Presented by

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RASTA Darwin dataset status

10/11/2015

RASTA : Data Processing Status

Data availability from HAIC-HIWC

- **Darwin campaign**
  - ‣ 22 Flights out of 23 with RASTA (hatch problem, F18)
  - ‣ Flights 1 to 21 : five antennas (only cloud wind along the flight track available above the aircraft), no limitation for microphysics
  - ‣ Flights 22 to 23 : six antennas (full 3D wind above and below aircraft)

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)	Darwin and Cayenne	
L1	netcdf file containing Z (calibrated) and Doppler velocity uncorrected. 1.2 s horizontal / 60 m vertical	Ready (V4)	Darwin and 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)	Darwin and Cayenne	V4 (minor corrections on unfolding technique) Antenna pointing angles measured and checked Ghost echo on upward antennas

HAIC
High Altitude Ice Crystals

RASTA : Data Processing Status

- DARWIN: data ready and validated

- 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 Variational technique	Ready (V4)	Darwin and Cayenne (preliminary)	Validation using in-situ wind (aircraft)
Ice cloud microphysics	IWC, D_m (mean volume diameter), Re (effective radius), W (vertical air motion), Vt (ice terminal fall speed) IWC-Z-T, Dm-Vt-T relationships	Ready (V4)	Darwin and Cayenne (preliminary)	First evaluation of our IWC retrieval using IKP and microphysical probes **NEW retrieval Netcdf 4 (compression)**
A file (dynamic+microphysics) per flight is available via our ftp: **Address: ftp.latmos.ipsl.fr login: haicr password: GTAUlac!** **Then go to /RASTA/microphysics_04/ where you can find data for both campaigns**				

Improvements in V4 – wind and microphysics

- One single file with dynamic and microphysics
- Netcdf 4, much smaller files
- Quality flag for winds
- Attenuation flag including ghost echo detection, interpolated region.
- Radar range gate definition, no more artificial reflectivity enhancement
- No more huge overestimation of IWC

Version 5 – wind and microphysics

- Improvement of V4 + …
- Ongoing work but preliminary files available
  - Use the new version of SAFIRE files (vertical wind bias corrected, delivery 30/10/2015) => 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 March
  - Available for beta users now! Variable names unchanged
- **Address: ftp.latmos.ipsl.fr   login: haicr   password: GTAUlac!**
- **Then go to /RASTA/microphysics_05/**

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