

Vaughan T. J. Phillips

Validate Cloud Profiling Radar on EarthCARE against Aircraft Observations of Cirriform Cloud (Proposal 60799)



2nd ESA EarthCARE Validation Workshop

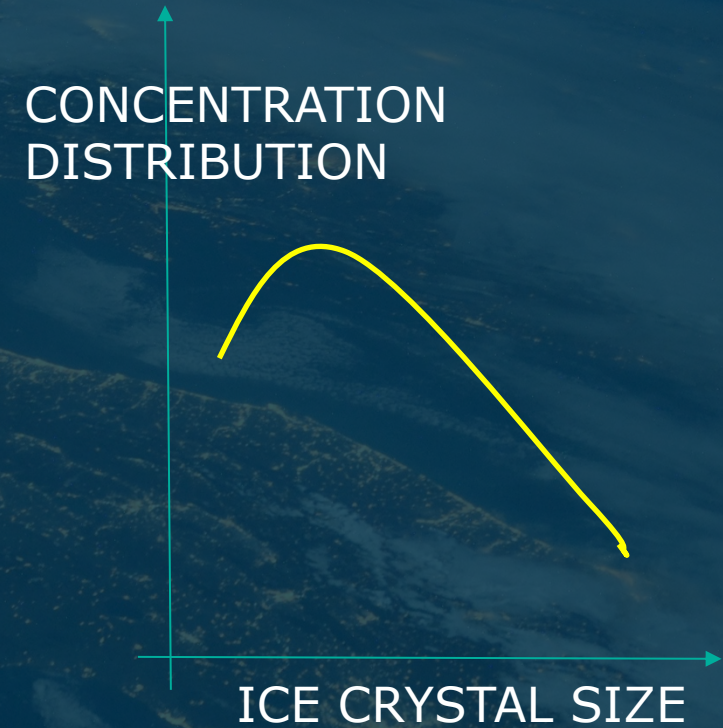
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- Generally, aircraft often validate retrievals of cloud-related quantities from satellite data
 - for example, Tropical Rainfall Monitoring Mission (TRMM) satellite involved a field campaign in Brazil
 - TRMM-LBA campaign in the Amazon in 1999 that was designed to sample cloud during satellite overpasses with ER-2 and citation aircraft



PLANS FOR CAL-VAL OF EARTHCARE SATELLITE

- **SNSA project about the land-ocean contrast of lightning in Tropics**
- **If funded, we will validate microphysical assumptions of the algorithm inferring ascent from EarthCARE Doppler radar:**
 - **Aircraft data from coincident flights through cirriform cloud during overpasses by the satellite (from OPOT)**
 - **Optical probes on aircraft characterise size distributions and morphology of ice particles**
 - Estimate of reflectivity-weighted fallspeed of ice



PLANS FOR CAL-VAL OF EARTHCARE SATELLITE

- EarthCARE algorithm infers the reflectivity-weighted fallspeed of the ice particles from the 95 GHz radar return
 - **Uncertainty from complexity of ice morphology in real clouds:**
 - **Hence the need for cal/val against aircraft data for cloud-ice properties**

