

Polar 5: radar

Radar reflectivity Z_e

Attenuation corr.
Remove cloud edges

Corrected Z_e

Collocated data set

- Max. temporal offset
- **5 min**
- Max. spatial offset
- **5 km**
- Moving average 30 s

Measured Z_e

at Polar 6 flight altitude

Polar 6: cloud probes

In situ PSDs

Combine probes,
Separate ice/liquid

PSD_{ice} and PSD_{liquid}

Radar forward operator
PAMTRA

- Liquid:
 - Mie scattering, spheres
- Ice:
 - SSRGA and mass-size parameter depending on M

$F(\text{PSD}, M)$

Find M
such that
=

Simulated Z_e

at Polar 6 flight altitude