

Validation of a Modified Fog Algorithm at WFO Miami using NASA SPoRT Satellite Imagery and Surface Observations

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This study validates a new fog algorithm developed at the Miami Weather Forecast Office based on a combination technique that uses the crossover temperature in conjunction with a 15-knot maximum threshold of 925 mb winds. The fog algorithm is a modification of the United Parcel Service (UPS) Airlines technique based on crossover temperature and modified Richardson number. Previous to this study, the Miami's NWS Weather Forecast Office used a combination of factors to forecast fog, mainly moisture and wind speeds derived from forecast and observed soundings. However, a quantitative approach based on research results has not been used yet in South Florida. This study evaluates the results of the algorithm using the NASA SPoRT Nighttime Microphysics image, GOES Spectral Difference ($11\mu\text{m}$ minus $3.9\mu\text{m}$), and surface observations. The period of the study starts on November 19 and it will span toward the end of the 2013-2014 fog season for the Miami County Warning Area.