SEMINAR: Bader Lecture Series: Monday, March 9th at 1:30pm in the Slab Seminar Room

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From: Patricia Archuleta <parchuleta@rsmas.miami.edu>
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Bader Lecture Series
(http://www.rsmas.miami.edu/support/outreach/bader-lecture.html)

Speaker:
Professor David G. Long
Brigham Young University

Title:
Applications of Radar Scatterometry in the Study of Oceans, Ice and Vegetation

Date:
Monday, March 9th, 2009

Time:
1:30pm

Venue:
Slab Seminar Room (S/A 103)

Abstract
A wind scatterometer is a spaceborne radar remote sensing instrument which is designed to measure near-surface vector winds over the ocean. The scatterometer does not directly measure the wind, rather, it measures the normalized radar backscatter ($\sigma^0$) of the surface. Then, from multiple $\sigma^0$ measurements, the wind blowing over the ocean's surface is inferred. Scatterometer wind measurements have wide application in air-sea interaction and weather observation.

The scatterometer also makes $\sigma^0$ measurements over land and ice. While the low resolution (25 km) of the scatterometer measurements can limit their utility in land and ice studies, a recently developed scatterometer resolution enhancement algorithm has been developed. This algorithm enables the generation of enhanced resolution $\sigma^0$ images from past and present scatterometers. The enhanced resolution scatterometer images have been proven to be useful in a variety of studies of polar ice and tropical vegetation.

These enhanced resolution scatterometer observations can be used over land to study deforestation of tropical rainforest and desertification. Over the glaciated regions of Greenland and Antarctica, the radar signal is very sensitive to melting conditions and can thus be used to global warming. The contrast between ocean and ice scattering enables tracking of major iceberg during both day and night. These and other applications of microwave remote sensing are briefly described.

Short Biography
Dr. Long is a Professor in the Electrical and Computer Engineering Department at Brigham Young University where he teaches upper division and graduate courses. He is the Director of the BYU Center for Remote Sensing and head of the Microwave Earth Remote Sensing (MERS) Laboratory. He is the Principal Investigator for a number of NASA-sponsored research projects in microwave remote sensing. Previously, he worked for NASA/Caltech's Jet Propulsion Laboratory where he was responsible for the design and development of various spaceborne radar systems.