

# MP-3000A

## Microwave Thermodynamic Profiling Radiometer

### MP-3000A

**NOW with VizMet-Pro™ and Acal™ automatic calibration – eliminates need for LN2 calibration!**

**Applications:** Continuous Real-Time Atmospheric Surveillance

**Receiver Frequencies:**

- 35 Standard Calibrated Microwave Channels
- 21 K-Band Frequencies: 22-30 GHz
- 14 V-Band Frequencies: 51-59 GHz

**Brightness Temperature Range:** 0-400 Kelvin

**Antenna Beamwidth:**

- K-Band:  $<6.3^\circ$
- V-Band:  $<2.5^\circ$

**Observational Coverage:**

- All-Weather Operations
- $360^\circ$  Full-Sky Mapping

**Retrieved Atmospheric Properties:**

- Temperature Profile
- Relative Humidity Profile
- Water Vapor Profile
- Liquid Water Profile
- Integrated Vapor
- Integrated Liquid
- Cloud Base Height
- Cloud Base Temperature

**Height Resolution:**

- 50 m from 0-0.5 km
- 100 m from 0.5-2 km
- 250 m from 2-10 km

**Vertical Range:** 0-10 km

**Supported Operating Systems:** Windows® 10 and Later

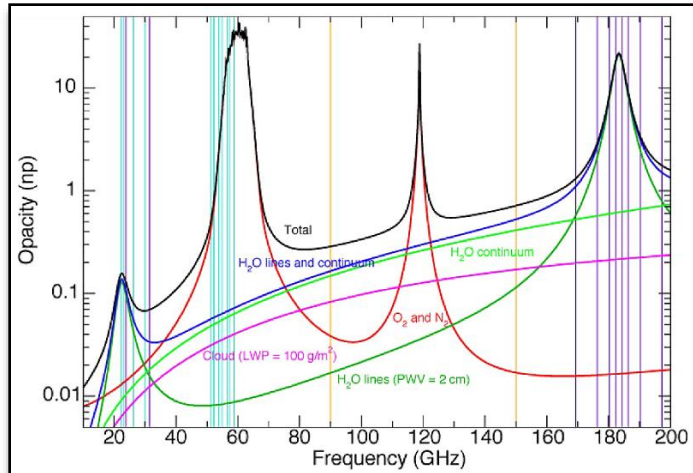


Figure 1. The electromagnetic spectrum covered by the ARM microwave radiometers for an atmosphere with PWV of 2 mm and liquid water path of  $100 \text{ g m}^{-2}$ . Teal vertical lines indicate the frequency locations of the MP-3000A microwave radiometer. (Cadeddu et. al. 2013, Fig. 1)

Radiometer retrievals of atmospheric characteristics are made possible by passively observing the molecular emissions from the water vapor and oxygen resonance lines in the absorption spectrum as seen in Figure 1. The strength of the received signal is inversely proportional to the opacity and the vertical range can be obtained by moving the frequency off-peak to a region with increased transparency.

**Radiometrics MP-3000A** is an all-weather system with an integrated superblower designed to keep the radome free of precipitation to allow for accurate retrievals in all weather conditions.



The **MP-3000A** is a passive all-weather atmospheric monitoring system designed to provide continuous real-time retrievals of thermodynamic and liquid properties. The MP-3000A profiler delivers vital information during rapidly-changing dynamic weather conditions when profiling observations from other instruments may be lacking.

Retrievals can be displayed in real-time using Radiometrics **VizMet-Pro** control and display software as seen in Figures 2 and 3. These real-time analysis capabilities provide our customers with essential information to make knowledgeable decisions, keeping them *Ahead of the Weather*®.

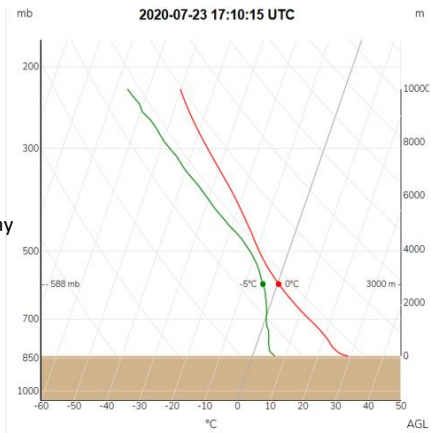


Figure 2. Skew-T Plot from VizMet Pro display

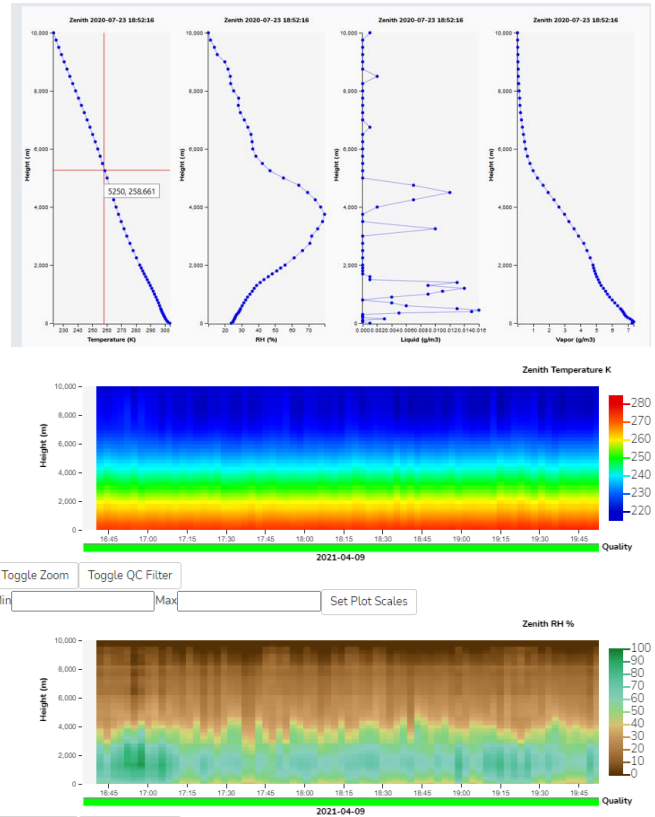


Figure 3. VizMet-Pro display of temperature, RH, liquid and vapor profiles (above) and time-height profiles of temperature and RH (below).

*Radiometrics is a world leader in ground-based remote sensing solutions. Our product portfolio includes microwave profiling radiometers, Raptor® radar wind profilers, acoustic wind profilers, and SkyCast® - a fully integrated wind and thermodynamic profiling system that provides continuous real-time atmospheric monitoring of the boundary layer and lower troposphere. Radiometrics also offers advanced hydrometeorological, aviation and space launch weather decision support systems and turn-key WRF mesoscale modeling solutions.*

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