

Cloud detection methods in the IASI L2 PPF: preliminary validation with campaign data from Lindenberg and Sodankylä

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EUMETSAT

Validation of IASI L2 CO₂ slicing

- Cloud Top Pressure
- Cloud Fraction

Campaign data from Lindenberg ...



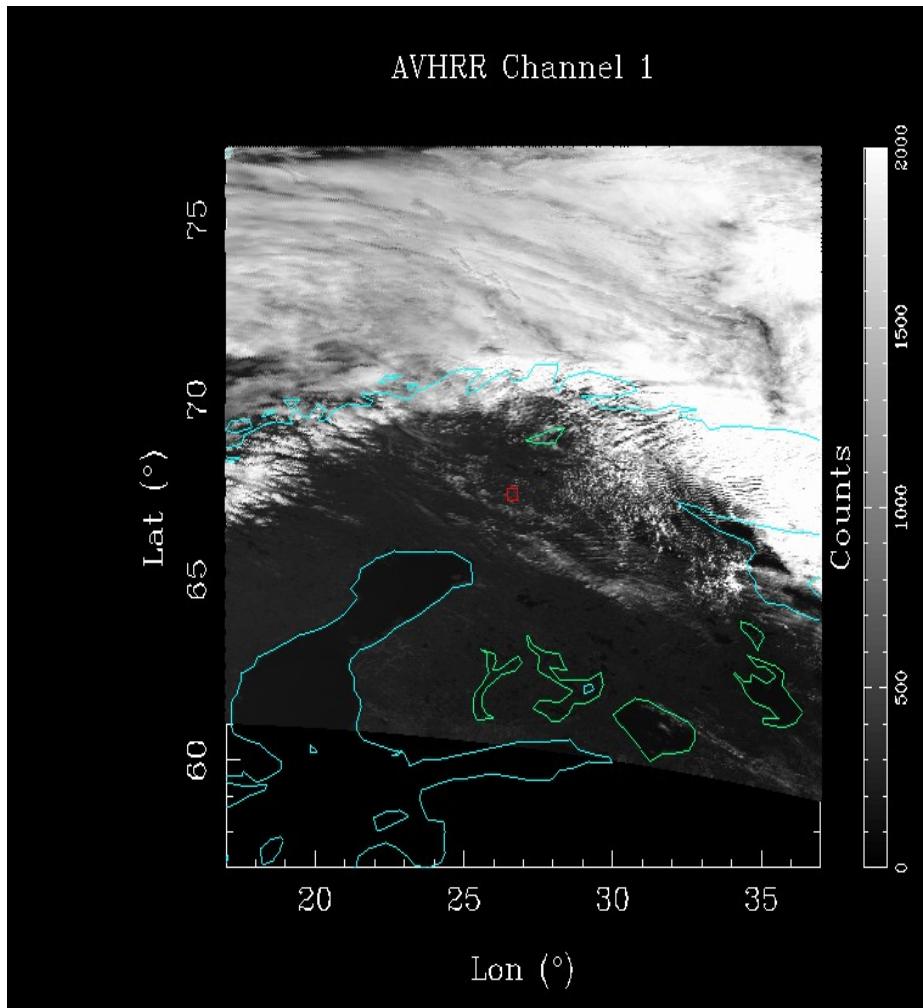
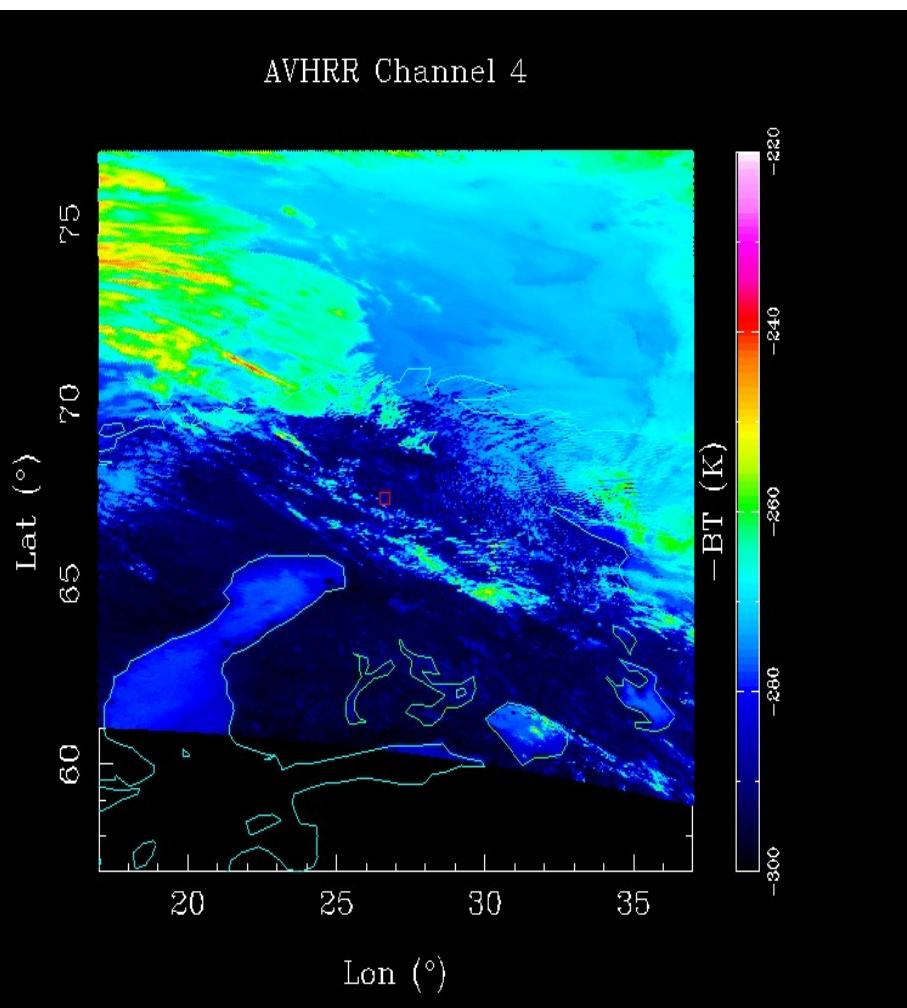
... and Sodankylä



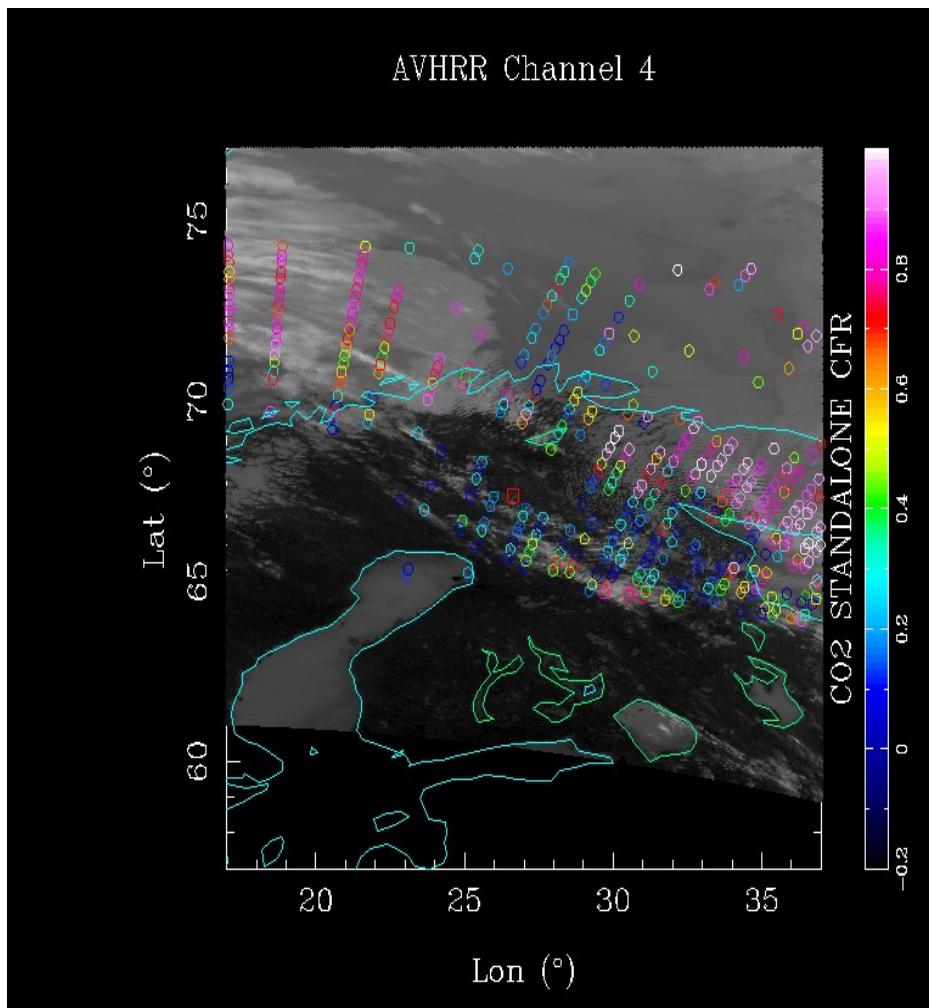
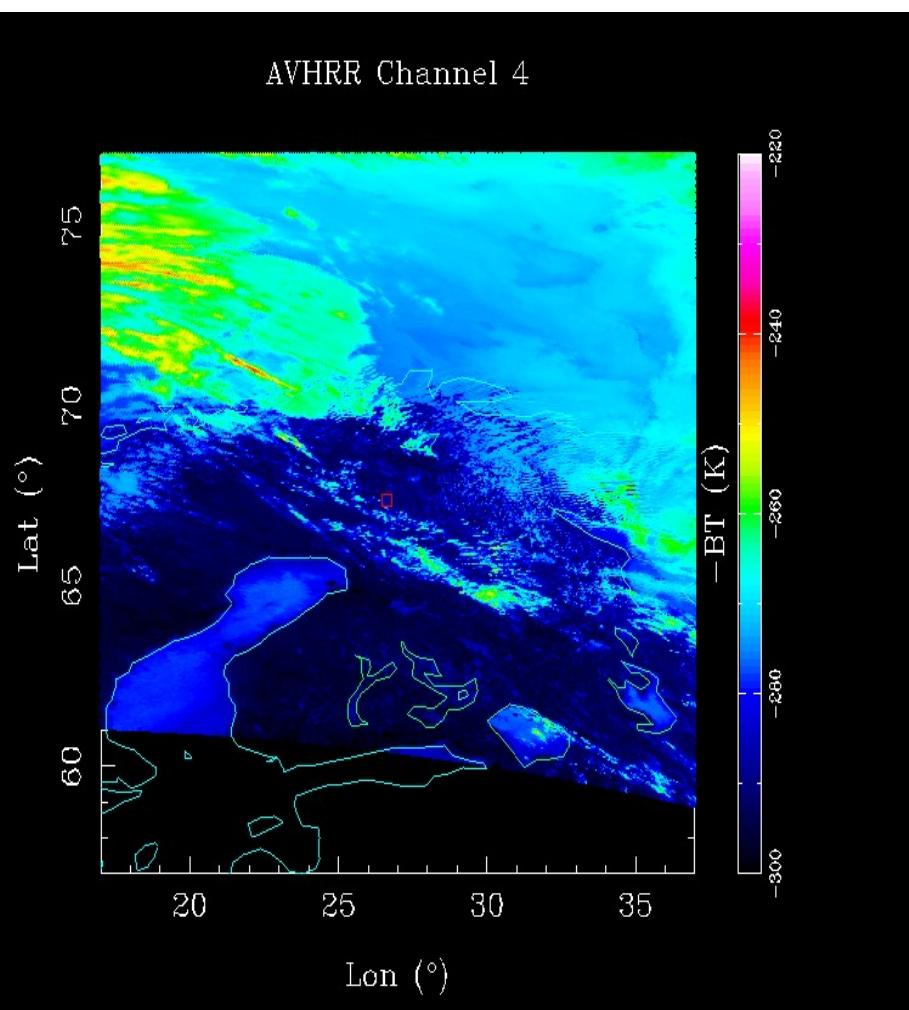
IASI L2 CO₂ slicing

- CO₂ slicing (Smith and Frey 1990)
- Cloud free radiances from ECMWF+RTIASI
- Skin Temperature from ECMWF or Outgoing Longwave Radiation (Pyrgeometer)
- Used 41 channels + reference + window
- Selection of channels per FOV based on retrieval quality

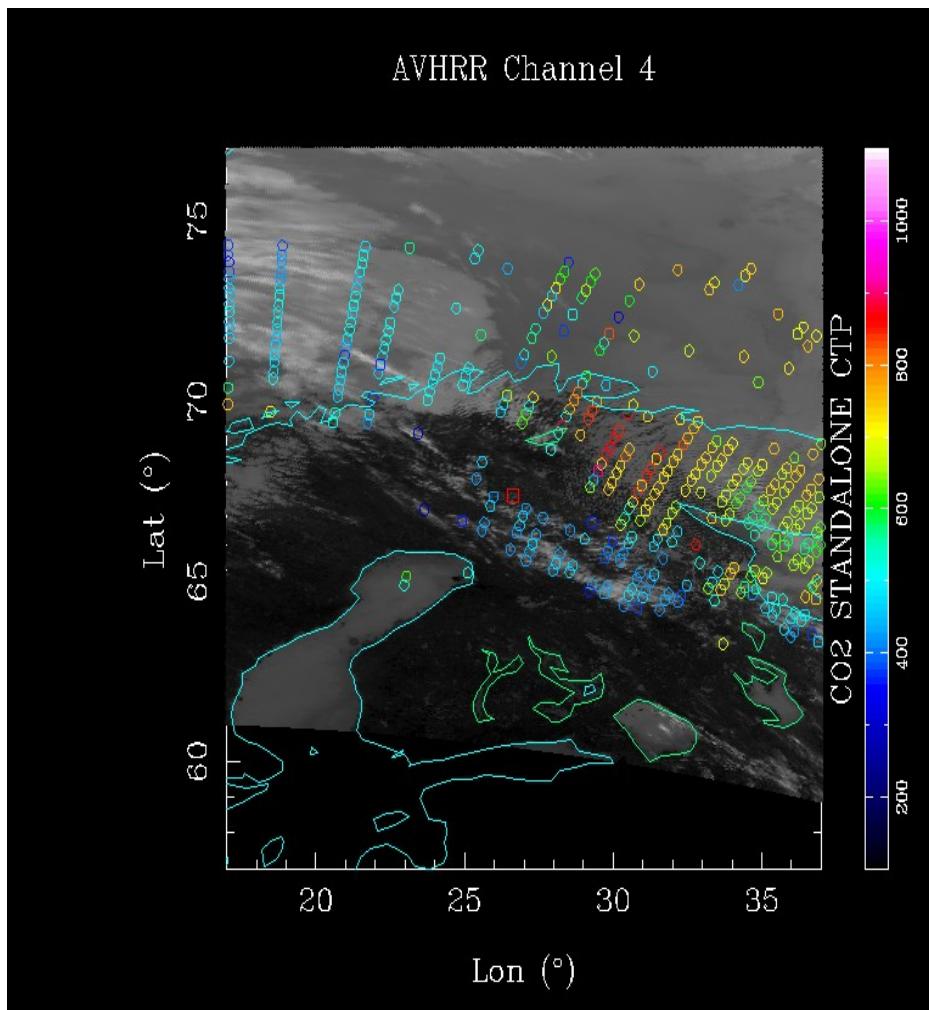
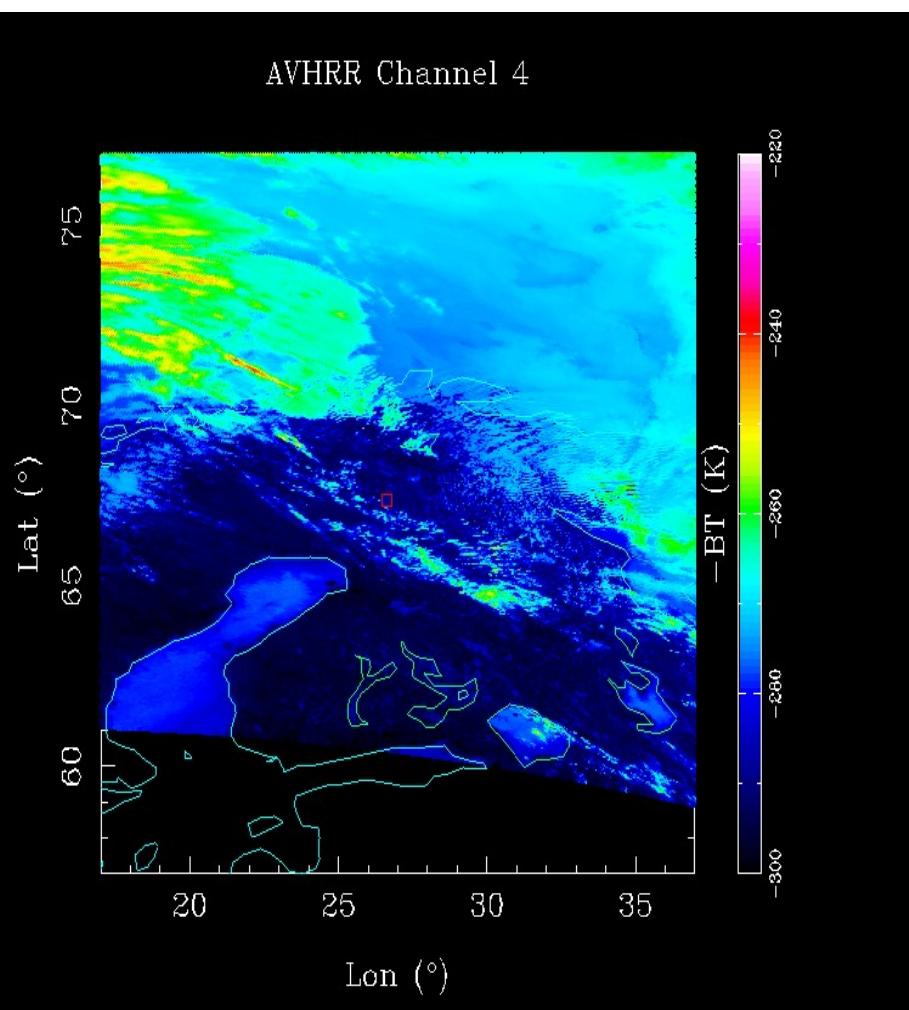
Cloud Properties Sodankylä (2007/06/04 08:08:00)



Cloud Fraction Sodankylä (2007/06/04 08:08:00)

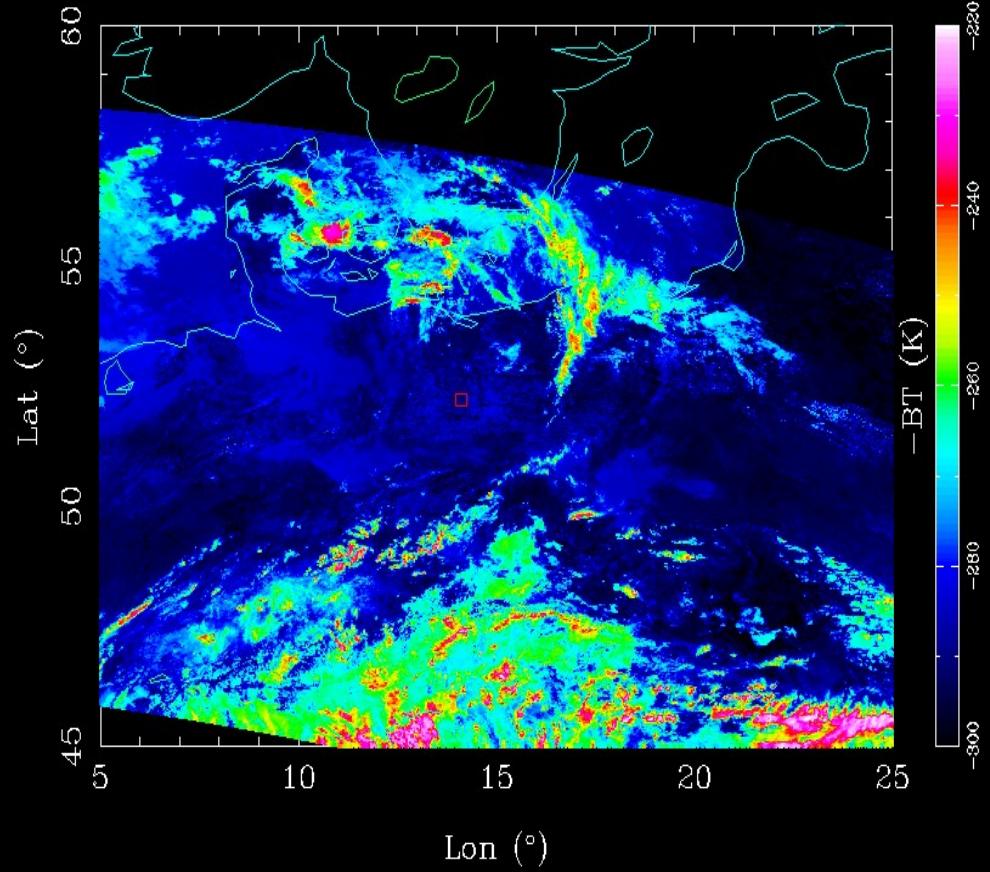


Cloud Top Pressure Sodankylä (2007/06/04 08:08:00)

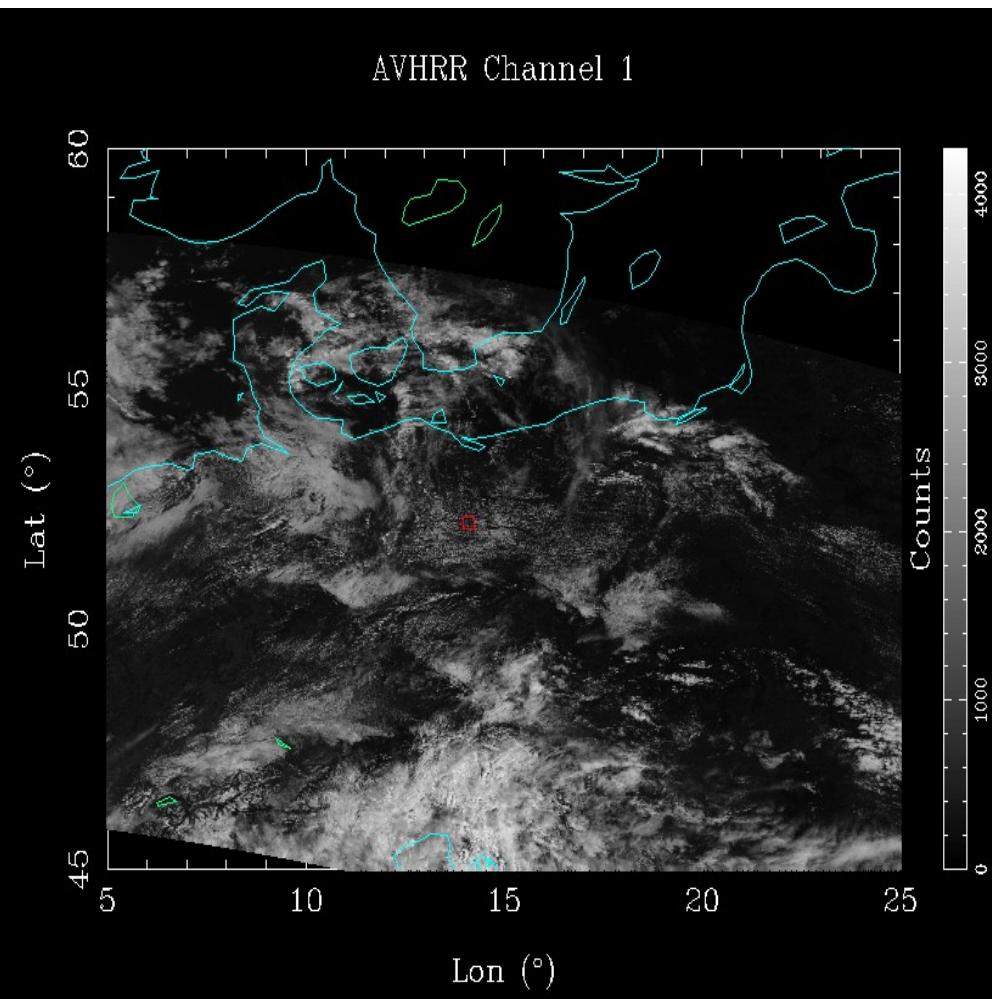


Cloud Properties Lindenberg (2007/06/06 09:11:32)

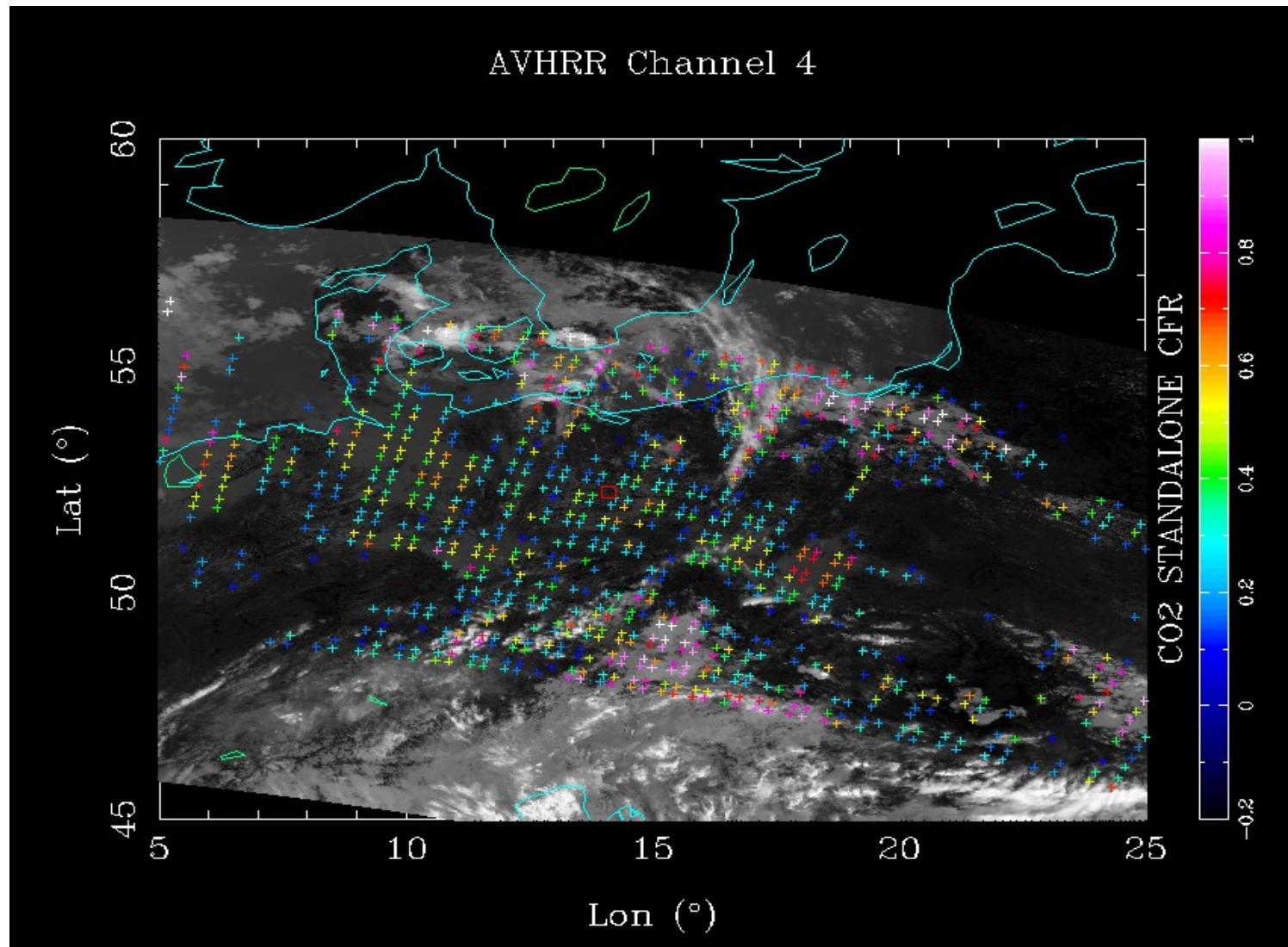
AVHRR Channel 4



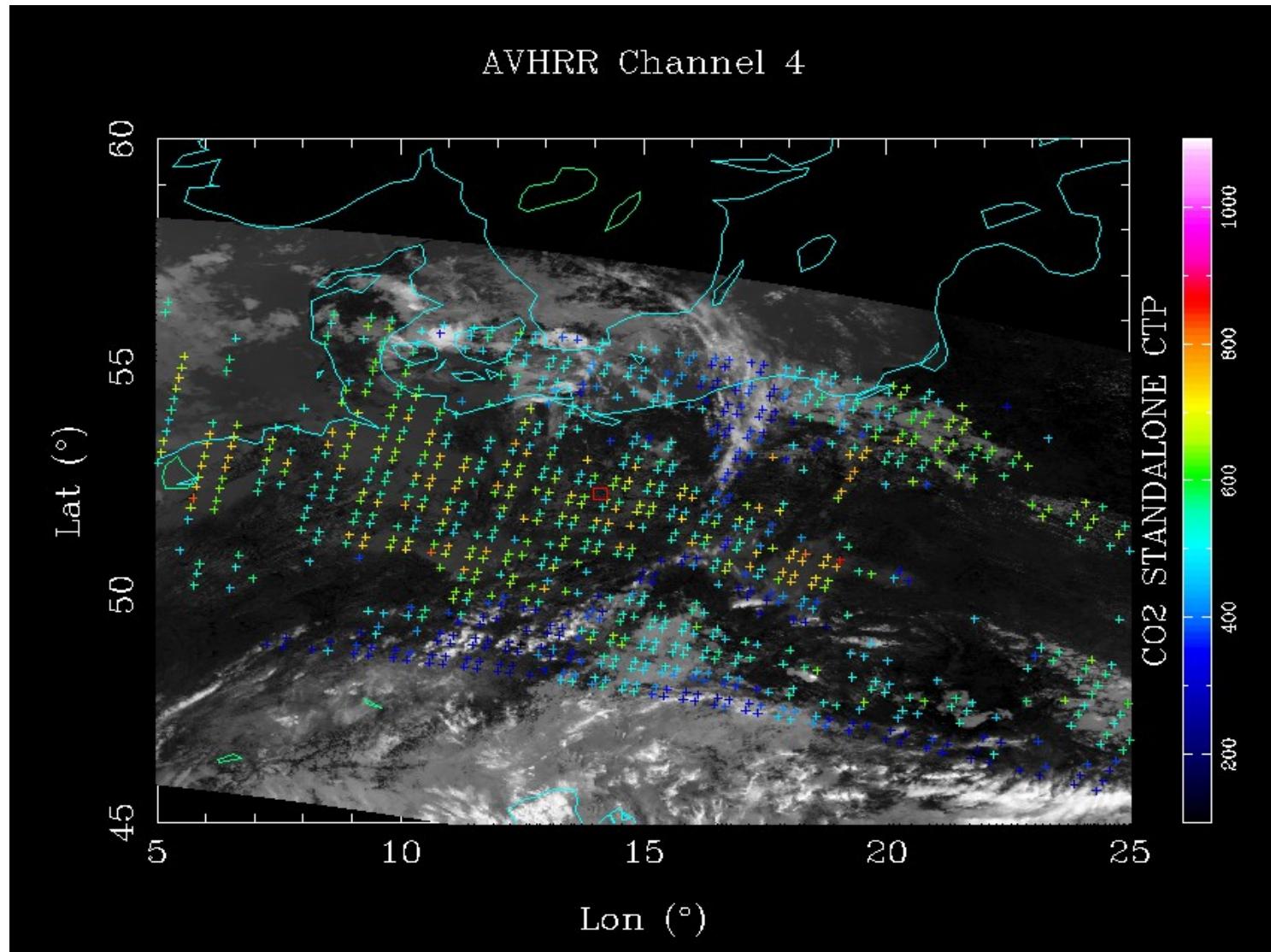
AVHRR Channel 1



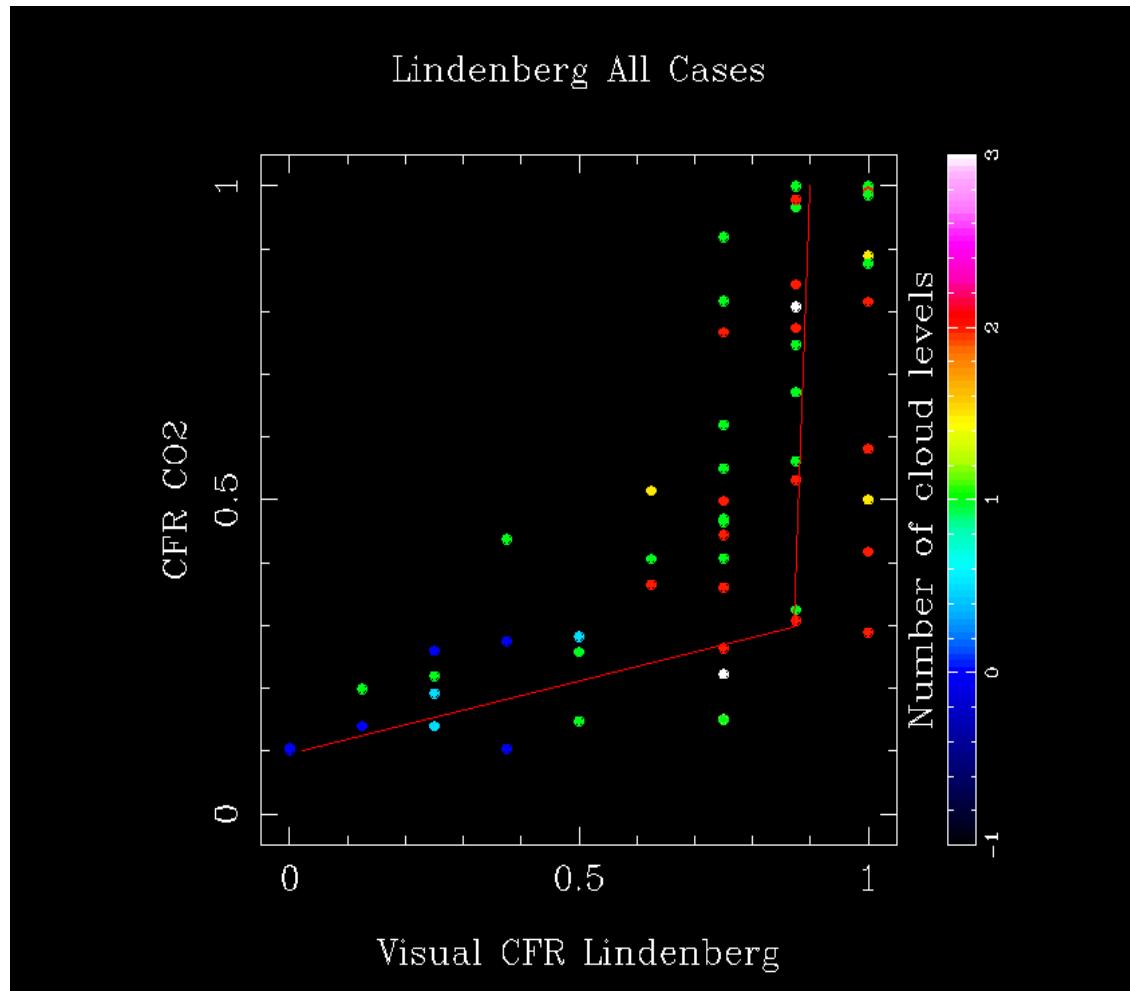
Cloud Fraction Lindenberg (2007/06/06 09:11:32)



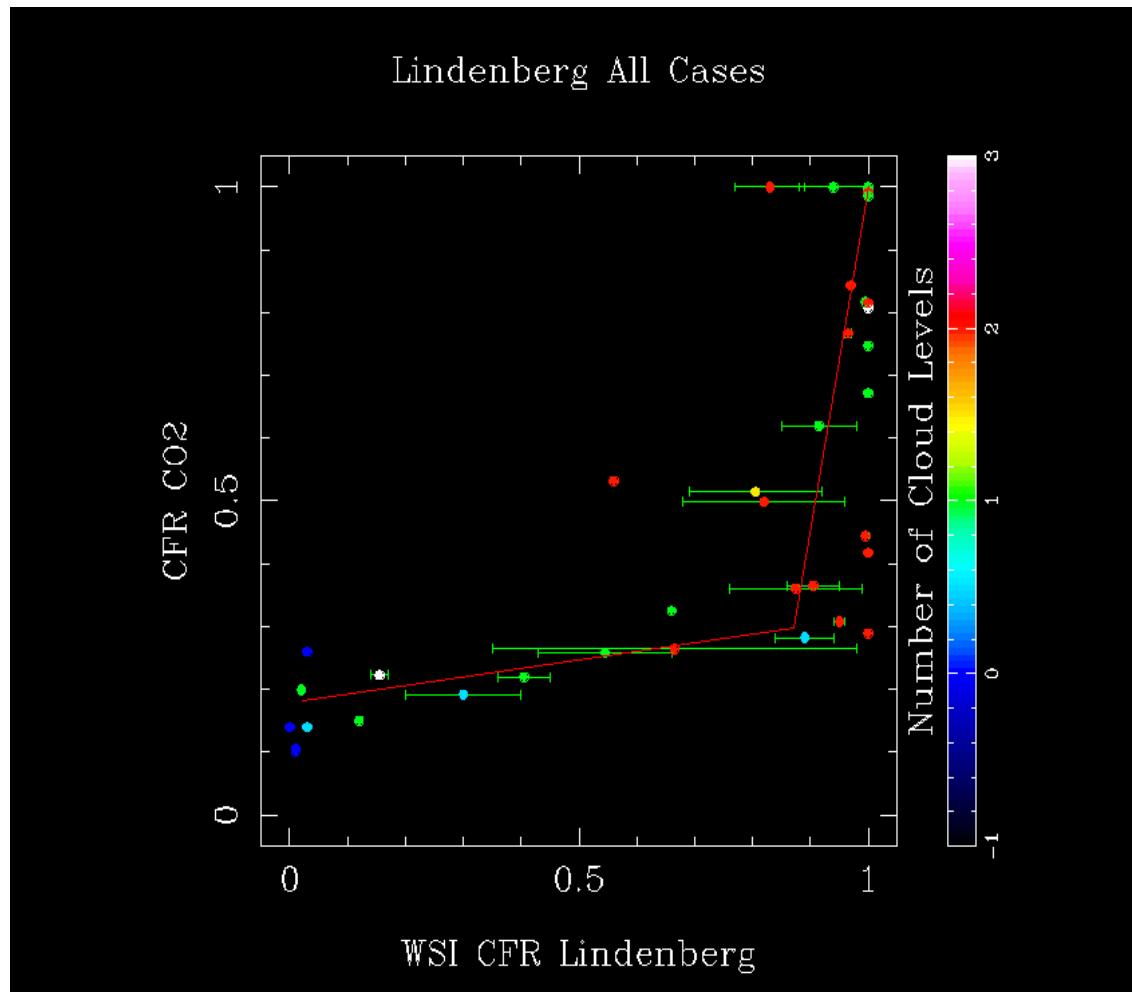
Cloud Top Pressure Lindenberg (2007/06/06 09:11:32)



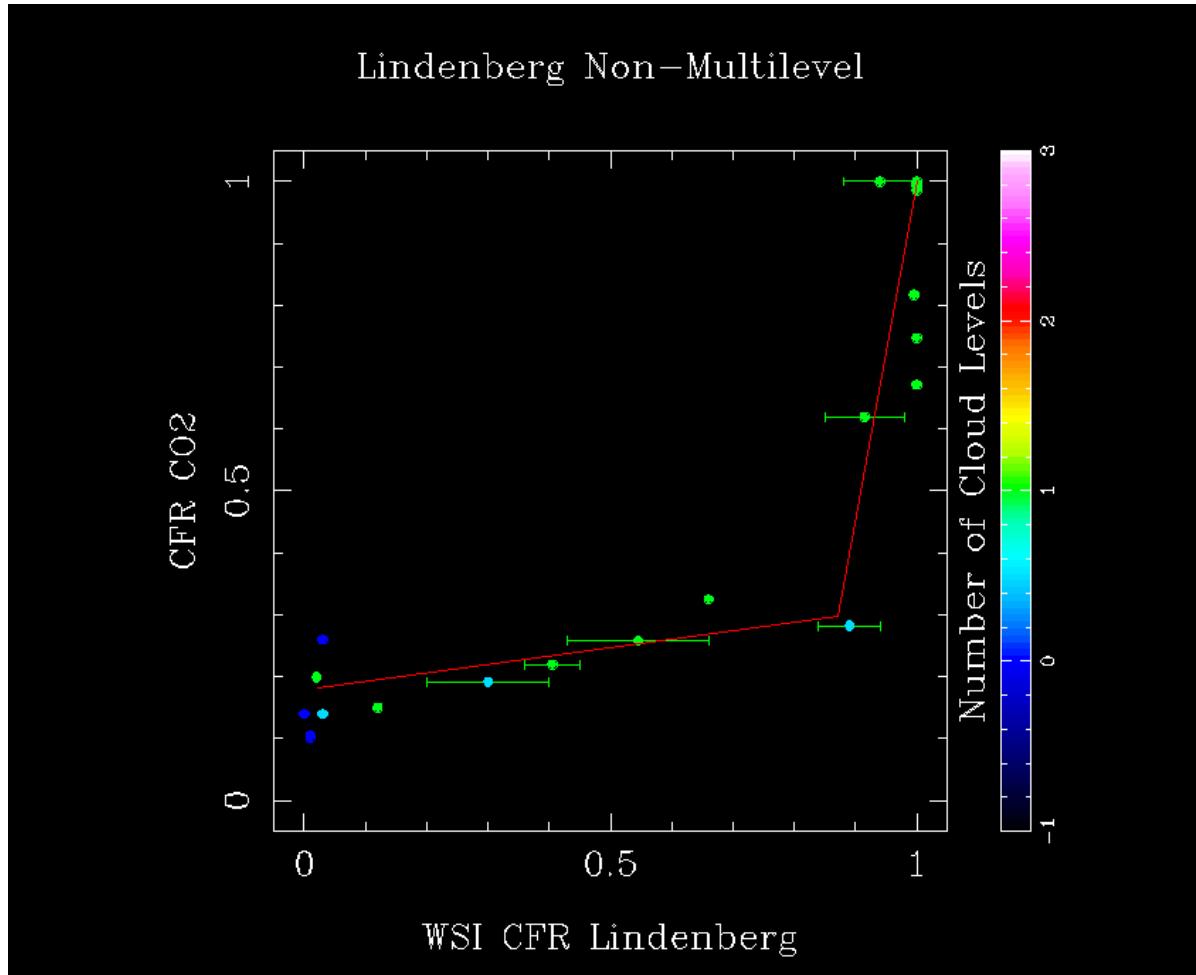
Cloud Fraction Comparison: Visual Lindenberg Cloud Fraction



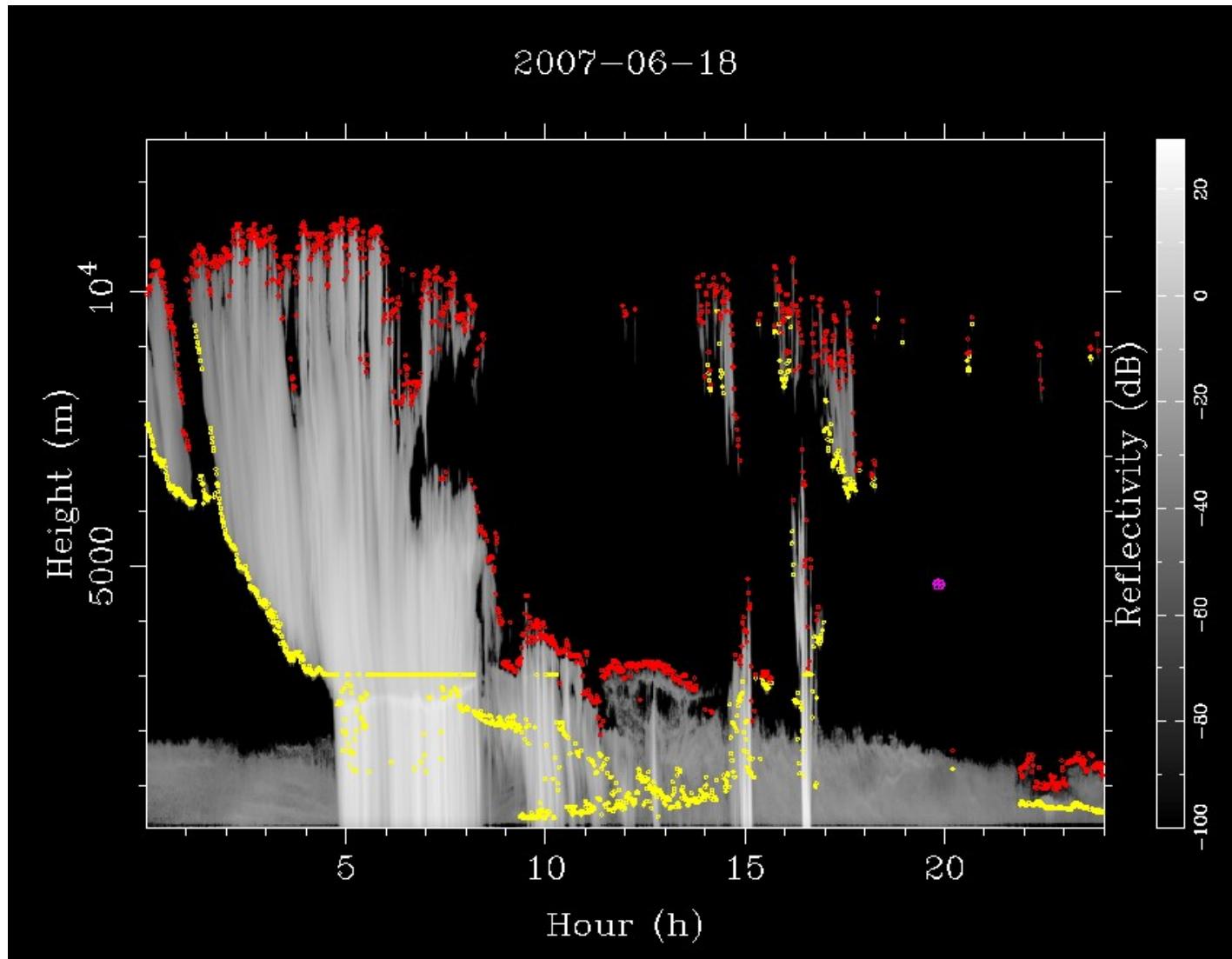
Cloud Fraction Comparison: Whole Sky Imager (WSI) Lindenbergs Cloud Fraction



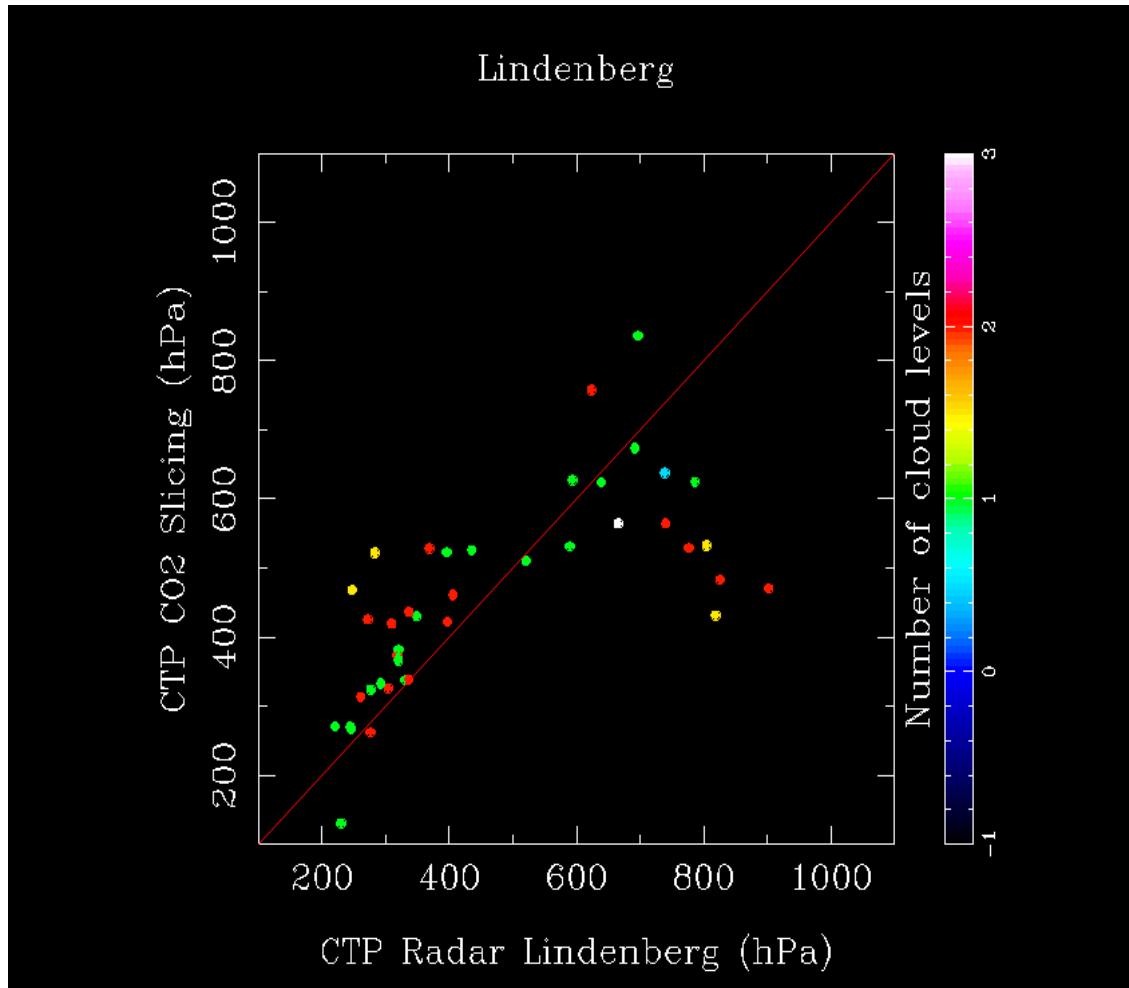
Cloud Fraction Comparison without multilevel clouds: Whole Sky Imager (WSI) Lindenbergs Cloud Fraction



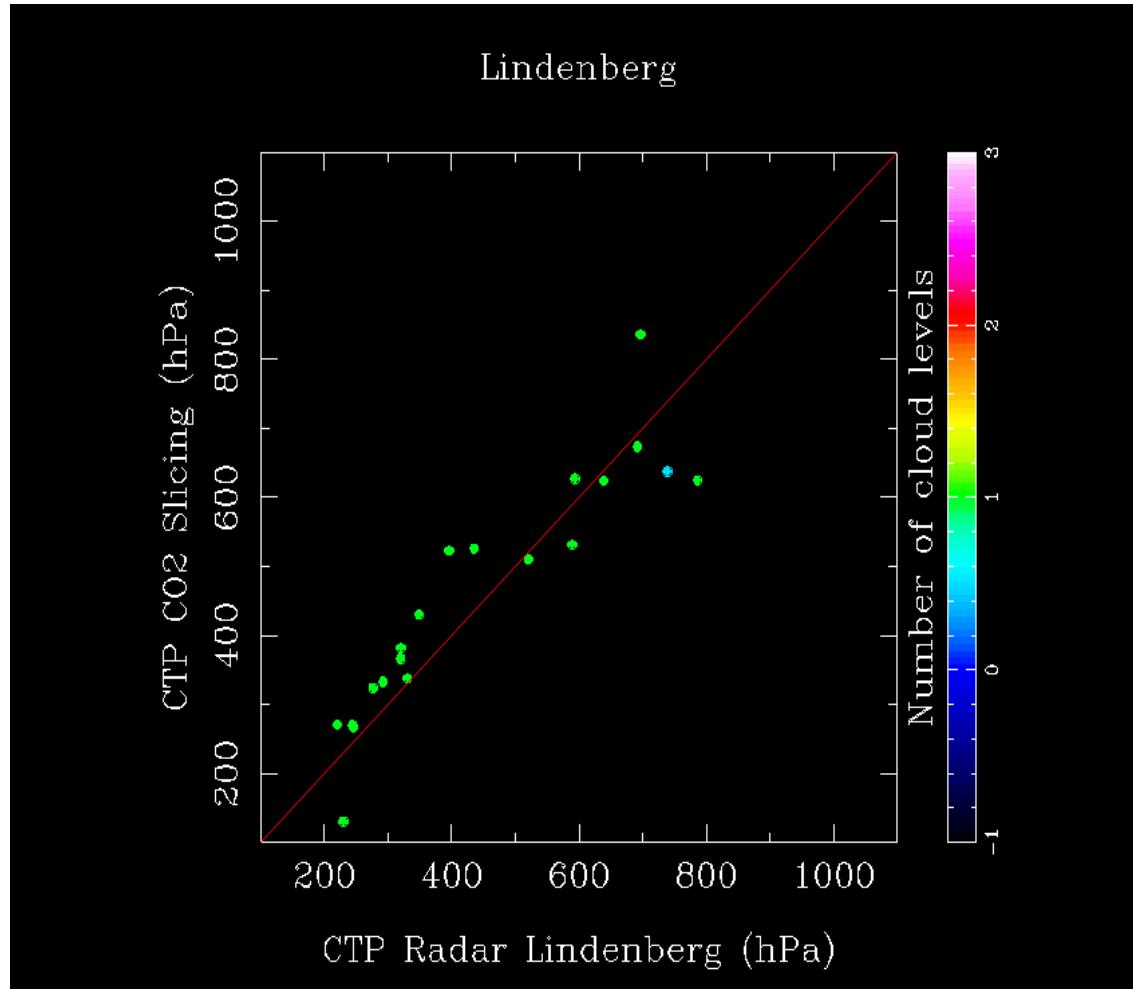
Cloud Radar Lindenberg (2007/06/18)



Cloud Top Pressure Comparison Lindenberg



Cloud Top Pressure Comparison Lindenberg without Multilevel Clouds



CONCLUSIONS

- Campaign data is extremely valuable to validate cloud parameters
- Cloud top pressure errors of ~100 hPa
- Cloud fraction not directly related to visible ground based cloud fraction (visual or WSI)
- Introduce modifications into the IASI L2 PPF