



A synthetic aperture microwave spectrometer for precipitation and surface wind imaging in tropical cyclones

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The Hurricane Imaging Radiometer (HIRAD) is an innovative passive microwave sensor which offers new and unique remotely sensed observations of the extremely high ocean surface winds and precipitation found near the core of tropical cyclones. HIRAD derives from the Stepped Frequency Microwave Radiometer (SFMR) which is flown on NOAA “hurricane hunter” aircraft operationally to observe surface winds and rain. HIRAD advances beyond SFMR’s nadir-only viewing geometry to a wide-swath imager using synthetic thinned aperture technology. The enhanced imaging capability is intended to provide much more detailed information about storm structure and organization. A prototype aircraft instrument is currently in development, with its first flight campaigns scheduled in time for the Fall 2009 hurricane season.