The NCAR 449 MHz Modular Wind Profiler – Prototype and future plans

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449 MHz Wind Profiler: Basic Building Block
- Hexagonal symmetry
- 449 MHz
- 18 patches

With 18 panels we create

Or with 19 panels we create

Technology and Goals
- Modularity and scalability
- Ease of deployment – remote system monitor
- Advanced hardware – digital, FPGA, distributed Tx and Rx
- Innovative signal processing – SA winds, RIM
- Expandability, Instrument host

6 BOUNDARY LAYER wind profilers
- A distributed network of six 3-panel profilers
  - up to 4 km
  - 30-m altitude resolution
  - 1-minute time resolution

One antenna panel
- 449 MHz Wind Profiler: Basic Building Block
- 18 patches

2 MID-TROPOSPHERIC wind profilers
- A network of two 7-panel profilers
  - up to 7 km
  - 30-m to 200-m altitude resolution
  - 1-minute time resolution

Current Status
- Testing 3-panel boundary-layer prototype
- Good performance compared with traditional 915 MHz wind profiler
- Building 7-panel mid-tropospheric prototype
- Evaluating complimentary instruments (lidars, surface energy balance)
- Looking for potential partners and users

1 FULL-TROPOSPHERIC wind profiler
- An ST radar (19-panel)
  - up to 15 km
  - 100-m to 200-m altitude resolution
  - 5-minute time res.

From Stohl et al. 2003, revised.

Not to scale!