Particle Habit Imaging and Polar Scattering (PHIPS) Probe

North Dakota Citation Research Aircraft

N555DS

WEATHER MODIFICATION INTERNATIONAL
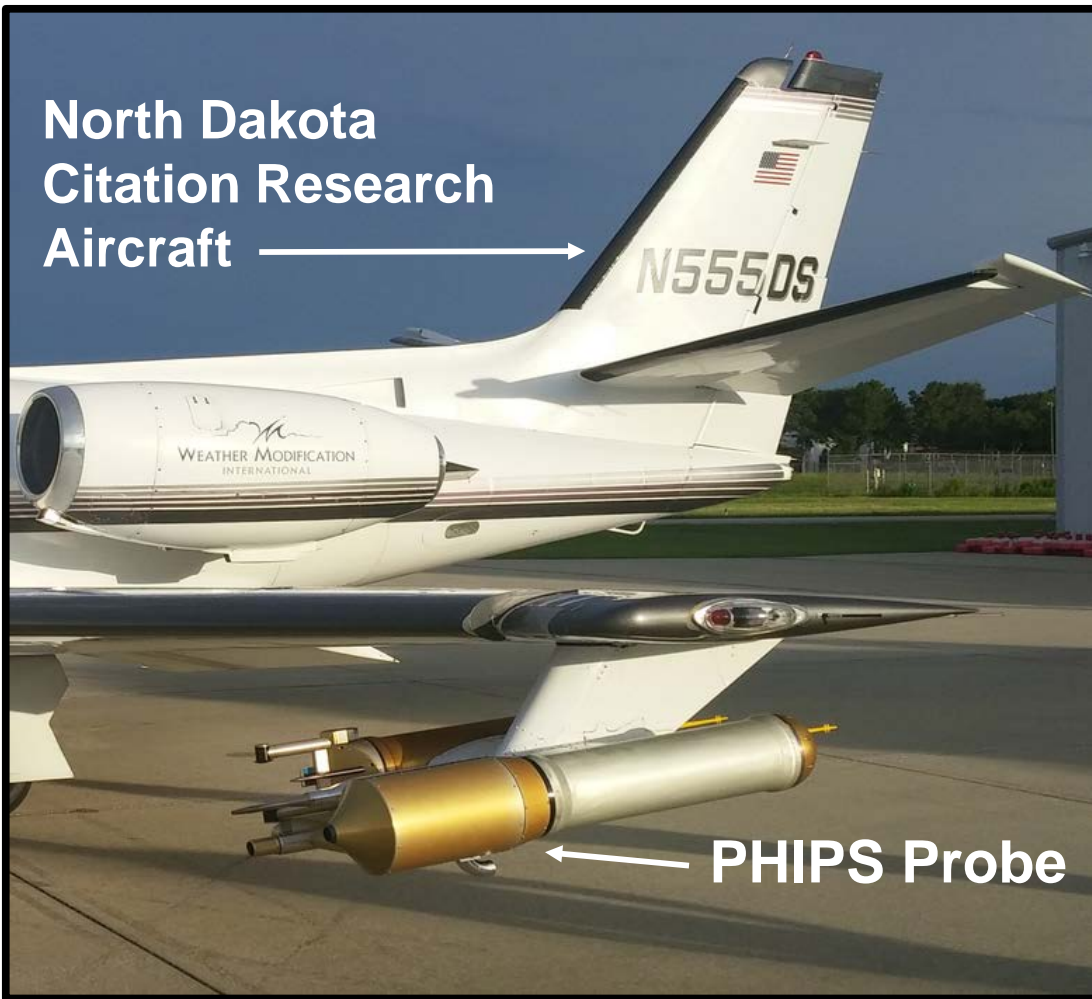
PHIPS Probe

- Measure the angular light scattering function of individual cloud particles that are identifiable as belonging to a particular habit.

  → Improved remote sensing observations.

- Obtain high resolution stereo-graphic images with sufficient detail to improve understanding of riming and aggregation processes.

  → Improved cloud micro-physical modeling.

- Provide reliable phase identification on small and intermediate sized cloud particles.
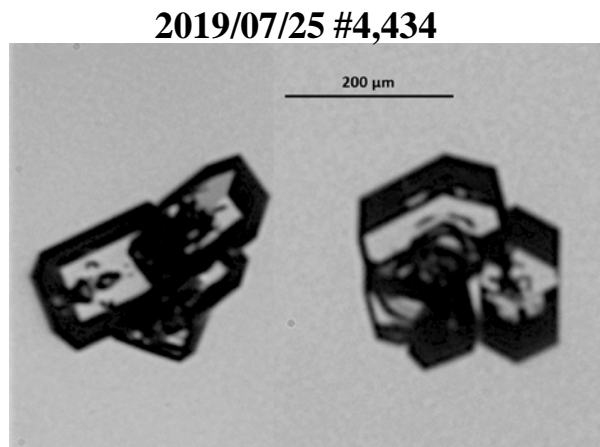
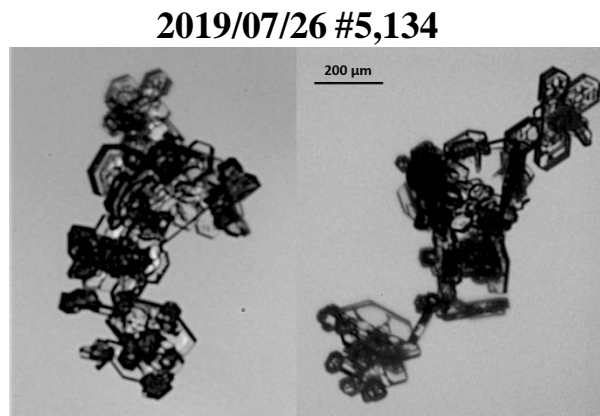 → Improved understanding of precipitation.

Measurements and Observations of the PHIPS Probe
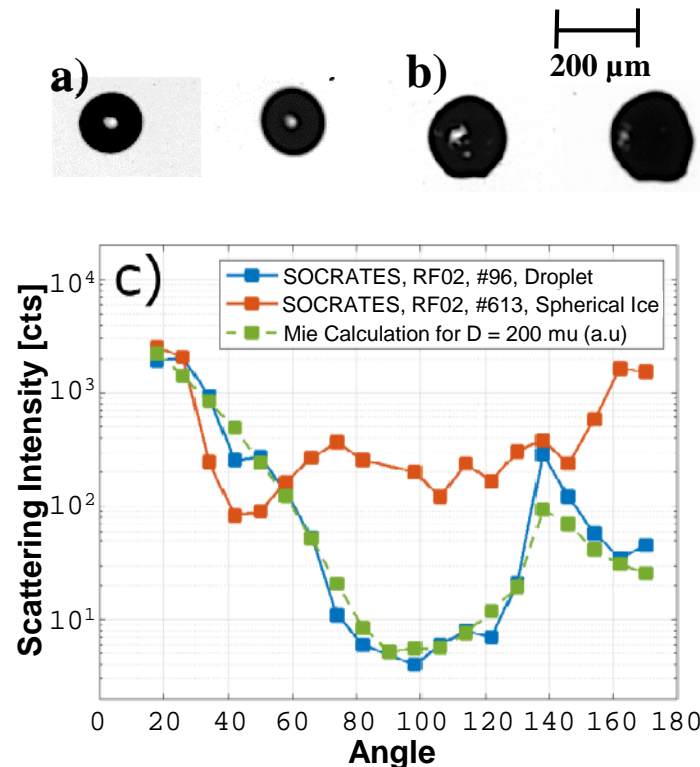
Angular Light Scattering Function
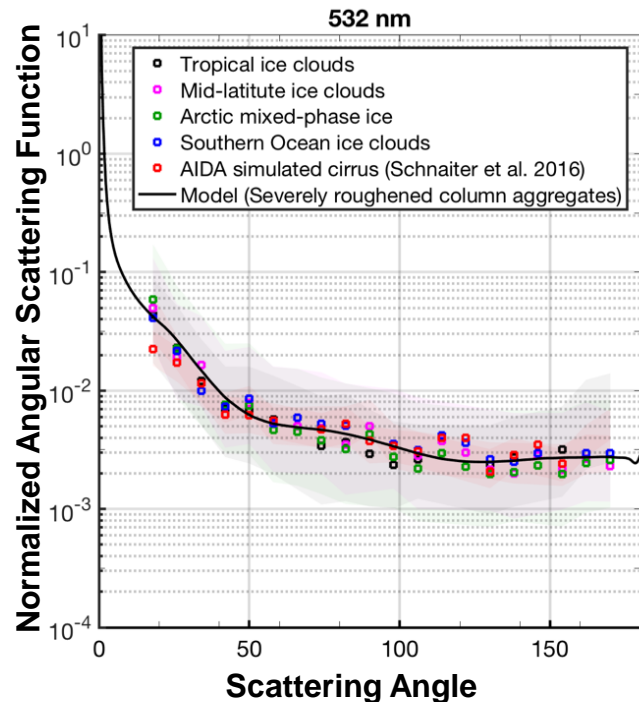
Averaged angular scattering functions from different campaigns, which was used to validate the MODIS C6 ice optical model (Järvinen et al., 2018).

Stereo-graphic Images

2019/07/26 #5,134

2019/07/25 #4,434

Stereo image pairs obtained within Cirrus cloud anvils over Florida.

Phase Identification

Stereo image pairs of a droplet (a) and a quasi-spherical ice particle (b), and the corresponding angular scattering function (c) (Waitz et al., AMT in preparation).