

RAPTOR® VAD-BL

High-Performance Boundary Layer Radar Wind Profiler



System

- RAPTOR VAD-BL High-Performance Boundary Layer Radar Wind Profiler

Applications

- Weather forecasting
- Aviation operations
- Pollution studies

Transmit Frequency

- 915 MHz and 1290 MHz nominal, or custom

Antenna

- Parabolic dish with shroud and radome

Beam Positioning

- Continuous azimuth positioning

Peak Power

- 700 - 2000 W options (1,800 W at 1290 MHz)

Height Resolution

- 75 to 500 m

Range

- 100 m to 5+ km (climate dependent)

AC Power

- < 1500 Watts

Accuracy

- < 1 m/s speed; < 10° for wind speeds > 5 m/s
- < 15° for wind speed ≤ 5 m/s

Network and Accessibility

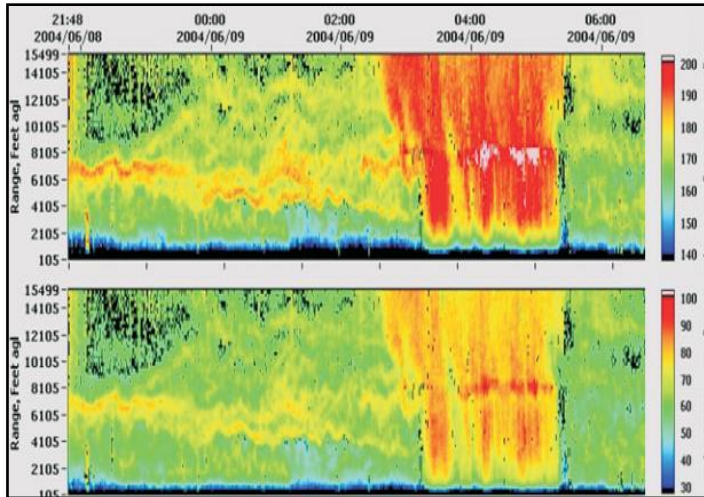
- Network, cellular, serial available

Supported Operating Systems

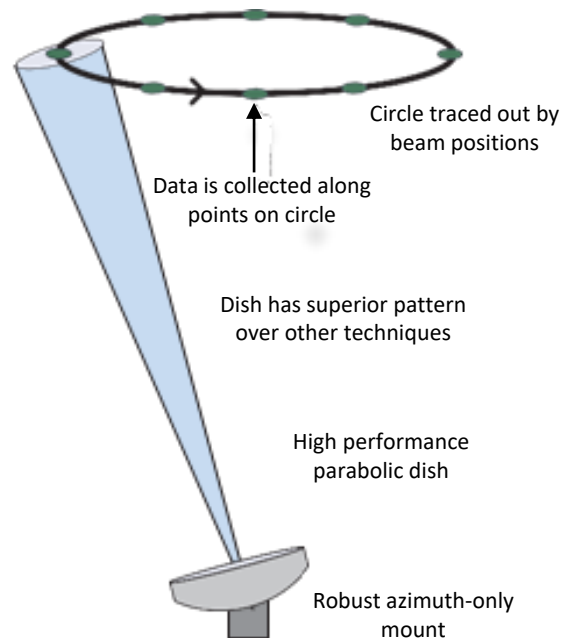
- Windows® or Linux

Options

- Radiometer for full thermodynamic profiling



Display of range corrected radar returned power (top) and Signal to Noise Ratio (bottom). Image shows turbulent layers and clouds. The melting-layer is evident during the rain storm as an area of enhanced reflectivity or “bright band.”



The RAPTOR VAD-BL is equipped with an azimuth-only positioner and a high-performance parabolic dish antenna. This unique combination produces a beam pattern and atmosphere sampling strategy for superior data quality.





RAPTOR VAD-BL installed alongside a Radiometrics microwave radiometer for a full wind and thermodynamic profiling system (Mexico City).

The **Radiometrics RAPTOR® line of Radar Wind Profilers** provides unattended, real-time operational support for weather forecasting and aviation, aerospace, military, research, and other applications demanding high quality meteorological data products. **RAPTOR** systems can be configured to comply with country or project-specific operating requirements. Customizable options include but are not limited to: total system power, operational frequency, computer operating system, RASS, and AC operating voltage.

The **RAPTOR VAD-BL** is a high performance boundary layer radar, nominally supplied as a 915 MHz or 1290 MHz. The system has a fixed-mount parabolic dish antenna with a long-life ruggedized multi-azimuth positioner, server-class PC for radar control and signal processing.

The RAPTOR VAD-BL operates through the slow continuous rotation of an azimuth positioner with the antenna pointed in a fixed direction of about 15 degrees. The gathered radial velocity, (i.e., along the antenna beam) is then processed for both vertical and horizontal winds. Vertical velocity (from either convection or rain) is calculated and then removed from radial winds to allow correct calculation of horizontal winds.

Uniquely the RAPTOR 1290 MHz VAD-BL is a very high performance boundary layer radar due to the following features: 1) a very low loss antenna, 2) a large antenna with high gain, 3) and a high power amplifier. In combination these features allows the VAD-BL to be almost 10x as powerful as other boundary layer radar wind profilers. The VAD-BL has been very successfully installed in dry climates such as Mexico City, as well as tropical high rain fall environments such as Colombia, Thailand and Samoa.

*Radiometrics is a world leader in ground-based remote sensing offering several models of microwave profiling radiometers, acoustic wind profilers and radar wind profilers. The instruments can be sold individually or integrated into **SkyCast®**: a full wind and thermodynamic profiling system, providing continuous radiosonde-like performance in the boundary layer and lower troposphere. Radiometrics was founded in 1987 and has delivered over 500 systems worldwide.*

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