Star Dust

Newsletter of National Capital Astronomers, Inc.

capitalastronomers.org

November 2023 ***Volume 82, Issue 3***

Celebrating 86 Years of Astronomy

Next Meeting

When: Sat. Nov. 11th, 2023

Time: 7:30 pm

Where: In-Person and Online (Zoom)

See instructions for joining the meeting via Zoom on Page 8.

Speaker: **Dr. Anne Pommier**

Table of Contents

Image Credit - ESA/Hubble and NASA, J. Dalcanton, Dark Energy Survey/DOE/FNAL/NOIRLab/NSF/AURA; Acknowledgement: L. Shatz

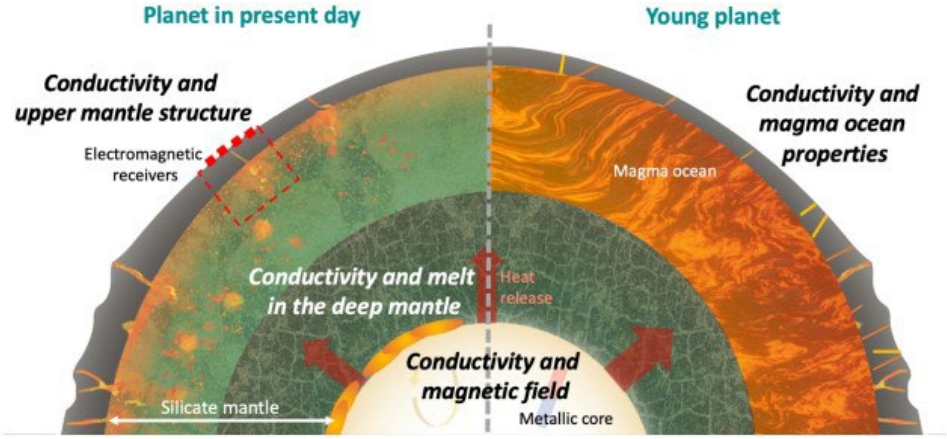
The Hubble Telescope captured the image of two galaxies interacting gravitationally. More info is at science.nasa.gov/missions/hubble/hubble-captures-a-galactic-dance-2/.

Annual Membership Dues are Due!

You may join or renew using the form on Page 8 (and mailing it in) or our website's online option (right column). Please support NCA by applying for or renewing your membership at this time in order to keep receiving Star Dust. Thank you. (*Final Reminder!*)

Experimental Investigation of Planetary Interiors using Electrical Measurements

Dr. Anne Pommier – Carnegie Institution for Science - Earth and Planets Laboratory



Interior of a terrestrial planet or moon early in its history (right) and today (left), and the different regions where electrical conductivity studies can shed light on the interior and dynamic processes. Image credit - Anne Pommier and Katy Cain / Carnegie Institution for Science

Abstract: The electrical conductivity of mantle and core analogues is particularly relevant to investigate the structure and dynamics of planetary interiors. Being a transport property sensitive to temperature, pressure, and chemistry (including volatiles and fluids), electrical conductivity can be used to explore the compositional and thermal state of terrestrial planets and moons. In particular, the combination of electrical experiments in the laboratory with acoustic experiments, field observations, and petrological constraints is used to locate the origin of primary magmas, constrain the extent of melting, locate aqueous fluids reservoirs, and identify the main chemical fluxes at depth. Electrical conductivity can also be used to study the state of a metallic core and

continued on page 2

Recent Astronomy Highlights

Fast Radio Burst Originating 8 Billion Light Years Away Detected

Astronomers recently reported the farthest Fast Radio Burst (FRB) so far detected, one that originated 8 billion light years away. First detected in June 2022 and designated FRB 20220610A, the burst took place within a set of merging galaxies. Astronomers remain uncertain about the origins of such FRBs, various theories positing that they come from the regions near black holes or magnetars. And some theorize that different mechanisms may be involved in creating such FRBs since many of them seem to be one-time phenomena, but cyclical FRBs have been detected as well. Despite such uncertainties, FRBs can be used to detect the unseen matter surrounding galaxies. This is not dark matter, but matter that is too diffuse and poorly lit to be seen in other circumstances. More information on FRB 20220610A and its detection can be found at earthsky.org/space/fast-radio-burst-very-large-telescope-universe/.

Likely Exoplanetary Collision Observed

For the first time, astronomers report observing what is likely the collision of two ice giants, Neptune-like worlds. The evidence for the collision comes from several years of light curve data of a star designated ASASSN-21qj, the name given because of the ASASSN survey (All Sky Automated Survey for Supernovae). The glow of the actual collision was seen as a doubling of the star's brightness in infrared. Then three years later, a dimming in the visible light from the star took place, apparently when the debris cloud created by the collision began crossing in front of the star. The collision allows astronomers the rare opportunity to observe the interior contents of ice-giant exoplanets, material normally hidden by thick layers of hydrogen and helium, as material from both exoplanets was ejected into the enormous debris cloud. More information about the collision and its aftermath can be found at phys.org/news/2023-10-cloud-colliding-ice-planets-dims.html

Abstract and Biography – continued from page 1

investigate the generation of an intrinsic magnetic field by thermochemical convection. This presentation will point out the unique potential of electrical studies to investigate terrestrial mantles and cores, through the example of the Earth and new results about Mercury and the Moon.

Biography: Anne Pommier investigates the composition and evolution of terrestrial planets and moons by performing geophysical experiments at high pressure and temperature. A special research interest involves the characterization of the transport properties within mantles and cores. She received a degree in engineering, and a PhD in experimental petrology at the CNRS-University of Orléans, France, before moving to the USA. After postdoctoral experiences at MIT and ASU, she joined the faculty at the University of California, San Diego and obtained tenure in 2020. She is now a staff scientist at the Earth and Planets Laboratory - Carnegie Institution for Science.

President's Corner

Guy Brandenburg

A few events to highlight:

NCA in the News

The monthly astronomy column by Geoff Chester in the Washington Post has started listing local astronomical viewing events such as NCA's Exploring the Sky -- but only in the online edition, not the printed one. (Geoff was at one point an NCA officer.) His extremely well-written and accurate columns seem to get printed on Tuesdays closest to the beginning of each month. Here is the link for November 2023: www.washingtonpost.com/weather/2023/10/31/november-night-sky-meteor-shower/.

Current Solar Cycle

Apparently, the current solar cycle is becoming more active, and earlier, than was first expected: www.swpc.noaa.gov/news/noaa-forecasts-quicker-stronger-peak-solar-activity. This will likely have an effect on the appearance of the corona during the upcoming total eclipse on April 8, 2024. What will that be? Look up and see!

[Whether the solar cycle has direct effects on the Earth's weather and climate is still debated. Perhaps the famous cooling spell during the Maunder Minimum – a period when very few sunspots were seen, and the global temperature dropped -- was actually due to massive depopulation of North America by imported diseases like smallpox and influenza, which meant that much of the Indians' previously cleared farmland was abandoned, causing massive amounts of tree growth, causing huge uptakes of carbon dioxide, and cooling the planet? Or maybe it was volcanoes? Here is one link discussing the topic - www.historicalclimatology.com/features/what-was-the-maunder-minimum-new-perspectives-on-an-old-question.]

continued on page 3

Exploring the Sky

2023 Exploring the Sky Sessions
18 Nov. 7:00 P.M. Jupiter, M45, outer planets

Exploring the Sky is a joint program between the National Capital Astronomers and the National Park Service Rock Creek Park Nature Center and has been run since 1948 at this location, the field at the corner of Glover and Military Roads in the District. There is an adjacent parking lot. It is free and all are welcome who have an interest in observing the heavens. It's not an ideal dark sky location but we can still see solar system objects (even the occasional comet), open and globular clusters and maybe a fuzzy galaxy or two.

This year, as an added feature, you can come one hour early and see a planetarium program in the Nature Center and then come to the field to observe. Also, if the sky is cloudy or it's raining there will be a planetarium program at that one-hour-earlier time so Exploring the Sky will no longer be canceled! Planetarium programs can be found at: www.nps.gov/rocr/planyourvisit/calendar.htm. You can also search "astronomy", "dark skies" or call the Nature Center at: (202)-895-6070.

The article-submission deadline for December's issue of Star Dust, is November 18th.

Clear Skies!

President's Corner – continued from page 2

Hopewell Observatory Open House, November 4

Hopewell Observatory will have had its fall open house on November 4 by the time you receive this issue of Star Dust. Hopewell is and was a DIY project, started roughly 50 years ago, when the skies there were much darker than they are now. Just about every bit of the place, and a good bit of the optics, was built by the hands of its members. Its equipment and facilities continue to improve (IMHO*) but the skies are deteriorating as light pollution gets worse and worse. A company called Eufy is unfortunately offering to let people light up their house like the 4th of July or Christmas or Halloween or whatever holiday they like, all year round, for very little. This amount of wild increase in light pollution will not be good for astronomers, bird lovers, insects, or anybody who likes to sleep soundly at night. Here is a link to their site - Eufy.

* I'm probably biased: I'm the current president of Hopewell Observatory as well as of NCA.

Exploring the Sky

Please remember to come out and help at Exploring the Sky in Rock Creek Park on November 18. Jupiter and Saturn will be wonderful targets, even if you can only make out a dozen or so stars with your naked eyes. The planetarium show in the Nature Center, led by National Park Service Ranger Renee Maher, will start at 6:00 pm sharp, and observing will start at 7:00. If the crowds are large enough, Renee will run two half-hour shows.

November Speaker

Our November speaker, Dr. Anne Pommier, works well under pressure. Or should I say, she works on the rocks and other materials that are under great pressure, intense heat, and subject to poorly-understood, but probably massive, electrical currents in the interiors of rocky planets like ours. You can read a bio from the Carnegie Institution for Science here - epl.carnegiescience.edu/news/anne-pommier-puts-electrifying-spin-materials-under-pressure. Please join us either in person at the University of Maryland Observatory, or remotely, for our monthly meeting on the 11th. Details can be found elsewhere in this issue.

Henning Leidecker, Jr.

Past NCA member and President, Henning Leidecker recently passed away. His career took him from a professorship at American University to a post as a Failure Analyst at NASA's Goddard Space Flight Center where he received numerous awards. In addition to his scientific work, Henning was known for his work in the community, including serving as a board member of the ECDC, the Ethiopian Community Development Council. An article on Henning's life can be found at www.ecdcus.org/statement-on-passing-of-ecdc-board-member-dr-henning-leidecker-jr/

October 14th Partial Solar Eclipse

Our anticipated partial solar eclipse viewing event on October 14, in conjunction with National Air and Space Museum on was completely clouded out. It happens! Fortunately, the weather was better in New Mexico for NCA members David and Joan Dunham, (see Page 4).

Sky Watchers

November/December

Mercury rises higher in the western evening sky, reaching Greatest Eastern Elongation on 12/4 (see below). Venus remains high in the predawn sky throughout the period. Jupiter will rise higher in the eastern evening sky. Saturn will be high in the sky at sunset. Mars remains largely unviewable, transitioning from extremely low in the evening sky to extremely low in the morning sky as the period progresses.	
11/17-18	The Leonids Meteor Shower peaks from the evening of the 17th into the morning of the 18th with approximately 15 meteors/hour. With the crescent Moon setting early, the viewing should be ideal for most of the night.
11/27	Full Moon – 4:17 p.m.
12/4	Mercury at Greatest Eastern Elongation. The planet will be 21.3 degrees from the Sun, low on the western horizon at sunset.

All times are in EST (Eastern Standard Time).

Bailey's Beads Captured on Video During October 14th Annular Solar Eclipse

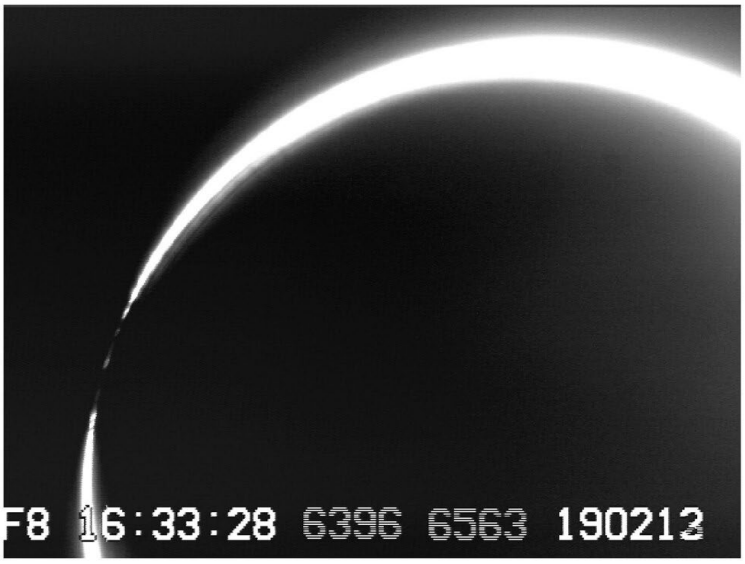


Image Credit – Joan and David Dunham

While the weather didn't cooperate in the DC area, it was a different story in Mentmore, New Mexico where NCA members David and Joan Dunham captured the image above during the annular eclipse. In the lower left is an example of Bailey's Beads, where the mountainous terrain of the Moon leads to light passing through lower regions on the lunar edge, while it is still blocked by the higher regions. Stay tuned to future issues of Star Dust, where there may be a more in-depth article about David and Joan's experience of the eclipse.

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

ISSN: 0898-7548

Editor: Todd Supple

Editorial Advisors:

- James Kaiser
- Jeffrey Norman
- Brian Tomich
- Elizabeth Warner
- Marjorie Weissberg

Electronic Distributor: Jay Miller

Recent Astronomy Highlights – continued from page 2

Quasi-Satellite of Earth Seems to Have a Lunar Origin

469219 Kamoʻoalewa, an asteroid that orbits the Sun near Earth, appears to have come from our Moon. The orbit of the asteroid currently takes it inside Earth's orbit for part of the year and outside of it for the rest of the year, bringing it within nine million miles of Earth each April. The name Kamo'oalewa comes from the Hawaiian language and is translated as 'the oscillating object'. While the asteroid does not orbit Earth, our planet does have gravitational influence on its solar orbit, keeping it from wandering too far away from or too near to Earth, an orbital configuration that may remain stable for millions of years. Nevertheless, Kamo'oalewa was only discovered in 2016. Given the stability of its orbit, relative to Earth, astronomers decided to do a spectrographic study of the asteroid. Data from the study shows that the asteroid's composition is very similar to that of the Moon and was likely the result of an asteroid impacting with the Moon. Until recently, astronomers believed that the ejecta from such impacts would either return to the Moon or reach Earth. However, recent simulations show that the orbit of such a quasi-satellite, originally ejected from the Moon, is possible. There may be more such objects waiting to be discovered. More info can be found at www.livescience.com/space/asteroids/a-chunk-of-the-moon-appears-to-be-orbiting-near-earth-new-study-suggests

continued on page 7

Occultation Notes

- D following the time denotes a disappearance, while R indicates that the event is a reappearance.
- 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. E indicates a lunar eclipse is in progress, and the value is the percent of the Moon's disk that is NOT in the umbra. So 0E means during the total phase.
- 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". Often, rather than the separation, I give “dTime” or “dT”, the time difference of the secondary star occultation relative to the primary star’s occultation.
- Sometimes the Axis angle (AA) is given. It is the angle measured around the Moon's disk, from the Moon's axis of rotation. It can be used with a lunar map to tell where a star will reappear relative to lunar features.

Mid-Atlantic Occultations

David Dunham

Asteroidal Occultations

2023 Date	Day	EST	Star	Mag.	Asteroid	dmag	dur. s	Ap. "	Location
Nov 9	Thu	22:57	119 Tauri	3.1	Adachi	0.4	3	2	OBX,sNC,cSC,cGA
Nov 11	Sat	5:33	TYC12530072	11.9	Elsa	0.5	6	5	c+wMD,nVA,swPA
Nov 12	Sun	4:47	4UC53607641	13.1	Emita	0.3	11	8	MD,DC,nVA,swPA
Nov 14	Tue	4:12	TYC08651197	10.2	Heimlich	8.5	0.4	3	cIN,cOH,sPA,cNJ
Nov 15	Wed	1:54	TYC47210569	9.5	Strobel	5.1	4	3	eNC,eSC,sGA,nFL
Nov 15	Wed	2:01	4UC49521109	14.0	Leona	1.2	8	9	eNC,eSC,seGA,nFL
Nov 16	Thu	1:58	TYC24050806	11.7	Vindobona	3.4	7	5	sNJ,cMD,DC,nVA
Nov 16	Thu	3:40	4UC45146096	11.9	Svea	2.6	7	5	swPA,MD,n+eVA,DC
Nov 17	Fri	20:58	4U462126649	10.8	Lindelof	4.0	2.0	4	AZ,OK,AR,nTN,sVA
Nov 18	Sat	4:31	TYC49370390	9.5	Victoria	3.4	3.5	3	MO,KY,swVA,w+eNC
Nov 19	Sun	1:35	SAO 80485	8.6	2001 OO65	10.	0.3	2	AZ,OK,KY,sWV,cVA
Nov 21	Tue	0:17	TYC12360841	11.8	Titania	2.2	73	6	n.e. USA
Nov 22	Wed	3:51	4UC54414445	10.7	1987 RO1	7.6	1.1	4	cNJ,cPA,nOH,nIL
Nov 23	Thu	0:17	TYC06140167	10.6	Kazantsev	8.5	0.9	4	sMD,cVA,sWV,sAZ
Nov 23	Thu	4:16	4UC64828860	12.9	Ursina	1.7	3	7	e+nMD,swPA,nOhio
Nov 25	Sat	22:42	TYC18771113	9.7	1998 RK66	8.3	0.7	4	cNJ,sePA,nMD,nVA
Nov 26	Sun	6:22	4UC61127899	12.8	Interamnia	0.2	28	7	PA,nMD,nOH Sun-8
Nov 27	Mon	2:28	4UC60225198	12.9	Arachne	0.7	10	7	sMD,n+cVA,WV;DC?
Dec 3	Sun	3:28	4UC60925126	12.8	Interamnia	0.2	25	7	sMD,c+sVA,nNC,AZ
Dec 5	Tue	3:38	TYC12381170	11.0	Emita	1.2	11	5	NC,swVA,KY,nMO
Dec 5	Tue	22:00	4UC48702842	11.7	Hyperborea	3.4	12	5	ne-sPA,wMD,WV,TN
Dec 9	Sat	2:02	4UC52206788	11.7	Williamwang	5.7	0.9	5	cMD,DC,nVA,sNV
Dec 9	Sat	22:18	4UC54501325	12.0	Vibeke	4.7	12	6	nVA,DC,cMD,sOH
Dec 10	Sun	19:03	4UC54506777	10.4	McCoy	6.3	1.0	4	sNJ,cMD,nDC,nVA
Dec 11	Mon	20:24	Betelgeuse	0.5	Leona	2.9	12	1	sES,BS,sFL,ecMX

Lunar Grazing Occultations

2023 Date	Day	EST	Star	Mag	% alt	CA	Location, Notes
Nov 17	Fri	18:48	SAO 188429	7.7	23+ 11	14S	BrklySpg,WV;Hncck,MD;Dalas,PA
Nov 23	Thu	18:52	ZC 167	5.5	86+ 47	15S	sWilsn,NC;Yrkvil,VA;sPokCt,MD

Lunar Total Occultations

2023 Date	Day	EST	Ph	Star	Mag	% alt	CA	Sp.	Notes
Nov 14	Tue	15:41	D	Antares	1.1	2+ 15	75N	M1	Sun +12, Az 216, ZC2366
Nov 17	Fri	17:41	D	ZC 2869	8.1	23+ 20	39N	K0	Sun alt. -10,close dbl?
Nov 18	Sat	18:18	D	SAO 189555	7.2	33+ 24	13N	G1	
Nov 18	Sat	20:57	D	ZC 3032	7.5	34+ 7	83N	A2	Azimuth 232 degrees
Nov 19	Sun	15:45	D	37 Cap	5.7	43+ 24	38N	F5	Sun alt. +10, ZC 3158
Nov 19	Sun	18:12	D	SAO 164544	7.3	44+ 31	52N	F7	
Nov 19	Sun	21:07	D	kappa Cap	4.7	45+ 17	11N	G8	ZC 3175
Nov 21	Tue	23:07	D	SAO 146771	8.1	69+ 24	74S	F8	
Nov 22	Wed	21:47	D	SAO 128716	8.0	78+ 47	82S	K2	
Nov 23	Thu	18:44	D	80 Piscium	5.5	86+ 44	36S	F0	ZC 167, NC-DE graze
Nov 23	Thu	23:19	D	88 Piscium	6.0	87+ 47	56S	G6	ZC 184
Nov 24	Fri	18:32	D	ZC 290	6.1	93+ 38	65N	A6	
Nov 24	Fri	20:19	D	SAO 92761	6.9	94+ 56	90S	K0	
Nov 24	Fri	23:17	D	SAO 92795	7.2	94+ 59	83N	K0	
Nov 25	Sat	16:49	D	pi Arietis	5.3	98+ 13	61N	B6	Sun -1,Az78,ZC416,doubl
Nov 25	Sat	20:11	D	45 Arietis	5.8	98+ 51	69N	M6	ZC 432
Nov 26	Sun	5:23	D	Botein	4.4	99+ 8	54S	K2	Az 289,ZC 465,TrmDst 16
Nov 26	Sun	23:27	D	33 Tauri	6.1	100+ 74	83S	B9	ZC 584,mg2 9,dT+2sTmD 2
Nov 28	Tue	21:31	R	SAO 77604	7.0	96- 40	75S	K0	Axis angle 243 degrees
Nov 28	Tue	23:17	R	136 Tauri	4.6	96- 60	44S	A0	AA 212,ZC 890,closedbl?
Nov 29	Wed	0:45	R	SAO 77724	7.0	96- 75	49S	B1	Axis angle 218 deg.
Nov 29	Wed	3:32	R	SAO 77818	6.7	96- 64	35N	K5	Axis angle 314 deg.
Nov 29	Wed	20:25	R	ZC 1035	6.7	92- 18	60N	K3	maybe close double?
Nov 30	Thu	22:11	R	SAO 79672	7.6	85- 26	62S	K5	
Dec 1	Fri	0:11	R	ZC 1181	7.0	84- 49	35N	G8	mg2 10 dTime +1.2sec
Dec 4	Mon	6:58	R	SAO 99123	7.3	57- 60	52N	K0	Sun alt. -3 deg.
Dec 5	Tue	4:10	R	ZC 1613	8.1	48- 48	26N	F5	
Dec 8	Fri	3:36	R	SAO 139246	8.1	21- 10	73S	G5	Azimuth 109 deg.
Dec 9	Sat	6:42	R	ER Vir	6.6	13- 27	46N	M4	Sun alt. -6, ZC 2021

More information at http://iota.jhuapl.edu/exped.htm.

David Dunham, dunham@starpower.net

2023-2024 Officers

President:
Guy Brandenburg
gfbrandenburg@yahoo.com
202-635-1860 (leave message)

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

Secretary-Treasurer:
Jim Simpson
simpsonj@verizon.net
240-232-2820

Asst. Secretary-Treasurer:
Jeffrey B. Norman
jeffreynorman@comcast.net

Trustees:
- Tom Crone (2024)
- Benson Simon (2025)
- Michael Brabanski (2026)
- Bernard Kaufman (2027)

Appointed Officers and Committee Heads:

Exploring the Sky
Jay Miller
jhmiller@me.com

Telescope Making
Guy Brandenburg
gfbrandenburg@yahoo.com
202-635-1860 (leave message)

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

Star Dust Editor
Todd Supple
NCAStardust@gmail.com
240-687-8193

Social Media
Twitter: @NatCapAstro

April 8, 2024 Total Solar Eclipse

On Monday, April 8, 2024, the United States will experience its second total solar eclipse in seven years. Millions live along the path of totality, in cities such as Dallas, Texas and Cleveland, Ohio. Millions more will venture out to be in the path to witness that eclipse. Looking to be one of those millions? Here are a few online tools that might help you. The first is the map below published by NASA which shows the path of the April 8th, 2024 eclipse as well as the path of the recent annular eclipse that took place on October 14th. The website, where larger versions of the map can be downloaded, is svs.gsfc.nasa.gov/5073.

Image Credit - NASA's Scientific Visualization Studio

The map not only shows the path of totality, but it also gives the shape of the Moon's shadow at various points on the Earth, elongated in places because of the curvature of the Earth. In addition, it gives times when the eclipse will start along the path as well as much more information.

An article explaining the features of the map in more detail can be found at science.nasa.gov/solar-system/skywatching/eclipses/new-nasa-map-details-2023-and-2024-solar-eclipses-in-the-us/.

Looking for tips on various consideration for making the journey to an eclipse, and returning from it? An article containing some such tips is available at www.space.com/total-solar-eclipse-april-8-2024-top-tips-planning-trip.

The website eclipse2024.org/ has links to a vast amount of information, including eclipse-book recommendations and tips on how to photograph the eclipse. Another website with such information is www.greatamericaneclipse.com/april-8-2024/.

So good luck in making your plans. And hopefully the weather cooperates, allowing you to witness one of Nature's most magnificent sights – a total solar eclipse.

Recent Astronomy Highlights – continued from page 4

GAIA's Third Data Release Reveals Half a Million Newly Discovered Stars in Nearby Cluster and More

Image Credit - ESA/Gaia/DPAC. Acknowledgement: Stefan Jordan, Katja Weingrill, Alexey Mints, Tineke Roegiers

The new release of data from the Gaia astrometry mission includes information on half a million stars not previously observed in the nearby globular cluster, Omega Centauri, as well as information on hundreds of new potential gravitational lenses. More info is at phys.org/news/2023-10-gaia-cluster-cores-unforeseen-science.html.

Calendar of Events

NCA Telescope Making, Maintenance, and Modification Workshop (TM3W) (previously the NCA Mirror- or Telescope-making Classes): *The Chevy Chase Community Center has reopened and classes have resumed*. Classes will be Tuesdays and Fridays, from 6:00-9:00 pm at the Chevy Chase Community Center (intersection of McKinley Street and Connecticut Avenue, N.W.) Please contact instructor Guy Brandenburg at 202-635-1860 (leave message) or at gfbrandenburg@yahoo.com if you plan to attend. More info is at guysmathastro.com.

Open house talks and observing at the University of Maryland Observatory in College Park are temporarily suspended. 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.). Updates are posted at www.astro.umd.edu/openhouse.

Next NCA Meeting: **9 December** 7:30 p.m. Deborah Shapley, **Who Really Won the Great Debate? The Discovery that the Milky Way is a Galaxy.**

The APS Mid-Atlantic Senior Physicists Group: **(Zoom Meeting)** November 15th at 1:00 p.m., Dr. Duncan Buell, University of South Carolina, will give a talk entitled "Cybersecurity and Software Quality for Elections". More information and a link to attend the meeting via Zoom are available at info.aps.org/webmail/640833/1060178864/1fe48ec60055a54dbd65c06af77ed7a36531f33f31638e327679674e473ba311.

National Capital Astronomers Membership Form

Name: _____ **Date:** ___/___/___

Address: _____ **ZIP Code:** _____

Home Phone: ____-____-_____ **E-mail:** _____ **(necessary for delivery of Star Dust)**

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

Please indicate which activities interest you:

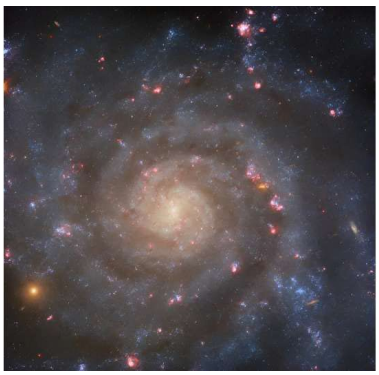
- Attending monthly scientific lectures on some aspect of astronomy ____
- Making scientific astronomical observations ____
- Observing astronomical objects for personal pleasure at relatively dark sites ____
- Attending large regional star parties ____
- Doing outreach events to educate the public, 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:
Jim Simpson, NCA Treasurer; 3845 Wayson Road, Davidsonville, MD 21035

Celebrating 86 Years of Astronomy



Credit: ESA/Hubble & NASA, R. Chandar, J. Lee and the PHANGS-HST team

The Hubble Telescope captured this beautiful face-on image of the spiral galaxy IC 5332. More information is at phys.org/news/2023-10-hubble-captures-spiral-galaxy-ic.html.

To join or renew online, visit capitalastronomers.org and look in the right column for the Membership Form and PayPal links.

Next NCA Meeting:

2023 November 11th 7:30 pm (In Person and On Zoom)

Dr. Anne Pommier

To join the meeting via Zoom, use the following link:
umd.zoom.us/j/95154535739?pwd=cERBUE9XM3AvNE40TXYrNUptVEtzUT09

Please download and import the following iCalendar (.ics) files to your calendar system:
umd.zoom.us/meeting/tJEscu2trT4tGd1QOonrqcTNP3fs8VY-InJt/ics?icsToken=98tyKuCtrz4uH9eQtxqORowMBY_4LO_ztiVajacMrTDqDTJCYTfYBrFEIepJKZX5

Please note that NCA Zoom meetings are often recorded.

Inside This Issue