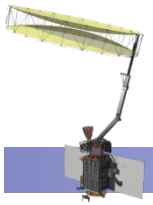


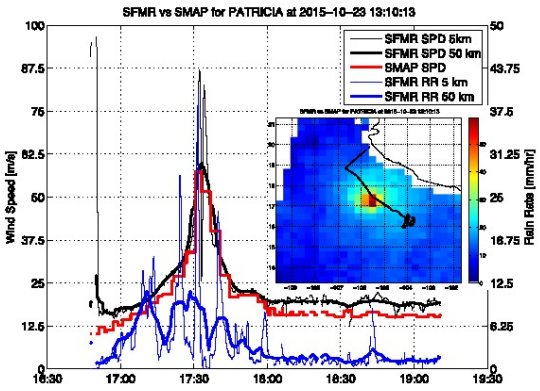
# SMAP Radiometer Measurements Track Tropical Cyclone Intensity and Size

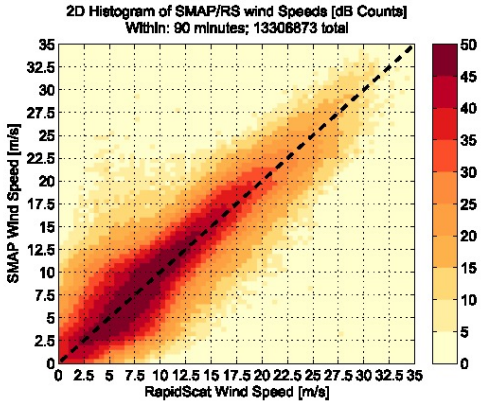
**Problem**: It has been challenging to provide accurate estimate of storm size over oceans because of the contamination of rain on data from the microwave scatterometer and radiometer missions, such as AMSR and RapidSCAT.

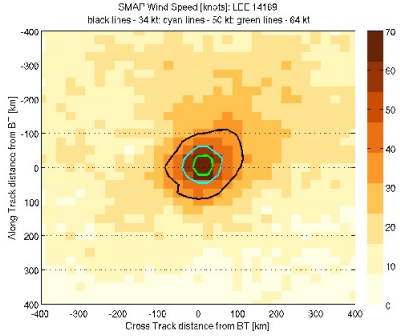
**Finding**: SMAP-radiometer data have been used to derive the surface wind speeds of ocean storms. It was found that the SMAP radiometer wind speed is very accurate through independent validation using airborne and satellite data even under rainy conditions. The SMAP has been used to derive the radii of gale, storm and hurricane force winds.

**Impact**: SMAP-based ocean wind estimates can be used by operational weather forecasters for severe weather warning.

SMAP wind validated by RapidSCAT and Stepped Frequency Radiometer Winds




SMAP winds used to estimate the radii gale (17m/s), storm (25 m/s) and hurricane (>32m/s) force winds.

Fore , Yueh , Stiles, Tang, Hayashi, 2018: SMAP radiometer-only tropical cyclone intensity and size validation, *Geoscience Remote Sensing Letters*.