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# SOFOG3D

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# Tasks status and next steps

Tasks	State
Installation and operation of instruments at the Supersite	Complete
Radar catalogue for the 3 radars	Complete
Processing of the whole radar database in vertical position (L1)	Complete
Radar BASTA-CNRM processing	Complete
Production of quicklooks and netcdf files	Complete
Website BASTA: Quicklooks availability	Complete
Development of a method for analyzing scan data	Complete
Radar scanner treatment and Quicklooks	Complete
L2a (Agen and Super site) => FTP	Complete
Study: Radar coupling and fog detection	Complete
Study: Calibration transfer between radars	Complete
Study: Radar data and Radiometer data (Radiometer LWP co located with BASTA)	On-going
Balloon impact on the BASTA measurements	Complete

Next steps
<ul style="list-style-type: none"><li>• Pre retrieval:<ul style="list-style-type: none"><li>- Look at the results of the target</li><li>- In-situ =&gt; radar forward model and evaluation of the one from literature</li></ul></li></ul>
<ul style="list-style-type: none"><li>• How to use the scans for dynamic and 3D structure of fog?</li></ul>
<ul style="list-style-type: none"><li>• Retrieval:<ul style="list-style-type: none"><li>- Test the first version of the algorithm (Pragya's work)</li><li>- Interaction with assimilation team</li></ul></li></ul>
<ul style="list-style-type: none"><li>• Dynamic and microphysics analysis</li></ul>



# Data presentation and processing

# Data Availability on AERIS

LOCATION AND RADAR	<u>CHARBONNIERE:</u> BASTA-mobile LATMOS (1s)	<u>BASTA-CHAMP:</u> BASTA-mini LATMOS (0.5s/1s)	<u>AGEN:</u> BASTA-mini CNRM (1s)
DATA ACQUISITION MODE	Vertically pointing	Scanning Vertically pointing	Vertically pointing
SAMPLING MODE	12m5 25m 18km 100m 18km	12m5 (scan) 25m 18km 100m 18km	12m5 25m 18km 100m 18km
LEVEL OF DATA TREATMENT	L1: calibrated L2a: combination of modes L2b: mask object	L1b: mask object L2a: combination of modes	L2a: combination of modes
File naming convention in AERIS	SOFOG3D_CHARBONNIERE_LATMOS_ + L1: BASTA-vertical-12m5_L1 L2a: BASTA-vertical_L2a L2b: BASTA-vertical_L2b	SOFOG3D_BASTA-CHAMP_LATMOS_ + L1b: BASTA-scan-12m5_L1b L1b map: BASTA-scan-MAP_L1b L1b rhi: BASTA-scan-RHI_L1b L2a: BASTA-vertical_L2a	SOFOG3D_AGEN_LATMOS_ + L2a: BASTA-vertical_L2a



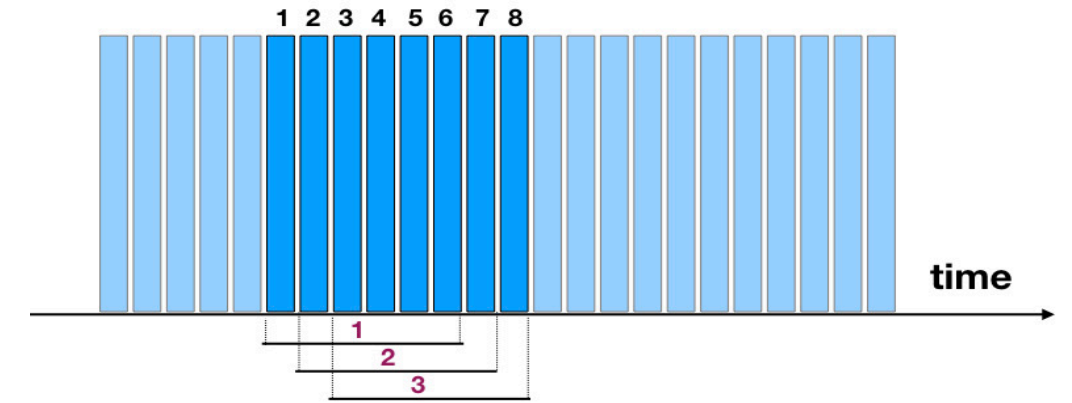
# Data Processing

L0  
↓  
L1

## Processing

- Post integration: Pulse pair technique
- Calibration: Calibration constant as a function of the transmitted power

Accumulate several profiles in order to reduce the background noise and increase sensitivity



L1  
↓  
L2

## Processing

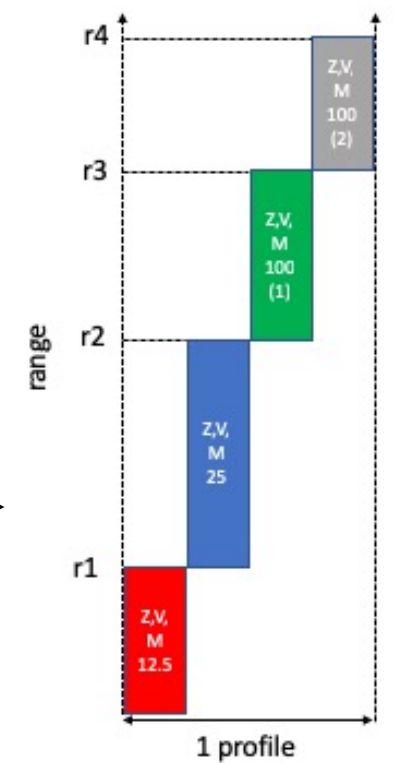
- Combination of modes and time integration

### L2a

We cumulate 3 to 4 profiles to build a new profile:

- From 0 to r1 we use the 12.5m resolution
- From r1 to r2 the 25m resolution
- From r2 to r3 the 100m (18km) resolution
- From r3 to r4 the also 100m resolution.

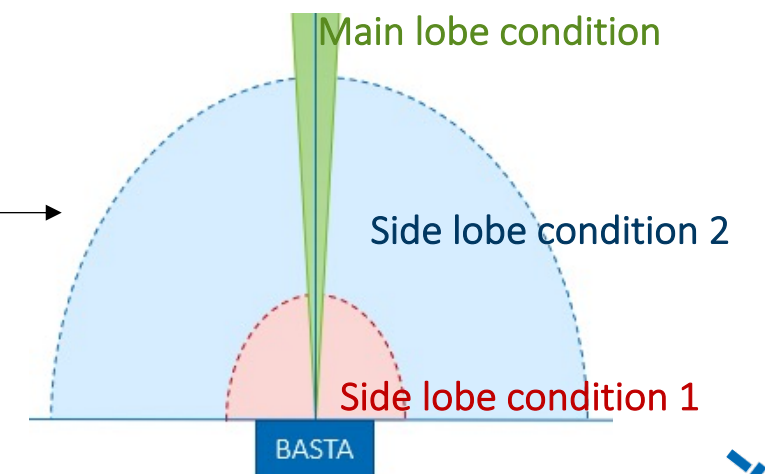
Based on 4 profiles of 3s we will have one profile every 12s.



- Identification and masking of the data contaminated by the tethered balloon

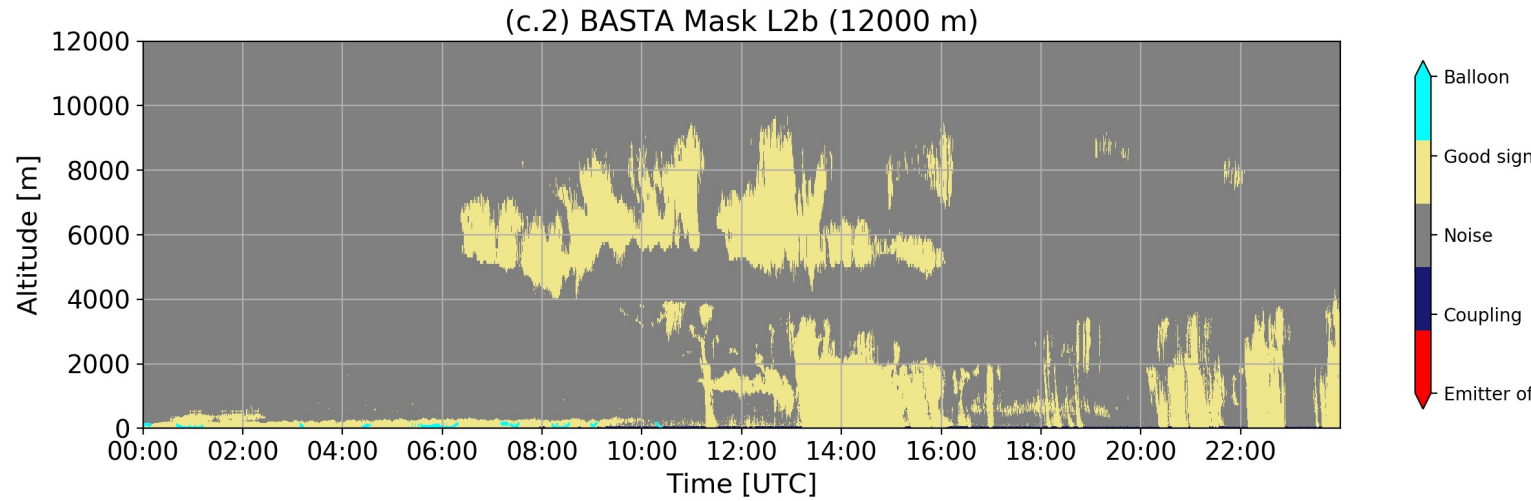
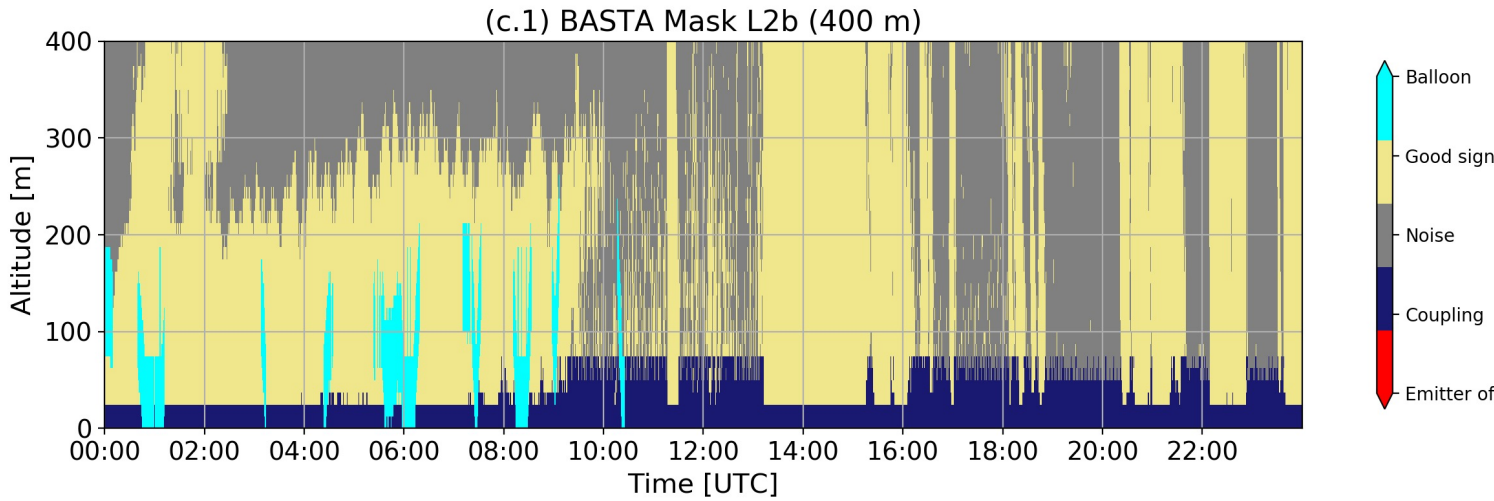
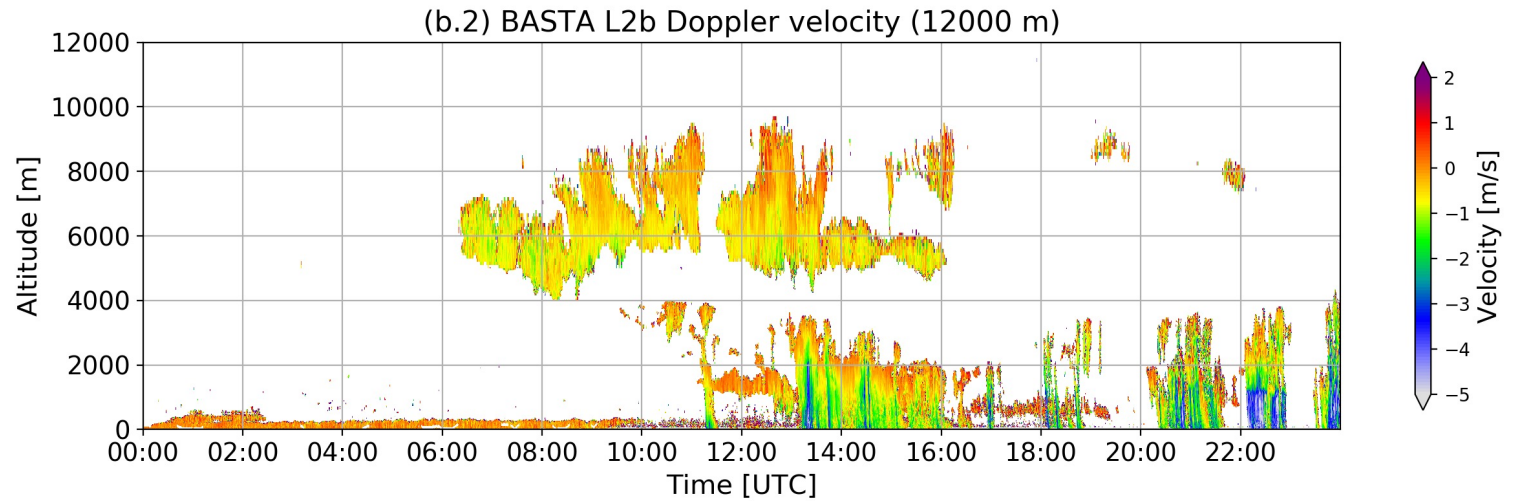
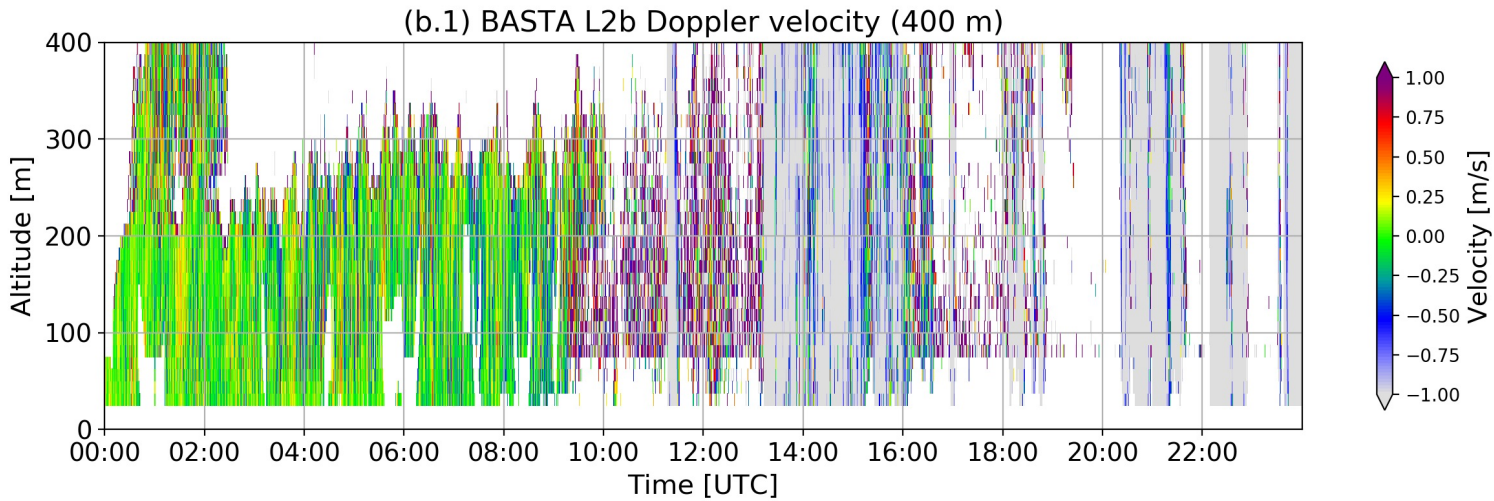
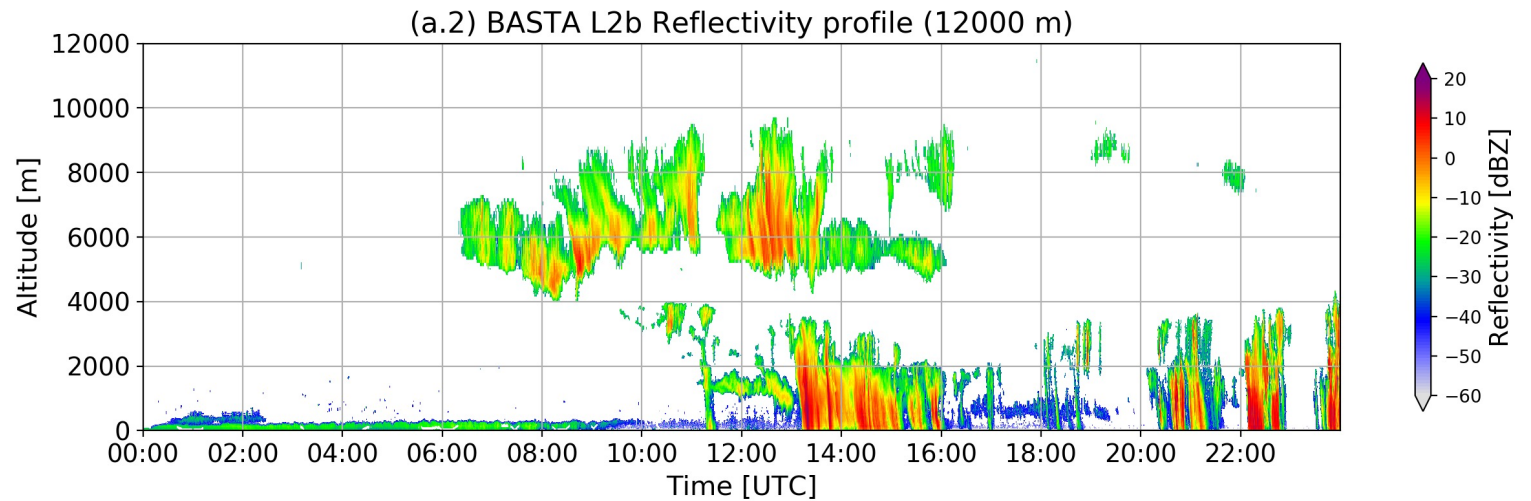
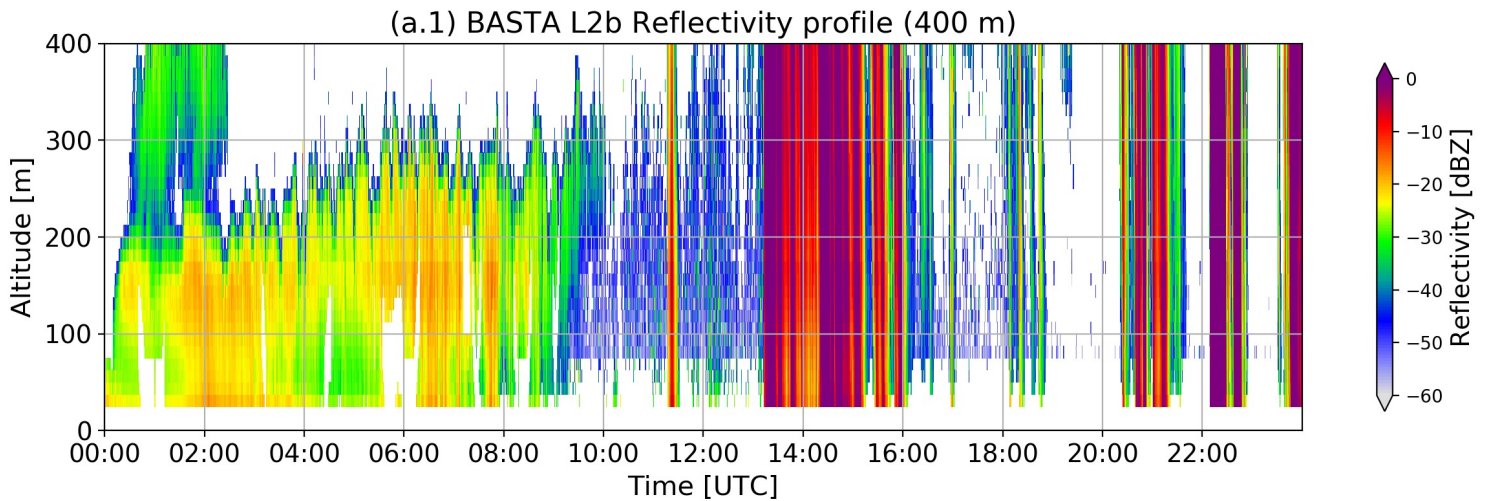
### L2b

The data is removed when the balloon enters the sensitivity range of the main and side lobes of the radar.



# BASTA vertically pointing Quicklooks (1/2)

Data acquisition mode:	Vertically pointing	Products:	Reflectivity (Z) profile Velocity (V) profile	Example:	BASTA mobile LATMOS 08/03/2020 Charbonniere
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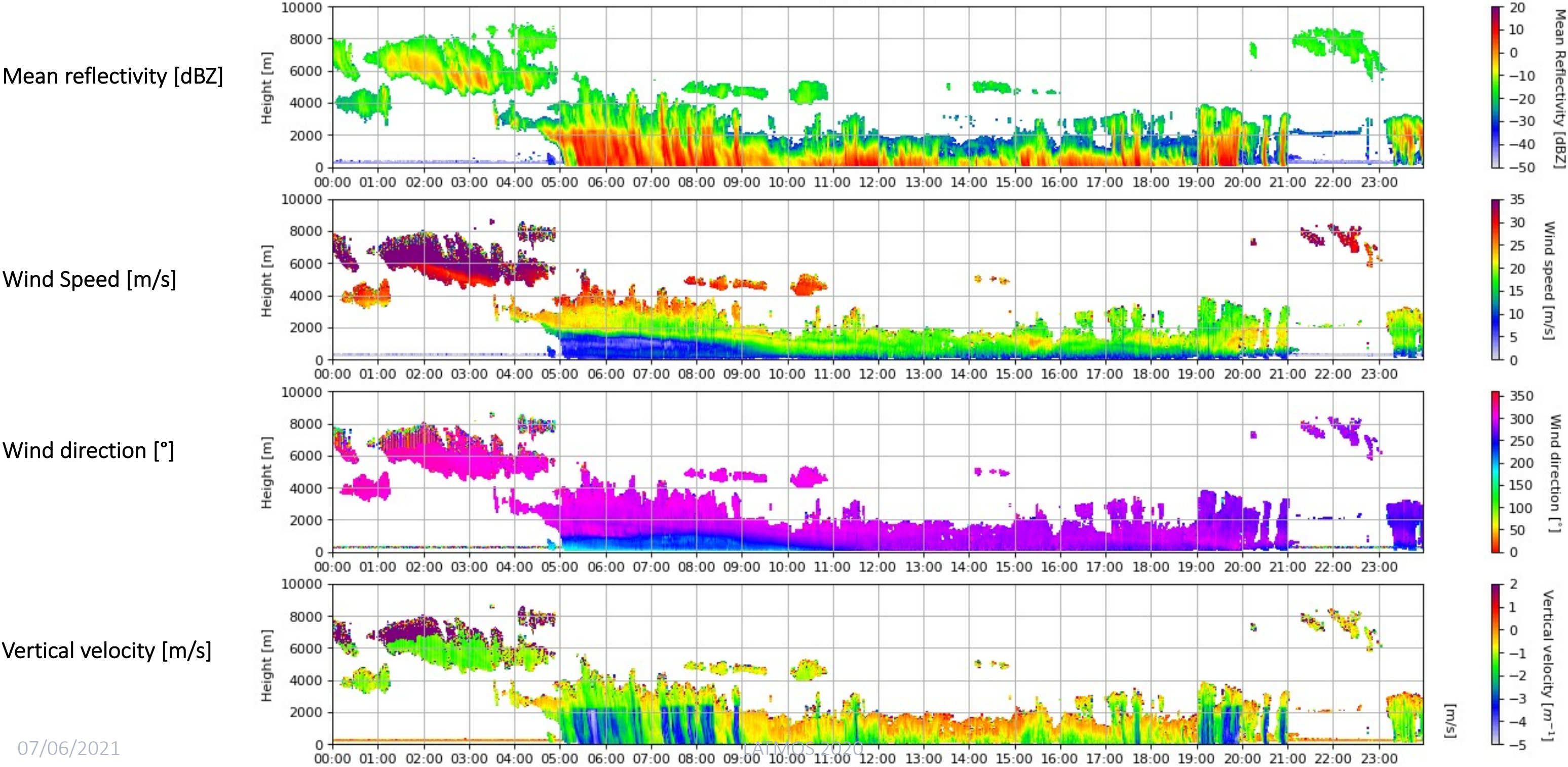
QL available at:

<https://owncloud.ltm.os.ipl.fr/index.php/s/N7O3hkfPUMaTTeB>  
folder Quicklooks



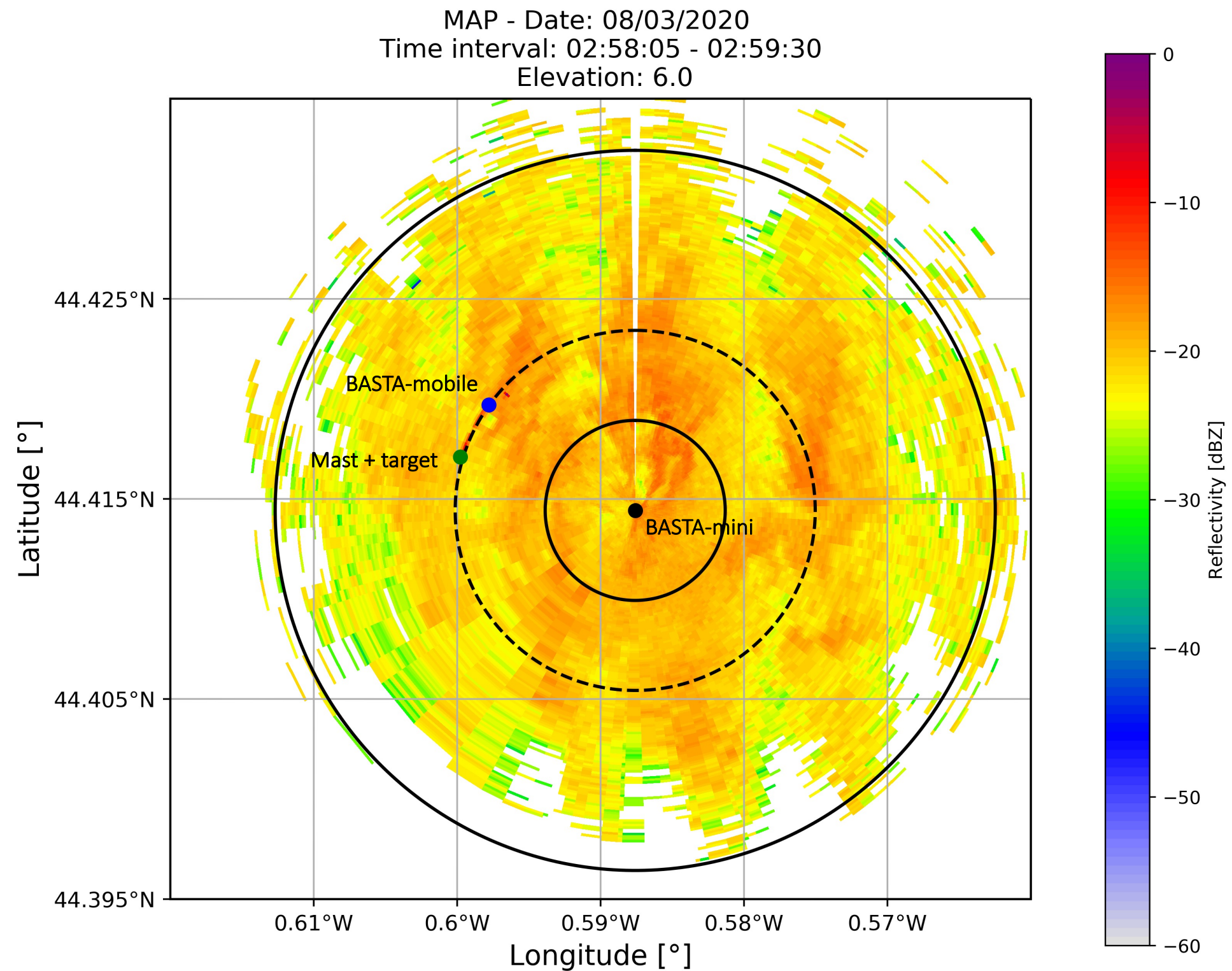
# BASTA vertically pointing Quicklooks (2/2)

Data acquisition mode:	Vertically pointing	Products:	Reflectivity / Doppler Velocity Wind Speed / Wind direction	Example:	BASTA mini LATMOS 04/03/2020 Super site
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# Scanning BASTA Quicklooks (1/2)

Data acquisition mode:	Scan	Products:	MAP/PPI – Plan Position Indicator	Example:	BASTA mini LATMOS 08/03/2020 Super site
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QL available at:

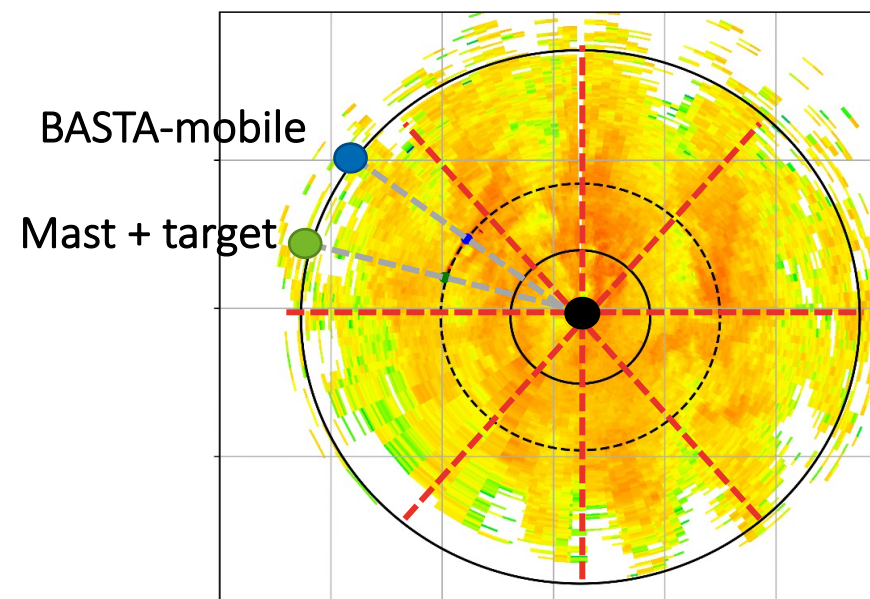
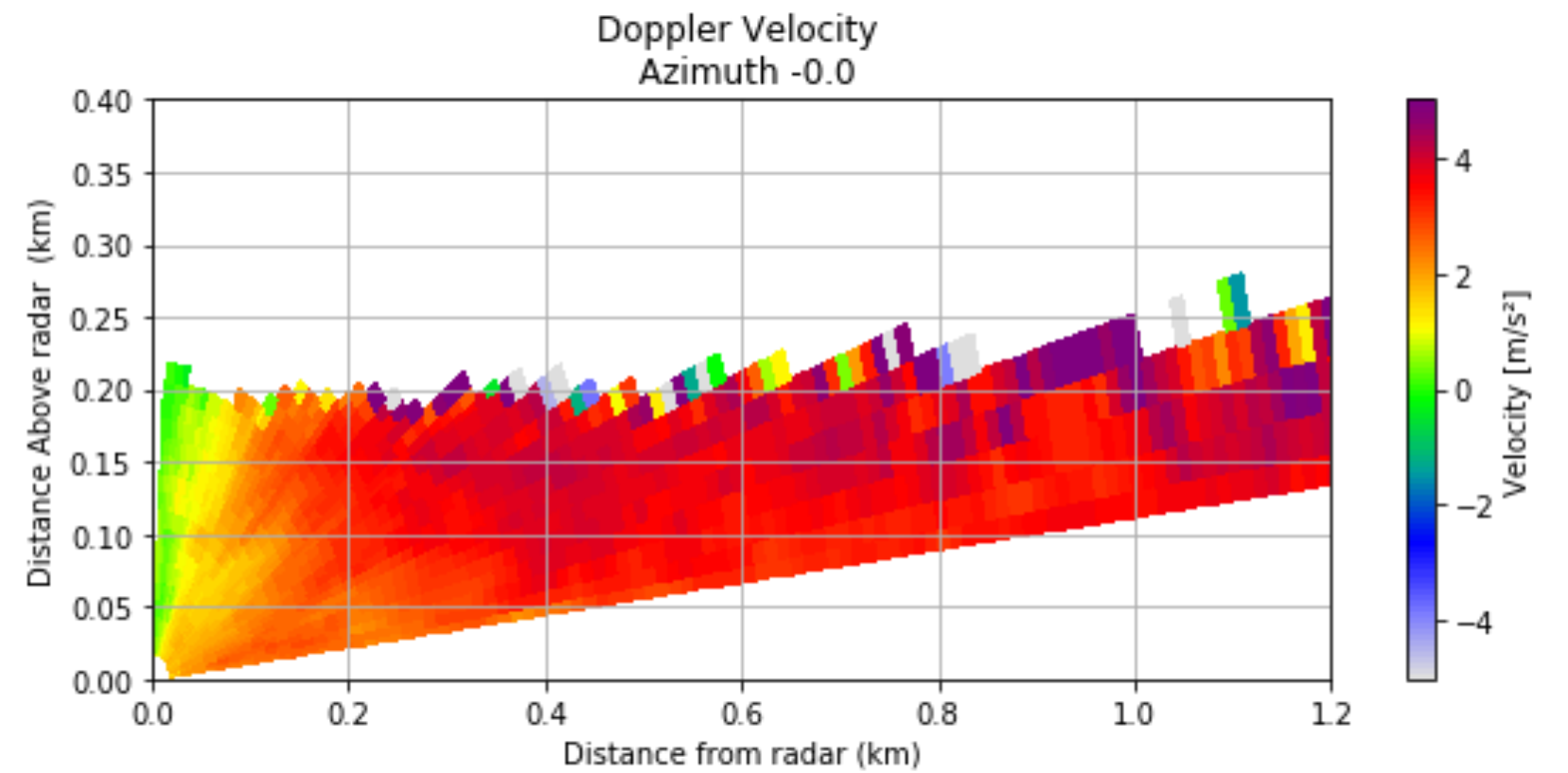
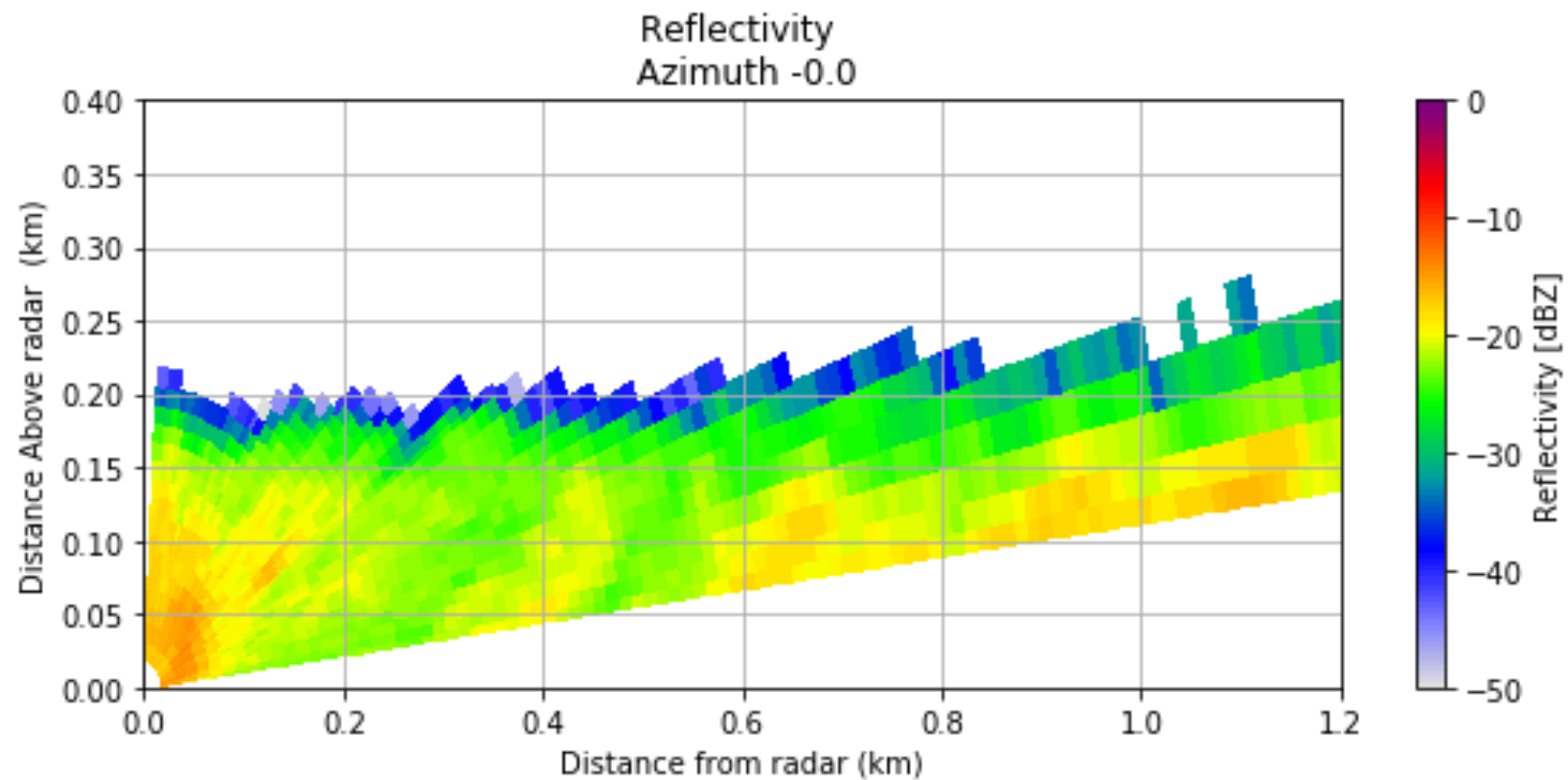
<https://owncloud.latmos.ipsl.fr/index.php/s/N7O3hkfPUMaTTeB>  
folder Quicklooks/BASTA-CHAMP





# Scanning BASTA Quicklooks (2/2)

Data acquisition mode:	Scan	Products:	RHI– Range Height Indicator	Example:	BASTA mini LATMOS 08/03/2020 Super site
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## RHI planes:

The scanning basta performs an RHI every 45 degrees, and also pointing to the BASTA-mobile and the target on the mast

QL available at:

<https://owncloud.latmos.ipsl.fr/index.php/s/N7O3hkfPUMaTTeB>  
folder Quicklooks/BASTA-CHAMP

