# OSCRE: **O**pen **S**nowflake **C**amera for **R**esearch and **E**ducation

OSCRE @ SAIL

https://github.com/KennedyClouds/OSCRE

Kennedy et al. (2022) *BAMS*
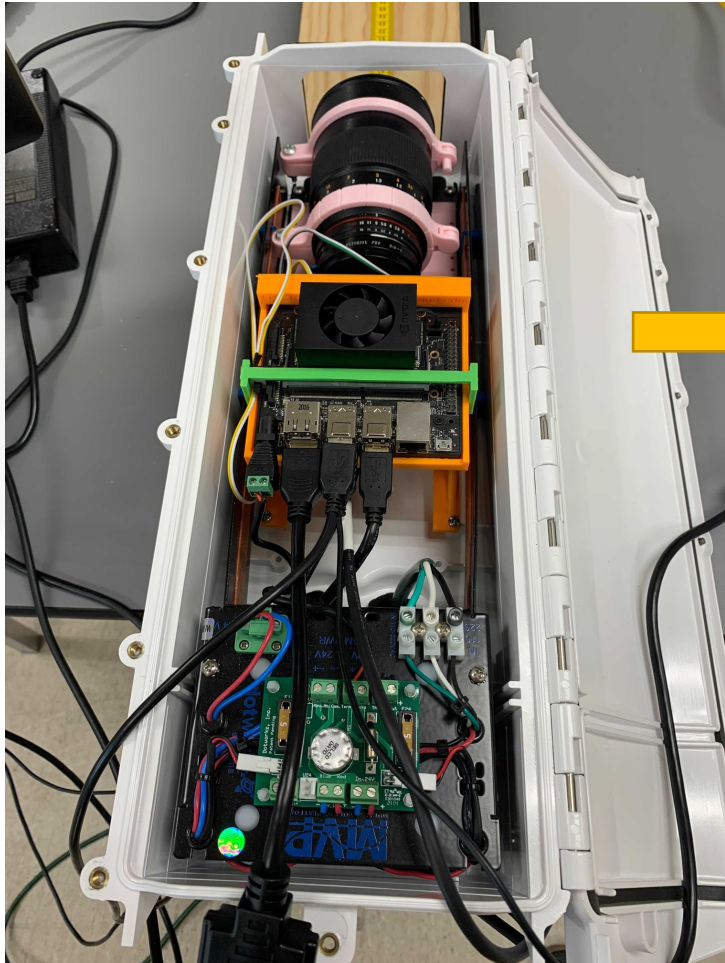
**Camera+Lens+Computer**

**Strobed LED Lighting**

UNIVERSITY OF NORTH DAKOTA
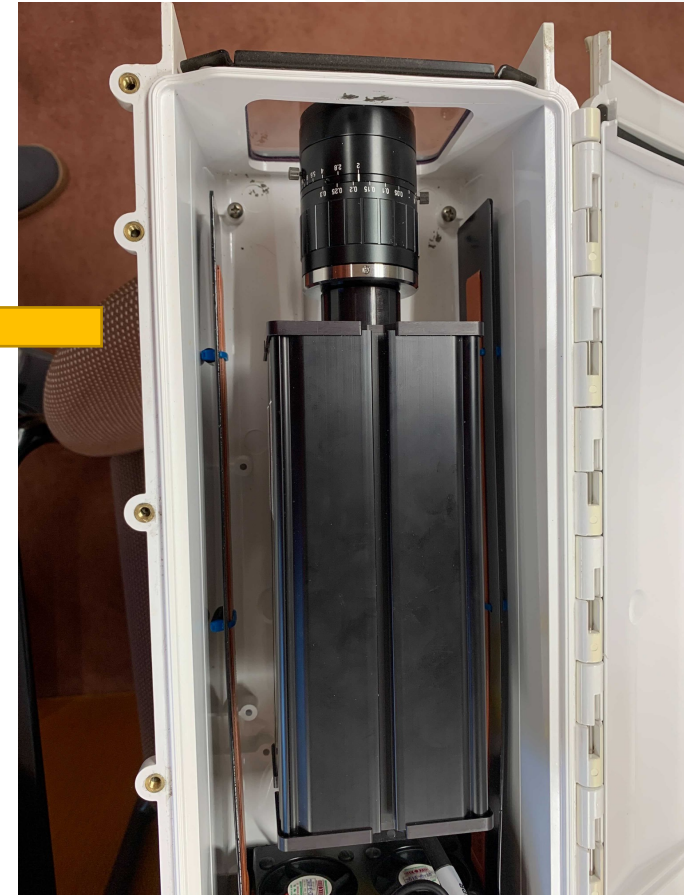
# OSCRE: Measurements

- Size, # of hydrometeors > 50μm (30-60fps)

- Manual and eventual ML ID of particles



(a) 15 December 2019

1 cm

(b) 12 February 2020

1 cm

(c) 2 April 2020

1 cm



**Particle Count**

**Mean D$_{max}$**

**Binned PSDs**

*Falling → Blowing Snow*
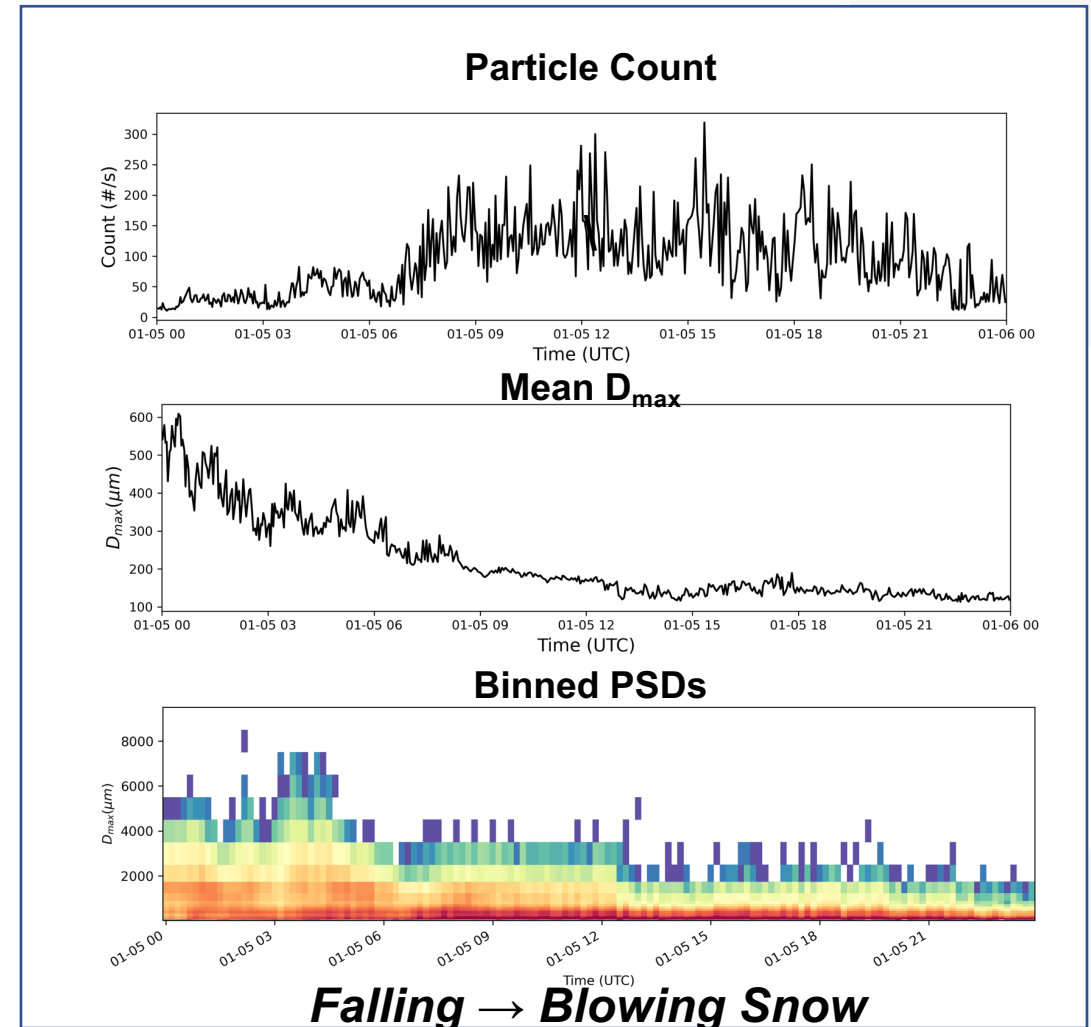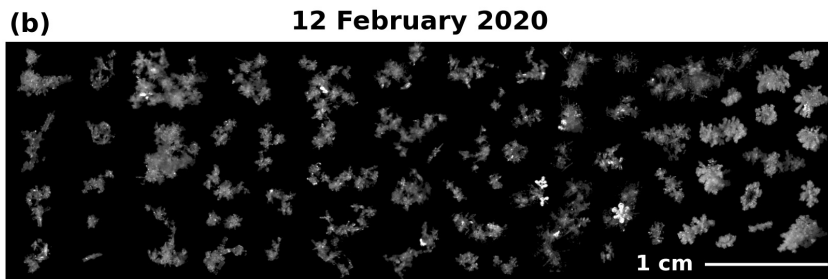
# FlowCapt FC4

- Acoustic sensor that measures mass flux from impacts of hydrometeors on a hollow tube.
- Not too expensive (~$2500), low power, low maintenance.
- Not perfect… snow grain type and falling snow can impact measurements.

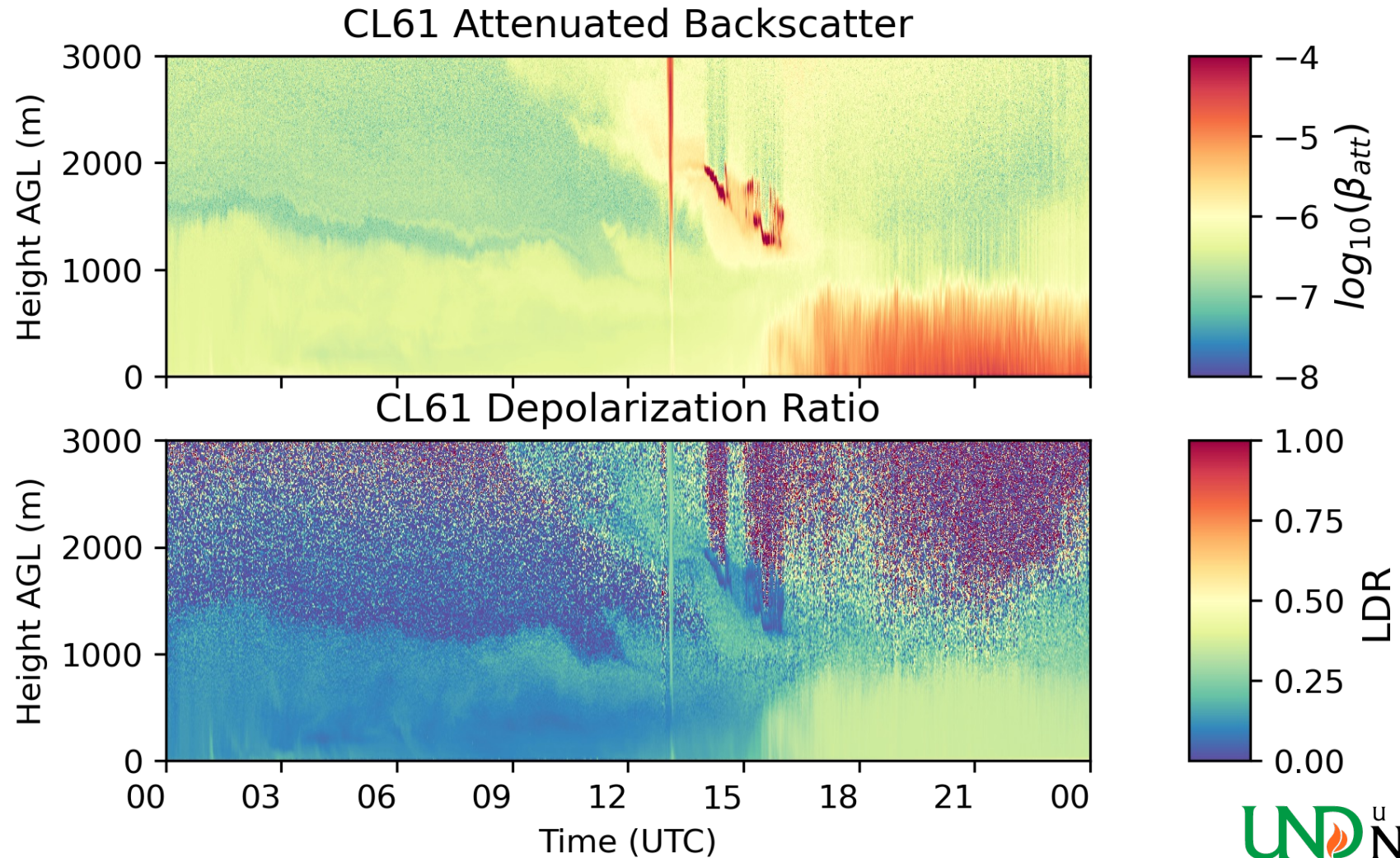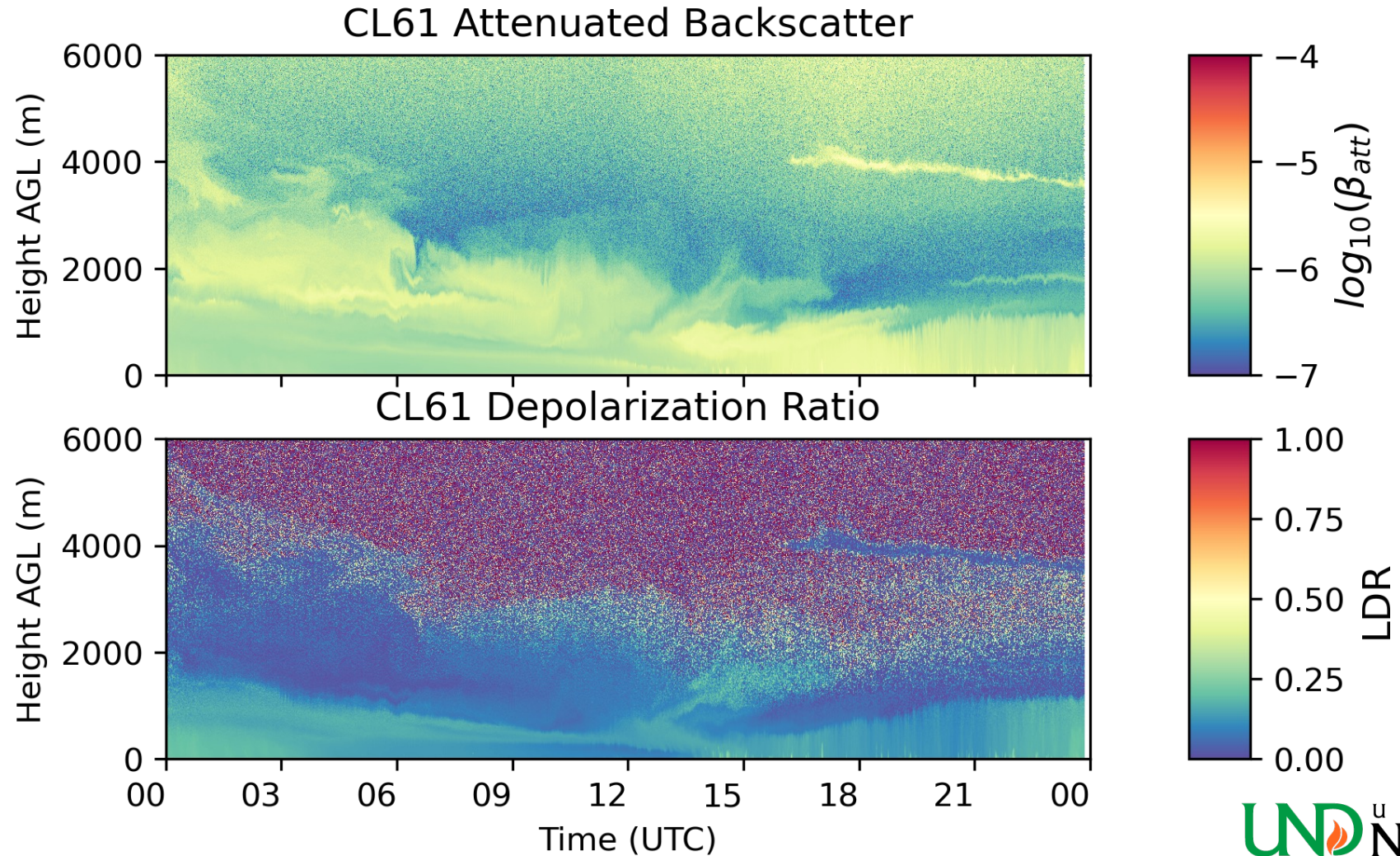*Example of a pure blowing snow event in North Dakota*
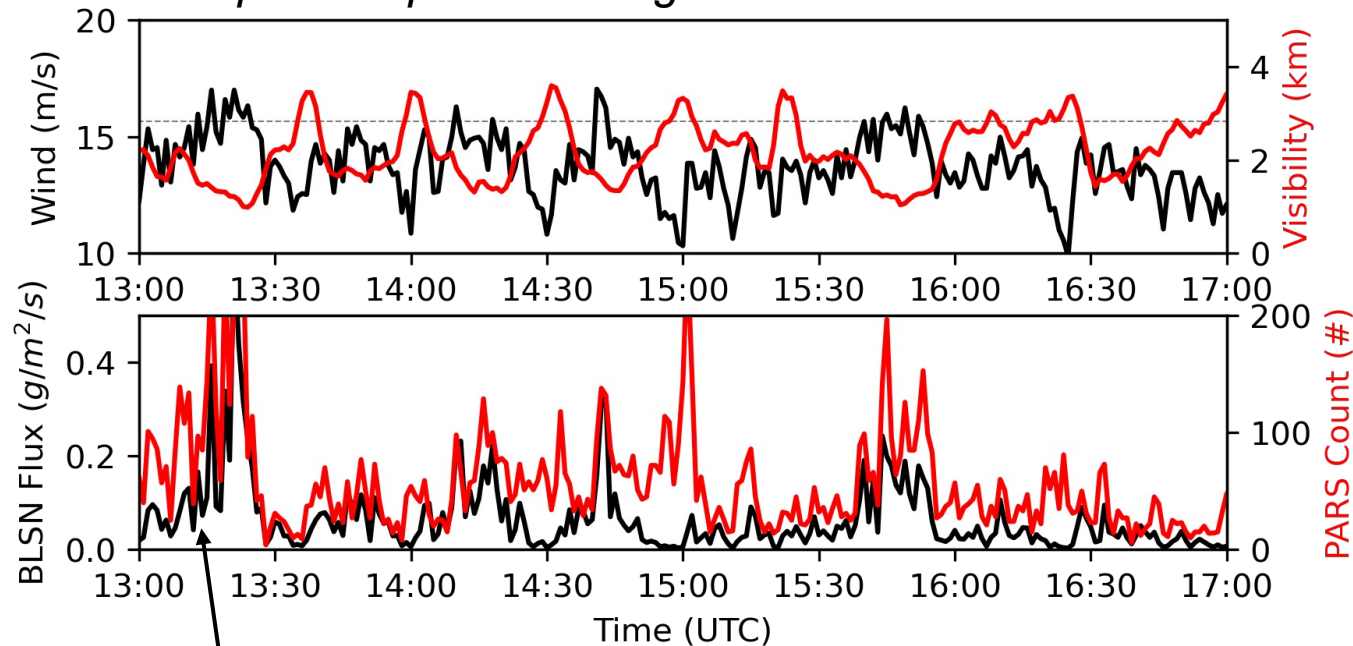
# Vaisala CL61

- 910 nm Ceilometer (similar to CL31 or CL51)
- Measures backscatter + **linear depolarization ratio**
- Minimal near-field/overlap issues compared to other lidars
- Usable information at heights of ~10s of m
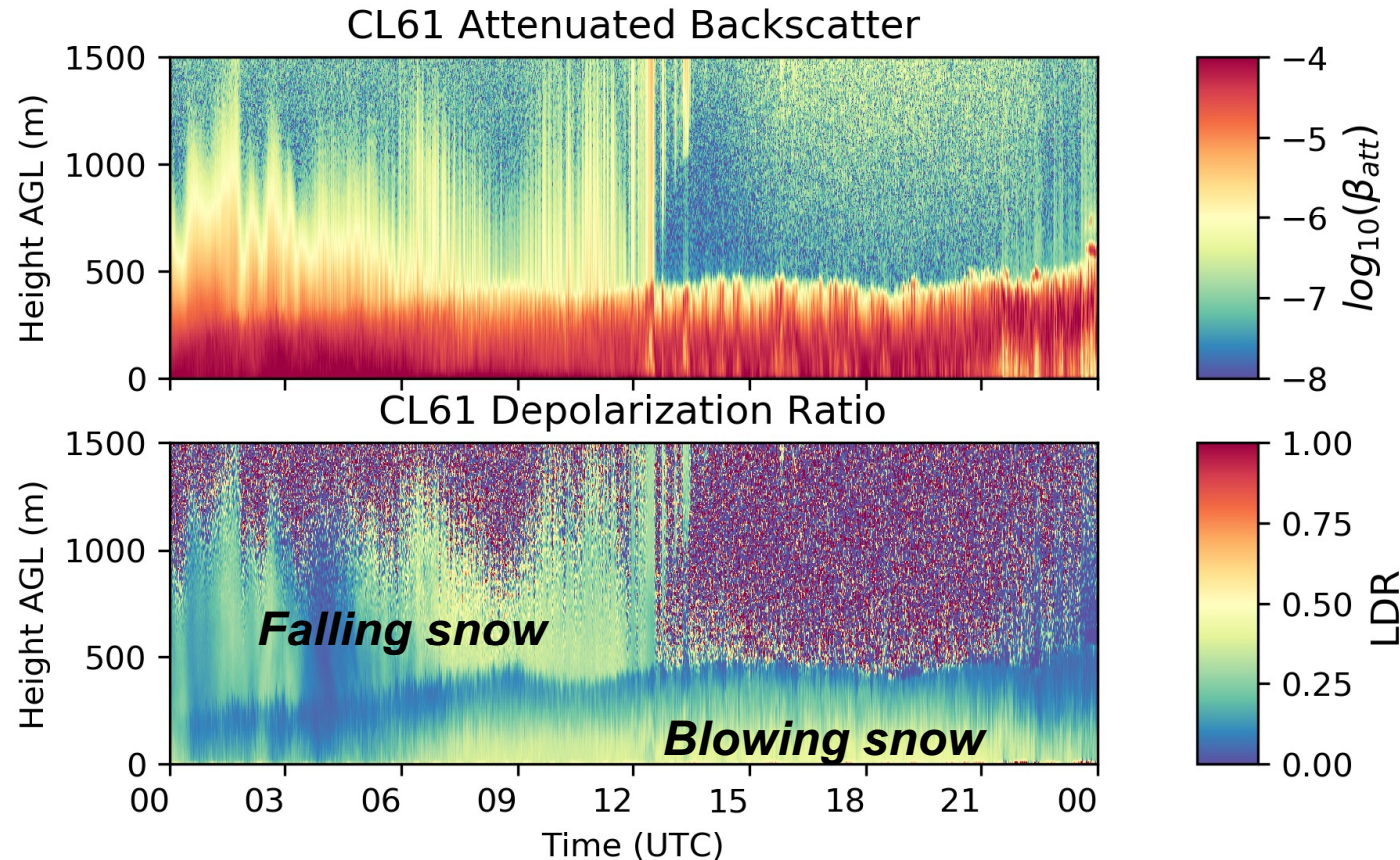
# Dust Event

# Smoke Event

# Mixed Phase Cloud