

Manual macrophotography of precipitation particles

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Motivation

Goal:

To document the type and shape of precipitation particles during the cold season

Background:

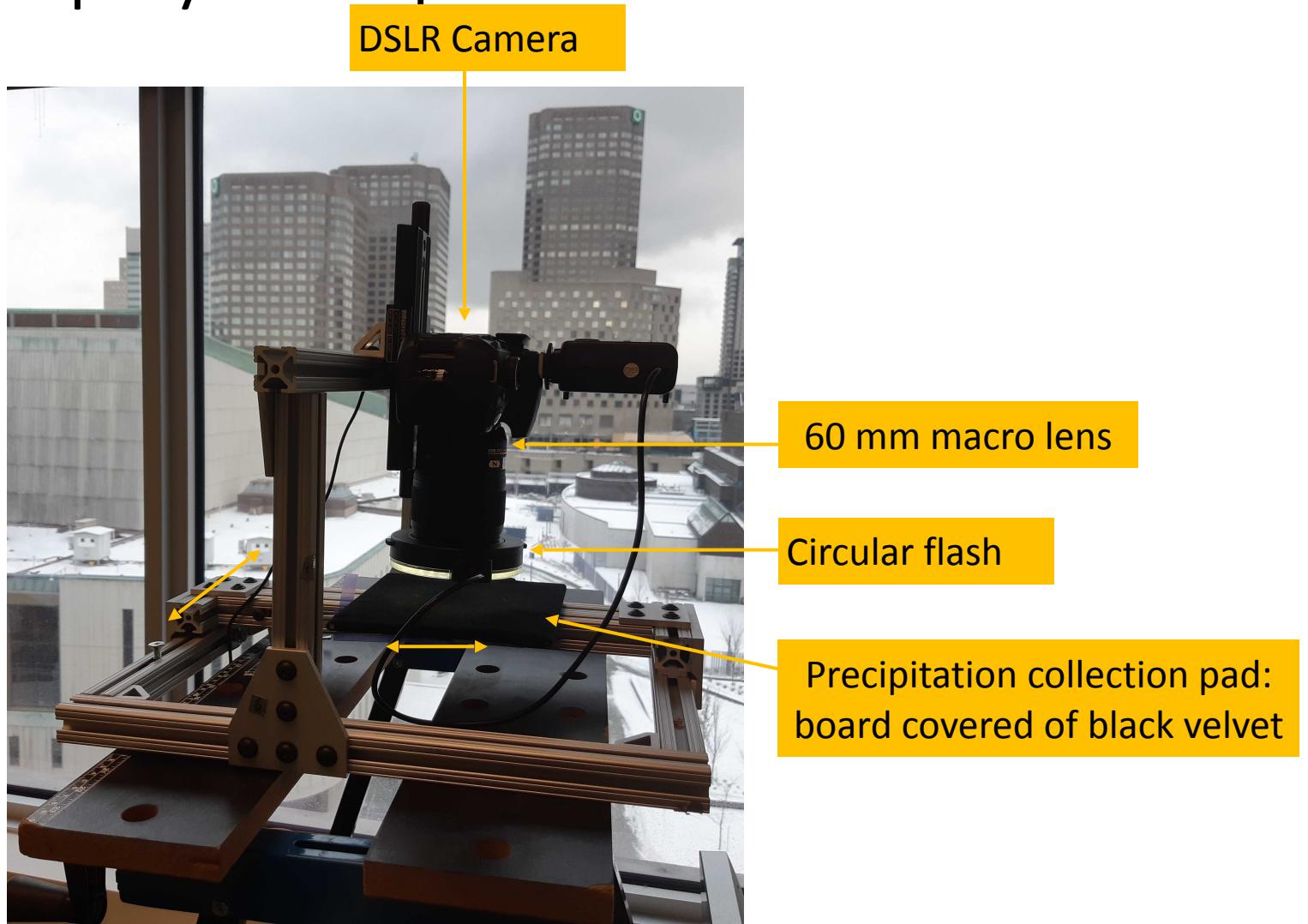
- Used the same setup as in Gibson and Stewart (2007)
- Collect and photograph systematically precipitation particles
- Analyse the photos manually and automatically

Manual precipitation observations

- Record manually the type of precipitation
- Take picture of precipitation particles in a systematic manner
- Collect precipitation type as often as possible to capture transitions

Macrophotography setup

Scanning
mechanisms



Macrophotography setup in the field

Downtown Montreal, Quebec, Canada

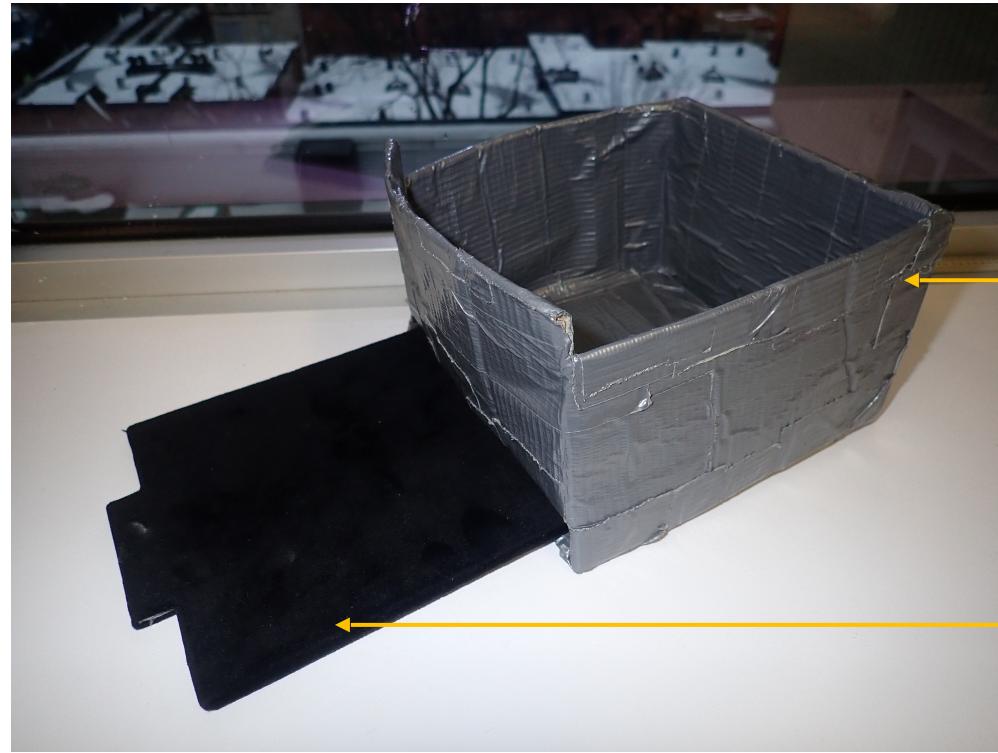


Canadian Rockies, Alberta, Canada



Collection of precipitation particles

- Observation frequency:
 - 10 minutes
- Collection of hydrometeors:
 - Particles should not touch each other
 - Exposition time depends on the precipitation rate
 - Add the box during windy conditions
- Photograph the collection pad:
 - Insertion of the pad below the camera
 - Use the flash
 - Take 9 pictures systematically



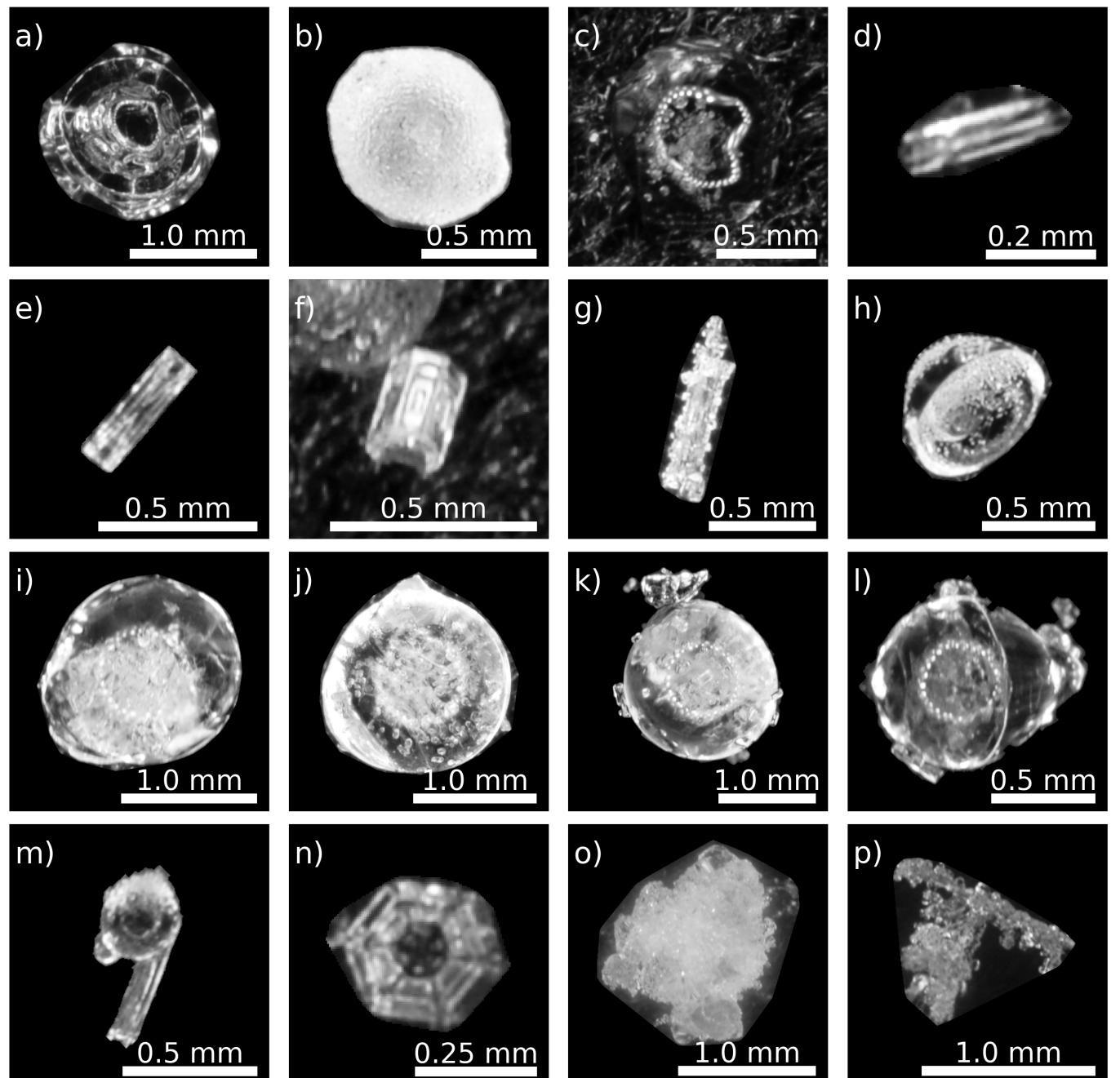
Small box to prevent ice pellets to bounce off the collection pad

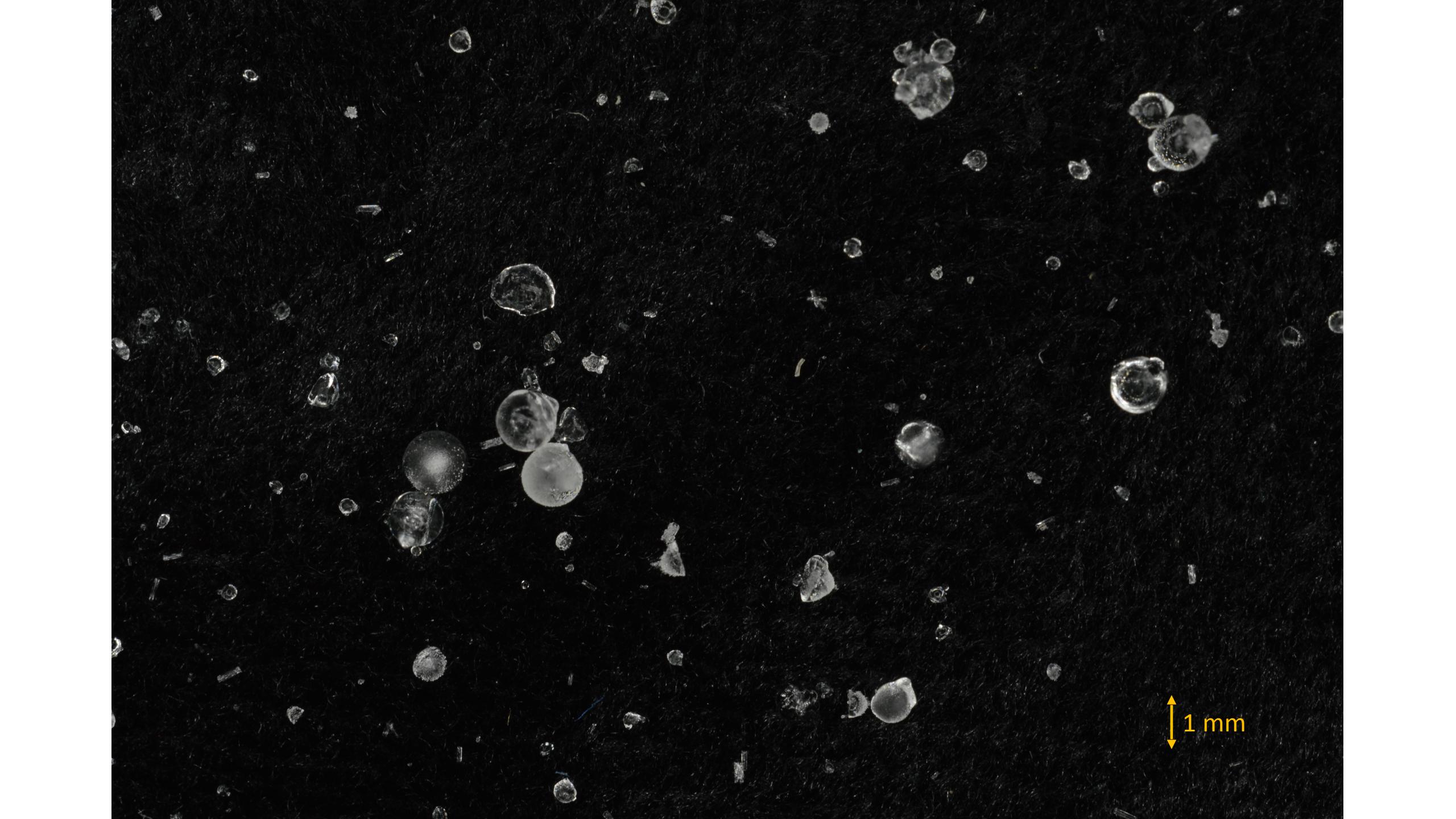
Precipitation collection pad

★ Make sure the collection pad remains relatively cold. ★

Some examples

Ice pellets photographed





1 mm

08:34 UTC

2 mm

Summary

- Manual photography allows to observe particles that are difficult to detect using automatic instruments
- Precipitation types can change quickly during near-0°C storms
- Precipitation types often occur in combination, which will be possible to analyse with the manual observations and photos.

Thank you!
Questions?