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Title: **NOAA's Microwave Integrated Retrieval System (MiRS): Recent Activity and Science Improvements**

Abstract: The Microwave Integrated Retrieval System (MiRS) is the NOAA official microwave-only operational retrieval algorithm, and has been running operationally at NOAA since 2008. Currently, passive microwave data from a total of 8 different satellites are processed operationally; SNPP ATMS data have been routinely processed since shortly after launch in late 2011. The algorithm is based in a 1-dimensional variational approach in which all relevant elements of the atmospheric and surface state are retrieved simultaneously, using the CRTM radiative transfer model for both the forward simulation and the estimation of derivatives (Jacobians). The official retrieval products from MiRS include temperature and water vapor profiles, surface temperature and emissivity, liquid and frozen hydrometeors, precipitation rate, as well as cryospheric products such as sea ice concentration and snow water equivalent.

The presentation will focus on several areas: (1) results from recent validation activities of land surface temperature, cloud liquid water and rainfall, (2) impacts of updated operational "Block 2" calibrated SDRs on sounding performance, (3) preliminary results from science improvement activities such as a new bias correction formulation and applications to tropical cyclone environments, and (4) plans for processing JPSS-1 ATMS data after launch.