

Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

May 2020

Volume 78, Issue 9

**Celebrating 83 Years
of Astronomy**

**The May 9, 2020 meeting of
the National Capital
Astronomers has been
canceled.**

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**(Please note – The May 2020 issue
of Star Dust is digital only and has
more pages than the usual format.)**



Image Credit: NASA, ESA and STScI

The picture above was published in celebration of the 30th Anniversary of the Hubble Space Telescope's Launch. NGC 2014 (the red nebula) and NGC 2020 (the blue nebula) are storm-forming regions in the Large Magellanic Cloud, a satellite galaxy of the Milky Way. More on the image can be found at www.nasa.gov/feature/goddard/2020/hubble-marks-30-years-in-space-with-tapestry-of-blazing-starbirth/

May National Capital Astronomy Meeting Is Cancelled

Because of the ongoing coronavirus pandemic, the University of Maryland Observatory has been closed until further notice.

Upcoming NCA Officer and Board Member Elections

The current slate of candidates for the upcoming National Capital Astronomers elections in June is listed below. However, all NCA members are encouraged to consider running for any office. The duties of those offices can be found in the NCA constitution, which is available at capitalastronomers.org/documents/NCAconstitutionAdoptedNov2011.pdf.

Please send all nominations by email to the Star Dust editor at NCAStardust@gmail.com by May 31. Self nominations are encouraged. If you are nominating someone else, please contact that person to make sure they are willing to serve in that office before making the nomination. The final slate of candidates for each office will be sent out to NCA members on June 1. If the June 13th NCA meeting is canceled, voting will be by email from June 1 to June 13. Currently, that plan calls for each NCA member to email their votes to **both** Henry Bofinger, hbofinger@earthlink.net, and Jeff Norman, jeffreynorman@comcast.net. (Any change in procedure will be sent out with the candidate slate on June 1st.) If the election is by email, results will be posted on June 14th.

Current Slate of Officer and Board Member Positions for 2020-2021

John Hornstein, reporting for the Nominating Committee, May 2020

	<u>Current Officeholder</u>	<u>Candidates</u>
President	Harold Williams	Harold Williams
Vice President	John Hornstein	John Hornstein
Asst. Secy-Treasurer	Jeff Norman	Jeff Norman
Secy-Treasurer	Henry Bofinger	Henry Bofinger
Trustee	Benson Simon (to June 2021)	N/A
Trustee	Mike Brabanski (to June 2022)	N/A
Trustee	Guy Brandenburg (June 2023)	N/A
Trustee	Jack Gaffey (to June 2020)	Jack Gaffey (to June 2024)

Recent Astronomy Highlights

Brightest Supernova Ever Recorded

Astronomers report the discovery of a supernova approximately twice as bright as the previous record holder. Discovered in 2016 by the Pan-STARRS (Panoramic Survey Telescope and Rapid Response System), the supernova, labeled SN2016aps, has been studied ever since. The event took place in a small, previously unknown galaxy 3.6 billion light years away. Results indicate that the extreme brightness was caused by supernova material smashing into gas previously ejected from a star which originally had a mass between 50 and 100 times the mass of the Sun. The event may be an example of a theorized, but never before seen, pulsation-pair instability supernova. More information is at www.space.com/brightest-supernova-ever-discovered-sn2016aps.html and copy of the article announcing the discovery can be found at arxiv.org/pdf/2004.05840.pdf.

Potential Earth-Like Planet Discovered in Discarded Kepler Data

Originally discarded as a false positive by the Kepler pipeline, the software that searches raw data from the Kepler Space Telescope for potential exoplanet signatures, the signals indicating a planet labeled Kepler-1649 c were found by a visual inspection. Kepler went out of service in 2018, but the data it provided are still being searched for exoplanets. Kepler-1649 c, which lies about 300 light years away, is approximately 1.06 times the size of Earth and orbits its red dwarf star every 19.5 days. Scientists estimate that the light the exoplanet receives from its star is about 74 percent of what Earth receives from the Sun, leading them to estimate the surface temperature to be 234 K plus or minus 20K. The planet may be capable of harboring life, although scientists do not yet know if it has an atmosphere. This finding indicates that there may be other such exoplanets still waiting to be discovered among the observations from Kepler. More information is at www.space.com/earth-size-exoplanet-habitable-zone-kepler.html.

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Online Astronomy Resources

John Hornstein

With it looking like isolation due to the coronavirus pandemic will go on for a while longer, we present another list of resources available on the internet to learn more about astronomy. If you have resources you consider worthwhile, please consider sending them to the Star Dust editor, NCAStardust@gmail.com, for inclusion in the June issue.

The Next Big Questions in Astronomy: Professor Carolin Crawford (2015)
www.youtube.com/watch?v=zFj54XpQOF8

The Red Planet: Professor Carolin Crawford (2013)
www.youtube.com/watch?v=eveN3AUu2UA

The Accelerating Universe: Nobel Laureate Brian Schmidt
www.youtube.com/watch?v=55pcpTjd3BY

The Mysterious Architecture of the Universe: J Richard Gott
www.youtube.com/watch?v=s9AugxSVHUY

Cameron Smith Public Lecture: Interstellar Voyaging -- An Evolutionary Transition
www.youtube.com/watch?v=CprziVZHqBk

A Journey to Alpha Centauri - Christian Marois (SETI Talks 2017)
www.youtube.com/watch?v=b5rInKFFdUs

Emily Levesque Public Lecture: The Weirdest Stars in the Universe (2018)
www.youtube.com/watch?v=YR-l0b2iYy0

Victoria Kaspi Public Lecture: The Cosmic Gift of Neutron Stars
www.youtube.com/watch?v=6UG9hoeLcHo

Roger Romani, Black Widow Pulsars: The Vengeful Corpses of Stars, SVAstronomyLectures
www.youtube.com/watch?v=Fn-3G_N0hy4

A Black Widow Pulsar Consumes its Mate, NASA GSFC
www.youtube.com/watch?v=BVjcUb_PUKM

Amber Straughn Public Lecture: A New Era in Astronomy...
<https://youtu.be/QNk8jBlfag>
insidetheperimeter.ca/new-era-astronomy-amber-straughn-public-lecture/

The Chelyabinsk Meteor: Can We Survive a Bigger Impact?
sservi.nasa.gov/event/the-chelyabinsk-meteor-can-we-survive-a-bigger-impact/

How Far Away Is It?, David Butler (many videos)
www.youtube.com/channel/UCNwSxyl2KmhdAjHLR6xGR0A

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Exploring the Sky



“Exploring the Sky” is an informal program that, for over 70 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](#)

2020 Exploring the Sky Sessions

(The session previously scheduled for 25 April has been cancelled.)

- 23 May 9:00 p.m.
- 27 Jun. 9:00 p.m.
- 25 Jul. 9:00 p.m.
- 22 Aug. 8:30 p.m.
- 26 Sep. 8:00 p.m.
- 24 Oct. 7:30 p.m.
- 7 Nov. 7:00 p.m.

More information can be found at NCA’s web site, www.capitalastronomers.org or the Rock Creek Park web site, www.nps.gov/rocr/planyourvisit/expsky.htm. You can also call the Nature Center at (202) 895-6070. For general information on local astronomical events visit www.astronomyindc.org

The submission deadline for June’s issue of Star Dust, is May 21st. Please send your astrophotos to share with NCA members.

Clear Skies!

Sky Watchers

May/June

Mercury joins Venus in the evening sky, working its way toward a conjunction with our sister planet in late May (see below). Meanwhile Jupiter, Saturn and Mars can be seen in the pre-dawn sky.

5/22	Conjunction – Mercury will pass 0° 53’ south of Venus (a little less than twice the diameter of the Full Moon) at 4:44 a.m.
6/4	Mercury at Greatest Eastern Elongation – Mercury will be 23.6 degrees from the Sun and highest in the early evening sky.
6/5	Full Moon at 3:12 p.m. This will also be the time of a penumbral lunar eclipse, when the Moon passes partly through the penumbra, or partial shadow, of the Earth. Visible in Europe, Africa, Asia, Australia and parts of South America, but not in North America.

All times are in EDT (Eastern Daylight Savings Time)

Comet Update (Atlas, Swan and Borisov)

Last month there was a lot of speculation about Comet Atlas (C/2019 Y4) possibly becoming visible to the naked eye in northern skies in May. Unfortunately, expectations have become more tempered in recent days as images show that the comet is breaking up. One such image, taken by the Hubble Telescope, along with more information, is available at www.space.com/hubble-image-comet-atlas-broken-up.html. While the breakup may be bad news for the most skywatchers, astronomers are excited by the opportunity to watch this process take place, hoping to gain new knowledge of the nature of such comets.

Even as Comet Atlas is fading, Comet Swan (C/2020 F8) was recently discovered in images taken by SWAN camera on the Solar Heliospheric Observer (SOHO). Currently visible in the southern hemisphere, Comet Swan will make its closest approach to the Sun on May 27 and may be visible to skywatchers in the northern hemisphere in the pre-dawn skies in late May.

Meanwhile 2I/Borisov, the first interstellar comet detected by astronomers and only the second detected interstellar visitor, continues to show fragmentation. Studies also show that the comet has expelled unusually high concentrations of carbon monoxide, several times higher than typically seen in the comets in our Solar System. More information on 2I/Borisov can be found at www.cnet.com/news/interstellar-comet-visiting-from-deep-space-is-stranger-than-we-thought/.

Online Astronomy Resources – continued from page 2

Hubble's Universe Unfiltered (Many choices)

www.youtube.com/playlist?list=PL0FEBC25AC2CC2152

In particular, see Clash of the Titans: why we expect the Andromeda galaxy (and maybe also M33) to collide with ours.

www.youtube.com/watch?v=r8YQsFZyGzw

Hubble Space Telescope: the most distant (and hence the oldest) galaxies that Hubble has seen

www.youtube.com/watch?v=W4GKf623Exk

Gravitational Waves: A New Era of Astronomy Begins

www.youtube.com/watch?v=xj6vV3T4ok8

Saturn's Moon Titan: A World with Rivers, Lakes, and Possibly Even Life

www.youtube.com/watch?v=bbkTJeHoOKY

Silicon Valley Astronomy Lectures (SVAstronomyLectures) (Many choices)

www.youtube.com/user/SVAstronomyLectures/videos

Articles

Top 10 most beautiful galaxies in the Universe

worldstopinsider.com/top-10-most-beautiful-galaxies-in-the-universe/

10 Most Bizarre Galaxies in the Universe - Kier Harris

listverse.com/2014/03/03/10-most-bizarre-galaxies-in-the-universe/

Hubble Telescope Turns 30

On April 24, 1990, as the space shuttle's engines roared to life, the launch announcer at Cape Canaveral proclaimed, "And liftoff of Space Shuttle Discovery with the Hubble Space Telescope, our window on the Universe!" In the 30 years since that day, despite many challenges, Hubble truly has been such a window on the Universe. The National Capital Astronomers has a special connection with the telescope in that longtime member Nancy Grace Roman is acclaimed as the "Mother of the Hubble Space Telescope." In celebration of the 30th anniversary, NASA personnel have published a number of stories, images and videos on the official Hubble Telescope website, www.nasa.gov/mission_pages/hubble/main/index.html, and on YouTube. Among the videos celebrating the anniversary is **NASA's Incredible Discovery Machine: The Story of the Hubble Space Telescope** at www.youtube.com/watch?v=Lo43Gq_Xe1Mlt. It includes footage of Nancy at the beginning and end. Another video put out ahead of the anniversary is **The Hubble Telescope: Three Decades of Discovery**. It is a montage of over 600 of the images taken by Hubble over the past three decades, and is like viewing almost two years of APOD pictures, in three minutes. The video is available at www.youtube.com/watch?v=qDXUsLnYhxU.

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 • Henry Bofinger, the NCA Secretary-
 • Treasurer, at hbofinger@earthlink.net

Thank you!

• *Recent Astronomy Highlights – continued
 • from page 2*

• Evidence for an Intermediate-Mass • Black Hole Found

• Astronomers have found evidence of
 • many stellar-mass black holes and
 • supermassive black holes. But evidence
 • for intermediate-mass black holes,
 • between 100 and 100,000 times the
 • mass of our Sun, has been scarce.
 • However, recently the Hubble
 • Telescope pinpointed the location of X-
 • ray flares, likely from a star being ripped
 • apart, recorded in 2006 by the Chandra
 • X-Ray Observatory and the X-ray Multi-
 • Mirror Mission (XMM-Newton). The
 • location was a star cluster on the
 • outskirts of another galaxy, an ideal
 • locale for an intermediate-mass black
 • hole. More info is at
 • www.nasa.gov/feature/goddard/2020/hubble-finds-best-evidence-for-elusive-mid-sized-black-hole.

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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 /.

Mid-Atlantic Occultations

David Dunham

Asteroidal Occultations

2020	Day	EDT	Star	Mag.	Asteroid	dmag	dur. s	Ap. " Location
May 10	Sun	0:54	SAO 82820	9.5	Denise	5.2	11 4	SMD,DC,nVA,SOH
May 14	Thu	1:07	TYC56250437	11.5	Sarpedon	4.9	5 5	MD,DE,DC,PA;nVA?
May 14	Thu	4:33	4U333214821	13.1	Arete	1.1	4 9	se-cVA;DC,nVA?
May 15	Fri	22:38	4UC46644702	13.1	Irmgard	1.9	4 9	PA,nEMD,SNJ;DC?
May 17	Sun	0:28	4UC43561582	15.7	Daitor	1.9	3 14	SNJ,DE,MD,DC,nVA
May 19	Tue	1:52	4U339106525	12.8	Phaeo	1.1	8 8	neNC,se-cVA,COH
May 19	Tue	2:57	4UC37573917	13.6	Behounek	2.3	2 10	c-swVA;SMD,SWV?
May 20	wed	3:25	4U443119903	14.1	Herluga	2.4	4 11	CNC,cVA,cwV,wPA
May 22	Fri	22:45	4UC56544127	14.2	Vala	1.2	1 11	COH,cwV,c-seVA
May 23	Sat	0:35	4UC36872607	14.1	Phereclos	1.7	6 11	se-cVA;MD,DC?
May 23	Sat	2:15	4UC40658552	15.3	Patroclus	1.0	7 14	seUSA;neUSA?
May 25	Mon	22:04	TYC19291029	11.4	Messalina	4.2	3 5	wMD,n&eVA;DC?
May 26	Tue	1:02	4UC43992138	13.3	Arctica	1.6	8 9	e&nVA,nwV;MD,DC?
May 26	Tue	22:05	4UC31174074	16.0	Alcathous	0.5	8 14	NJ,ePA;MD,DC?
May 27	wed	4:27	1N837518729	16.8	2002 MS4	3.6	39 14	neUSA;cVA,NC?
May 28	Thu	0:48	PPM 194467	10.1	Tchaikovsky	6.8	5 4	sw-ePA,nNJ;nwMD?
May 28	Thu	23:32	4UC40054364	14.1	Putilin	2.7	13 11	eNC,cVA,wPA;DC?
May 31	Sun	2:07	1B771397172	17.0	Antenor	0.3	6 14	NJ,sPA;MD,nVA?
May 31	Sun	23:04	4UC37990734	14.6	Sampo	1.0	2 14	se-cVA,swV;neNC?
Jun 1	Mon	2:35	4U382152736	14.2	Picka	0.8	12 11	e&nVA,wMD;DC?
Jun 5	Fri	1:49	4UC37572745	14.1	Behounek	2.3	3 12	SNJ,MD,DC,nVA
Jun 5	Fri	23:10	4U343102322	14.2	Phaeo	0.3	6 14	s&wMD,DC,nVA
Jun 6	Sat	3:17	4UC37783106	12.8	Tergeste	0.7	6 8	SNJ,nMD,sPA;DC?

Lunar Grazing Occultations

2020	Day	EDT	Star	Mag	% alt	CA	Location, Notes
May 17	Sun	5:31	30 Piscium	4.4	24- 22	0N	Kenly,Evrets,Jarvsbrg,Duck,NC
May 24	Sun	21:29	SAO 77842	7.4	5+ 7	2N	Dovr,Burk,VA;Acokek,Waldrf,MD

Links for interactive maps are at iota.jhuapl.edu/exped.htm

Lunar Total Occultations

2020	Day	EDT	Ph Star	Mag	% alt	CA	Sp. Notes
May 10	Sun	1:58	R ZC 2562	7.0	89- 22	63S	K1 Close double??
May 11	Mon	4:13	R SAO187431	7.3	81- 26	61N	B3
May 11	Mon	5:08	R SAO187465*	7.4	81- 26	55S	G0 Sun alt. -9 deg.
May 11	Mon	5:11	R ZC 2756	7.5	81- 26	9N	K0 Sun -9, Term. Dist. 17"
May 12	Tue	5:10	R ZC 2907	6.2	72- 27	58N	K3 Sun -9, mag2 11, R +15s
May 13	wed	3:14	R SAO 189680	7.4	62- 14	85N	K2 Azimuth 134 degrees
May 14	Thu	4:26	R SAO 164567	7.3	52- 20	35N	K5 Close double??
May 14	Thu	6:03	R kappa Cap	4.7	52- 30	71N	G8 ZC 3175,Sun alt. +1deg.
May 24	Sun	20:51	D 140 Tauri	7.0	5+ 15	51S	A2 ZC907,Sun -6,Az288,dbl?
May 25	Mon	22:20	D SAO 78963	7.2	11+ 9	86S	A0 Azimuth 293 deg.
May 26	Tue	21:42	D SAO 79810	7.6	18+ 26	69S	K0
May 27	wed	22:05	D SAO 80497	8.3	27+ 31	51N	K0 very close double
May 27	wed	22:09	D SAO 80493*	8.6	27+ 30	43S	F8
May 27	wed	23:15	D SAO 80527*	8.2	28+ 17	88N	F5 close double star
May 28	Thu	22:01	D SAO 98792	7.8	38+ 39	44S	K2 Mag2 11 sep. 25",PA 321
May 30	Sat	1:20	D ZC 1578	6.9	50+ 8	49S	K0 Az. 278, close double??
May 31	Sun	1:49	D nu vir	4.0	62+ 10	38N	M0 ZC 1702,Azimuth 271 deg
May 31	Sun	21:53	D ZC 1796*	7.6	72+ 50	19S	A5
Jun 1	Mon	20:52	D ZC 1923	7.0	81+ 45	75S	K0 Sun altitude -5 deg.
Jun 1	Mon	21:26	D SAO 139316	7.7	82+ 46	12S	K0 Sun altitude -10 deg.
Jun 2	Tue	22:15	D ZC 2056	7.6	90+ 40	83N	A2
Jun 4	Thu	4:07	D 32 Librae	5.6	97+ 7	83S	K4 ZC2209,Az.242,double??
Jun 4	Thu	22:18	D ZC 2338	6.4	99+ 23	56S	G8 Terminator Distance 7"
Jun 4	Thu	23:22	D ZC 2343*	6.3	99+ 29	79S	K0 Terminator Distance 10"
Jun 7	Sun	0:23	R ZC 2659	6.2	97- 20	43S	M3 Axis Angle 228 deg.
Jun 8	Mon	2:08	R chi Sgr	5.0	92- 24	33N	A4 ZC2834,=double,dT .3sec
Jun 9	Tue	2:25	R SAO 189244	7.7	86- 22	17S	F6
Jun 10	wed	1:02	R phi Cap	5.2	78- 7	69N	K0 ZC 3106,Azimuth 124 deg
Jun 13	Sat	3:29	R SAO 146882	8.2	49- 18	40S	A0
Jun 14	Sun	4:19	R SAO 128784	7.0	40- 23	69S	K5

*in Kepler2 program so occultation light curves are sought.

More, esp. total lunar occultations, at iota.jhuapl.edu/exped.htm
David Dunham, dunham@starpower.net

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Maps and additional information for May-June Occultations

David Dunham

For all events, see iota.jhuapl.edu/exped.htm, the Mid-Atlantic Occultations Web page.

Lucky Star Occultations: The Lucky Star Project at Paris Observatory has added to IOTA's Occult-Watcher system, most of their predictions; before, only a few of their events were available through the efforts of Dave Gault in Australia. The Lucky Star Project works with observatories in Brazil, Spain, and France to obtain new astrometry of Trojan and Centaur asteroids, and Trans-Neptunian Objects (TNOs), to improve their predictions, and especially when an occultation by one of these objects is observed, they can refine the predictions for future events considerably using the highly precise stellar data from ESA's Gaia spacecraft. So, several of these events have been added to my list. Often, they involve very faint stars, needing large scopes to observe, but the scientific payoffs can be great, showing the sizes, shapes, rings, and moons of these distant objects. Most are Trojan asteroids, but one event on May 27th involves the 800-km TNO (307261) 2002 MS4; the southern limit is predicted to pass a little south of Washington, DC. An occultation last August, observed from only two closely-spaced observers in British Columbia, has allowed a fairly accurate prediction to be made. Those with large-enough telescopes to record the 16.8-mag. star are encouraged to try to observe the occultation, even if integrations of 2s or more are needed.

Asteroidal Occultations: Of special note is the first event on the list, the May 9/10 occultation of 9.5-mag. SAO 82820 by (667) Denise, an 88-km asteroid whose path is predicted to pass over DC, northern VA, and central and southern MD (if the NCA May meeting had been held, this event would have been just a few hours after it would have ended). When occulted, the star will be high in the sky, in Coma Berenices, at J2000 RA 13h 23m 52.0s, Dec +20 deg. 08' 12". Finder charts of different scales to locate the target star, a USA path map, and other event details are at www.asteroidoccultation.com/2020_05/0510_667_64916.htm. With the event occurring in the middle of the weekend (late Saturday night, actually 12:54 am EDT Sunday morning), hopefully many observers can point even small telescopes to the star, to see if an occultation occurs where they live, and perhaps time it with a cell phone app. For information about timing occultations, see the observing section of IOTA's Web site at occultations.org/.

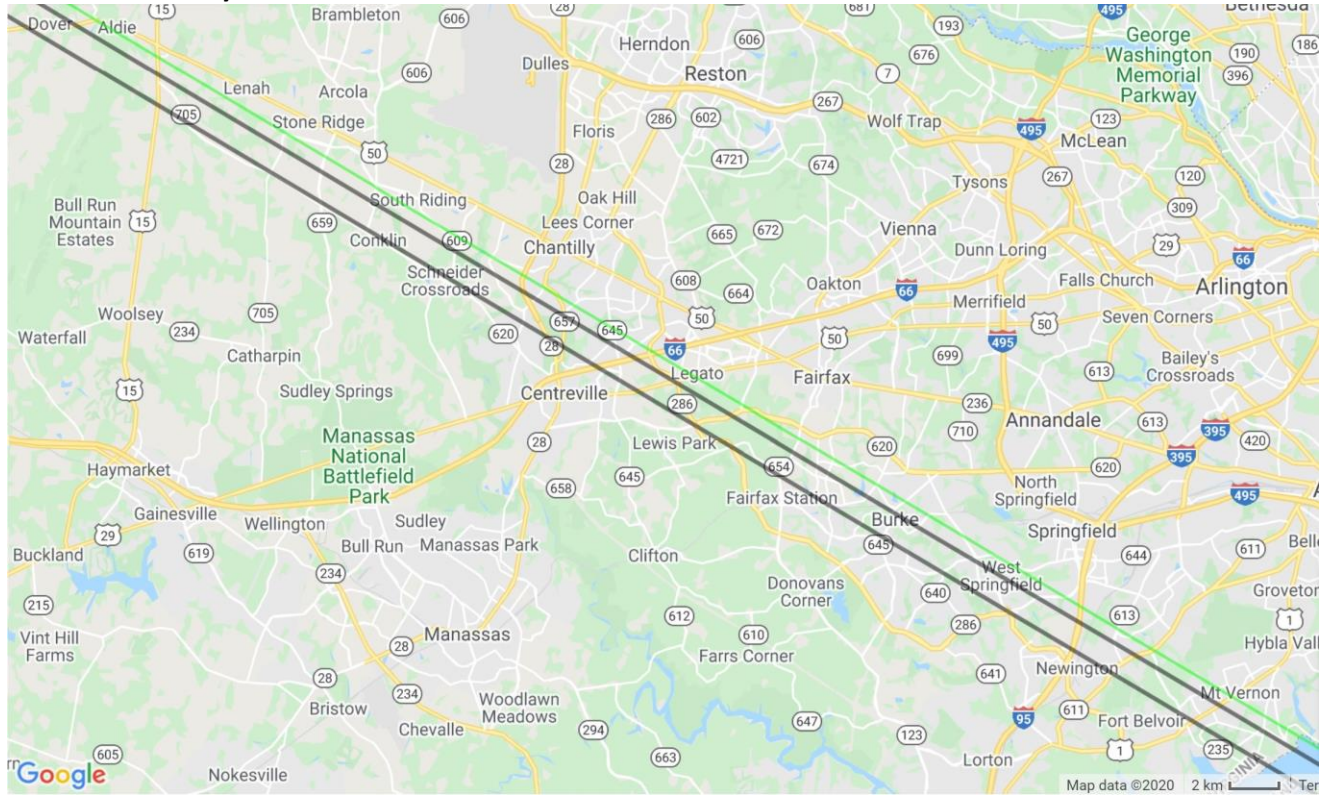
Another event of note is around 2:15am EDT Sat. morning, May 23rd, when the Trojan asteroid (617) Patroclus will occult a 15th-mag. star in Virgo. Besides being a Lucky Star event, it is especially important as it is also the final target of NASA's Lucy mission that will visit multiple Trojan asteroids during the next 14 years. Details are at lesia.obspm.fr/lucky-star/feed/20200523_58552a_summary.html. But the prediction seems to be for the center of mass of the binary Patroclus - Menoetius system. The two components, each a little over 100 km across, are in a roughly circular orbit about 680 km apart. The orbit is fairly well-known from various observations that have been made since Menoetius was discovered in 2001, including a well-observed occultation by both objects in October 2013. I have requested predictions for the separate components from the Lucky Star project, and will update the path prediction after they respond. The path for the occultation by the center of mass passes over southern SC to northern Louisiana and central Texas, but the occultation path by one of the components could be much farther north, possibly over MD, DC, and n. VA.

Lunar Grazing Occultations: Predicted lunar profiles, interactive Google maps, and recommended offset values to use with them are given in the grazing occultation section of iota.jhuapl.edu/exped.htm. **May 24:** Up to 7 occultations of the star might be seen from a narrow (300m wide) zone that will pass over northern Winchester, Dover, Conklin, e. Fairfax Station, Burke, West Springfield, & s.w. Mt. Vernon, VA; and n.e. Accokeek, Waldorf, and Benedict, MD. The graze still has about 5 occultations in a wider range, almost a mile wide, shown between the two dark gray lines in the maps below. 0.3 mile north of the green northern-limit line shown on the map, there will be no occultation of the star. The Sun altitude will be -12° (dark enough for any scope) but the Moon altitude will be only around 8.5°, so you will need an unobstructed horizon in the west-northwest (azimuth 293°).

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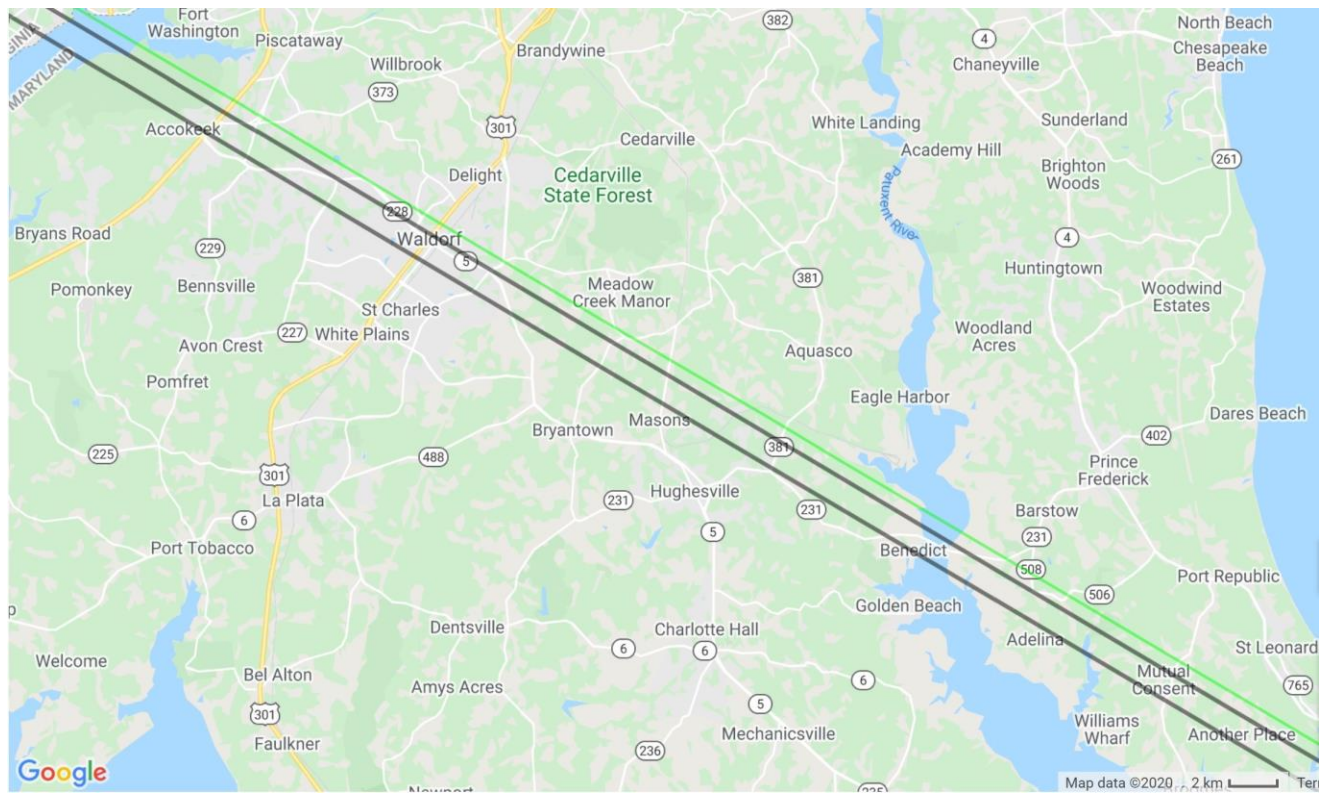
Occultations – continued from page 6

Lunar Graze – May 24



N. VA

Image Credit: David Dunham and Google Maps



S.W. MD

Image Credit: David Dunham and Google Maps

2019-2020 Officers

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Asst. Secretary-Treasurer:

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Trustees:

- Jack Gaffey (2020)
- Benson Simon (2021)
- Michael Brabanski (2022)
- Guy Brandenburg (2023)

Appointed Officers and Committee Heads:

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The Exoplanet That Wasn't - The Collision That May Have Been

Astronomers have recently claimed that Fomalhaut b, originally thought to be an exoplanet orbiting the nearby star Fomalhaut, turns out likely to be something very different, a cloud of dust and debris created by the collision of two planetesimals. Originally imaged by the Hubble Telescope in 2004 and 2006, then announced in 2008, Fomalhaut b enjoyed the distinction of being the first such exoplanet directly imaged. (The discovery was highlighted in an article by Michael Chesnes in the December 2008 issue of *Star Dust*. It can be accessed at capitalastronomers.org/SD_year/2008/StarDust_2008_12.pdf.) A public campaign even brought about a name for the planet – Dagon, a deity in several ancient Near-East cultures. However, images taken in 2014 showed no evidence for the exoplanet, and further study of previous images showed that it had been fading over time.

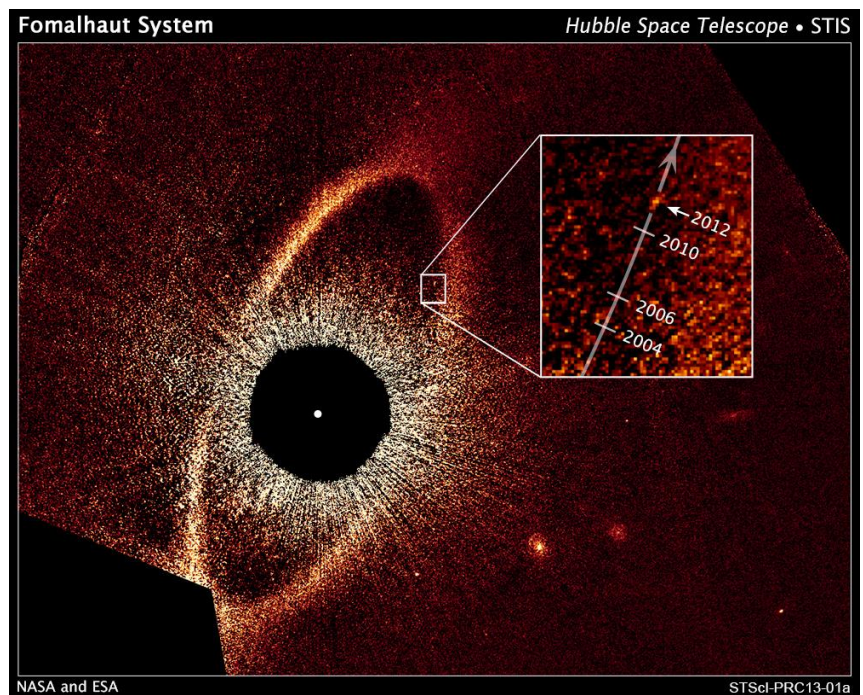


Image Credit: NASA and ESA

Actually, problems with the classification as an exoplanet began to emerge early on. Fomalhaut b was unusually bright in visible light when first observed which is unusual for an exoplanet. But at the same time, it radiated very little infrared radiation in comparison to what a newly formed planet is theorized to emit. There were also concerns about Fomalhaut b's very elliptical orbit.

The fact that the supposed exoplanet does not actually exist has been disappointing to some, but the alternative, that what was seen by Hubble was the dust cloud resulting from a collision of two planetesimals that took place shortly before Hubble's first observations, is leading to excitement as well. Although Hubble can no longer detect the dust cloud, astronomers hope that the James Webb Space Telescope will be able to do so, providing more information about the chaotic process of planetary formation around young stars. More information can be found at www.eurekalert.org/pub_releases/2020-04/uoa-adp041420.php.

Recent Astronomy Highlights – continued from page 4

Einstein Rosette Orbit Around Sag A*

Astronomers plotting the courses of the stars around Sagittarius A*, the supermassive black hole at the center of the Milky Way, report that one of those stars, labelled S2, follows a rosette-shaped orbit around Sag A*. The conclusion comes from 30 years of observations and is yet another confirmation of Einstein’s Theory of Relativity. A rosette-shaped orbit is one where the orbiting object does not return to the same position after completing an orbit. Instead the orbit precesses or shifts around almost like a spirograph drawing. The portion of the precession of Mercury’s orbit observed by astronomers that could not be explained by interactions with other planets was the first corroboration of Einstein’s General Relativity. But this is the first time the effect has been seen for a star’s orbit. The pre-publication letter detailing the discovery can be found at arxiv.org/pdf/2004.07187.pdf

Calendar of Events

- **NCA Mirror- or Telescope-making Classes:** The Chevy Chase Community Center is currently closed due to the coronavirus pandemic. When it reopens, classes will be Tuesdays AND Fridays, from 6:30 to 9:30 pm at the Chevy Chase Community Center (intersection of McKinley Street and Connecticut Avenue, N.W.) Contact instructor Guy Brandenburg at [202-635-1860](tel:202-635-1860) or at gfbrendenburg@yahoo.com. Additional information is at guysmathastro.wordpress.com/ and home.earthlink.net/~gfbrenden/GFB_Home_Page.html
- **Open house talks and observing at the University of Maryland Observatory in College Park are suspended until further notice.** When they resume, they will be on the 5th and 20th of every month at 8:00 pm (Nov.-Apr.) or 9:00 pm (May-Oct.). Details can be found at www.astro.umd.edu/openhouse
- **The next NCA Meeting** is tentatively scheduled at the University of Maryland Observatory: **13 June 7:30 p.m.**
- **The APS Mid-Atlantic Senior Physicists Group:** A virtual meeting will take place on May 20th at 1:00 p.m. via Zoom. "Cryptology in a Post-Quantum World" by Dustin Moody, Computer Security Division, National Institute of Standards and Technology. More details will be posted at www.aps.org/units/maspg/meetings/meeting.cfm?name=SENIOR0520.

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.?

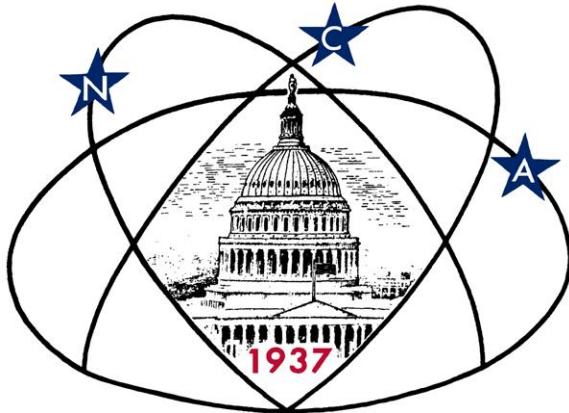
Are you interested in volunteering for: Telescope making, Exploring the Sky, Star Dust, NCA Officer, etc.?

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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First Class
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Celebrating 83 Years of Astronomy

***Please Note: The
May 9, 2020 NCA
meeting has been
cancelled.***

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