INVAP
DEFENSE, SECURITY
AND ENVIRONMENT

RMA-C320 C-Band Weather Radar

Protect for a better living.

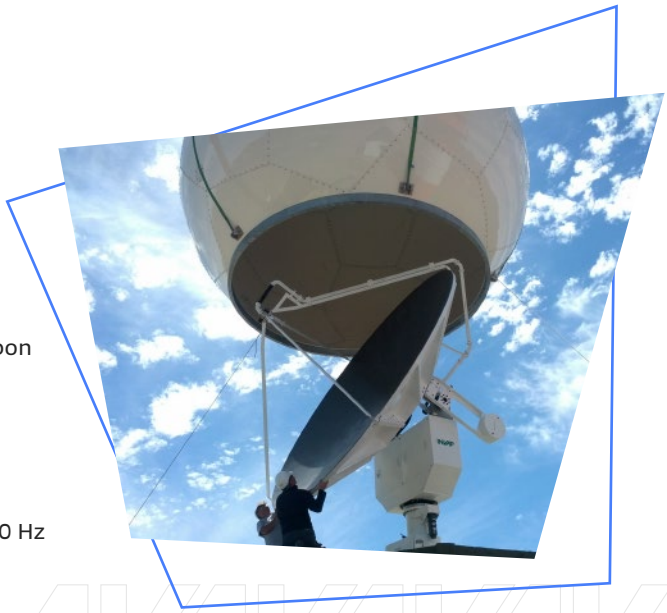
The RMA is a doppler weather radar designed and manufactured by INVAP. It is a dual polarization radar that transmits and receives both in horizontal and vertical polarizations, operating in C-band.

Argentina's dual-polarization network, including 22 of these radars deployed throughout the country, has been providing weather data for many years. The RMA can be configured to scan the atmosphere up to 480 km all around the radar while sweeping in elevation from 2 degrees below the horizon up to 92 degrees.

The radar transmits microwave pulses and uses advanced algorithms to process the digitized echoes produced by hydrometeors (rain, snow, hail).

By processing this data, users can locate the position of different sources of echoes and determine the speed at which they move, classify them by type, and get rainfall estimates.

Numerical models can be used to make accurate short-term forecasts.

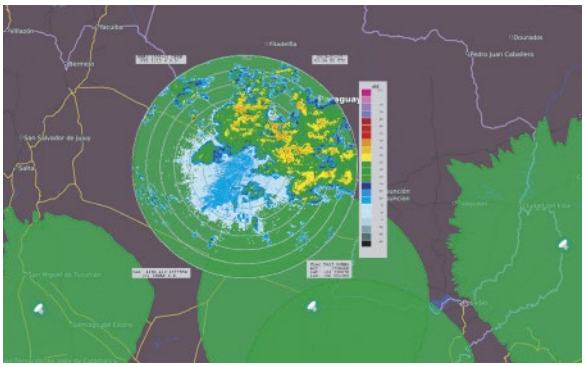


TECHNICAL SPECIFICATIONS

Operating Frequency	C-band (5600 MHz to 5650 MHz); other frequency ranges available upon request
Availability	> 98%
Operating mode	Simultaneous horizontal and vertical polarizarions. Alternate transmission of H and V (for LDR measurement) available upon request Fully programmable scanning strategies.
Pulse duration	User adjustable from 0.4 µs to 3.0 µs
Pulse repetition frequency	User adjustable between 300 Hz and 2000 Hz
Range (Minimum / Maximum)	2.5 km/480 km
Spectral moments	dBZH - Horizontal corrected reflectivity dBZV - Vertical corrected reflectivity VRAD - mean radial velocity (Doppler) WRAD - Spectrum width of radial velocity
Polarimetric variables	Zdr - Differential reflectivity PhiDP - Differential phase shift Kdp - Specific differential phase RhoHV - Polarimetric correlation coefficient
Variables for quality control	TH - Total Horizontal Received Power (uncorrected reflectivity) TV - Total vertical received power (uncorrected reflectivity) SNRH - Horizontal Signal to Noise Ratio SNRV - Vertical Signal to Noise Ratio

Antenna

Type	Center-feed parabolic reflector
Diameter	4,5 m
Half power beam width	< 1° (both polarizations)
Gain	45 dBi (typical)
Cross-polarization insulation	30 dBi (typical)
Pointing accuracy	± 0.1°
Range of motion in elevation	-2° to 92°
Azimuth rotation	Continuous 360° coverage, at a 0.5°/s to 36°/s (6 rpm) rate
Automatic control	PPI RHI scans



Receiver

Noise figure	≤ 2.5 dB
Type	Double conversion superheterodyne, 4 channels, 16 bit linear ADC

Transmitter

Type	Coaxial magnetron, tunable within the operating frequency band
Modulator	Digital, solid state
Peak power	Adjustable between 250 kW and 320 kW; other power requirements upon request

Digital processor

Doppler processing	Pulse-pair or discrete Fourier transform (DFT) with staggered PRF, 2/3, 3/4, and 4/5 capability
Filtering Capabilities	Real time identification and automatic suppression of radio frequency interference using digital signal filtering techniques. Second time around echoes filter
Clutter filtering capabilitites	Ability to automatically generate ground clutter map and perform clutter filtering in real time

Storage

Capacity	Local storage capacity of at least 1 hour for data science (I/Q) Local storage capacity of at least 15 days for (fully redundant) products

Headquarters, San Carlos de Bariloche, Argentina

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Our business areas cover the fields of Space, Nuclear, Defense, Security, Environment and Medical Systems.

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