Announcing the Final Examination of Andrea Santos Garcia for the degree of Doctor of Philosophy

Time & Location: April 5, 2016 at 2:00 PM in HARRIS CORPORATION ENGINEERING CENTER - HEC 450
Title: INVESTIGATION OF THE EFFECT OF RAIN ON SEA SURFACE SALINITY

The Aquarius/SACâ€”D mission provided Sea Surface Salinity (SSS), globally over the ocean, for almost 3 years. As a member of the AQ/SACâ€”D Cal/Val team, the Central Florida Remote Sensing Laboratory has analyzed these salinity measurements in the presence of precipitation and has noted the high correlation between the spatial patterns of reduced SSS and the spatial distribution of rain. It was determined that this is the result of a cause and effect relation, and not SSS measurement errors. Thus, it is important to understand these salinity changes due to seawater dilution by rain and the associated nearâ€”surface salinity stratification. This research addresses the effects of rainfall on the Aquarius (AQ) SSS retrieval using a macroâ€”scale Rain Impact Model (RIM). This model, based on the superposition of a oneâ€”dimension eddy diffusion (turbulent diffusion) model, relates SSS to depth, rainfall accumulation and time since rain. To identify instantaneous and prior rainfall accumulations, a Rain Accumulation product was developed. This product, based on the NOAA CMORPH precipitation data set, provides the rainfall history for 24 h prior to the satellite observation time, which is integrated over each AQ IFOV. In this research results of the RIM validation are presented by comparing AQ and SMOS measured and RIM simulated SSS. The results show the high cross correlation for these comparisons and also with the corresponding SSS anomalies relative to HYCOM.

Major: Electrical Engineering

Educational Career:
Bachelor's of Electronics Engineering, BS, 2005, Universidad Industrial de Santander
Master's of Electrical Engineering, MS, 2010, University of Puerto Rico

Committee in Charge:
W. Linwood Jones, Chair, Electrical and Computer Engineering
Parveen, Wahid, Electrical and Computer Engineering
Wasfy, Mikhael, Electrical and Computer Engineering
William, Asher, Graduate Faculty Scholar
Thomas, Wilheit, Graduate Faculty Scholar
William, Junek, Graduate Faculty Scholar

Approved for distribution by W. Linwood Jones, Committee Chair, on March 20, 2016.

The public is welcome to attend.