PURDUE
UNIVERSITY

School of Aeronautics and Astronautics
Laboratory for Applications of Remote Sensing (LARS)
Division of Environmental and Ecological Engineering

Special Seminar

Overview of Polar-Orbiting Microwave Radiometers for Environmental Remote Sensing

Dr. David Kunkee
Senior Project Leader
The Aerospace Corporation
Los Angeles, CA

Thursday, November 11, 2010, 2:00 p.m.
A. A. Potter Engineering Center, Room 234 (Fu Room)

Abstract **-** Microwave radiometers in low-earth orbit provide continuous daily measurements of several environmental parameters used for weather forecasting, climate studies and operations. In many cases, microwave radiometers are the only source of calibrated global 'all-weather' data. The first microwave radiometers in space were carried by the Nimbus 5 launched Dec 12, 1972. Since then several multichannel microwave radiometers from the U.S. and international programs with additional channels and covering a broader range of the microwave spectrum and, in some cases, with larger antenna sizes have been launched. These instruments are collectively responsible for related improvements weather forecasting capabilities and have facilitated development of climate studies and long term climate records. Examples of past and current microwave radiometers include the Special Sensor Microwave Imager (SSM/I) and Imager Sounder (SSMIS) on the Defense Meteorological Satellite Program (DMSP), the Advanced Microwave Scanning Radiometer (AMSR-E) on the NASA EOS Aqua Mission, and NOAA's Advanced Microwave Sounding Unit (AMSU) cross-track microwave sounders. Other instruments include the NASA tropical Rainfall measuring Mission Microwave Imager (TMI) and the new Global Precipitation Measurement Microwave Imager. This seminar will include a summary of microwave-related Environmental Data Records (EDRs) including applications of microwave radiometer data to weather and climate, an overview of some of the current space-based microwave instruments and considerations for sensor calibration.