

“Petroleum, NASA, and a 21st Century Oil Spill Response”

A Geography Colloquium presentation by

Dr. Ira Leifer

Thursday, February 10, 2011: 1940 Buchanan, 3:30–4:45 pm

Abstract:

The Deepwater Horizon/Macondo oil well accident released an unprecedented quantity of oil into the northern Gulf of Mexico marine and littoral environment (~1 billion liters). NASA responded to this disaster by mobilizing the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) instrument, as well as other airborne and spaceborne assets. Analysis of the captured data allowed mapping of the complex coastal wetlands ecosystem as it existed before the oil inundation. In addition, new AVIRIS flights are providing post-inundation data. A novel approach to analyzing this data helped bound the estimates of the Macondo well oil release by allowing the measurement of oil-slick thickness. Please join us as Ira Leifer discusses this approach, which uses the U.S. Geological Survey–developed "Tetracorder" algorithm and quantifies the oil-to-water ratio and the fractional oil coverage.

Bio:

Starting with astronomy (SUNY Stony Brook, B.S.), Dr Leifer shifted to planetary atmospheres (M.S.) at the University of Michigan, and then atmospheric chemistry at Georgia Tech, with a thesis on bubble-mediated air–sea gas exchange. He continued bubble air–sea research in Ireland at the University College, Galway. Coming to U.C. Santa Barbara, Dr. Leifer continued his research trend of sinking lower and lower by focusing on gas bubbles from the seabed using sonar and video and other techniques. His research reached new depths in the study of subsurface geologic structures and their relationship to seepage. Then, a developing interest in atmospheric methane observations by in situ techniques and by imaging spectroscopy saved him from possibly sinking into the mantle. Recently, he has participated in the Technical Flow Rate Group Plume Team, was the mission chief coordinator on the first NASA response to the Gulf of Mexico oil spill, organized the Deep Spill 2 Study Project, and was a member of the NOAA mass balance team.

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