DISTINGUISHED ALUMNI

Patrick Minnis, a Senior Research Scientist at NASA Langley Research Center since 1981, leads a large satellite remote sensing group focusing on clouds and aerosols. His work has had numerous impacts on climate, weather, and air traffic safety. He performed the first analysis of geostationary satellite imagery to quantify cloud diurnal variability and its effects on Earth's radiation budget. He later established from theoretical computations and satellite and radar data that remote sensing of ice clouds requires use of realistic ice crystal models instead of assuming spherical crystals, a topic of continuing research. He was the first to measure the drop in solar radiation entering the global troposphere due to a large volcanic eruption, Mt. Pinatubo in 1991, which significantly reduced global temperatures. He developed intercalibration methods that have enhanced the utility of many satellite imagers. He pioneered a system to retrieve cloud properties from many different satellite imagers, providing data for long-term climate records and for near-real-time applications. He led his group to determine contrail impacts on climate, to nowcast conventional and high-ice-water-content aircraft icing conditions, and with modeling scientists, to improve weather forecasts by assimilating satellite-based cloud properties into numerical weather models. He and his team have played a key role in more than 40 cloud-related field missions and continue to reside at the frontier of cloud remote sensing. He earned a B.E. in Materials Science at Vanderbilt (1972), an M.S. in Atmospheric Science at Colorado State University (1978), and a PhD in Meteorology at the University of Utah (1991). Minnis is a Fellow of the American Meteorological Society (AMS, 2010) and American Geophysical Union (2009). He was given the 1998 AMS Houghton Award and the 2011 AIAA Losey Atmospheric Science Award. He has received numerous awards from NASA, including its highest honor, the Distinguished Service Medal (2011).