



# GRAA NEWSLETTER

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

July 2023 <https://GoddardRetirees.org> 39th Year of Publication

**UPCOMING LUNCHEONS:** We meet at 11:15 AM on the 2<sup>nd</sup> Tuesday of each month at the American Legion Post #136 at 6900 Greenbelt Road. **Reservations are required;** please contact [graalunch@gmail.com](mailto:graalunch@gmail.com) (preferred) or call (410)-709-8889 **before Thursday, July 6th.**

July 11		<b>Julie McEnery</b> , Nancy Grace Roman Project Scientist will discuss the Science of the Roman Space Telescope, NASA's next Astrophysics Flagship Mission.
Aug 8		<b>Alice Bowman</b> , APL Mission Operations Manager, will describe the challenges of interplanetary spacecraft operations, in <i>New Horizons: NASA's Mission to Pluto and the Kuiper Belt</i>

## COMMENTS FROM TONY COMBERIATE AND ARLIN KRUEGER

Our June speaker was **Dr. Scott Braun**, a Research Meteorologist in Goddard's Mesoscale Atmospheric Processes Laboratory, and the Project Scientist for ESO-AOS missions. His talk was entitled "**The Atmosphere Observing System (AOS): Future Space-Based and Suborbital Observations for the Study of Coupled Aerosol-Cloud-Precipitation Interactions.**"

NASA's Earth System Observatory (ESO) focuses on guiding efforts in climate change, natural hazards, forest fires, and agriculture. The 2017 Decadal Survey identified missions to clarify Aerosol -Cloud-Precipitation Interactions as Earth science's top priority. The Atmosphere Observing System (AOS) will consolidate tools to measure aerosol properties and cloud structure and observe the ways that cloud formation and rainfall are changed by aerosols. AOS is needed now because the current Earth-observation Terra, Aqua, and Aura satellites in the A-Train are reaching the end of life.

AOS will include spacecraft in sun-synchronous and inclined orbits: An AOS-P spacecraft will carry a Doppler radar, a microwave radiometer, a GSFC backscatter lidar, a polarimeter, and a Canadian Space Agency far-infrared imaging radiometer. The High-altitude Aerosol Water-vapor Cloud satellite (HAWCsat) will carry aerosol and water vapor limb imagers. Other spacecraft will be launched into 55° inclined orbits to evaluate diurnal changes in aerosols and clouds. The AOS-I spacecraft will carry backscatter lidar and microwave radiometer

instruments, and the Precipitation Measuring Mission (PMM) spacecraft will carry a Ku band, wide-swath radar, and a microwave radiometer.

Other independent instruments, such as the University of Maryland Baltimore County (UMBC) Hyper-Angular Rainbow Polarimeter #2 (HARP2) on the upcoming Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission, will provide valuable aerosol data. Aircraft missions are planned to measure and define the cirrus lifecycle and help to measure the aerosol-cloud-radiation interaction process.

AOS will study globally distributed and diurnally varying vertical air motions in convection; coupled dynamics and aerosol, cloud and precipitation measurements, longwave radiation; short-time-interval evolution of convective clouds; and diurnal variability of coincident precipitation, cloud, and aerosol profiles. Climate models focus on predicting the local and regional climate response to both natural and anthropogenic (human activity) stimuli. The biggest uncertainties in predicting future warming are caused by the radiative forcing by the aerosol–cloud–surface feedbacks that AOS will measure.

**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. If the address listed for you in the GRAA Membership Directory is incorrect and you have not already sent an updated address, please send an update to [goddardretirees@gmail.com](mailto:goddardretirees@gmail.com). 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. Please send your email address to [goddardretirees@gmail.com](mailto:goddardretirees@gmail.com). Past Newsletters and videos are on our website <https://goddardretirees.org>.

**TREASURER'S REPORT:** Treasurer Jackie Gasch received donations from Dave Olney, Karl Peters, James Greaves, and William Bryant in memory of John Sudey.

**FROM THE GODDARD ARCHIVES:** On July 16, 1982, Delta launched Landsat 4, the first Landsat with a new Thematic Mapper as the main observing instrument. Landsat 4 provided data for 11 years.

**REMEMBERING OUR FORMER COLLEAGUES:**

**Michael Boyce**, 78, died on April 18, 2023. Mike was born on August 26, 1944, and worked as a software engineer on NASA's Apollo moon missions at Goddard Space Flight Center.

**Martha Robey**, 81, of Davidsonville, MD, died of cancer on Saturday, May 27 at the Anne Arundel Medical Center in Annapolis, MD. Martha worked as a financial analyst for NASA at Goddard and supported Second TDRSS Ground Terminal (STGT) and Earth sciences. She retired from GSFC in 2004.

**George E. Looschen Sr.**, 86, died on May 31, 2023. George was born Sept. 9, 1936, and served in the NASA space program for 60 years. George joined Goddard in 1964 working on the Apollo program, but soon found his way to the Kennedy Space Center. During his NASA career, George worked as an engineer, branch chief, division chief, and assistant launch manager, all in support of the NASA Expendable Launch Vehicle effort.

**Frederick R. "Pat" Bradley, Jr.**, 86, died on June 21, 2023, at his residence. Born on March 16, 1937, in Nassawadox, VA, Pat worked as an Electronics Technician at Wallops Flight Facility for over 44 years. He enjoyed his job immensely and even went back to work after retirement, officially retiring at the age of 75.