## Abstract for 2003 AGU Spring meeting

# GPS derived seasonal variations at altimeter calibration sites

D. Dong and B. J. Haines Jet Propulsion Laboratory

Significant seasonal variations are detected at the TOPEX/POSEIDON (1992--) and JASON-1 (2002-) altimeter calibration sites. We present the seasonal variations at these calibration sites using 3-10 years GPS observations. Understanding the nature of the observed seasonal variations provides insight into the error spectrum on seasonal periods. Geophysical model predicted seasonal variations due to mass redistributions from atmosphere, non-tidal ocean, and surface ground water are investigated and compared with the GPS observed seasonal variations. Our comparisons indicate that the geophysical models can only explain part of the observed signals. At some sites, for example Harvest Oil Platform, the local seasonal environment effects are dominant. We further explore the contributions from local seasonal environment effects, for example platform thermal expansion and aquifer water table undulation. With the consideration of the local seasonal effects, the agreement between observed and modeled seasonal variations is much improved. The nature of the residuals of seasonal variations should be further investigated.