BASTA CLOUD RADAR

FMCW doppler radar in W band for cloud precise characterisation



BASTA is an FMCW (Frequency Modulated Continuous Wave) Doppler radar dedicated to the observation of clouds and fog.

This technological choice requires less energy than a pulsed radar. The latest developments in signal processing today make FMCW technology an efficient and reliable solution while promoting cost reduction.

The new cloud Doppler radar designed by Latmos and manufactured by BOWEN

Measurement of Reflectivity and Doppler Speed

Tropospheric profile up to 12 km—18 km—24 km depending on the mode

Four simultaneous resolutions:

- 12.5 m resolution dedicated to low clouds and fog
- 25 m resolution for medium altitude clouds
- Resolutions 100 m developed especially for cirrus

Reduced energy consumption and support costs



Fog monitoring to improve airport safety (Nowcasting)

The portability of BASTA allows it to be used as a means of calibration for other radars

Simplicity and affordable prices promote the emergence of a network of cloud radars



Licence UVSQ



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BASTA Cloud Radar

Technical specifications

FEATURES

Radar typ	Bistatic FM-CW, single Polarization
Measurements	DopplerReflectivity and Doppler speed
Frequency	≈ 95 GHz

Resolution range (m)	12,5	25	100	100
Distance max (km)	12	18	18	24
Unambiguous speed (m.s-1)	10	6	6	5

Maximum measurement dynamics	70 dB (-50dBz to +20dBz)
Minimum usage distance	≈ 40 m selon le mode
Mode of observation	1 à 20 s
Integration time	Continuous, long-term statistical observation
Typical use	Cloud climatology, Cloud microphysics, satellite validation of ground observations
Dimensions	154*94*62 cm
Weight	50 kg (max)
Antenna type	2 cassegrain parabolic antennas
Diameter	0,30 m
Beam size	≈ 0,8 deg
Scan	Vertical Positioner for 3D scanning (Optional)
TYPE OF TRANSMITTER	Solid state
Medium power	0,5 W (1 W optional)
Central frequency	≈ 95 GHz
DATA ACQUISITION/SYSTEM PROCESSING	16-bit ADC / FPGA integrated into radar
Freq. Sampling	51,2 MHz
Real-time visualization system	Color monitor
Data archiving	NetCDF



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Signal is not attenuated by precipitations









