

Dr. Sunanda Basu (1940-2026)

Dr. Sunanda Basu, an internationally distinguished space scientist and leading authority on ionospheric scintillation, passed away on August 18 after a long illness. Sunanda will be remembered not only for her scientific achievements but also for the remarkable generosity and dedication with which she supported the next generation of scientists.

Dr. Basu was born on December 9, 1940, in Calcutta, India. She earned her B.S. in Physics from the University of Calcutta in 1960 and her M.S. in Physics from Boston University in 1963. At a time when relatively few women pursued graduate degrees in physics, her achievement attracted the attention of the Boston Globe, which sent a photographer to document her graduation. With her beloved husband Santimay, Sunanda subsequently returned to India, where as a female scientist, she overcame numerous barriers to obtain a Ph.D. in physics from the University of Calcutta. Her doctoral work focused on ionospheric radio-wave propagation and scintillation, including studies of the equatorial anomaly and magnetoionic mode coupling.



Sunanda then returned to the United States for a National Research Council (NRC) postdoctoral fellowship. For approximately 15 years, she and Santimay built an extensive program of collaborative research on ionospheric scintillation and plasma irregularities, including coordinated radar and scintillation measurements at the magnetic equator. Their work contributed to understanding the development and evolution of ionospheric irregularities associated with equatorial spread-F. Sunanda also participated in observational campaigns spanning equatorial, polar-cap, and polar-cusp regions and helped develop a global picture of ionospheric scintillation and its dependence on solar activity.

In 1992, Sunanda joined the National Science Foundation (NSF), where she became the first woman to serve as Director of the Aeronomy Program. In that role, she helped shape national research priorities and expand opportunities for research in atmospheric and space sciences, including initiatives that brought together programs and resources across scientific disciplines and federal agencies. She remained deeply engaged with the scientific community, organizing major international initiatives that substantially broadened international partnerships in space science. After leaving NSF, she chaired the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) Climate and Weather of the Sun-Earth System Program from 2002 to 2006, helping foster international programs in Germany, India, and Japan.

Among Sunanda's most significant honors were the 2019 American Geophysical Union (AGU) Ambassador Award, her appointment as an AGU Fellow that same year, and the 2020 SCOSTEP Distinguished Service Award. She was recognized for her scientific contributions and leadership, her initiatives at NSF and elsewhere, her fundraising, and her advocacy for international collaboration in space weather, particularly with developing countries.

Her commitment to opening doors for young scientists, and to achieving greater gender balance and international representation in space physics, became an enduring part of her legacy also through the awards she and Santimay established to support the next generation of scientists. In 2008, the Basus established the Sunanda and Santimay Basu International Early Career Award in Sun-Earth Systems Science through the AGU. It recognizes promising early-career scientists from developing nations whose research advances understanding of Sun-Earth systems and space physics. Recipients have come from countries including China, India, Peru, South Africa, and Kenya. The award has provided not simply recognition, but practical support—including travel and housing to attend the AGU Fall Meeting and three years of AGU membership—helping young scientists become part of the international scientific community.

Following Santimay's death in 2013, Sunanda continued this tradition of supporting young researchers. She established the Santimay Basu Prize through the International Union of Radio Science (URSI), specifically honoring early-career scientists whose work advances understanding of radio-wave propagation. URSI's official description of the award recognizes the Basus as having been closely involved with the organization for many decades and notes Sunanda's generosity in establishing the prize in her husband's memory. Her commitment to science and education in India culminated in her helping to establish the Sunanda and Santimay Basu Chair in Astrophysics at Ashoka University.

In 2022 Sunanda made a substantial gift to the National Academy of Sciences to name the Ramanathan Climate Conversations series at the National Academies, in honor of Veerabhadran “Ram” Ramanathan. Recognizing that climate change is a global challenge that requires global solutions, the Ramanathan Climate Conversations focus on climate resilience in South and East Asia, aiming to identify pathways to action relevant to inhabitants and policymakers around the world.

For those who knew Dr. Basu through the NSF and the Coupling, Energetics and Dynamics across Regions (CEDAR) communities, her legacy extends well beyond her scientific publications. Sunanda used her success and resources to open doors for scientists who were just beginning their careers, particularly talented researchers from countries that historically had fewer opportunities to participate in international space science. She helped build communities, played an instrumental role in developing the NSF CEDAR and U.S. National Space Weather programs, encouraged international cooperation, and mentored and supported young researchers. Sunanda will be remembered for devoting much of her life to ensuring that talented researchers—regardless of where they were born or where they began their careers—had the opportunity to be recognized, encouraged, and heard.

Sunanda is survived by her son Susanto Basu and her daughter-in-law Christina, of Boston, MA, and by many first cousins, whom she regarded as siblings, in the US, Canada, and India.

Viewing and a memorial service will be held on Sunday, August 30, at Murphy Funeral Home, 4510 Wilson Boulevard, Arlington, VA 22203, starting at 1:30 pm. The service will be broadcast via a live stream, available at: <https://client.tribucast.com/tcid/c26085902521091>