

MORE Science at UTSA

Environment Science and Engineering

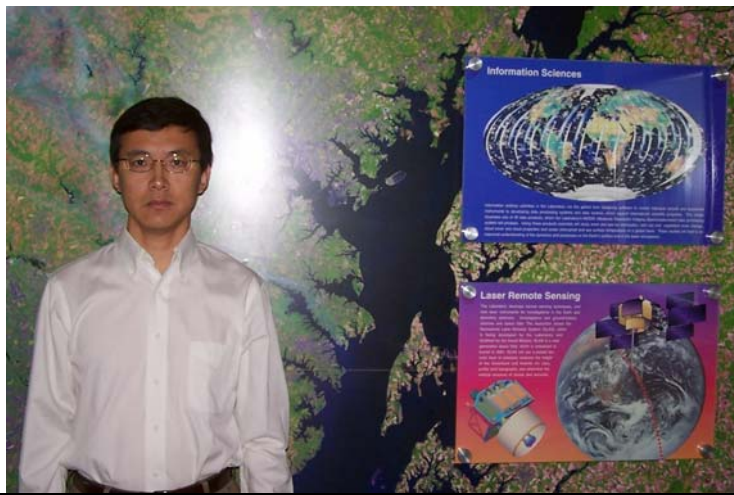
Fall 2006 Seminar Series

Where: Loeffler room (3.03.02) in the BioScience Building

When: 4:00 PM – 5:00 PM on October 6, 2006

Snack and drinks will be served

Speaker: Dr. Donghui Yi



Dr. Donghui Yi is a chief scientist at SGT Inc., NASA Goddard Space Flight Center. His primary research interests are satellite remote sensing of polar ice sheets and sea ice. His primary experience involves laser and radar altimetry data analysis, algorithm development, and the application of altimetry data to the study of ice sheet mass balance and sea ice. He has worked with SEASAT, GEOSAT, and ERS1/2 data over Antarctica and Greenland to study surface elevation change and radar signal penetration and their relationship to snow/firn characteristics. He has also worked with ICESat

AMSR-E, and SSMI data to study sea ice freeboard and thickness in the Arctic and Antarctic and their relationship to climate change; and with laser/radar altimeter parallel ground track data to determine surface slope in Greenland and Antarctica to improve altimeter measured mass balance results. Dr. Yi obtained his Ph.D. from the University of Wisconsin-Madison in 1996. He worked on NASA's ICESat Mission since 1997.

Topic: ICESat Measurement of Antarctic Sea Ice

The precision of ICESat-measured mean surface elevation of flat surfaces is 2 cm. The 70 m laser footprints are spaced 172 m apart along track. This provides an important tool for the study of sea ice. The ICESat orbit has an inclination of 94° and its ground tracks cover all sea ice surrounding Antarctica. Using open water and thin ice as reference sea level, a novel technique has been developed to measure sea-ice freeboard using ICESat-measured elevation data. With estimates of snow, brine, and sea-ice density, combined with snow thickness data from AMSR-E, sea-ice thickness is derived from the freeboard. Sea-ice freeboard is first calculated along ICESat ground tracks and then gridded into 50 x 50 km cell. Sea-ice thickness is derived from gridded freeboard and AMSR-E snow thickness data. Overall, ICESat measurements provide unprecedented accuracy and spatial and temporal coverage of sea-ice freeboard and thickness and can be used to monitor sea-ice volume, which is an indicator of climate change.