

# MIRA 35C a new compact Cloud Radar

MIRA 35C is a compact and very price-competitive alternative to Metek's classical MIRA 36, if reduction of sensitivity ( $\approx 10$  dB) with respect to MIRA 36 is acceptable.

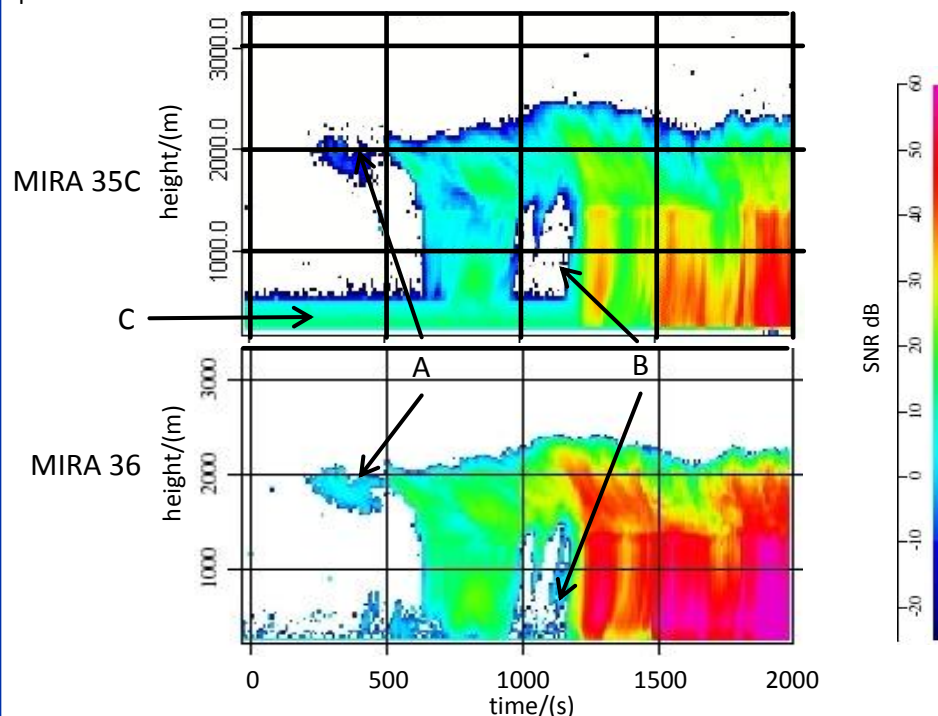
The radar electronic is accommodated in a hermetically sealed box with H·B·W = 50·40·30 cm<sup>3</sup>. Thus handling, installation and operation of MIRA 35C is very easy. The size of the complete radar is actually dominated by the antenna, typically a 1-m parabolic dish (grayish outline), attached to the radar electronic box.



## Technical Data

Radar frequency,	35.45 GHz
Pulse power/average power	2.5 kW/2.5 W    magnetron
Antenna diameter / gain	1 m/49.7 dBi → beam width = 0.5°
Pulse width/pulse repetition frequency	200 ns/5000 Hz or 300 ns/3333 Hz → 30 m or 45 m range gates → $\pm 10$ or $\pm 7$ m/s Nyquist velocity
Polarization	Two receivers for simultaneous LDR
Number of pulses per FFT	256 → 8 cm/s velocity resolution
Spectra averaging	100 power spectra → 5 s time resolution
Sensitivity at 1 km range	-53 dBZ
Power consumption	60 W

A preliminary comparison of SNR-measurements with a MIRA 35c prototype and MIRA 36 is shown below. Here an antenna with only 35 cm diameter (see photo on the left) was used for the MIRA 35C, and MIRA 36 was operated with half nominal power.



Estimates of the cloud structure are broadly in agreement, although in areas A and B the cloud detection threshold of MIRA 35C is not always reached. The turquoise band below the 400 m level (Area C) is due to the preliminary signal processing of the prototype. Implementing the more sophisticated algorithms of MIRA 35 is planned and will remove this artifact.