

CLOSING REMARKS

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25-28 May 2021 (online)

HISTORICAL CONTEXT



- 1995 Attended CloudSat planning meeting in USA
“IWC in different models varies by an order of magnitude”
- 1999 EARTH RADIATION MISSION proposed.
ATMOSPHERIC DYNAMICS MISSION was accepted
- 2004 EARTHCARE PROPOSED AND ACCEPTED
- 2006 CloudSat and Calipso launched. Global profiles of reflectivity and backscatter.
- 2018 Aeolus launched
- 2021 EarthCARE Validation workshop – meticulously organised by Rob, with 200 attendees



EarthCARE > 40 products to validate.



EXAMPLES of products:

- Aerosol type and size distributions
- Mixtures of aerosols
- Hydrometeor phase and sizes
- Ice crystal characteristics at cloud top
- Snowfall in high latitudes (best source?)
- Persistent ~100m deep layer of supercooled water at cloud top etc, etc..

VALIDATION

- Ground Based - many stations and networks exist and run 24/7 with well established quality control **in good shape**
- Airborne - expensive - measured in hours



Lessons learnt from CloudSat/Calipso

Aircraft flying along the satellite track:

- one at high level with the same instruments as the satellite
- one with in-situ sensors for clouds and aerosol particles.

ACTION: POTENTIAL COLLABORATION WITH “ATMOS” SUBORBITAL STUDIES
FLIGHTS WITH THE TWO EUROPEAN AIRCRAFT...

Lessons learn from Aeolus:

Early release of first “raw” data to scientists

- to be discussed/confirmed with JAXA/ESA at JMAG meeting early June

Compare data with forward modelled observations from ECMWF

- IFS/CAMS fwd model aerosol backscatter – just starting.

extend to depolarisation, extinction,....aerosol typing, fine/coarse mode?

- (- IFS forward model radar backscatter absolute calibration to 1dB

extend to Doppler and fwd model MSI/BBR?)