

GRAA NEWSLETTER


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

November 2022

<http://GoddardRetirees.org>

38th 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 (240) 720-7833 **before Thursday, November 3rd.**

Nov 8	 <p>Dave Pierce, Director, Wallops Flight Facility, will bring us up to date in his talk: "Wallops Flight Facility: A Unique NASA and National Asset"</p>
Dec 13	No Luncheon. Happy Holidays!

COMMENTS FROM TONY COMBERIATE AND ARLIN KRUEGER

Almost 100 people attended our October luncheon to hear **Dr. John Mather**, Nobel laureate and Goddard's JWST Senior Project Scientist. His talk, entitled "Opening the Infrared Treasure Chest with JWST", described the James Webb Space Telescope (JWST), the history of its development, how it works, and what its results mean. John's Nobel Prize was awarded for his development of the Cosmic Background Explorer (COBE) mission. The idea that the Universe expanded from a "primitive atom" was first proposed by Georges Lemaître in 1927. Then Edwin Hubble, in 1929, determined that there are other galaxies in the Universe beyond the Milky Way, and observed that the Universe must be expanding. The infant Universe was an opaque black body that became transparent only when it cooled enough for atoms. If that theory was true this "Big Bang" would leave behind the signature of the original black body, now shifted to microwave wavelengths. COBE revolutionized our understanding of the early

cosmos, by precisely measuring and mapping the cosmic microwave background from the oldest light in the Universe.

Webb is an international project led by Goddard, involving over 20,000 people, in contrast to COBE, which had about 300 people. Webb was launched into a perfect trajectory to L2 on Dec 25, 2021. Its solar panels deployed immediately, then the antenna, followed by the unfolding of the big structure, and finally, the five-layer heat shield. After six months of checkout and focusing, Webb's first operational images were incredible. John mentioned that the Webb Telescope has seven times the area of the Hubble telescope. He showed the audience many of JWST's first pictures, such as Webb's first deep field image (obtained only by very long exposure times), which was formally released by President Biden at a ceremony earlier this year. In it, he pointed out a host of distant galaxies and arcs of light from even more distant galaxies, whose light was seen only by warping around the closer galaxies by their gravity fields.

Webb operates at wavelengths from 0.6–28.3 μm (orange to mid-infrared (IR)). Observing in the infrared has the advantages of seeing stars and galaxies in the earliest Universe, seeing stars being born in dust clouds, and seeing cooler objects. Since wavelengths are shifted from the ultraviolet to the infrared as the Universe expands, Webb will be able to look back almost 13.6 billion light years, the farthest we've ever seen in space.

The Big Bang produced only hydrogen and helium while the heavier elements were formed in nuclear reactions in stars. The formation of the earliest galaxies is still a mystery; however, we now know that when galaxies collide more new stars are formed. Most galaxies have a black hole, which is only detectable by bright stars, heated as they fall into the hole. We can learn more about our solar system's history by studying other galaxies. For example, when Webb looked at a typical spiral galaxy, vaporized holes formed by extremely hot stars were found that were not visible in Hubble images.

Webb's early views of our solar system have already found that the Mars atmosphere contains carbon monoxide (which could be used for fuel), it saw the impact debris from the Double Asteroid Redirection Test (DART) collision, and Neptune's winds really jump out in the patterns of the atmosphere. It will look for organic molecules in water jets from the cracks of Europa's icy crust, and look through Titan's dense atmosphere to look for rocks ahead of a future NASA helicopter mission. Webb will also search for exoplanets and, in a search for habitable planets, analyze their atmospheres as they pass in front of their suns. Although it's too hard to find oxygen in these cases, Webb will look for steam. Dr. Mather answered several audience questions and thanked the GRAA members that helped build both the COBE and Webb spacecraft.

SPECIAL NOTE: GRAA depends on donations to commercially print and mail Newsletters and the Directory. Please send your donations to **GRAA, P. O. Box 1184, Greenbelt, MD 20768-1184.** Thank you for your donations! Please send your email address to goddardretirees@gmail.com for electronic copies and to save postal costs. Past Newsletters and videos of recent luncheon talks are available at our website <http://goddardretirees.org>.

TREASURER'S REPORT: Jackie Gasch received tax-deductible donations from the following: Robert Adams, Billie Blackwell in memory of the folks at Wallops, Howard Branch, Shirley Cain, James Costrell, Bob and Betty Cummings, Denise Duignan, Stephen Dolan in memory of Alberta Moran, Archie Fitzkee, Edmund Habib, Joseph Hennessy, Ellen Herring, Sally & John Hodge, Eddie Jones, William Mack, Patrick Melia, Reg Mitchell in memory of Phillip Yaffee, Dillard Menchan, Joseph Novello, Dorothy Perkins, William Pfeiffer, Jonathan Ormes, Ray Saxton, Barbara Shavatt in memory of Alberta Moran, Andrew Smith, Steven Smith in memory of Brad Torain, William Struthers, Roberta Valonis, Margaret Wells, John Webster, Won Yin in memory of LO I Yin, Michael Mahoney, John Peake, and Craig Weikel.

FROM THE GODDARD ARCHIVES – IT HAPPENED IN OCTOBER:

Twenty-five years ago Japan launched the joint US-Japan Tropical Rainfall Measuring Mission (TRMM) on an H-2 rocket. It operated for 17 years improving our understanding of the water cycle in the current climate system.

REMEMBERING OUR FORMER COLLEAGUES:

Edmund A. Smigocki, 86, of Kensington, Maryland died on August 2, 2018 after a long illness. He was the head of the Fabrication and Development Section in the Engineering Services Division. While working at Goddard he helped develop a portable horizontal-drilling and positioning device with three axes of movement to precisely drill horizontal small holes in irregularly shaped objects that could not be moved to a shop area.

Robert (Bob) Raymond Wilson, Jr., 97, of Council Grove, Kansas died on December 31, 2019. After obtaining an electrical engineering degree from Kansas State College of Agriculture and Applied Science, Bob worked for the Naval Ordnance Laboratory in White Oak, Maryland before working at Goddard, where he worked until his retirement. After retirement, he and his wife, Mary, moved back to Council Grove, where he was born, in 2014.

James C. Morakis, 92, died on February 1, 2020. Born in Chios, Greece in 1928, he emigrated to the U.S. at the age of 18 and obtained a BS in Electrical Engineering at City College NY, a MS in Math from Columbia University, and a PhD in Electrical Engineering from the University of Maryland. After graduating from CCNY he worked at Bell Labs, assisting in the development of video conferencing, and, at the University of Michigan, in infrared technology. Then following work at Martin Marietta, he joined NASA Goddard where he worked in the Aerospace Data Standards Office specializing in satellite telemetry, telecommand, coding, and trellis-coded modulation techniques. He was involved in the development of a high data rate Reed-Solomon

encoder and decoder using Very Large Scale Integration (VLSI) technology. He retired in 1998 after over 30 years at Goddard.

Dr. Lo I Yin, 90, of Silver Spring MD passed away on November 25, 2020. A prolific inventor in Goddard's Code 684, Solar Activity Branch, Laboratory for Astronomy and Solar Physics, (as well as a marathon runner!), he notably invented a small hand-held x-ray device that could be easily used in dentistry.

Gerald (Gerry) Leroy Burdett, 87, died on May 4, 2021. While attending the University of Michigan he worked at the Upper Atmospheric Research Laboratory. After completing ROTC at the university, he was commissioned in the United States Army and stationed at Fort Meade, MD. He joined NASA in its infancy and worked on a variety of projects including NIMBUS (where he developed the first weather satellite camera); ERTS (LANDSAT 1); Apollo; ITOS as Spacecraft Manager; TIROS-M and Solar Max Mission as Deputy Project Manager; and the Hubble Space Telescope as Project Manager at Goddard. In 1969, he received an Exceptional Service Medal from NASA for his contributions to the Space Program. As Senior Staff Engineer on the Space Station Task Force, he collaborated with Senator Barbara Mikulski to secure funding from Congress for the International Space Station. Jerry continued working in the space arena throughout his career including working at EER Systems, Fairchild Space, and United Technologies, where he supported several NASA projects including the International Space Station and Hubble Space Telescope.

Nicolas V. Mejis, Jr. passed away on September 7, 2021, at his home in Kentucky. He worked as an Electrical Engineering Technician, in the Space Power Applications Branch, Energy Conservation & Analysis Section, at GSFC. He retired in 1994 after 35 years.

Linda Rae Werneth, 79, of Owings, Maryland passed away on November 27, 2021 after suffering a stroke on Thanksgiving evening. She attended Parkville High School in Baltimore, Maryland where she met her future husband, Russell Werneth, with both subsequently working at Goddard. Linda worked in several administrative positions in Transportation and the Goddard Library; she was also a "Hubble Hugger" helping support Russell's work with the Hubble Space Telescope Project. She also enjoyed cooking, gardening, sewing, traveling, and reading. Linda and Russell were married for 57 years.

Earl C. Gernert, Jr, 90, of Greenbelt MD passed away in February 2022. Earl worked in Code 586 (Science Data Systems Branch) and in the Information Processing Division

Phil M Shimkaveg, 69, of Halethorpe, Maryland died on February 9, 2022. Phil was born in Baltimore, Maryland where he attended Mount Saint Joseph High School and then the University of Maryland Baltimore County from which he graduated in 1975. He was a Mission Business Manager at GSFC who worked in Code 460 (Solar Terrestrial Probes Program) until retiring in 1975.

Dr. Joseph C. Cain III, 82, passed away on July 13, 2022, at his home in Tallahassee. After earning a PhD in Geophysics at the Univ. of Alaska, he spent much of his career at GSFC in the

Applications Directorate, creating spherical harmonic models of the Earth's magnetic field using measurements from Vanguard 3, OGO 2&4, and MAGSAT II satellites which were equipped with proton magnetometers. In 1975, he left Goddard's Earth Survey Applications Division and moved to the USGS in Colorado; then after retiring moved to Florida State Univ. and the Geophysical Fluid Dynamics Institute, where he taught and did research on Mars's magnetic field.

Ronald Elroy Holland, 79, of Chestertown, MD died on October 5, 2022. He worked for RCA, GE, and CSC before coming to Goddard, where he worked in Spacecraft Operations on the Hubble Space Telescope.

Danny Allen Dalton of Crofton, Maryland, died at the age of 86 on October 19, 2022. Danny accepted a position with NASA Goddard Space Flight Center in 1962 where he became the Head of the Digital Data Systems Branch of the Manned Flight Engineering Division. His Branch performed the design, development, and display/timing systems required for the Manned Space Flight Network. He worked to develop the technology and electronics that were used in multiple Goddard spacecraft including Gemini, Apollo, Tracking Data and Relay System (TDRS), Shuttle, Hubble, and the James Webb telescope. He is missed as an active member of GRAA.