

# AIRBORNE MEASUREMENT PLATFORM (PMA) ON AWI POLAR 5 DURING AFLUX CAMPAIGN

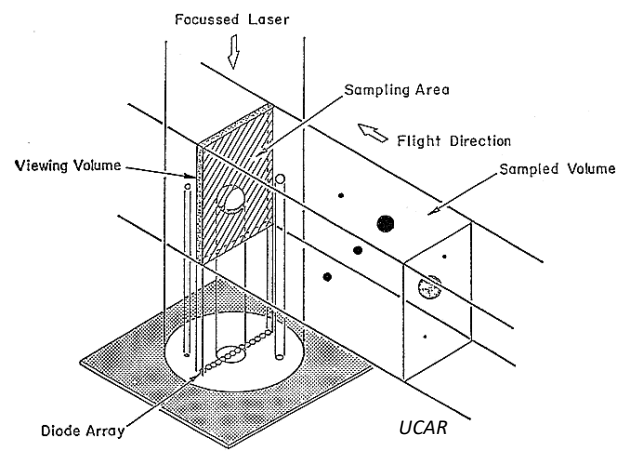
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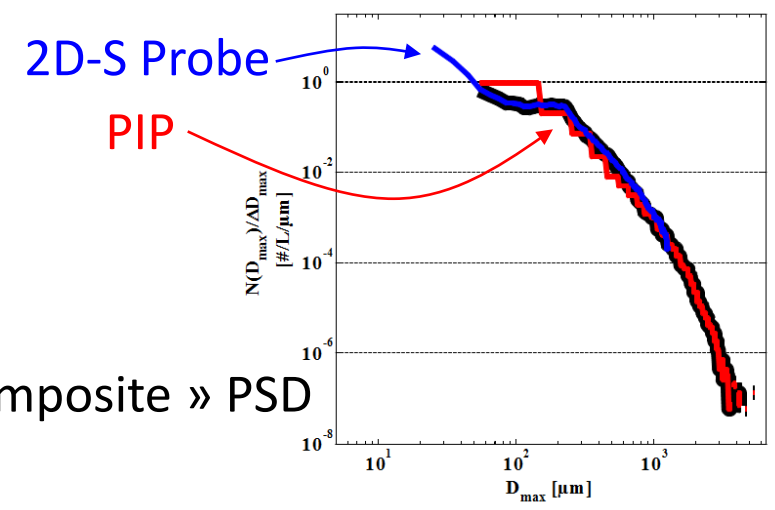
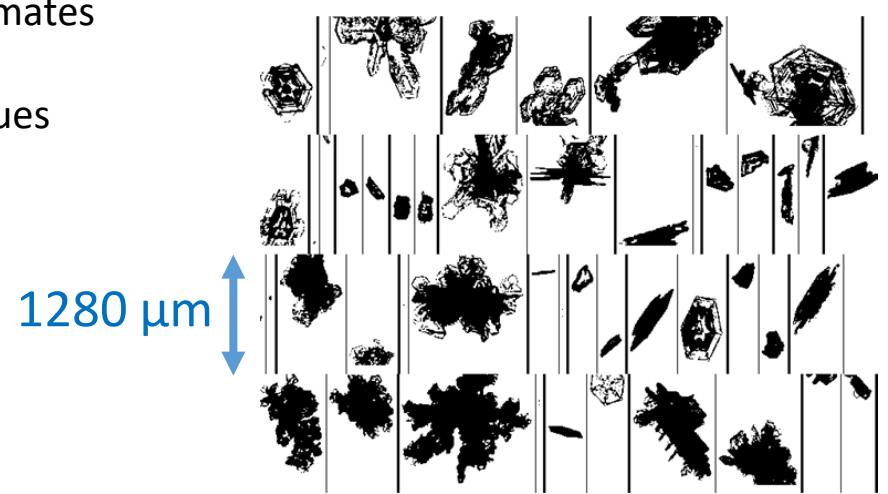


**Probe :** 2D-S, SPEC Inc.  
Two-dimensional stereo probe

**Principle :**  
Particle imager : Optical Array Probe  
2 channels : horizontal and vertical  
Range 10-1280  $\mu\text{m}$   
(128 pixels, 10  $\mu\text{m}$  resolution)



**Measured/Derived parameters :**  
Individual ice crystals characteristics  
PSD from 50-1280  $\mu\text{m}$   
m-D relationship  
IWC/TWC Estimates  
MMD  
Image catalogues





**Probe :** PN, LaMP  
Polar Nephelometer

**Principle :**

Scattering phase function of an ensemble of cloud particles @  $\lambda = 800\text{nm}$

54 angles from  $3.49^\circ$  to  $169.0^\circ$

Size Range from a few micrometers to about 1 mm

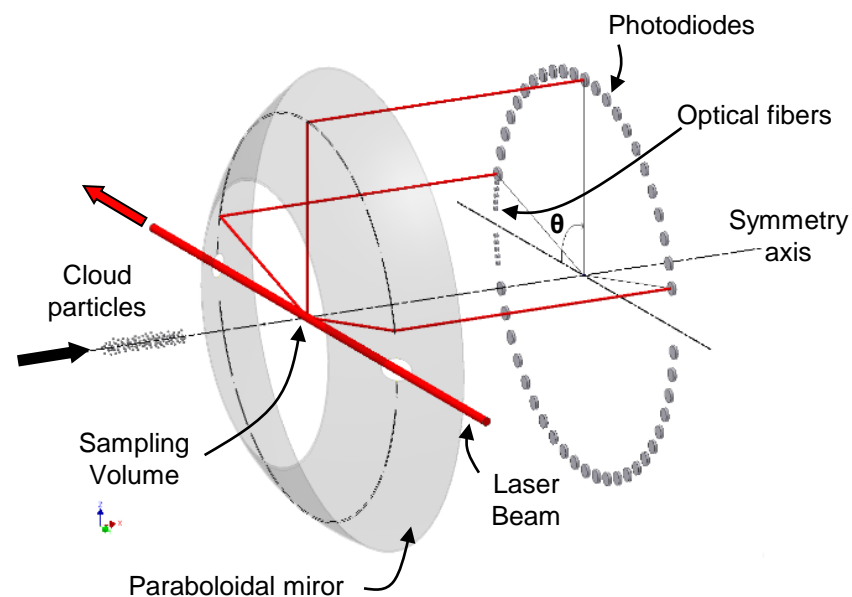
**Measured/Derived parameters :**

Angular scattering coefficients ( $\mu\text{m}^{-1}.\text{sr}^{-1}$ )

Extinction coefficient ( $\text{km}^{-1}$ )

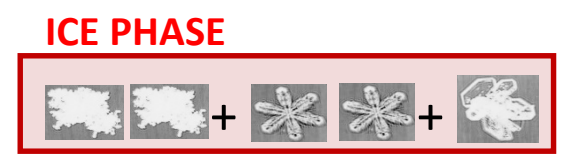
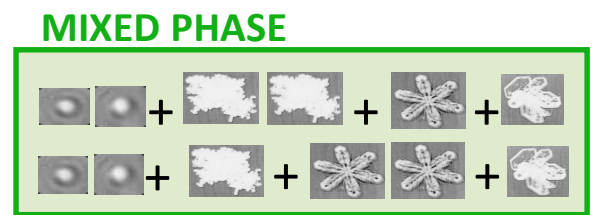
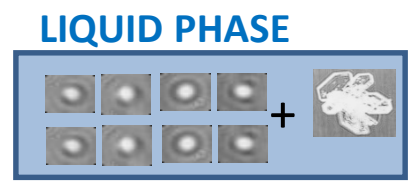
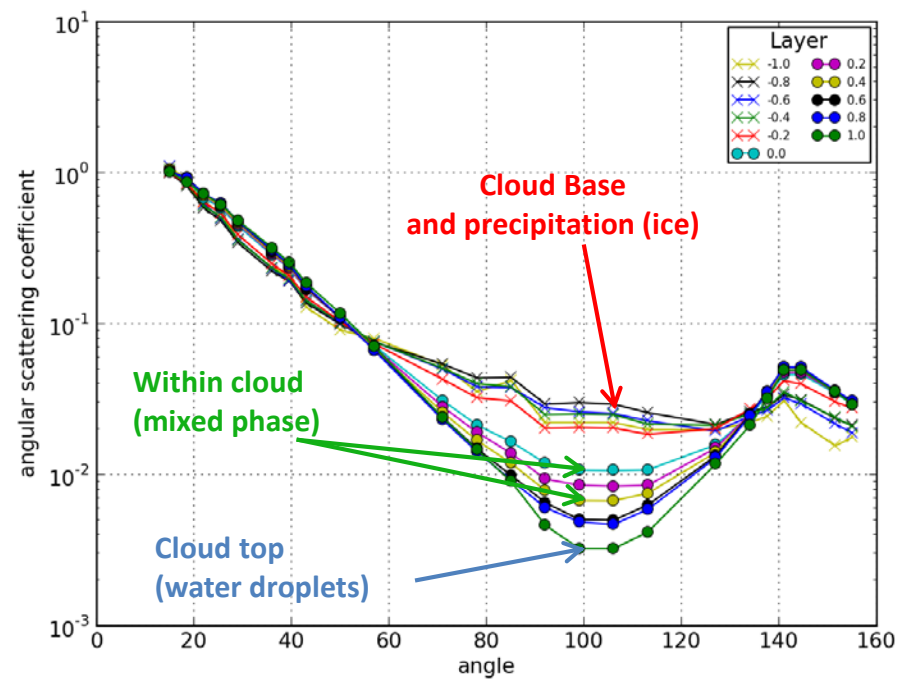
Asymmetry parameter (phase discrimination)

Microphysical properties estimates using an inversion scheme





**Typical PN measurements in Arctic mixed phase cloud (ASTAR 2007) :**





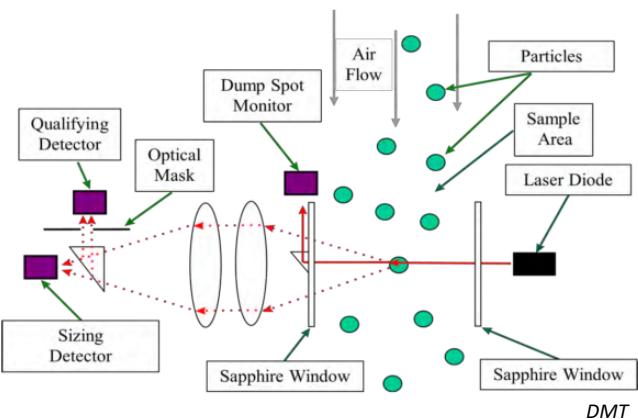
**Probe :** CDP-2, DMT  
Cloud Droplet Probe

**Principle :**

- Particle spectrometer
- Mie response in solid angle 4-14 deg converted to droplet size
- Range 2-50  $\mu\text{m}$  (30 bins)

**Measured/Derived parameters :**

- Droplet PSD
- LWC
- MVD, Deff ...



Measurements during ACLOUD, 18/06/2017

