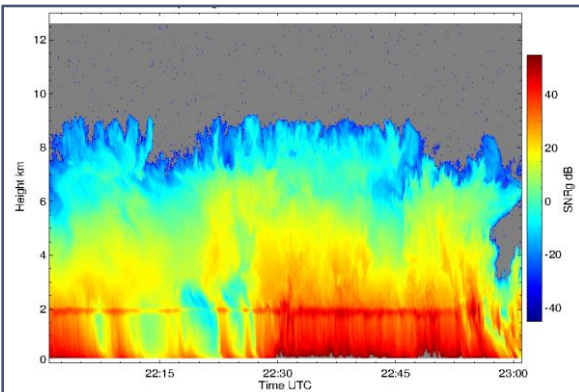


# Vertically pointing Cloud Radar MIRA-10



- Long term routine observation of clouds and rain
- Profiles of doppler spectra with high resolution up to 4096 FFT-points
- Excellent quality of spectra (70 dB in-spectrum dynamic range)
- Derivation of reflectivity, Doppler velocity, spectral width, and skewness
- Very high time resolution ( $\geq 0.1$  seconds)
- Solid-state amplifier operating in pulse-mode (800 W peak power) or pulse-compression mode (averaged power up to 50 W)
- Sensitivity: pulse mode: -23,8dBz (at 5km height, 2 seconds averaging, 30m range resolution)
- In pulse compression mode up 11dB more sensitivity can be achieved
- Range resolution pulse mode: 15 ...60 m (100 ... 400 ns pulse length)
- Range resolution pulse compression mode: 5 ... 36m ( $< 5 \mu\text{s}$  pulse length)
- Vertical pointing antenna of 2,40 m diameter with 45 dBi gain
- Possibility to save IQ-data

# Vertically Pointing Cloud Radar MIRA-10

## Typical Applications

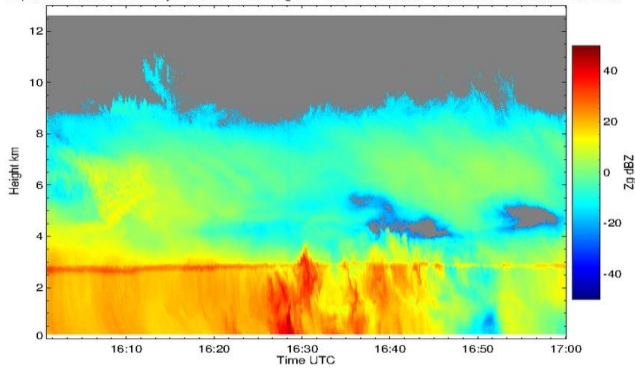
Research in meteorology  
Cloud particle characterization  
Icing hazard detection  
Synergy with other remote sensing instruments

Meteorological networks  
Input for weather prediction  
Research stations

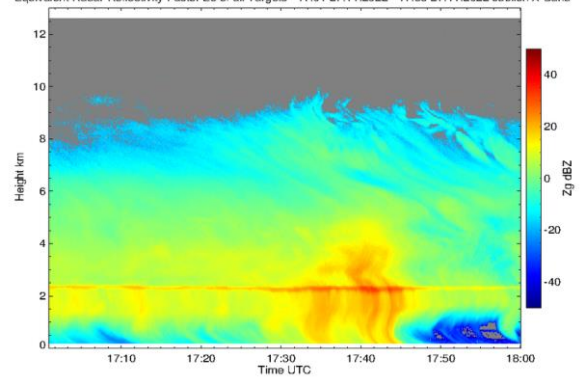
MIRA-10 is a X-Band Doppler radar with high sensitivity allowing to observe even light clouds. While the original idea was to monitor vertical profiles, also scanning version mounted on trailers identified as feasible configurations.

An important advantage of X-Band radars is that even in strong precipitation now saturation effects will be observed. Below two samples of MIRA-10 cloud observation are shown.

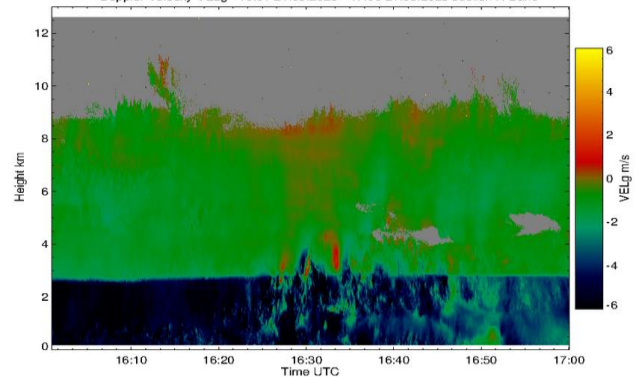
Equivalent Radar Reflectivity Factor Ze of all Targets 16:01 21.09.2023 - 17:00 21.09.2023 Juelich X-Band



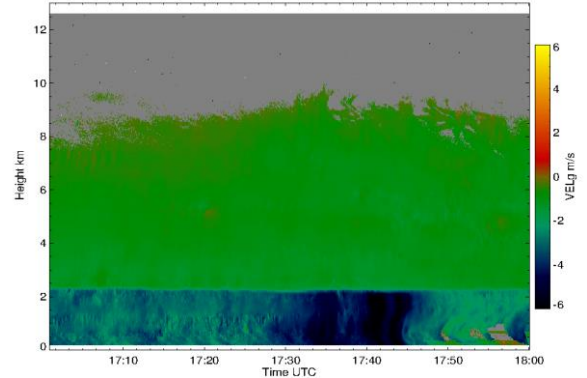
Equivalent Radar Reflectivity Factor Ze of all Targets 17:01 27.11.2022 - 17:59 27.11.2022 Juelich X-Band



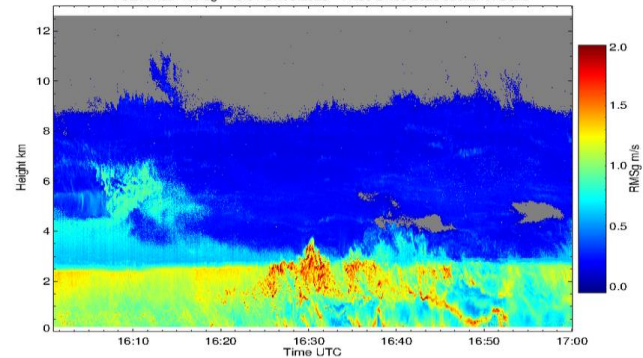
Doppler Velocity VELg 16:01 21.09.2023 - 17:00 21.09.2023 Juelich X-Band



Doppler Velocity VELg 17:01 27.11.2022 - 17:59 27.11.2022 Juelich X-Band



Peak Width RMSg 16:01 21.09.2023 - 17:00 21.09.2023 Juelich X-Band



Peak Width RMSg 17:01 27.11.2022 - 17:59 27.11.2022 Juelich X-Band

