**Next Meeting**
When: Sat. Sept. 10th, 2016  
Time: 7:30 pm  
Where: UMD Observatory  
Speakers: Matthew Knight

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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 Metzerott 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.

**Insights from 20 Years of SOHO Comets**

*Matthew M. Knight*  
*University of Maryland*

**Abstract:** Solar and Heliospheric Observatory (SOHO) recently completed its 20th year of observing. Despite being a solar mission, SOHO is the most prolific comet hunting platform of all time, with more than 3,000 comets discovered in its images. SOHO has revealed that the inner Solar System is far more populous that previously believed, with a steady stream of small comets reaching perihelion at sungrazing and sunskirting distances every few days. The majority of these comets are...
Sungrazers

These comets pass very close to the Sun when they reach perihelion (sometimes within a few thousand miles of the Sun). Kreutz sungrazers are fragments believed to originate from one larger comet. Some of the famous Kreutz sungrazers are the Great Comet of 1843, Comet Ikeya-Seki (1965) and C/2011 W3 Lovejoy (2011). Since smaller comets are unlikely to survive a single solar pass, SOHO has made it possible to discover smaller Kreutz sungrazers before they disintegrate at perihelion.

SOHO – continued from page 1

dynamically related to each other as members of the well known Kreutz group, but many belong to previously unknown groups, and some may even be asteroidal in origin. In addition, SOHO has occasionally obtained spectacular observations of bright comets that passed close to the Sun, such as C/2012 S1 ISON. This presentation will address SOHO’s various comet observations and how these comets aid in our understanding of Solar System evolution, act as probes of the solar environment, reveal unique information about properties of dust, and possibly yield insight into exo-planetary systems.

Biographical Sketch:
Matthew Knight is a research scientist in the Department of Astronomy at the University of Maryland (UMD). He received his PhD from UMD in 2008 and worked at Lowell Observatory in Flagstaff, AZ from 2008-2015 before returning to UMD last year. He has spent hundreds of nights observing comets at optical and near-IR wavelengths and was awarded a NASA Early Career Fellowship for his work on near-Sun comets.

He is also active in many forms of outreach. He earned NASA group achievement awards for his involvement in facilitating worldwide professional and amateur observing campaigns for two recent comets, has been recognized for his outreach teaching in Baltimore through Towson University’s Project ASTRO program, and has written several popular articles including the November 2013 cover story for Astronomy Magazine.

Team Apocalypse, the Planets and the All-Seeing Eye

Guy Brandenburg

The Astronomy Festival on the National Mall (organized by Hofstra University) is an annual event with speakers, demonstrations and local, amateur astronomers who set up telescopes for public daylight and night time star-gazing. NCA participates by hosting an information table, providing telescopes for public use and educating the public on objects seen via the telescopes.

For this year’s festival, I brought my 40 mm Coronado PST (Personal Solar Telescope) and Jay Miller brought NCA’s Solar Max 60 mm Coronado; we both were letting people look at the Sun using H-alpha filters. Before sunset, I had a small 4.25” Dobsonian made by my middle-school students (“Team Apocalypse”) participating in the Saturday program, First Light, sponsored by the Carnegie Academy for Science Education (CASE), Carnegie Institute of Washington. I trained the
Sky Watchers

Early Autumn Schedule

September

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>4:00 pm</td>
<td>Planets, N. Hemisphere. Neptune 1.2° south of Moon.</td>
</tr>
<tr>
<td>16</td>
<td>3:05 pm</td>
<td>Full Moon, Global. Other Moon Names: Harvest Moon, Full Corn Moon (corn, squash, beans &amp; rice are ready for harvest).</td>
</tr>
<tr>
<td>17</td>
<td>7:00 pm</td>
<td>Planets, N. Hemisphere. Venus 3° north of Spica (Constellation Virgo).</td>
</tr>
<tr>
<td>22</td>
<td>10:21 am</td>
<td>Autumnal Equinox, N. Hemisphere.</td>
</tr>
<tr>
<td>22-30</td>
<td>Evening</td>
<td>Globe at Night, Global. Features: Constellation Cygnus (N. Hemisphere) &amp; Grus (S. Hemisphere).</td>
</tr>
<tr>
<td>28</td>
<td>4:00 pm</td>
<td>Planets, N. Hemisphere. Mercury at greatest western elongation (18°).</td>
</tr>
</tbody>
</table>

October

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>International Astronomy Day! Global.</td>
</tr>
</tbody>
</table>

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!

2016 Observation Dates for Autumn

3 September (8:00 pm) – Mars, Saturn, Antares & Vega
1 October (7:30 pm) – Summer Triangle
5 November (7:00 pm) – Pleiades & Winter Constellations

Hosted by: National Capital Astronomers, Inc and Rock Creek Park
telescope on the little aluminum cap on the tip of the Washington Monument. We discovered that the all-seeing eye that's on the dollar bill is also carved into that cap! I never knew that before; the light was perfect for making it visible, and many viewers confirmed it.

After sundown, I put away the PST and started showing people the Moon, Jupiter, Mars and Saturn, with the expert assistance of NCA member and local amateur telescope-maker, Mike Laugherty, who showed up specifically to help out. Jay Miller brought out a short Stellarvue refractor (IIRC) and had it set on Jupiter most of the time. I was surprised to discover that, as the night got darker, the lines to look through the little red student-made scope got longer and longer! Mike and I ended up turning the red Dob to either Jupiter and its moons, Saturn and its rings and moons, or Mars, as folks preferred. At one point, I counted and discovered that there were about as many folks watching as Jupiter has moons; and, when the 11:00 pm closing hour rolled around, we still had a line! People patiently waited for 15-20

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Editor: CA Brooks

Editorial Advisors:

- Michael Chesnes
- John D. Gaffey, Jr.
- Alex Klein
- Jeffrey Norman
- Elizabeth Warner
- Wayne Warren
- Marjorie Weissberg
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Electronic Distributor: Jay Miller

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Thank you!

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continued on page 6
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 following notes following a /.
- The Watts angle (WA) is sometimes the Watts angle (WA) is followed by its separation in arc seconds from the cusp point. The main IOTA Web site.

Mid-Atlantic Occultations

David Dunham

Asteroidal and Planetary Occultations 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>EDT</th>
<th>Star</th>
<th>Mag</th>
<th>%</th>
<th>alt</th>
<th>CA</th>
<th>Sp.</th>
<th>Notes</th>
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<td>23:01</td>
<td>4U3141120979</td>
<td>13.5</td>
<td>78</td>
<td>-</td>
<td>10</td>
<td>56</td>
<td>K</td>
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<tr>
<td>Sep 9 Fri</td>
<td>6:09</td>
<td>4U500034656</td>
<td>13.3</td>
<td>67</td>
<td>-</td>
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<td>YC52230545</td>
<td>10.3</td>
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<td>74</td>
<td>31</td>
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<td>SAO 128881</td>
<td>9.7</td>
<td>78</td>
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<td>4U57218987</td>
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<td>10</td>
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<td>K</td>
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<td>4U57100159</td>
<td>12.8</td>
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<td>56</td>
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<td>23:50</td>
<td>YC6980740</td>
<td>10.0</td>
<td>78</td>
<td>74</td>
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<td>Oct 1 Sat</td>
<td>4:01</td>
<td>4U515797837</td>
<td>13.3</td>
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<td>4:47</td>
<td>2U46926268</td>
<td>12.0</td>
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<td>SAO 191730</td>
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Lunar Grazing Occultations

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<th>alt</th>
<th>CA</th>
<th>Sp.</th>
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<tr>
<td>Sep 25 Sun</td>
<td>6:40</td>
<td>SAO 79493</td>
<td>7.5</td>
<td>28-</td>
<td>55</td>
<td>7N</td>
<td>Charlottesville &amp; Port Royal, VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct 8 Sat</td>
<td>21:32</td>
<td>ZC 2763</td>
<td>6.5</td>
<td>48+</td>
<td>35</td>
<td>64N</td>
<td>K</td>
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Total Lunar Occultations

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<th>Star</th>
<th>Mag</th>
<th>%</th>
<th>alt</th>
<th>CA</th>
<th>Sp.</th>
<th>Notes</th>
</tr>
</thead>
</table>

Lunar Occultations Notes

- 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 available at [http://iota.jhuapl.edu](http://iota.jhuapl.edu)

Hailing All Local Star Trek – Original Series Fans!

Submit your favorite episode from each of the 3 broadcast seasons in this short survey:

[https://www.surveymonkey.com/r/CHN7CLD](https://www.surveymonkey.com/r/CHN7CLD)

David Dunham, [dunham@starpower.net](mailto:dunham@starpower.net)

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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

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Exploring the Sky
Jay Miller
jhmiller@me.com

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

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

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

Social Media
Liz Dervy
Twitter: @NatCapAstro

Team Apocalypse – continued from page 4

minutes each to look through the little red CASE First Light scope and often didn't believe that it was built by middle-schoolers!

GW150914– continued from page 4

Air & Space Magazine’s 4th Annual Photo Contest

If you are 18 years or older, you can enter your photographs in any of 4 categories: Astronomy, Military, Civilian and People & Planes. You can compete to win cash prizes.

The contest is free to enter and open until midnight (EST), November 1, 2016.

The submission deadline for the October issue of Star Dust is September 24th.

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 gbrandenburg@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

- Steven F. Udvar-Hazy Center IMAX Theater in Chantilly, VA: “Star Trek Beyond” (IMAX 3D Experience), $15 (adults) and $13.50 (youth), evening shows only. Check Sept. dates here: https://www.si.edu/Imax/movie/1236

- Owens Science Center Planetarium (Planetarium Patty’s Plaza): “Where the Extraordinary is now the Ordinary” with Patricia Seaton, Mon. Sept. 26, 7:30 pm; FREE. www1.pgcps.org/howardbowens

- Owens Science Center Planetarium (Concerts Under the Stars): “Songs of the Night,” Fri. Sept. 30th, 7:30 - 8:30 pm; FREE. www1.pgcps.org/howardbowens


Upcoming NCA Meetings at the University of Maryland Observatory:


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
Next NCA Meeting:
2016 September 10th
7:30 pm
@ UMD Observatory

Dr. Matthew Knight

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