

Presented by

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Contributions:

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## RASTA Cayenne dataset status

11/11/2015

# RASTA : Data Processing Status

## Data availability from HAIC-HIWC

- **Cayenne campaign**

- ▶ Flight 9 issue with RASTA => no data
- ▶ Flights 10 to 26 : 5 antennas and F15 with CloudSat!

**Data quality : excellent !**

# RASTA : Data Processing Status

## One file per antenna (Instrument oriented)

Data level	Description	status	Campaign	comments
L0	netcdf file containing Z and Doppler velocity uncorrected. 1.2 s horizontal / 60 m vertical	Ready (V4)	Cayenne	
L1	netcdf file containing Z (calibrated) and Doppler velocity uncorrected. 1.2 s horizontal / 60 m vertical	Ready (V4)	Cayenne	Data have been calibrated using Ocean return
L2	netcdf file containing Z (calibrated) and Doppler velocity (aircraft velocity component removed, unfolded). Radar gates are geo-located. Interpolation between upper/lower domain and correction of reflectivity near the aircraft. Z is corrected near the aircraft. 1.2 s horizontal / 60 m vertical	Ready (V4)	Cayenne	V4 (minor corrections on unfolding technique) Antenna pointing angles measured and checked Ghost echo on upward antennas

# RASTA : Data Processing Status

- CAYENNE (Preliminary version), more work:
  - ▶ Improve intercalibration
  - ▶ Remove some ghost echoes
  - ▶ Data need to be validated
  - ▶ Process some time series (optional)

# RASTA : Data Processing Status

## Geophysical products

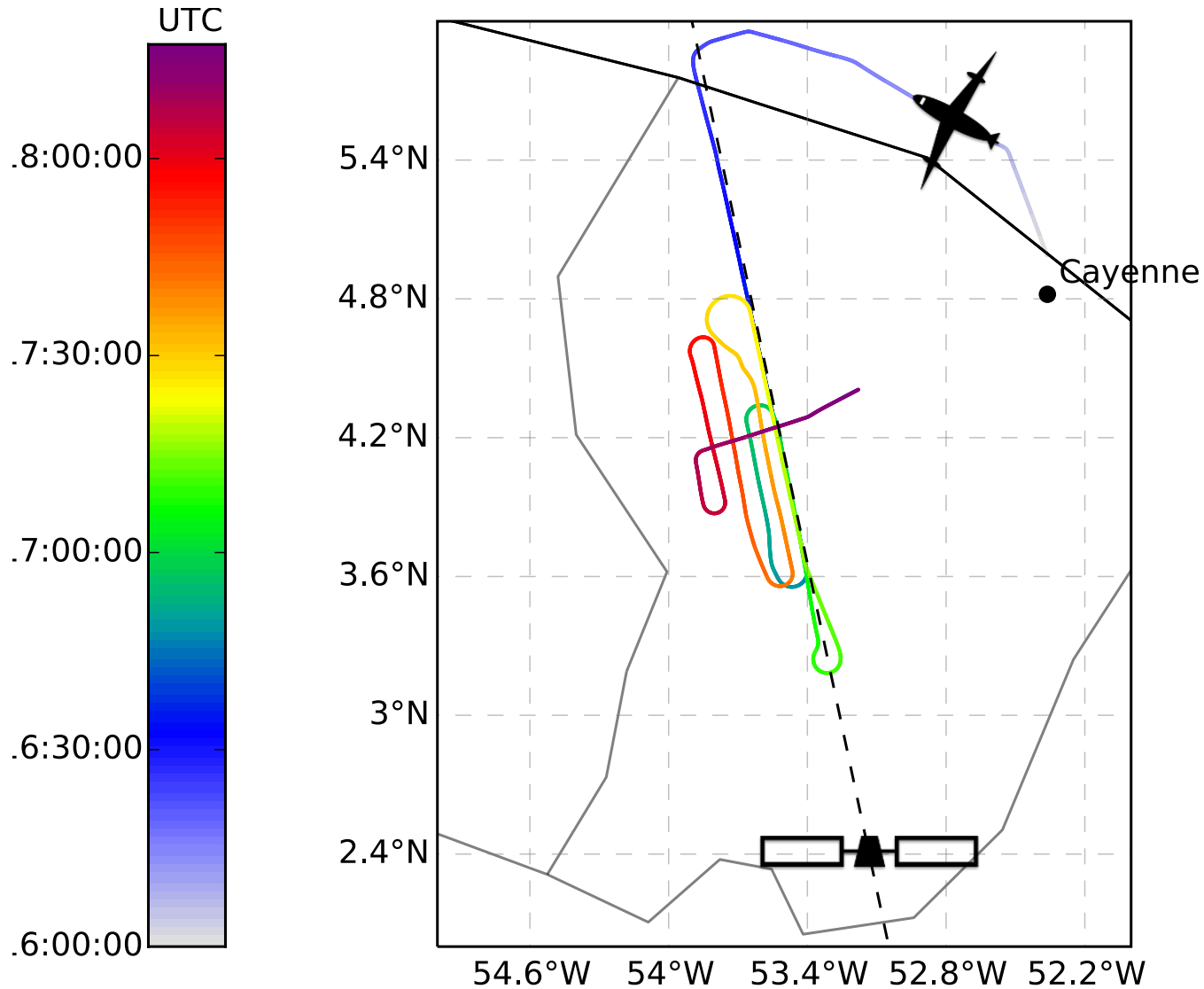
data	description	status	campaign	comments
3D WIND	Z (vertical reflectivity), $V_z$ (vertical velocity), $V_x$ (along track velocity), $V_y$ (cross track velocity) + including flags <b>Variational technique</b>	Ready (V4)	Cayenne (preliminary)	Validation using in-situ wind (aircraft)
Ice cloud microphysics	IWC, $D_m$ (mean volume diameter), $R_e$ (effective radius), $W$ (vertical air motion), $V_t$ (ice terminal fall speed) <b>IWC-Z-T, <math>D_m</math>-<math>V_t</math>-T relationships</b>	Ready (V4)	Cayenne (preliminary)	First evaluation of our IWC retrieval using IKP and microphysical probes <b>NEW retrieval Netcdf 4 (compression)</b>

**A file (dynamic+microphysics) per flight is available via our ftp:  
Address: [ftp.latmos.ipsl.fr](ftp://ftp.latmos.ipsl.fr) login: haicr password: GTAUIac!  
Then go to /RASTA/microphysics\_04/ where you can find data for both campaigns**

# Version 5 – wind and microphysics

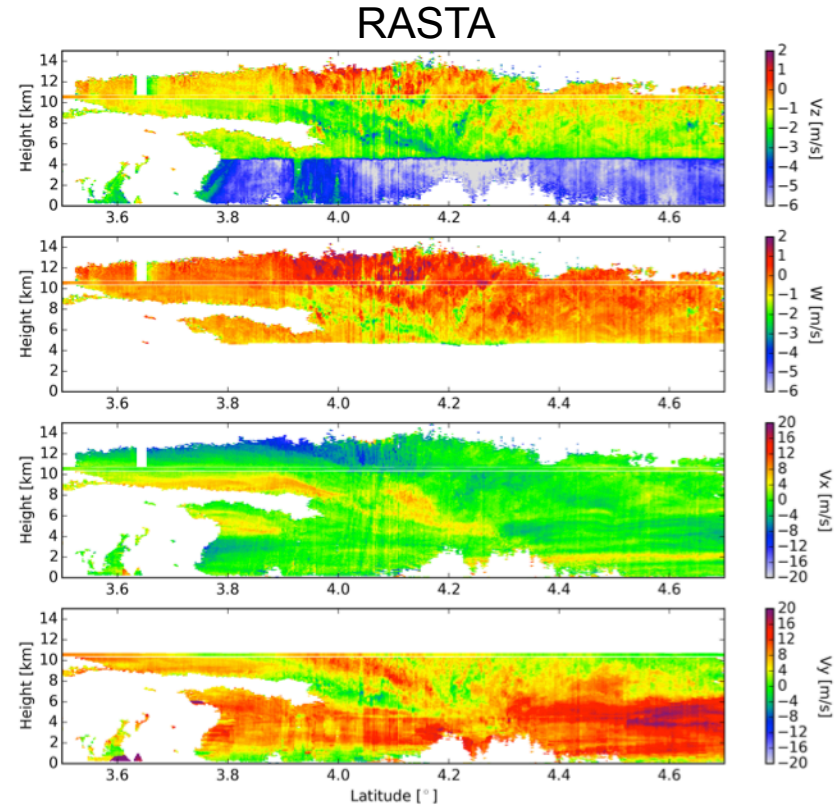
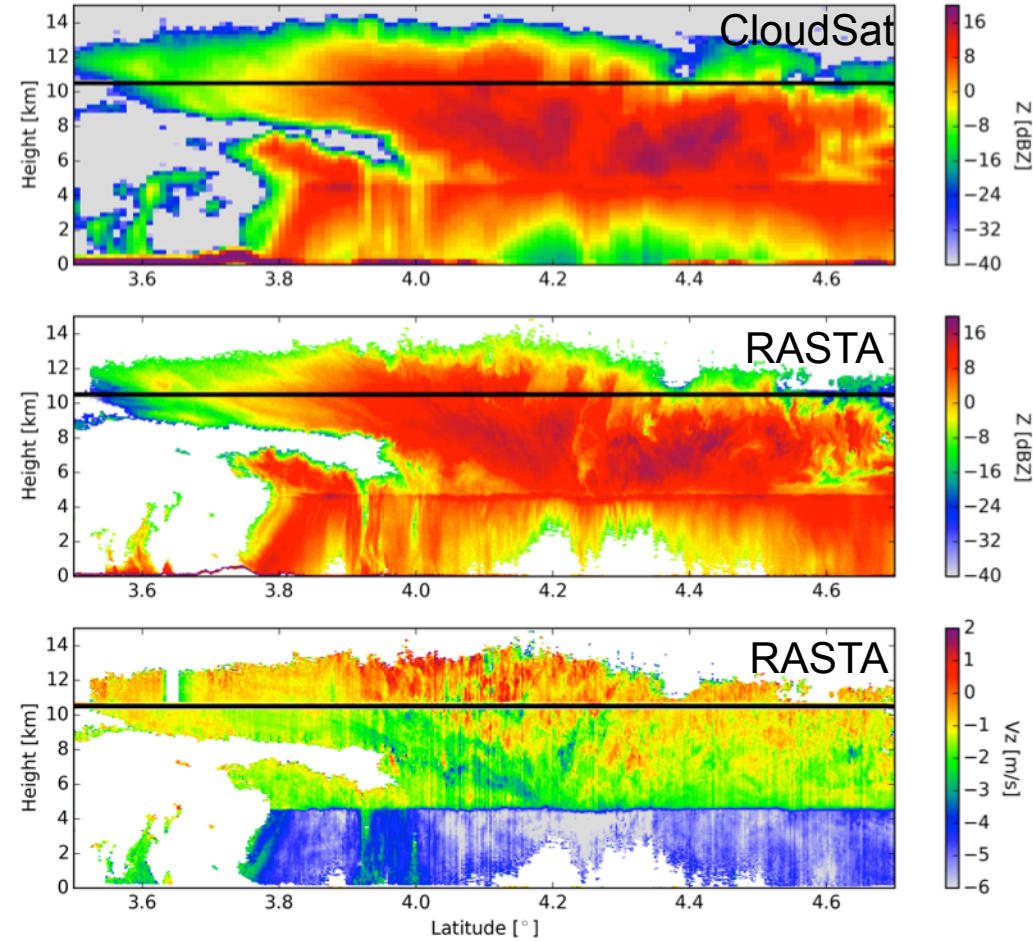
- Improvements of V4 + ...
- Ongoing work but preliminary files available
  - ▶ Use the new version of SAFIRE files (vertical wind bias corrected, delivery in a few weeks) => should not change much the results but need to be checked.
  - ▶ Antennas pointing angles improved
  - ▶ Most of the work has been done of the microphysics:
    - New retrieval algorithm (variational approach) including ice attenuation
    - Need to be validated using extra measurements away from the aircraft (Cayenne data from Convair, IKP and X-W band radars)
  - ▶ Possible delivery of final files in June
  - ▶ Available for beta users now! **Variable names unchanged**
- **Address: [ftp.latmos.ipsl.fr](ftp://ftp.latmos.ipsl.fr) login: haicr password: GTAUIac!**
- **Then go to [/RASTA/microphysics\\_05/](/RASTA/microphysics_05/)**

# CloudSat – F15 16/05/2015



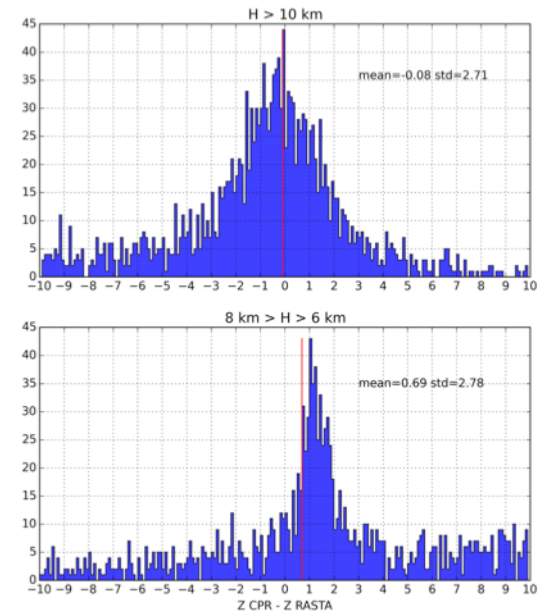
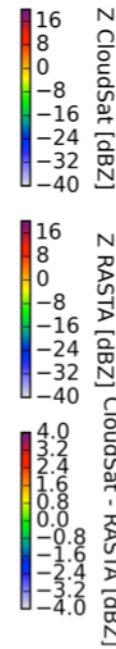
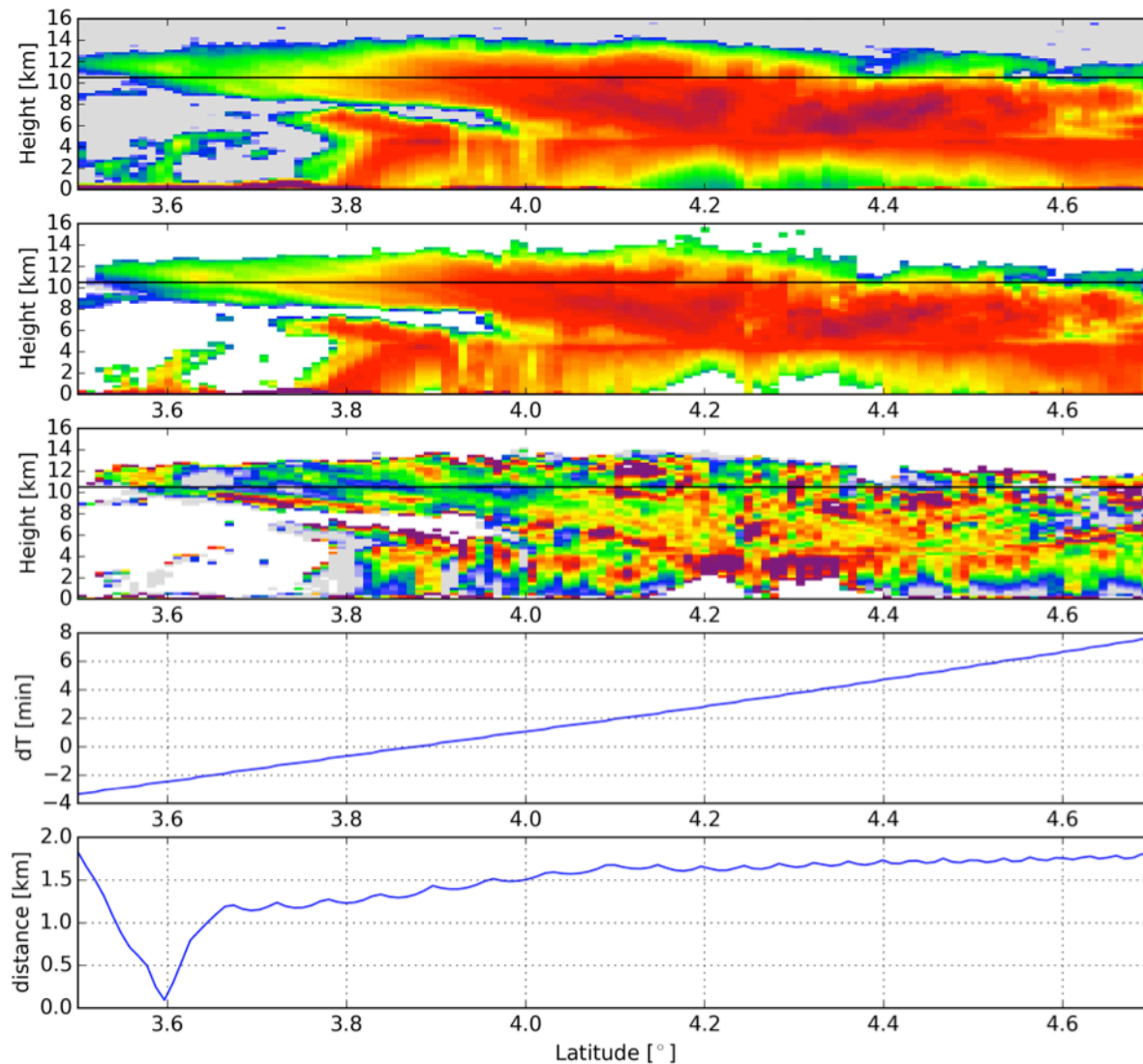
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# CloudSat – F15 16/05/2015





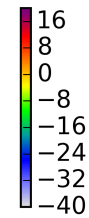
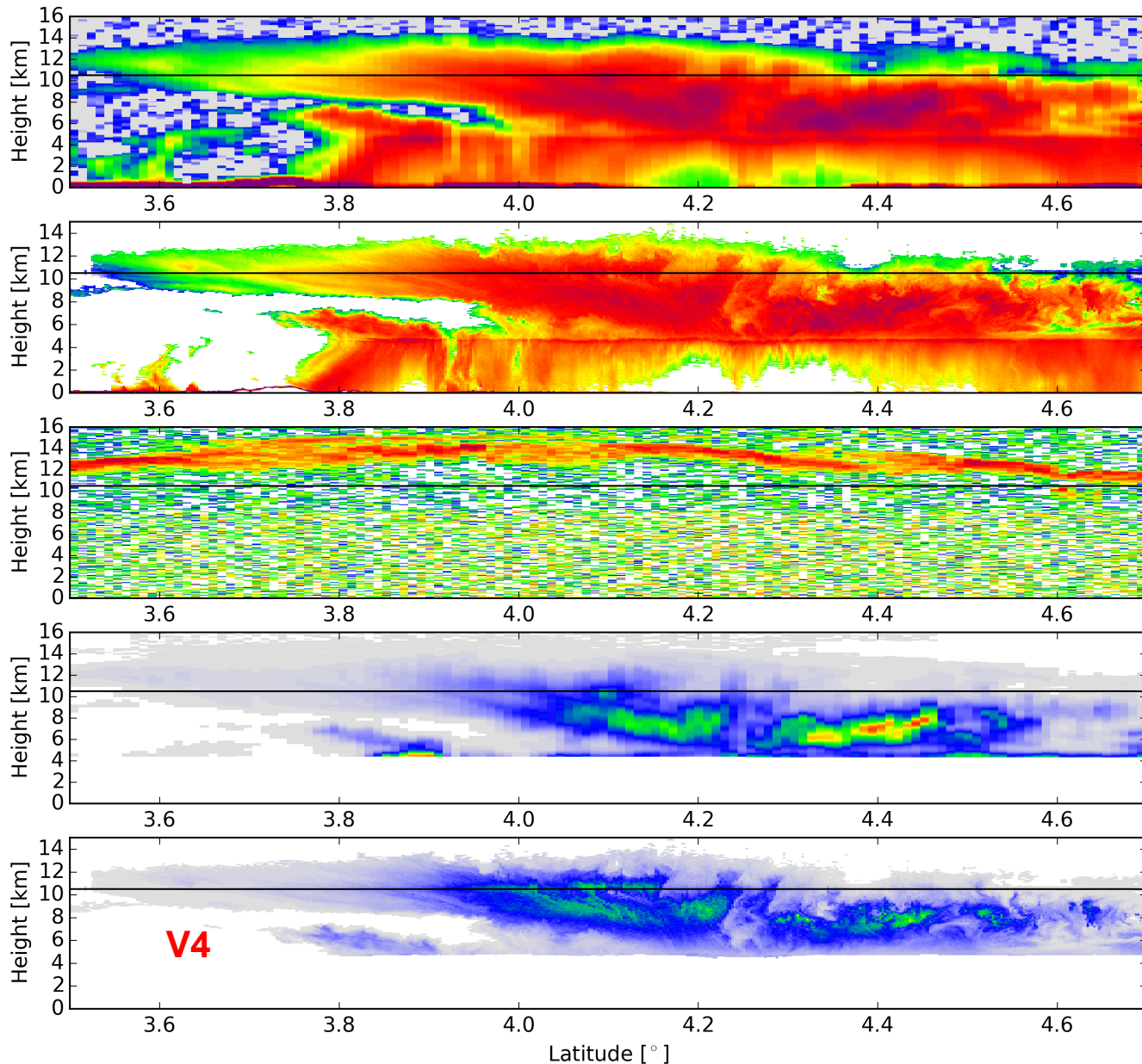
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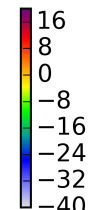


# DARDAR – F15 16/05/2015



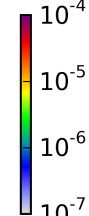
Z CloudSat [dBZ]

CloudSat



Z RASTA [dBZ]

RASTA



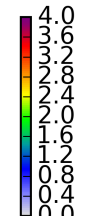
Beta CALIOP [m<sup>-1</sup> sr<sup>-1</sup>]

CALIPSO  
LIDAR



IWC DARDAR [g/m<sup>3</sup>]

DARDAR  
IWC  
Operational  
product



IWC RASTA [g/m<sup>3</sup>]

RASTA IWC

High Altitude Ice Crystals (HAIC, 314314)

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