

Session: Polarimetric Radiometry

Polarimetric Radiometer and Scatterometer Measurements
of Hurricane Ocean Winds

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In September **1997**, aircraft measurements of hurricane ocean surface winds were made over hurricane **ERICA** which was located -250 miles east of Bermuda in the Atlantic ocean. The microwave instruments included three polarimetric radiometers at **17**, 19 and 37 GHz and a 14 GHz radar scatterometer. These instruments were mounted on the NASA P-3 aircraft and were flown around several locations near hurricane **ERICA** to measure the azimuthal dependence of the polarimetric wind signal versus incidence angle. Estimates of the wind speed and direction were obtained using Dropsondes dropped from the aircraft. Measurements of all 4 Stokes **parameters of the ocean signal were made. In areas** where there were high winds of 35 m/s and scattered clouds, there was a clear azimuthal signal in all the radiometric Stokes parameters, and in the scatterometer signal. Each of these signals was correlated with the wind direction. The radiometric wind signal was similar in all frequencies; however, there was significant variation with the incidence angle. At the larger incidence angles of **55 and 65** degrees, the fourth Stokes parameter "V" had a peak to peak amplitude of -1 K. Further details of these measurements will be shown during the presentation

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