The June pre-meeting dinner, to which the winners and their parents are invited, will be held at Three Brothers Pizza in Beltsville, MD. The address is 10961 Baltimore Avenue (aka Route 1), just south of Powder Mill Road. We've reserved a large table; everyone is welcome (no additional reservations are required); please plan to arrive at about 5:30 pm or before.

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

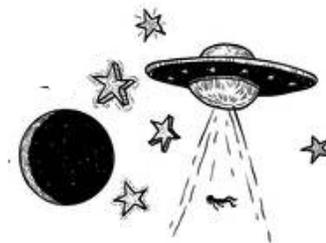
Need a Ride?

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.

Each spring, the NCA sends judges to local regional science fairs in order to identify good projects in astronomy.

Our awards consist of:

- A certificate
- An invitation to speak at our June meeting
- One year of free membership in the NCA
- A one year subscription to Sky & Telescope



Congratulations to the following 2017 Winners!
(in alphabetical order):

Grace Kim and Na Hye Kim (Poolesville High School)
Observing Exoplanet Transits

Lara Ojha (Takoma Park Middle School)
Is there a connection between optical and gamma-ray emission from an Active Galactic Nucleus?

Shishir Velma (Richard Montgomery High School)
The Statistics of Sunspots

B/W Image: Courtesy Carla Design (it.123rf.com)

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.

The Great North American Eclipse



Aug 21st 2017

www.greatamericaneclipse.com/

Michael F. A'Hearn (1940 – 2017) Elizabeth Warner

Dr. Mike A'Hearn, Professor Emeritus, passed away on May 29th, 2017 at his home in University Park, MD, surrounded by family & loved ones. He



Courtesy
NASA/JPL-
Caltech

was one of the most respected planetary scientists in the world as well as a friend, mentor & colleague to so many in the Astronomy Dept. at UMCP. Mike had a deep love of science, a

gregarious nature & a dedication to making a positive difference in whatever he did. He is survived by his wife, Maxine, 3 sons & several grandchildren.

Cards addressed to Maxine A'Hearn and family may be sent to the Department of Astronomy, which will ensure that they are delivered to Mike's family:

Department of Astronomy
University of Maryland
College Park, MD 20742 USA

Eclipse Observing Advice

Joan Dunham

Information on how to observe the eclipse, photograph the eclipse, video the eclipse, where to see it and how to see it is widely available on the internet. At the end of this article, I list several web sites where you can begin your search if you need advice.

Following is some advice that you might not find online, but could make a difference between having a miserable time or having an experience you will always remember fondly.

The Weather, You & Your Equipment

First of all, protect yourself from the heat, humidity, Sun, and insects. The eclipse is in August and we all hope for a bright sunny day. Be prepared with shade, water, and a chair. And don't forget that from Nebraska to the East coast the path crosses areas known for mosquitoes. This is especially important if you find you need to camp for a day or two.

Protect your equipment from the Sun. I'm going to fashion shades for my telescopes and cameras from aluminum coated Mylar emergency blankets. Aluminum foil also works. If you are using a computer, prepare a shade so you can read its screen. Now that we are in late spring and approaching summer, test your ideas for protecting your equipment and yourself by observing the Sun for several hours.

Timing

Get to the eclipse on time. The traffic during the hours leading up to the event is predicted to be very bad, especially in areas relatively near large population centers, such as along I-95 going from the big cities of the East Coast to the south. Do your best to be where you want to observe the day before, and don't plan to drive anywhere on August 21.

People

Be ready for crowds. We may find long lines at gas stations, overbooked restaurants, and even some shortages. Have everything you need on eclipse day by the day before – water, snacks, batteries, solar viewers, filters, etc. If you are camping, expect campsite facilities to be overloaded. That means what you think it means. Bring toilet paper and even consider bringing a *groover* (portable toilet, a container you sit upon that holds a garbage bag). You can make it fancy with a seat and absorbent material in the garbage bag. The name is from the grooves the container leaves if you sit on the edge without a seat.

Minimal Equipment Participation

If you have little experience and even less equipment, but still want to participate in an experiment, here are two to consider:

The eclipse megamovie – all you need is a cell phone. The plan is to collect photos from observers all along the path and create an

continued on page 4

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!

2017 Observation Dates

- **4 Jun (9:00 pm)** – Vega & 3 planets
- **9 Jul (9:00 pm)** – Summer Triangle, Moon & Jupiter
- **6 Aug (8:30 pm)** – Andromeda & Mercury
- **3 Sep (8:00 pm)** – Mars, Saturn, Antares & Vega
- **1 Oct (7:30 pm)** – Summer Triangle
- **5 Nov (7:00 pm)** – Pleiades & Winter Constellations

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

IOTA Measures Asteroids...and more...

NCA member, David Dunham (who provides *Star Dust* with monthly occultations), has an article on page 19 of the June edition of *Reflector*, the Astronomical League’s magazine.

Sky Watchers

Summer Schedule

June

9	9:10 am – Full Moon , Global. Other Moon Names: <i>Full Strawberry Moon</i> (Native American - for the time of ripening fruit), <i>Full Rose Moon</i> (Europe).	
15	Overnight - Planets , N. Hemisphere. Saturn at opposition to Sun (close approach to Earth w/ large 27° tilt of rings).	
16 - 25	Evening – Globe at Night , Global. Features: <i>Constellation Hercules</i> (N. Hemisphere) & <i>Scorpius</i> (S. Hemisphere).	
21	12:24 am – Summer Solstice , N. Hemisphere.	

July

9	12:07 am – Full Moon , Global. Other Moon Names: <i>Full Buck Moon</i> (for the time bucks grow new antlers), <i>Full Thunder Moon</i> . 9:00 pm - Exploring the Sky , Local. Features: <i>Summer Triangle</i> , <i>Moon & Jupiter</i> .	
15 - 24	Evening – Globe at Night , Global. Features: <i>Constellation Hercules</i> (N. Hemisphere) & <i>Scorpius</i> (S. Hemisphere).	
18	11:30 pm - Planets , N. Hemisphere. Jupiter’s <i>Galilean Moons</i> in a line: Io, Europa, Ganymede & Callisto.	
30	4:30 am – Meteors , N. Hemisphere. <i>Southern Delta Aquariids</i> (southern sky). Sunset - Planets , N. Hemisphere. <i>Mercury</i> at greatest eastern elongation (27.2°) from Sun (time of highest point above Earth’s horizon, look west just after sunset).	

August

6	8:30 pm - Exploring the Sky , Local. Features: <i>Andromeda & Mercury</i> .	
7	5:27 am – Full Moon , Global. Other Moon Names: <i>Full Blueberry Moon</i> , <i>Full Green Corn Moon</i> , <i>Full Sturgeon Moon</i> .	
12	Pre-dawn – Meteors , N. Hemisphere. <i>Perseids</i> (northeast sky).	
21	Total Solar Eclipse , N. Hemisphere. A partial eclipse will be visible from Washington, DC, 1:17 pm – 4 pm, w/ maximum coverage at 2:42 pm (like image to right). Starts in Oregon.	

Times EDT

Eclipse – continued from page 2

approximately 2-hour movie from the submissions. Photos from a digital camera with a telephoto lens would be welcomed. Even more desirable would be photos from a GPS-enabled camera. Go the website, <http://eclipsemega.movie>, to learn more and sign up.

The solar radius determination – This IOTA experiment uses timed observations of the Baily's Beads events and the 2nd and 3rd contacts for the radius measurement. In the past, poor knowledge of the marginal zone of the Moon limited useful observations to those made near the limits of the eclipse path. Now the marginal zone data provided by the LRO mission are more accurate, observers from all locations in the path can contribute.

The IOTA plans are to make observations using older techniques and compare them with data taken with modern equipment. People are needed to observe with the old and/or the new methods. In addition, people living in areas bisected by the edge of the eclipse path are being recruited to reproduce the famous 1925 eclipse observations made in New York City, when Boy Scouts and employees of Con Ed stood across the edges of the path and reported what they saw visually. Today's observers will be provided with solar observing glasses, of course, and may also want to use their cell phones for the mega-movie. Information on all the IOTA efforts will be provided soon at www.occultations.org/eclipse2017.

Last Word about Photos

There are going to be many very nicely composed photos of the eclipse and eclipse observing crowds available afterwards, but I still encourage you to take your own still or video pictures. Even if you do not produce museum-quality photos, don't deprive yourself of the satisfaction from producing your own. But don't be disappointed if Astronomy or S&T does not respond when you send them a copy. The editors expect to be buried under the submissions and will likely only consider photos from their staff.

Helpful Websites

<https://www.greatamericaneclipse.com/>

<http://www.eclipse2017.org/>

<https://eclipse2017.nasa.gov/>

<https://eclipsemega.movie/>

<http://mreclipse.com/>

<http://whenisthenexteclipse.com/>

<http://www.amazingsky.com/eclipsebook.html>

Star Trek 50th: Final Super Poll - Best-ever Episode Winners *



Image: Paramount/CBS

TOS – The Original Series

TNG – Star Trek: The Next Generation

DSN – Star Trek: Deep Space

1. The Best of Both Worlds (19%) TNG
2. The Inner Light (15%) TNG
3. The City of the Edge of Forever (14%) TOS
4. In the Pale Moonlight (11%) DSN
5. All Good Things (9%) TNG
6. Mirror, Mirror (7%) TOS (1,005 votes)
7. Yesterday's Enterprise (7%) TNG (986 votes)
8. The Trouble with Tribbles (7%) TOS (966 votes)
9. Darmok (6%) TNG
10. Trials and Tribble-lations (5%) DSN

* (from StarTrek.com readers)

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

• **ISSN: 0898-7548**

• Editor: CA Brooks

• Editorial Advisors:

- Michael Chesnes
- John D. Gaffey, Jr.
- Jeffrey Norman
- Todd Supple
- Elizabeth Warner
- Wayne Warren
- Marjorie Weissberg
- Harold Williams

• Electronic Distributor: Jay Miller



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!

Bring Your Astrophotos to the Meeting John Hornstein

• If you bring your amazing photos on a
 • USB data stick/flash drive, we can
 • project them from the Observatory's
 • computer. It will save time if you only
 • have the astro photos on the data stick.
 • Expect some audience members to
 • come up to ask you how you made
 • yours!



Courtesy Eric Kaufman
The Milky Way (June 2016)

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

Date	Day	EDT	Star	Mag	Asteroid	dmag	dur.	Ap.	Location, Notes
Jun 12	Mon	3: 19	2UC26797390	12.1	Pauly	1.1	9	8	sDE, MD, DC, swPA
Jul 6	Thu	22: 10	4UC44454202	12.1	Brigitta	4.3	2	8	PA, NJ; MD, DC, VA?
Jul 7	Fri	3: 19	4U363178898	13.2	Mombasa	1.2	10	10	ePA, MD, DC, VA
Jul 8	Sat	0: 38	TYC62180014	11.4	Tanya	4.4	4	6	e&scPA, wMD, WV
Jul 16	Sun	22: 38	TYC51550399	11.4	Martha	2.0	7	7	NJ, sPA, nDE, nMD
Jul 28	Fri	1: 14	SAO 128449	7.6	2000 OL67	15.8	11	2	TNO, e. USA?
Aug 14	Mon	5: 25	SAO 59794	5.9	Westphalia	11	1	1	wKS, eNeb, seMN
Aug 22	Tue	23: 52	SAO 164213	9.1	Burnhamia	4.1	7	4	e&sl A, nwMO, KS
Aug 29	Tue	3: 24	2UC38923337	12.2	Campani	1.9	5	8	w&cVA, seMD, sDE
Sep 3	Sun	5: 04	TYC24151151	11.5	Euphrosyne	0.9	10	7	eVA, MD, DC, NJ, NE
Sep 4	Mon	1: 37	SAO 145835	9.5	Alkeste	2.2	7	4	seMD, seVA, cNC

Lunar Grazing Occultations

Date	Day	EDT	Star	Mag	% alt	CA	Location & Remarks
Jun 22	Thu	5: 40	71 Tauri	4.5	4- 11	OS	Hari sbg, Hrndn, VA; Baltimr, MD
Aug 14	Mon	3: 09	mu Ceti	4.3	58- 38	8N	*FrontRoyal, VA; Westmi nstr, MD
Aug 18	Fri	5: 25	SAO 96083	9.3	14- 27	6N	*Mnass, VA; DC; nLanhm; Bowi e, MD
Aug 19	Sat	5: 45	SAO 97260	7.0	7- 19	6N	*StephnsC, VA; MtAi ry, Gamb, MD
Aug 21	Mon	14: 12	The Sun	-27	0	62	N Moberly & St Louis, MO
Aug 21	Mon	13: 58	The Sun	-27	0	60	S Minden, Nebr. & Kansas C., MO

* No expedition planned from the Washington, DC region
 *** Interactive detailed maps at <http://www.iota.timerson.net/> ***

Total Lunar Occultations

Date	Day	EDT	Ph Star	Mag	% alt	CA	Sp.	Notes
Jun 15	Thu	2: 24	R ZC 3222*	7.4	72- 22	53N	F2	maybe close double?
Jun 15	Thu	4: 24	R ZC 3231	7.5	71- 36	75S	A2	maybe close double?
Jun 18	Sun	4: 04	R 14 Ceti	5.9	40- 24	24N	F5	ZC 76
Jun 19	Mon	3: 20	R ZC 210	6.6	30- 9	61S	B9	Az93, mg2 9 sep6", PA329
Jun 19	Mon	3: 43	R SAO 109899	7.6	30- 14	71N	K2	Azimuth 96 degrees
Jun 20	Tue	3: 56	R SAO 110502	7.6	20- 9	12N	F0	Azimuth 86 degrees
Jun 22	Thu	9: 39	D Aldebaran=	0.9	4- 55	-67S	K5	Sun alt. +43, ZC 692
Jun 22	Thu	10: 50	R alpha Tau	0.9	4- 65	77S	K5	Sun altitude +57 deg.
Jun 30	Fri	20: 45	D SA0138889*	7.2	50+ 45	56N	A0	Sun alt. -2
Jun 30	Fri	22: 52	D Porrima =	2.8	51+ 25	69S	F0	ZC1821 = dbl 5s steps
Jun 30	Fri	23: 56	R gamma Vir	2.8	51+ 14	-67S	F0	Az. 257, AA 246, ZC1821
Jun 30	Fri	23: 59	D ZC 1825	5.9	51+ 13	85S	G8	Azimuth 257 deg.
Jul 11	Tue	22: 58	R 44 Cap	5.9	92- 7	80N	A9	Az. 115, ZC3177, dbl??
Jul 13	Thu	5: 40	R 65 Aquari	7.0	84- 38	74N	K0	Sun alt. -3, ZC 3332
Jul 14	Fri	4: 03	R ZC 3463	6.4	76- 42	55N	K0	
Jul 15	Sat	2: 42	R SAO 128698	7.0	66- 29	53S	G5	
Jul 16	Sun	1: 25	R 29 Ceti	6.4	56- 10	65N	K0	Azimuth 96, ZC 165
Jul 16	Sun	3: 59	R 35 Ceti *	6.6	55- 38	69N	F8	ZC 178, mag2 9 sep1. 3"
Jul 17	Mon	4: 14	R ZC 306	6.8	44- 35	54N	F0	
Jul 18	Tue	3: 29	R SAO 93228	7.5	33- 19	37S	F5	
Jul 18	Tue	4: 04	R ZC 444	5.9	33- 26	73S	K6	Maybe close double
Jul 19	Wed	14: 30	D Hyadum I =	3.7	19- 23	-34S	G8	Sun+65, AA14deg, ZC 635
Jul 19	Wed	15: 09	R gamma Tau	3.7	19- 15	50S	G8	Sun+59, Az278, double??
Jul 20	Thu	3: 34	R ZC 741	5.5	13- 4	51N	K1	Az. 71, close double?
Jul 29	Sat	22: 57	D ZC 2008*	6.6	45+ 13	27S	K0	Az. 248, spec. binary
Jul 31	Mon	22: 52	D gamma Lib	3.9	64+ 23	66S	K0	ZC 2223
Aug 6	Sun	2: 16	D 57 Sgr	5.9	98+ 24	65N	K0	ZC2902, spec. binary
Aug 10	Thu	3: 06	R chi Aqr	4.9	93- 44	66S	M3	AA 252, ZC 3421
Aug 11	Fri	1: 13	R ZC 7	7.6	87- 34	32S	K0	
Aug 13	Sun	6: 16	R ZC 286	7.6	68- 56	34N	B9	Sun altitude -1 deg.
Aug 14	Mon	3: 00	D mu Ceti =	4.3	58- 37	-5N	F1	AA 6, double?
Aug 14	Mon	3: 15	R mu Ceti	4.3	58- 40	20N	F1	ZC405; mag2 6sep. 0. 1"
Aug 16	Wed	2: 44	R 89 Tauri	5.8	35- 17	18S	F0	ZC 699, close double?
Aug 17	Thu	6: 08	R ZC 871	6.7	23- 46	32N	G8	Sun alt. -4
Aug 18	Fri	4: 46	R SAO 96047	7.5	15- 20	44S	G5	
Aug 18	Fri	6: 01	R ZC 1038	7.1	14- 34	72S	B9	Sun alt. -5
Aug 19	Sat	5: 50	R SAO 97260	7.0	7- 20	18N	K0	Sun -7, mg2 10 6. 3"
Aug 26	Sat	21: 14	D ZC 2072	6.6	28+ 16	60N	K0	

* 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>

David Dunham, dunham@starpower.net

2016-2017 Officers

President:

Joseph Morris
j.c.morris@verizon.net
 703-620-0996 (h)

Vice-President:

John Hornstein
jshgwave@yahoo.com
 301-593-1095 (h)

Secretary-Treasurer:

Henry Bofinger
hbofinger@earthlink.net
 202-675-1075

Asst. Secretary-Treasurer:

Jeffrey B. Norman
jeffreynorman@comcast.net

Trustees:

- Andrew Seacord (2018)
- Wayne Warren (2019)
- Harold Williams (2020)
- Benson Simon (2021)

Appointed Officers and

Committee Heads:

Exploring the Sky
 Jay Miller
jhmiller@me.com

Telescope Making
 Guy Brandenburg
gfbrendenburg@yahoo.com
 202-635-1860

NCA Webmaster
 Elizabeth Warner
warnerem@astro.umd.edu
 301-405-6555

Star Dust Editor
 CA Brooks
NCAStardust@gmail.com
 301-860-3266

Social Media

Liz Dervy
 Twitter: [@NatCapAstro](https://twitter.com/NatCapAstro)

June Election Information

*John Hornstein,
 Reporting for the Nominating Committee, May 2017*

Following is the slate of 2017-2018 officers and other board positions for consideration before the June meeting.

Executive Officers

Position	Current	Candidate(s)
President	Joseph Morris	Harold Williams
Vice President	John Hornstein	John Hornstein
Secretary-Treasurer	Henry Bofinger	Henry Bofinger
Assistant Secretary-Treasurer	Jeff Norman	Jeff Norman

Trustees

Current	Candidate(s)*
Andrew Seacord (to June 2018)	N/A
Wayne Warren (to June 2019)	N/A
Harold Williams (to June 2020)	Joseph Morris
Benson Simon (to June 2021)	N/A

* Note: Only one Trusteeship opening occurs each year.

Appointed Officers and Committee Heads

Committee	Officer/Head	Contact Information
Exploring the Sky	Jay Miller	jhmiller@me.com
Telescope Making	Guy Brandenburg	gbrandenburg@yahoo.com 202-635-1860
NCA Webmaster	Elizabeth Warner	warnerem@astro.umd.edu
Star Dust Editor	Todd Supple	NCAStardust@gmail.com

Editor's Last Words...

CA Brooks

After 4 years, this is my last *Star Dust* edition as editor of the newsletter started by Mabel Sterns (Todd Supple will be the next editor in September). I know you've been reading the newsletter because I've had conversations with people who didn't know that I was the editor (I'm stealthy) and they would share something that they learned in *Star Dust* with me. Excellent! From years of data science & education, I'm all about the knowledge! To that end, I also learned a lot as I edited & researched monthly presentation abstracts and provided background information. I learned much from



The editor in her Doctor Who 50th "Cosmic Hobo" shirt ~

continued on page 7

Last words – continued from page 6

the editorial advisors as well. Not only did they help me with their efficient proofreading, but also with their considerable knowledge and the subtleties of reporting astronomical science.

Each editor brings unique gifts to the newsletter for the membership to enjoy; so, I hope that you had as much fun reading *Star Dust* as I had building each edition. “T’chao” and have a fantastic, solar eclipse-viewing summer...looking forward to all the photos!

In your service,
~ C.A.

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 8:00 pm (Nov.-Apr.) or 9:00 pm (May-Oct.). Details: www.astro.umd.edu/openhouse
- Phoebe Waterman Haas Public Observatory at the National Air & Space Museum, Solar viewing, Wed. - Sun., 12 - 3 pm (11 am - 3 pm, Jun.-Jul.) (weather permitting). airandspace.si.edu/
- Astronomy Festival on the National Mall: Fri. June 2, 6 - 11 pm, north of the Washington Monument. Free event hosted by Hofstra University. NCA will also be participating with an info table & telescopes for public use.
- Mid-Atlantic Senior Physicists Group: “Studying Superfluidity with Ultracold Atoms” with Gretchen Campbell (JQI/NIST & UMD), Wed. Jun. 21, at 1 pm at the American Center for Physics (1st floor conference room). www.aps.org/units/maspg/
- Asteroid Day: Fri. Jun. 30, worldwide. asteroidday.org/
- National Air & Space Museum in DC: “Heritage Day: Your Eclipse,” Sat. Jul. 8, 10 am - 3 pm (FREE). airandspace.si.edu/events/your-eclipse
- National Air & Space Museum in DC: “Mars Day,” Fri. Jul. 21, 10 am - 3 pm (FREE). airandspace.si.edu/mars-day

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.?

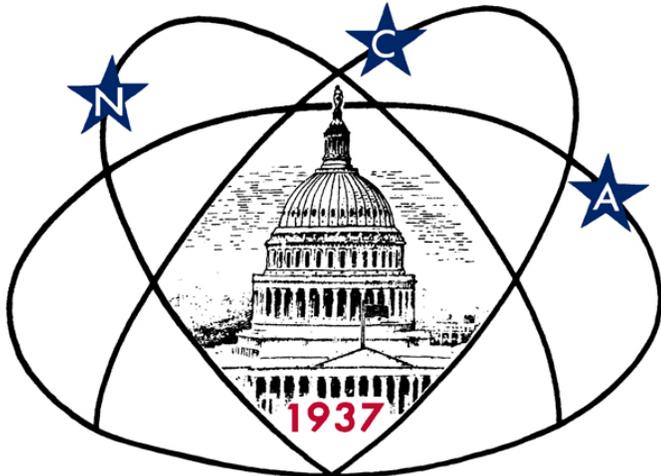
Are you interested in volunteering for: Telescope making, Exploring the Sky, *Star Dust*, NCA Officer, etc.?

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
NCA c/o Elizabeth Warner
400 Madison St #2208
Alexandria, VA 22314

First Class
Dated Material



*Celebrating 80 Years of Astronomy
1937-2017*

Next NCA Meeting:

2017 June 10th

7:30 pm

@ UMD Observatory

**Science Fair
Winners, Elections,
Solar Eclipse
Preparation!**

Inside This Issue

Science Fair Winners.....	1
Eclipse Observing Advice.....	2
Michael A'Hearn (1940 – 2017).....	2
Sky Watchers.....	3
Occultations.....	5
Election Information.....	6
Editor's Last Words.....	6
Calendar.....	7