EARLY STAGE EXPERIMENT
Science Goals & Observational Applications

Stepped-Frequency Microwave Radiometer (SFMR) Module: Heather Holbach (PI)

Goal: Improve the wind speed and rain rate estimates obtained by the P-3 and G-IV Stepped-Frequency Microwave Radiometers (SFMR). For the P-3 SFMR, we aim to be able to obtain wind speed and rain rate estimates when the aircraft is not flying straight and level. For the G-IV SFMR, we aim to develop algorithm corrections to retrieve wind speed and rain rates from a higher altitude [*IFEX Goal 2*]. See the 2019 HRD HFP web page for additional details: http://www.aoml.noaa.gov/hrd/HFP2019/index.html

Observational Applications: Improved measurements from the SFMR on the P-3 and G-IV have numerous implications for numerical modeling, operational, and research efforts. For numerical models, improved observations of the surface wind speed field will lead to better model initialization and allow for more accurate model evaluations. The operational community will benefit from more accurate surface wind speed observations allowing for improved estimates of tropical cyclone intensity and wind structure. Improvements to these quantities leads to better warnings and preparedness. Finally, SFMR data is used routinely in research studies. Therefore, all of those studies will benefit from improved wind speed and rain rate retrievals leading to more accurate results.