

# Star Dust

Newsletter of National Capital Astronomers, Inc.

[capitalastronomers.org](http://capitalastronomers.org)

June 2014

Volume 72, Issue 10

## Next Meeting

**When:** Sat. June 14th, 2014

**Time:** 7:30 pm

**Where:** UMD Observatory

## Table of Contents

Science Fair Winners.....	1
Bring Astro Photos.....	2
Sky Watchers.....	3
IOTA Meeting.....	4
NCA Candidates.....	4
Occultations.....	5
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 the back room; everyone is welcome (no additional reservations are required) so please plan to arrive before about 5:30.

The meeting is held at the UMD Astronomy Observatory on Metzgerott 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](mailto:rigel1@starpower.net).

## Science Fair Winners



*John Hornstein*

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*

Of the three science fairs to which the NCA sent judges, only projects at the Montgomery County Science Fair received awards.

The three projects receiving awards were considered to be equally good; so, the ordering below does not reflect a ranking.

...and the winners are:

1. **Sreya Vangara** (Roberto Clemente Middle School),

*Tracking Geomagnetic Storms*

2. **Luxman Maheswaran** (Takoma Park Middle School),

*The Effect of Geomagnetic Storms on Satellites*

3. **Naveen Durvasula** (Takoma Park Middle School),

*The Effect of Orbital Debris with Diameter 10 cm or Greater*

### 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.

### 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.

### Manhattanhenge



Courtesy David Kernow  
Summer Sunset on 42<sup>nd</sup> St.

Considered the best sunset in New York, Manhattanhenge is when the Sun is aligned with the east/west streets of the city grid as specified in the original 1811 plan (streets are 29° off from actual east/west). Next "full Sun on the grid" is July 11<sup>th</sup> at 8:24 pm EDT

## Bring Your Astro Photos to the Meeting

*John Hornstein*

Our members make striking photos of astronomical objects, and we all want to see them. Therefore, bring favorite photos that you have made of astronomical objects this year to show at the June meeting. If you bring them on a USB data stick, we can project them from the Observatory's computer. Expect some audience members to come up to you after everyone has shown their photos, to ask you how you made yours.

*\*\*To save time, please bring only your astronomical objects photos\*\**

### Sky Watchers

### Summer Schedule

June

10	3:00 pm - <b>Planets</b> , N. Hemisphere. Saturn 6° north of Moon
13	12:11 am – <b>Full Moon</b> , Global. Other Moon Names: <i>Full Strawberry Moon (Native American - for the time of ripening fruit), Full Rose Moon (Europe)</i>
18	6:00 am – <b>Planets</b> , N. Hemisphere. Neptune 5° south of Moon
19	7:00 pm – <b>Planets</b> , N. Hemisphere. Mercury in inferior conjunction
20	11:00 pm – <b>Planets</b> , N. Hemisphere. Uranus 1.6° south of Moon
21	6:51 am – <b>Summer Solstice</b> , N. Hemisphere. 9:00 pm - <b>Exploring the Sky</b> , Local. Features: <i>Summer Solstice</i> <b>Meteors: Boötids</b>
28	11:00 pm – <b>Planets</b> , N. Hemisphere. Jupiter 5° north of Moon



Times EDT

*continued on page 3*

Sky Watchers – continued from page 2

## 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!

For more information, check:

National Capital Astronomers, Inc:  
<http://capitlastronomers.org/>

Rock Creek Park:  
<http://www.nps.gov/rocr/playourvisit/expsky.htm>

## NASA/JPL Space Images V2

For iPad and Android Devices



Google Play App Image

<http://www.jpl.nasa.gov/apps/spaceimages/>

(download from AppStore or Google Play)

## Sky Watchers

## Summer Schedule

### July

2	6:00 am - <b>Planet</b> , N. Hemisphere. Venus 4° north of Aldebaran
4	4:00 am - <b>Planet</b> , N. Hemisphere. Pluto at opposition
12	7:25 am – <b>Full Moon</b> , Global. Other Moon Names: <i>Full Buck Moon (for the time bucks grow new antlers), Full Thunder Moon</i> 2:00 pm – <b>Planets</b> , N. Hemisphere. Mercury at greatest western elongation (21°)
19	9:00 pm - <b>Exploring the Sky</b> , Local. Features: <i>Summer Triangle, Mars &amp; Spica</i>
24	5:00 pm – <b>Planets</b> , N. Hemisphere. Jupiter in conjunction with Sun

Times EDT

### August

3	6:00 am - <b>Planets</b> , N. Hemisphere. Mars 2° south of Moon
10	2:09 pm – <b>Full Moon</b> , Global. Other Moon Names: <i>Full Blueberry Moon, Full Green Corn Moon, Full Sturgeon Moon</i>
10 -13 (peak)	Pre-dawn – <b>Meteors</b> , N. Hemisphere (northeast sky). <i>Perseids</i>
17-18	Midnight – <b>Planets</b> , N. Hemisphere. Venus & Jupiter together (less than 1° apart)
23	8:30 pm - <b>Exploring the Sky</b> , Local. Features: <i>Andromeda Rising, Meteors: Perseids</i>
27	2:00 am - <b>Planets</b> , N. Hemisphere. Mercury 2° north of Moon
31	8:00 pm - <b>Planets</b> , N. Hemisphere. Mars 4° south of Moon

Times EDT

# You are invited to attend the 2014 IOTA Annual Meeting and Occultation Expedition

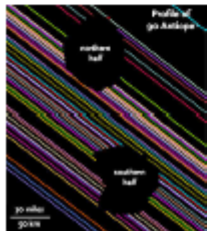
**Saturday-Sunday, July 12-13, 2014**  
**Meeting**  
University of Maryland  
Observatory  
Metzerott Road, College Park, MD

**Monday-Tuesday, July 14-15**  
**Local expedition**  
to record the occultation  
of magnitude 10.4  
TYC-5789-00119  
by asteroid (62) Erato

**Dedicated Meeting Website:**  
<http://www.asteroidoccultation.com/observations/NA/2014Meeting/>



Previous meeting attendees  
and expedition results



Asteroid (62) Erato  
predicted shadow path



UMD Observatory

## NCA Candidates: Officers and a Trustee

**John Hornstein**

In addition to the Science Fair awards and talks by the winners, the June meeting includes the annual NCA election. The officers run for election each year for one-year terms, and one of the four Trustees runs each year for a four-year term. The Board of Directors of NCA includes the officers and the Trustees.

The Nominating Committee has identified the following candidates:

- President - Alexander Klein
- VP - John Hornstein
- Secretary-Treasurer - Henry Bofinger
- Asst. Secretary-Treasurer - Jeffrey Norman
- Trustee - Joseph Morris

• **Star Dust** is published ten times yearly  
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- Harold Williams

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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](mailto:hbofinger@earthlink.net)

**Thank you!**

### Art Show on the Moon?

• Swedish  
• artist, Mikael  
• Genberg,  
• wants to put  
• a self-  
• assembling  
• house on the  
• Moon. The **Moonhouse team** is using



• Crowdfunding to raise \$15 million in the next  
• 180 days to pay for the trip. If you give \$50,  
• your name will be engraved inside the  
• robotic house. So far, Genberg has raised  
• about \$4,000. If all goes according to plan,  
• the house will be launched on a Space X  
• Falcon 9 Rocket in 2015 as part of the team,  
• Astrobotic (Carnegie-Mellon Univ), a  
• competitor for the Google Lunar X Prize to  
• land a robot on the Moon and have it travel  
• 1,650 feet (500 meters).



## 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

2014	Date	Day	EDT	Star	mag.	Asteroid	dmag	dur. s	Ap. "	Location
•	Jun 16	Mon	21:19	2UC34288376	12.4	Chal daea	1.2	5	8	DC Sun -7, eMD
•	Jun 23	Mon	0:25	2UC21842185	13.3	Sul ami tis	0.9	5	10	NJ, DE, MD, DC, nVA
•	Jul 6	Sun	4:12	TYC57570424	11.7	Nenetta	1.9	5	7	NJ, DE, MD, DC, nVA
•	Jul 8	Tue	0:16	TYC50830898	10.7	Hohenstei na	2.0	12	6	seMD, VA, n&wNC
•	Jul 11	Fri	22:59	SAO 145080	9.4	1988 RC7	6.6	3	4	nNJ, PA, sOH; MD?
•	Jul 15	Tue	3:46	TYC57980119	10.4	Erato	3.1	9	5	NJ, MD, DC, n&wVA
•	Jul 15	Tue	21:38	TYC62851314	12.2	Hera	0.3	8	9	DE, MD, DC, nVA
•	Jul 19	Sat	5:12	SAO 92411	8.7	Valeria	6.0	4	3	nGA, nSC, s&eNC
•	Jul 19	Sat	21:55	SAO 185112	8.3	Victorplat	6.7	4	2	SC, wNC, wVA, OH
•	Jul 27	Sun	3:02	2UC34768242	12.5	Uzbeki stan	3.1	6	8	w&nVA, MD, DC, ePA
•	Jul 29	Tue	23:23	2UC38354779	13.3	2004 NT33	7.5	16	10	TNO, FL; anyUSA?
•	Aug 1	Fri	3:13	TYC69320331	10.3	1941 UN	5.6	2	5	NJ, MD, DC, VA, wNC
•	Aug 11	Mon	23:06	2UC30293049	12.7	2002 PB171	10.9	5	9	TNO; e N. Amer. ?
•	Aug 14	Thu	2:31	2UC28287633	11.5	Nenetta	1.7	3	7	sNJ, DE, seMD, cVA
•	Aug 19	Tue	21:48	SAO 159412	9.8	Russi a	5.0	3	4	w&sPA, nMD, NJ; DC?
•	Sep 12	Fri	20:39	SAO 159034	7.8	Rhea (V)	3.2	58	2	ne USA

### Lunar Grazing Occultations

2014	Date	Day	EDT	Star	Mag	% alt	CA	Location & Remarks
•	Jul 22	Tue	4:04	SAO 93963	6.9	18- 16	ON	Wstphl ia, Anapl s, MD; Wodbrdg, VA
•	Jul 24	Thu	4:45	ZC 944	5.9	6- 5	5S	nTrap, Nwbrg, MD; Dlg n, Maspnx, VA
•	Jul 30	Wed	20:23	ZC 1649	6.1	14+ 19	5S	Sal vo, NC; Sun al t. -4
•	Aug 17	Sun	1:41	ZC 478	7.4	52- 20	2N	*sRoseH ll , sNewBern, sSal vo, NC
•	Aug 21	Thu	5:31	SAO 96248	8.9	15- 28	ON	Prcl vl , VA; Cl rkrbrg, sSyksvl l , MD
•	Sep 1	Mon	19:57	SAO 159709	8.1	45+ 29	3S	Cl rksbg, sDamsccs, El Ct t, MD; Sn-4

Interactive detailed maps at <http://www.timerson.net/IOTA/>  
 \*, no expedition planned from DC area

### Total Lunar Occultations

2014	Date	Day	EDT	Ph Star	Mag	% alt	CA	Sp. Notes
•	Jun 15	Sun	4:45	R ZC 2870	7.4	93- 30	41N	F2 Sun -10, AA311, mg2 7 10"
•	Jun 15	Sun	4:45	R ZC 2871	7.3	93- 30	41N	A7 compan., R= ZC2870 +14s
•	Jun 17	Tue	3:57	R ZC 3163	7.3	77- 39	70N	F0
•	Jun 19	Thu	2:10	R SAO 146693	7.5	55- 16	46S	G5
•	Jun 19	Thu	4:54	R SAO 146725	7.8	54- 43	35N	F8 Sun -8, mg2 10 1.2", PA64
•	Jun 19	Thu	5:23	R 12 Pisci um	6.9	54- 46	80S	G0 Sun al t. -4, ZC 3460
•	Jun 20	Fri	3:37	R BZ Pisci um	7.5	44- 26	35S	M0 ZC 40
•	Jun 21	Sat	4:51	R zeta Psc A	5.2	33- 33	76S	A7 ZC180, Sun -9; close dbl ?
•	Jun 21	Sat	4:52	R zeta Psc B	6.3	33- 33	76S	F7 ZC 181, mg2 12 2", PA54
•	Jun 22	Sun	3:27	R ZC 301	6.5	23- 10	76S	K0 Azimuth 84 deg.
•	Jun 24	Tue	4:18	R SAO 93615	7.2	8- 5	82S	F5 Azimuth 73 deg.
•	Jul 1	Tue	22:29	D 16 Sex	6.6	19+ 5	66S	K0 Az. 274, ZC1489, dbl ?
•	Jul 2	Wed	20:37	D SAO 118536	7.7	27+ 32	38S	K2 Sun al t. -1 deg.
•	Jul 3	Thu	20:04	D upsilon Leo	4.3	35+ 41	54N	G9 Sun+5, ZC1685, close dbl ?
•	Jul 7	Mon	0:02	D ZC 2024	8.0	66+ 16	89S	G8 2nd mg 9, sep 6", PA276
•	Jul 9	Wed	22:50	D ZC 2436	6.6	92+ 32	72N	B7 mg2 7.6 sep 4.4" PA232
•	Jul 11	Fri	20:57	D ZC 2764	6.4	100+ 11	48N	G5 Sun -5, Az. 125, TmD3, dbl ?
•	Jul 15	Tue	1:21	R 36 Aquari i	7.0	89- 32	60S	G5 ZC 3247, maybe close dbl
•	Jul 16	Wed	6:05	R ZC 3411	7.2	79- 45	31S	A2 Sun +1, mg2 9 .3", PA 111
•	Jul 18	Fri	1:26	R ZC 120	7.9	59- 17	77N	G5
•	Jul 18	Fri	4:54	R WW Pisci um	6.1	58- 52	75N	M2 Sun-11, ZC136, mg2 13, ". 1
•	Jul 19	Sat	5:42	R SAO 92688	6.8	47- 55	59N	F5 Sun al titude -4 deg.
•	Jul 22	Tue	4:22	R SAO 93962	7.0	18- 19	79S	F7 Probable close double
•	Jul 22	Tue	4:38	R SAO 93967	7.8	18- 23	77N	B7 mg2 9 sep .1", PA 195 dg
•	Jul 22	Tue	6:36	R ZC 684	6.2	18- 45	41N	B9 Sun +6, mag2 7 3", PA 277
•	Jul 23	Wed	5:15	R SAO 94510	7.3	11- 21	27N	K5 Sun al titude -8 deg.
•	Jul 24	Thu	4:52	R ZC 944	5.9	6- 7	18S	A6 Az. 73, mg2 7 .4", PA 142
•	Jul 24	Thu	5:48	R ZC 951	6.6	6- 17	53N	K2 Sun -3, maybe close dbl
•	Jul 31	Thu	20:57	D ZC 1754	7.0	22+ 17	88S	F5 Sun al titude -7 deg.
•	Aug 2	Sat	20:26	D SAO 158151	7.7	40+ 30	73S	F8 Sun -2, maybe close dbl
•	Aug 4	Mon	21:54	D SAO 159336	7.8	61+ 26	67S	F3
•	Aug 4	Mon	22:10	D zetaLi brae	5.5	61+ 25	4N	B3 ZC 2218, close doubl e?

continued on page 6

## 2013-2014 Officers

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- Wayne Warren (2015)
- Harold Williams (2016)
- Benson Simon (2017)

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### Occultations – continued from page 5

2014	Date	Day	EDT	Ph	Star	Mag	%	alt	CA	Sp.	Notes
•	Aug 4	Mon	22:57	D	SAO 159358	7.2	61+	19	74N	K1	mg2 8.7, sep .2", PA 284
•	Aug 4	Mon	23:59	D	SAO 159379	7.7	61+	9	34N	F3	Azimuth 239 degrees
•	Aug 5	Tue	21:48	D	ZC 2368	7.9	71+	30	29N	G5	
•	Aug 6	Wed	21:45	D	TW Oph	7.5	81+	32	43N	*	ZC2522
•	Aug 7	Thu	21:41	D	U Sgr	6.6	89+	31	73N	G1	ZC2687
•	Aug 7	Thu	21:52	D	SAO 161576	7.4	89+	31	74N	K0	
•	Aug 7	Thu	22:14	D	SAO 161582	7.0	89+	32	40N	G3	mg2 9.6 sep 167", PA194
•	Aug 7	Thu	23:50	D	ZC 2699	6.8	90+	29	51S	M3	
•	Aug 8	Fri	0:38	D	SAO 161656	7.7	90+	26	29N	A0	maybe close double
•	Aug 8	Fri	0:50	D	SAO 161665	7.0	90+	24	45S	G8	
•	Aug 10	Sun	23:20	R	ZC 3169	6.1100-		32	83S	K0	AA 233, Term Dist. 6"
•	Aug 12	Tue	22:36	R	14 Pisci um	5.9	92-	15	82S	A2	Az. 104, ZC 3474
•	Aug 13	Wed	6:03	R	ZC 3502	7.2	90-	38	35N	G5	Sun altitude -4 deg.
•	Aug 14	Thu	1:39	R	ZC 75	7.6	83-	41	49N	F0	
•	Aug 15	Fri	0:16	R	ZC 214	6.2	74-	19	40S	K1	mg2 8 sep 69", PA 99 dg
•	Aug 16	Sat	2:08	R	ZC 355	7.4	63-	33	54S	F5	
•	Aug 17	Sun	1:46	R	ZC 478	7.4	52-	21	16N	G5	mg2 8, sep .4", PA 296 dg
•	Aug 18	Mon	1:35	R	SAO 93805	7.0	42-	11	35S	B8	Azimuth 77 deg.
•	Aug 18	Mon	9:13	R	Hyadum II	3.8	40-	61	76N	G8	Sun+32, ZC 648, del ta1Tau
•	Aug 20	Wed	6:29	R	SAO 95174	7.7	22-	48	86N	B8	Sun 0, mag2 9 2", PA148
•	Aug 21	Thu	3:46	R	ZC 1045	8.0	15-	8	31N	K0	Azimuth 74 deg.
•	Aug 22	Fri	4:57	R	SAO 97150	7.8	9-	12	39S	K0	Azimuth 79 deg.
•	Aug 23	Sat	6:08	D	ZC 1281	6.3	4-	15	-57S	K0	Sun-5, Az. 85, close dbl ?
•	Aug 29	Fri	20:22	D	76 Vir	5.2	17+	13	61S	K0	Sun -8, Az. 245, ZC 1945
•	Aug 30	Sat	21:45	D	ZC 2065	6.5	26+	5	62N	K2	Az. 248, mg2 10 43" PA 46
•	Aug 31	Sun	13:17	D	Saturn	0.6	33+	10	48N		Sun +59, Azimuth 118 deg
•	Aug 31	Sun	14:04	R	Saturn	0.6	33+	17	-40N		Sun +57, AA 318 deg.
•	Sep 1	Mon	19:46	D	ZC 2313	7.0	45+	30	66S	G1	Sun -2
•	Sep 1	Mon	21:00	D	ZC 2316	6.4	45+	23	52S	F3	
•	Sep 1	Mon	22:02	D	SAO 159765	7.4	45+	15	86S	G1	Azimuth 231 deg.
•	Sep 1	Mon	22:47	D	SAO 159786	7.7	46+	8	62N	K0	Az. 239, close double?
•	Sep 2	Tue	21:04	D	SAO 160289	7.6	56+	28	86N	K4	
•	Sep 2	Tue	22:50	D	ZC 2463	6.9	57+	15	52S	B8	Az. 229, close double?
•	Sep 5	Fri	1:06	D	SAO 162349	8.0	79+	13	62S	G8	Azimuth 233 deg.
•	Sep 6	Sat	1:53	D	ZC 2958	7.7	88+	17	89S	K1	
•	Sep 7	Sun	21:34	D	36 Aquari i	7.0	98+	31	89S	G5	ZC 3247, close double?
•	Sep 11	Thu	5:58	R	zeta PscA	5.2	93-	39	37N	A7	AA325, ZC180, close dbl ?
•	Sep 11	Thu	5:59	R	zeta PscB	6.3	93-	39	37N	F7	Sun-10, AA 326, ZC 181
•	Sep 13	Sat	1:16	R	ZC 437	7.3	78-	39	15S	G5	
•	Sep 13	Sat	4:56	R	ZC 449	7.9	77-	66	52N	K0	

Explanations & more information is at <http://iota.jhuapl.edu/exped.htm>.  
 David Dunham, dunham@starpower.net, phone 301-526-5590

### Additional Occultation Note for Sept. 12th ~

Star HIP 74007. This is an occultation by Saturn's Moon, Rhea. The predicted southern limit is over southern VA, but the uncertainty is large (it could be [1-sigma] over Florida or New England; so we don't know if we will actually have an occultation in the DC region). Rhea will be east of Saturn, near its easternmost elongation (about 2 ring diameters from the center of Saturn). It should provide an interesting sight, even if there's no occultation.

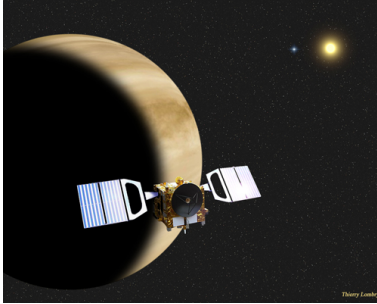


### One-way Ticket to Mars: from 1,058 to 705

The pool of volunteers for Mars One (Dutch) has dropped to 705 because of health screenings (medical health statements were required for application). The age range of the remaining candidates is 18 – 81 (313 are from “the Americas”). Of this pool, teams will be trained for occupancy of a permanent Mars colony. The maiden launch is scheduled for 2024. CNN interviewed some of the candidates:

<http://edition.cnn.com/2014/05/16/tech/innovation/mars-one-candidates/>

**The Swan Song of VEX**



Courtesy ESA/Thierry Lombry

The Venus Express (VEX) has been elliptically orbiting Venus for 6 years (from distances of 250 km to 66,000 km) and has been providing valuable data about the planet. Now, as its fuel runs out, VEX's final act may be descending into the atmosphere of Venus at even lower levels (130 km or less). It will also be a chance to test "aerobreaking," a fuel-minimizing technique to attain planetary orbit (scheduled testing is between June 18 & July 11). If VEX survives, it will be brought back into a higher orbit until it runs out of fuel and finally descends, for the last time, to the surface of Venus.

**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](mailto: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](http://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).
- **Cosmos Watch Party:** Sun. June 8, 8:30 -10:30 pm at Union Pub, 201 Massachusetts Ave, NE (last episode!)
- **Exploring Space Lectures:** "From Skylab to Interplanetary Space Weather: The Next Frontier," w/ Madhulika (Lika) Guhathakurta (NASA, Science Mission Directorate), Wed. June 18, 8 - 9 pm at Lockheed Martin IMAX Theater at the National Air & Space Museum (live webcast will be available)
- **Mid-Atlantic Senior Physicists Group:** "Looking at the Sun and Seeing Comets" w/ William Thompson (NASA/GSFC), Thur. June 26, at 1 pm at the American Center for Physics (1<sup>st</sup> floor conference room). <http://www.aps.org/units/maspg/>
- **Upcoming NCA Meetings** at the University of Maryland Observatory:  
**14 June:** Election; Science Fair Winners

**Clear Skies!**

**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**

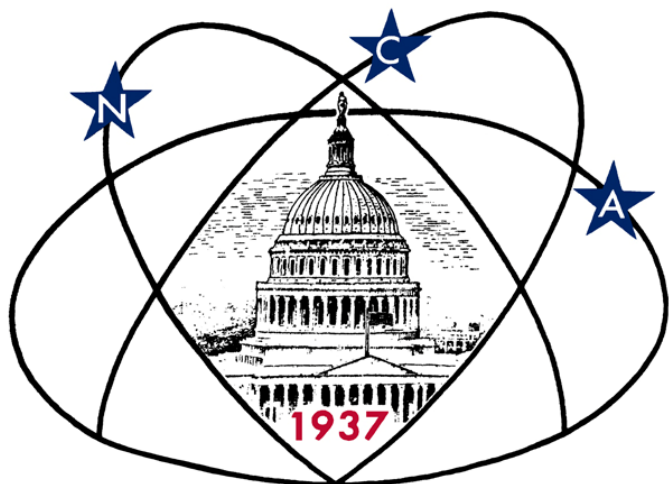
NCA c/o Elizabeth Warner

400 Madison St #2208

Alexandria, VA 22314

**First Class**

**Dated Material**



*Next NCA Meeting:*

2014 June 14<sup>th</sup>

7:30 pm

@ UMD Observatory

**Science Fair  
Winners &  
Elections!**

## **Inside This Issue**

Science Fair Winners.....	1
Bring Astro Photos.....	2
Sky Watchers.....	3
IOTA Meeting.....	4
NCA Candidates.....	4
Occultations.....	5
Calendar.....	7