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

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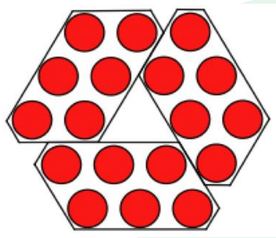
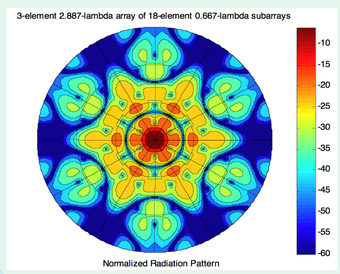
449 MHz Wind Profiler: Basic Building Block



One antenna panel

- Hexagonal symmetry
- 449 MHz
- 18 patches



With 18 panels we create

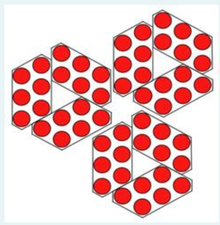
Or with 19 panels we create

Or with 14 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

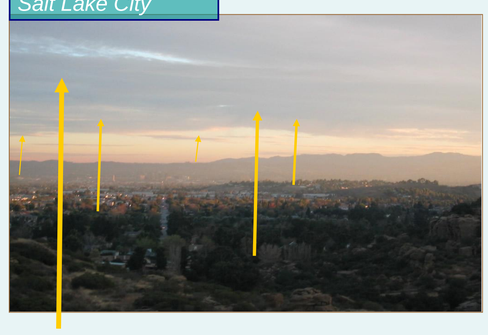
6 BOUNDARY LAYER wind profilers

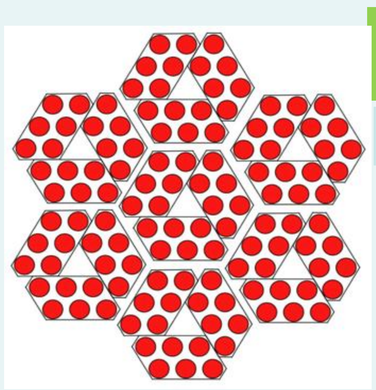


A distributed network of six 3-panel profilers

- up to 4 km
- 30-m altitude resolution
- 1-minute time resolution

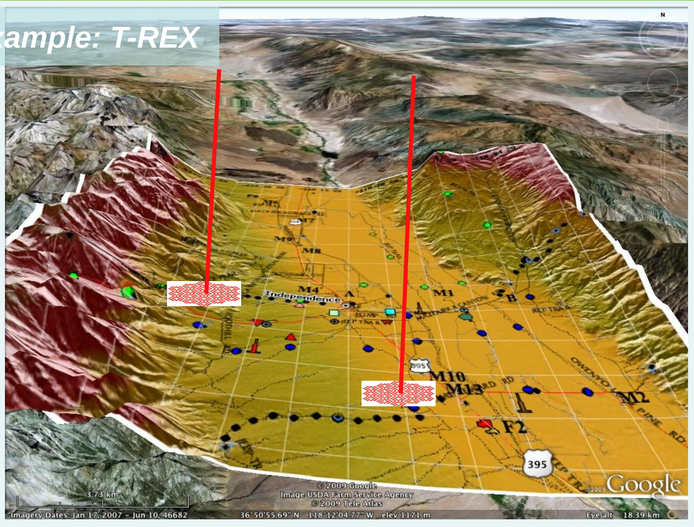
Salt Lake City





2 MID-TROPOSPHERIC wind profilers

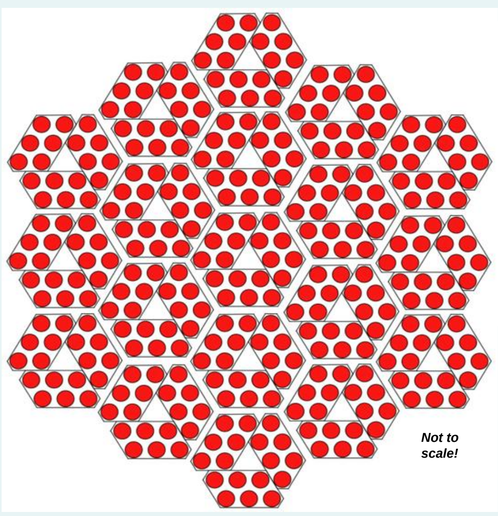
Example: T-REX

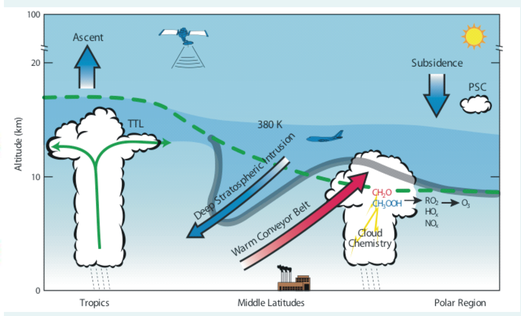


A network of two 7-panel profilers

- up to 7 km
- 30-m to 200-m altitude resolution
- 1-minute time resolution

1 FULL-TROPOSPHERIC wind profiler





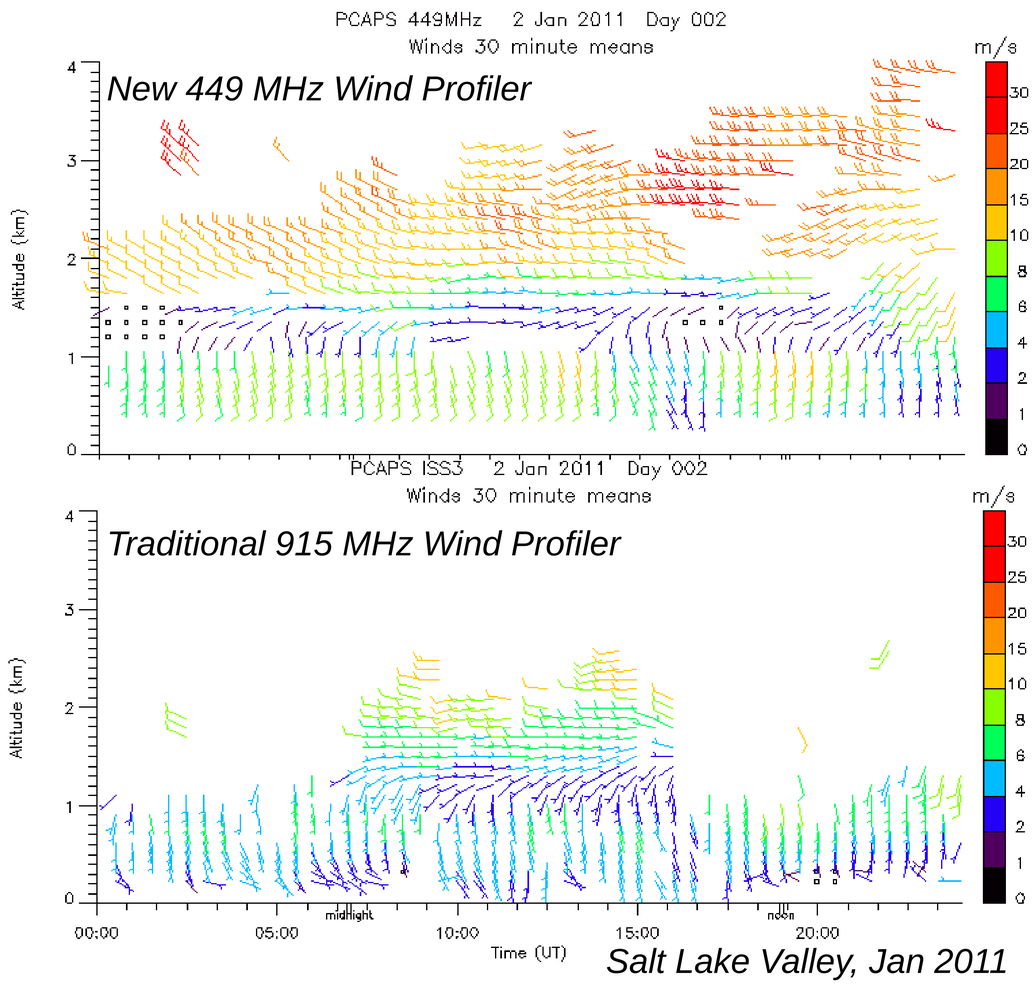
From Stohl et al. 2003, revised.

An ST radar (19-panel)

- up to 15 km
- 100-m to 200-m altitude resolution
- 5-minute time res.

Current Status

- *Testing 3-panel boundary-layer prototype*
- *Good performance compared with traditional 915 MHz wind profiler*



Salt Lake Valley, Jan 2011

- *Building 7-panel mid-tropospheric prototype*
- *Evaluating complimentary instruments (lidars, surface energy balance)*
- *Looking for potential partners and users*