GRAA NEWSLETTER

P.O. Box 1184, Greenbelt, MD 20768-1184

August 2023 http://GoddardRetirees.org **39th Year of Publication**

UPCOMING LUNCHEONS: We meet at 11:15 AM on the 2nd Tuesday of each month at the American Legion Post #136 at 6900 Greenbelt Road. **Reservations are required;** please contact graalunch@gmail.com (preferred) or call (410)-709-8889 **before Thursday, August 3rd.**

Aug 8		**Alice Bowman**, APL Mission Operations Manager, will describe the challenges of interplanetary spacecraft operations, in ***New Horizons: NASA's Mission to Pluto and the Kuiper Belt***
Sept 12		**Jeremy Werdell,** Goddard Oceanographer and Project Scientist of the **PACE** (Plankton, Aerosol, Cloud, ocean Ecosystem) mission will review the goals of this next ocean color-class satellite, scheduled for launch early in 2024.

COMMENTS FROM TONY COMBERIATE AND ARLIN KRUEGER

Our July speaker was **Dr. Julie McEnery,** Goddard's Nancy Grace Roman Project Scientist. Her talk was entitled "**Getting Out From Under the Lamppost,**" how Roman Spacecraft Science is different from previous Astrophysics Flagship Missions, such as Hubble and the James Webb Space Telescope. The four objectives of Roman are 1) A Wide Field Infrared Survey, 2) Dark energy and the fate of the Universe, 3) Distribution of planets around stars, and 4) Technology development for the exploration of new worlds. Roman's field of view is more than 100 times larger than Hubble's, allowing it to survey the sky far faster. That enables the kind of science you can do when you don't have to precisely point (ergo, Getting out from under the lamppost). It can map hundreds of millions of galaxies and use that to better understand the universe. In our own galaxy, the motion of stars within our galactic bulge can be observed in images repeated every 15 minutes.

Visible matter (stars, planets, etc.) comprises only 5% of the universe. We know that invisible dark matter (27% of the universe) exists because we see its gravitational effects on normal matter. Dark matter affects how the universe has evolved. We now know that the universe is expanding (vs. contracting due to the gravity of matter). This requires another mysterious force, called dark energy, to explain the remaining 68% of the universe. Roman will help understand this dark energy and try to determine whether the universe will continue to expand

(and how fast) or begin to contract at some point. Roman will be ten times better than Hubble at measuring the evolution of structures in our universe and how their expansion has accelerated with time. One of Roman's surveys will locate over a billion galaxies as well as precisely measure the shapes of 100s of millions of those galaxies. A 3-D map of galaxy evolution and motion over time can be produced using Standard Candles to measure the distances to tens of millions of those galaxies. Webb can make exquisite measurements close to the Big Bang, but Roman will tell what happened next.

Roman's orbital location at L2, the neutral gravity point beyond the Moon's orbit, offers advantages. Compared with Hubble, there are no Earth occultations or South Atlantic Anomaly radiation effects, and it also offers a stable thermal environment for excellent observatory thermal control. The optical structure has a vibration isolation system and attitude control is very efficient because of rapid slew and settle times. Roman will also carry a coronagraph that can detect Jupiter size planets around other sun-like stars. The launch is planned for FY 2027.

DIRECTORIES AND NEWSLETTERS: We depend on retirees to furnish their home addresses to be listed in the biennial **GRAA Membership Directories**, which are only available as mailed hardcopies to members. Multi-month ***abstracts* of Newsletters** are also mailed by USPS to our retirees with only residential addresses in our files. These are supported by donations to GRAA, P. O. Box 1184, Greenbelt, MD 20768-1184.

Retirees need to register their email addresses to get our monthly **Newsletters,** which include synopses of the talks, special community announcements, and obituaries. If you have not previously provided your email address, please send your email address to goddardretirees@gmail.com. Past Newsletters and videos are on our website https://goddardretirees.org.

TREASURER'S REPORT: Treasurer Jackie Gasch received donations from Chi Wu, Dave Olney, Barbara Sweeney, Christopher Scherer and Roberta Valonis.

FROM THE GODDARD ARCHIVES: August 12, 1960 Thor-Delta launched Echo I which was the first successful Delta launch and first communication satellite. It was a 100 foot sphere, passive comsat.

REMEMBERING OUR FORMER COLLEAGUES:

Richard Eugene Donnelly, 91, of Rockville, MD, died on June 23, 2021. He served in the U.S. Air Force during the Korean War and worked as an engineer at GSFC. When he retired from NASA, he was assigned to International Projects.

Michael R. Clark, 69, died on May 21, 2023, at his residence. Mike received his Bachelor of Science degree in structural engineering from the University of Maryland and his Master of Science degree from the George Washington University. He worked for the David Taylor Model Basin developing ship design before joining NASA where he worked until retiring in 2016. Mike worked as a Mechanical Engineer largely supporting GOES/POES for most of his Goddard career. He worked for Goddard for approximately 30 years.

Aaron Fisher, 105, of Palm Beach Gardens, Florida, died November 17, 2021. He was a graduate of CCNY, City College of New York and was a WWII veteran, serving in Newfoundland, Canada. He worked for the Navy before working at Goddard. He was a plastics chemist for NASA starting in the 1970's and was involved in pioneering satellite technology.

Billy Gerald Anderson, 89, of Ocala, passed away on Monday, June 26, 2023, in Ocala, Florida. He was born September 4, 1933, in Wheeler, West Virginia. He had several occupations during his lifetime including service in the US Army from 1953-1955, where he was stationed in Vienna, Austria, as a military policeman; security at NASA's KSC during the Mercury and Gemini programs and at Goddard during the Apollo Project; He was also a mail carrier in Greenbelt and eventually retired from the US Postal Service in Florida.

Robert "Bob" Perliss, 96, born in December 25, 1926 in Brooklyn, NY passed away on June 27, 2023. Bob graduated from Brooklyn Polytech and went on to forge a career in space exploration, most proudly as a Senior Engineer on NASA's Hubble Space Telescope under Perkin-Elmer. During his long career, he served as an engineer on projects such as the KH-9 Hexagon, a series of reconnaissance satellites, and the inception of the Kitt Peak Observatory, home to one of the largest solar telescopes in the world. Bob donated extensive documents on the Hubble Space Telescope Project.

Pattie Domingus Sewell, 83, formerly of Dover, Delaware, died suddenly on June 16, 2023, at her home in Richmond, Virginia. Pattie worked as an editor at Goddard before becoming a freelance writer, regularly writing features and humor pieces for a Delaware newspaper and magazine.

Ralph Joseph Strnad, Sr., 84, passed peacefully on July 7, 2023, in Rosedale, MD. Ralph worked for NASA in the Procurement Operations Branch of the Procurement Management Division and, later, in the Construction Operations and Maintenance Branch of the Facilities Management Division, retiring from GSFC after 33 years.

Frederick Grant Thorne, Sr., 97, died on June 27, 2023. Born on October 1, 1925, Fred enlisted in the Navy during World War II. He worked a short stint for the US Post Office in Washington D.C., then at Goddard on the Vanguard Project. It was the Vanguard Project that precipitated the eventual move to Florida, first for nearly a year TDY in 1957, then returning to Maryland for several years, then returning to Florida from 1961-1962 to work for NASA until retirement in 1972. He was the Launch Complex Manager for Delta Launch Complex 17 when he retired.

John Kirk "J.K." Jackson, 83, died peacefully at home in Tallahassee on June 25, 2023, after a brief illness. He was a graduate of William Jewell College and received a Master's degree in Physics from the University of Missouri. J.K. worked for NASA in Alaska, Peru, and at Goddard during the 1960s. He subsequently went to Tallahassee to study for a doctorate in Physics at Florida State University.