*3rd WMO IWTC Landfall Processes Meeting*

**Oceanic Influences on Super Typhoon Haiyan**

Lynn K. Shay, Claire McCaskill, Jodi Brewster

RSMAS/MPO, University of Miami, Miami, FL

nshay, cmccaskill, jbrewster@rsmas.miami.edu

From 3 to 12 Nov 2013, typhoon Haiyan rapidly intensified to a super typhoon (ST) status along the northern perimeter of the western Pacific warm pool. During its passage, several ARGO floats provided pre and post temperature measurements to as deep as 1000 m close to the best track. In addition, Haiyan made a direct hit on a NOAA TAO buoy located at 8oN, 137oE where temperature, salinity and current measurements were acquired as the typhoon was intensifying to ST status. These data along with a satellite fields derived from the Systematically merged Pacific Ocean Temperature and Salinity (SPORTS) climatology are used to examine the response of the upper ocean including the pre-Haiyan thermocline variations. Note the SPORTS derived product using satellite fields has been carefully evaluated with more than 267,000 thermal profiles over a 12-year period. During the passage of Haiyan, thermal excursions at the semidiurnal frequency were up to +/- 2.5oC. By using available mooring records, the differences between climatologies are less than 1oC. Based on satellite and in situ measurements, there is little evidence of substantial ocean cooling (typically less than 1.5oC), but the mixed layer deepened by 10 to 15 m, and approximately 10 m upwelling signals were induced by the Haiyan wind-driven currents. There was minimal ocean response associated with this ST, where the OHC (~120 kJ cm-2) and warm SSTs (>28oC) prevailed during and subsequent to the ST passage. Such intensity fluctuations are similar to those observed in the northwest Caribbean Sea. (e.g., *minimal ocean cooling response and more sustained enthalpy fluxes despite a rapid translation speed).* This ST devastated the Philippines at landfall.