

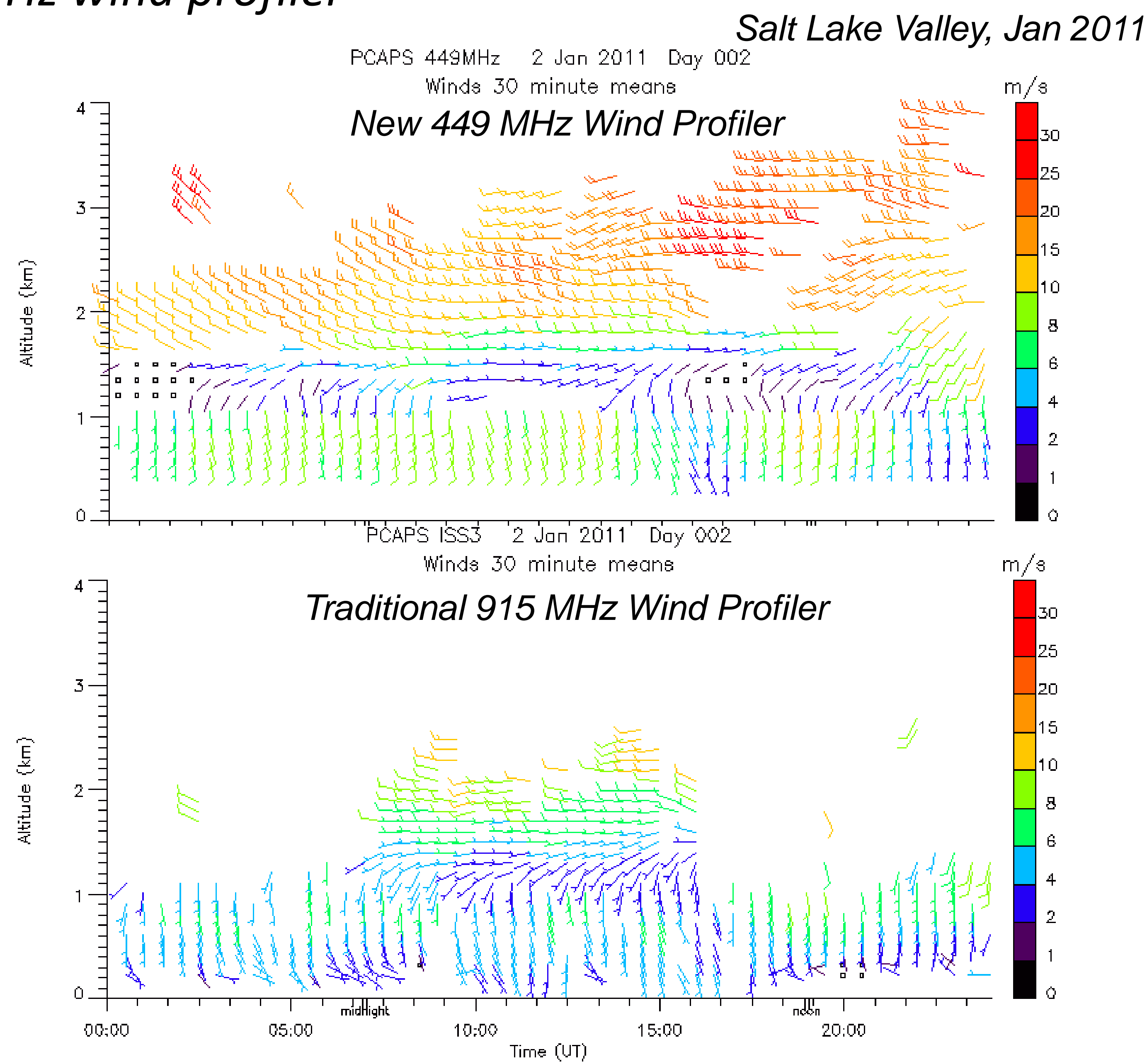
Stephen A. Cohn\*, William Brown, Brad Lindseth, and Charlie Martin  
 National Center for Atmospheric Research, Boulder, CO  
 \*303-497-8826 cohn@ucar.edu

## Technology and Goals

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

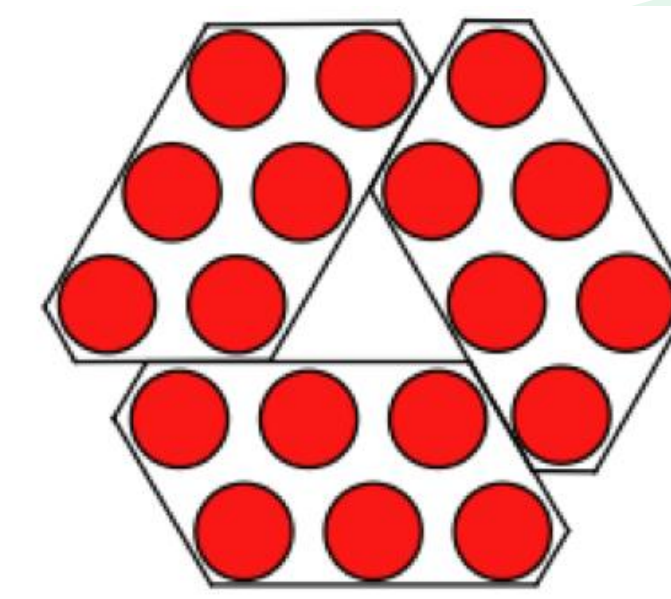
## Current Status

- Tested a 3-panel boundary-layer prototype
- Good performance compared with traditional 915 MHz wind profiler



- Building a **7-panel** mid-tropospheric prototype
- Designing a **Mobile 3-panel** 449-MHz version
- Evaluating complimentary instruments (lidars, surface energy balance)
- Looking for potential partners and users

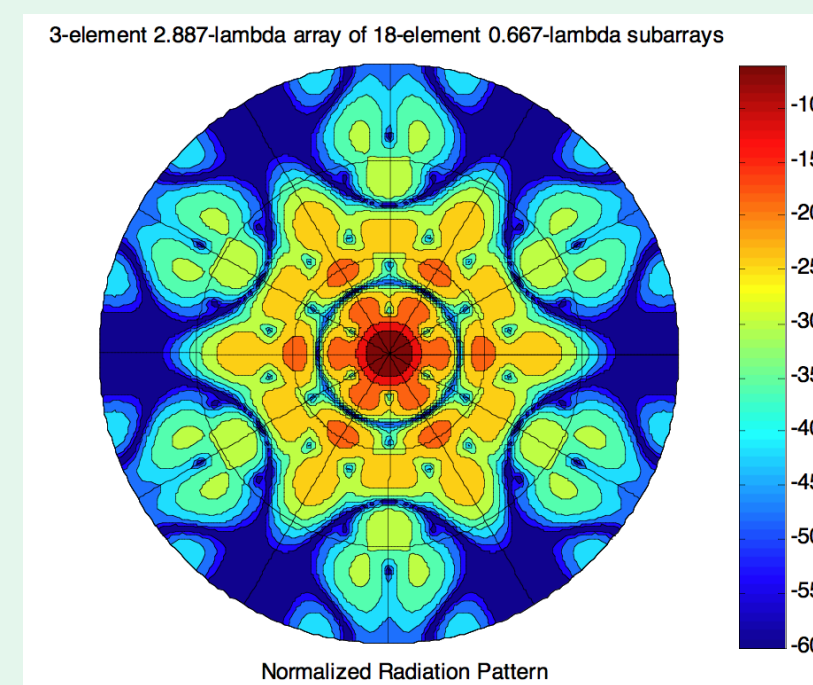
## 449 MHz Wind Profiler: Basic Building Block



With 18 panels we create

One antenna panel

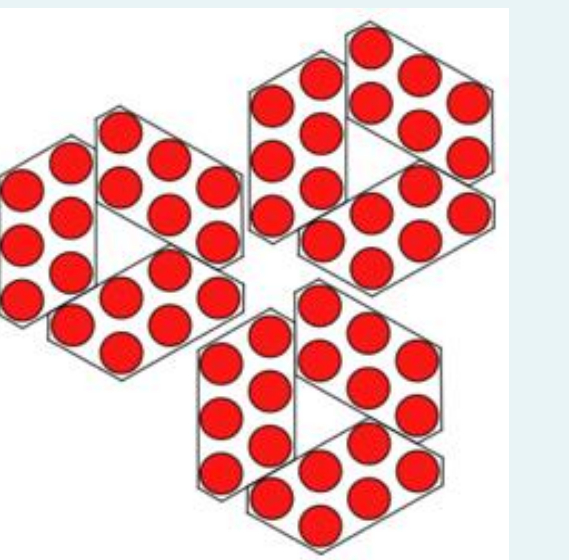
- Hexagonal symmetry
- 449 MHz
- 18 patches



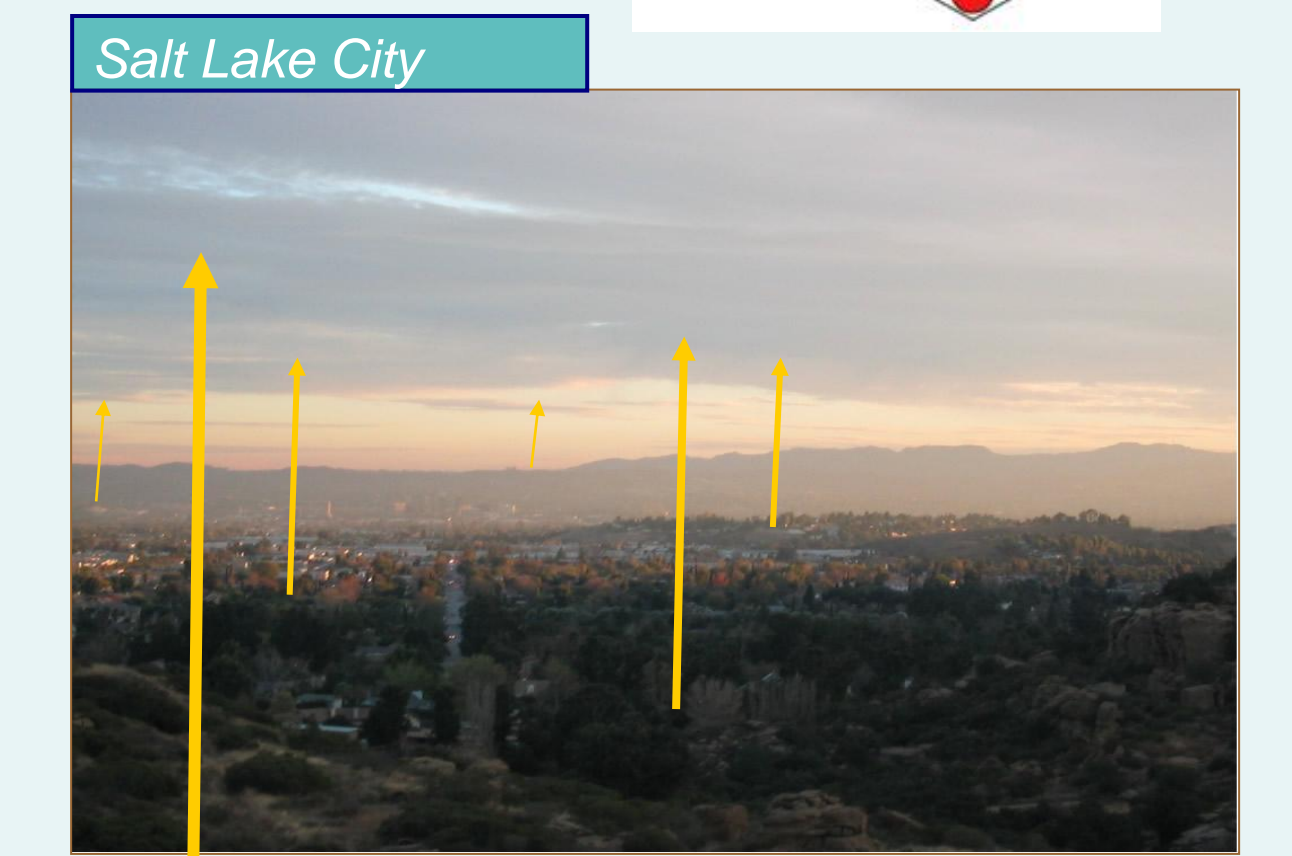
Or with 19 panels we create

Or with 14 panels we create

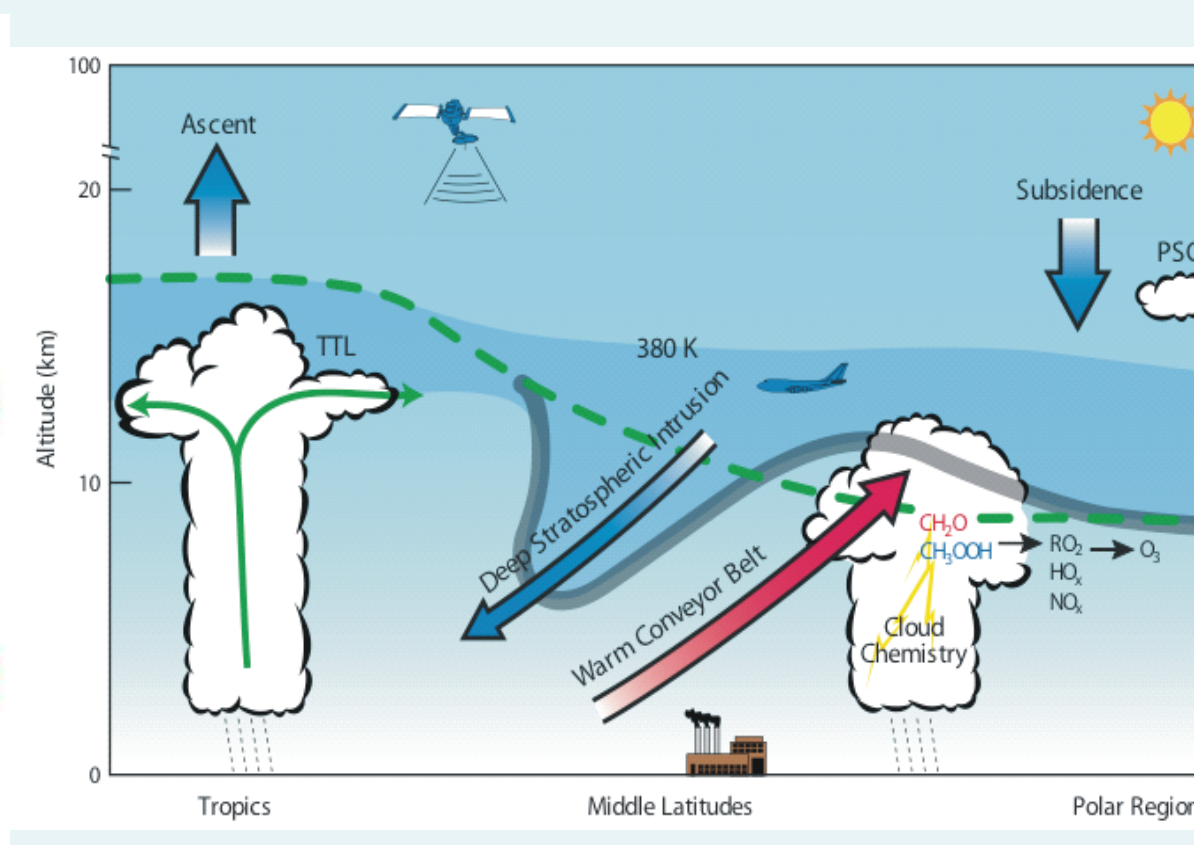
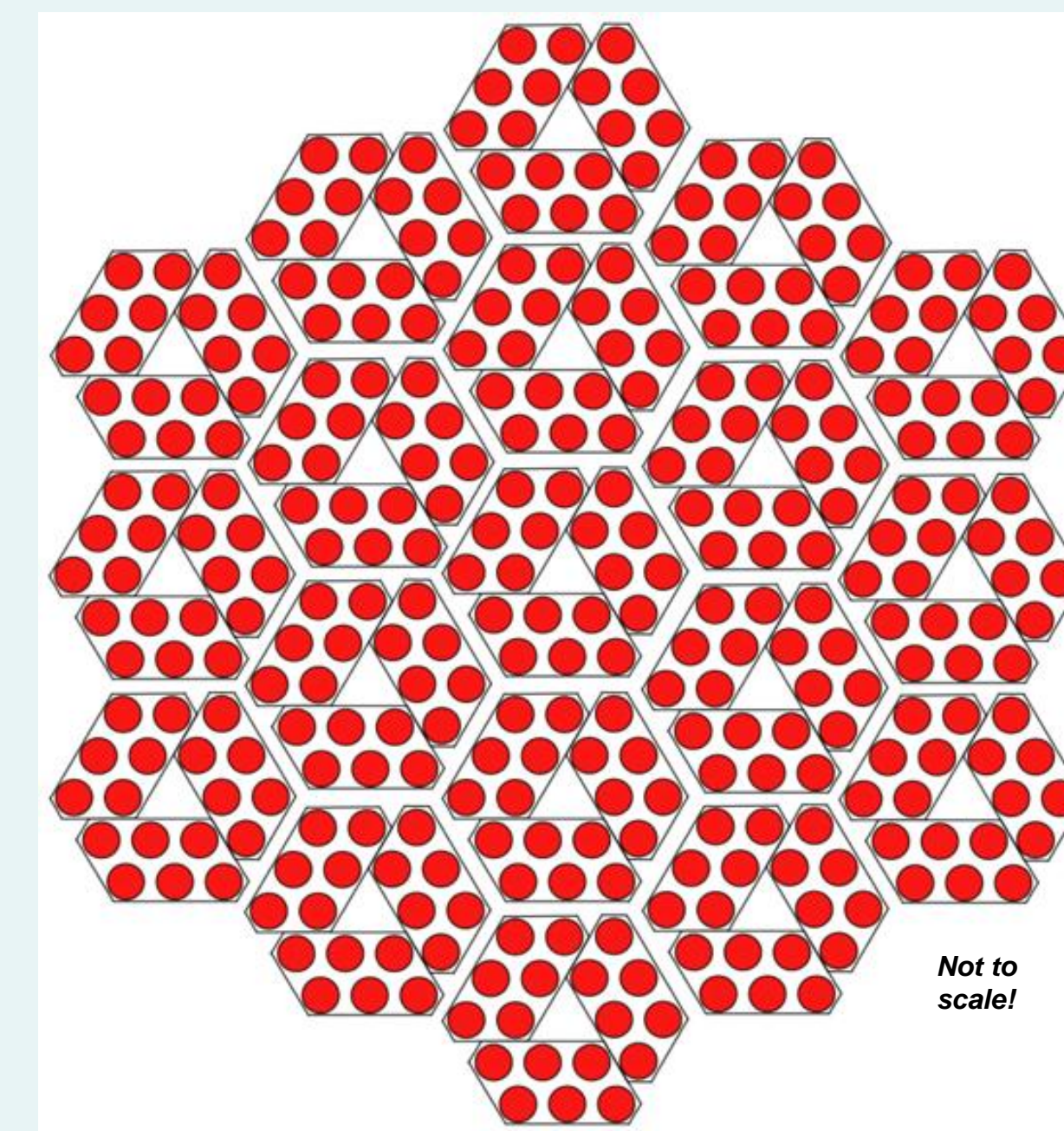
## 6 BOUNDARY LAYER wind profilers



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

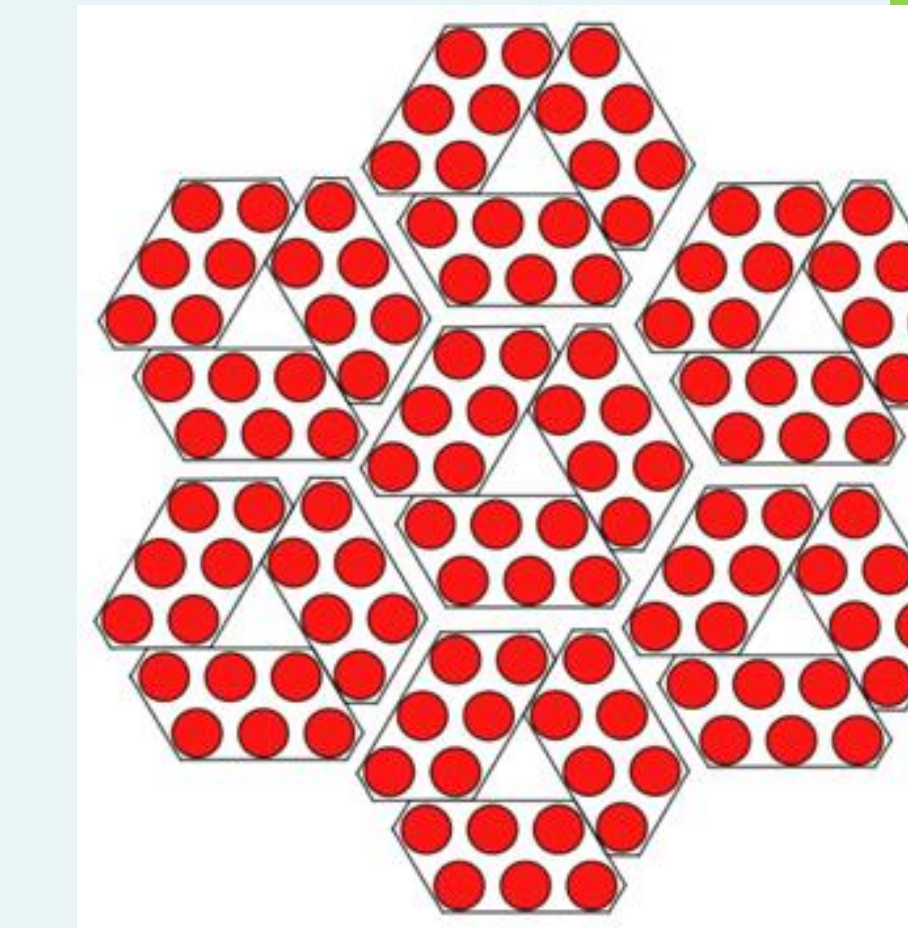


## 1 FULL-TROPOSPHERIC wind profiler

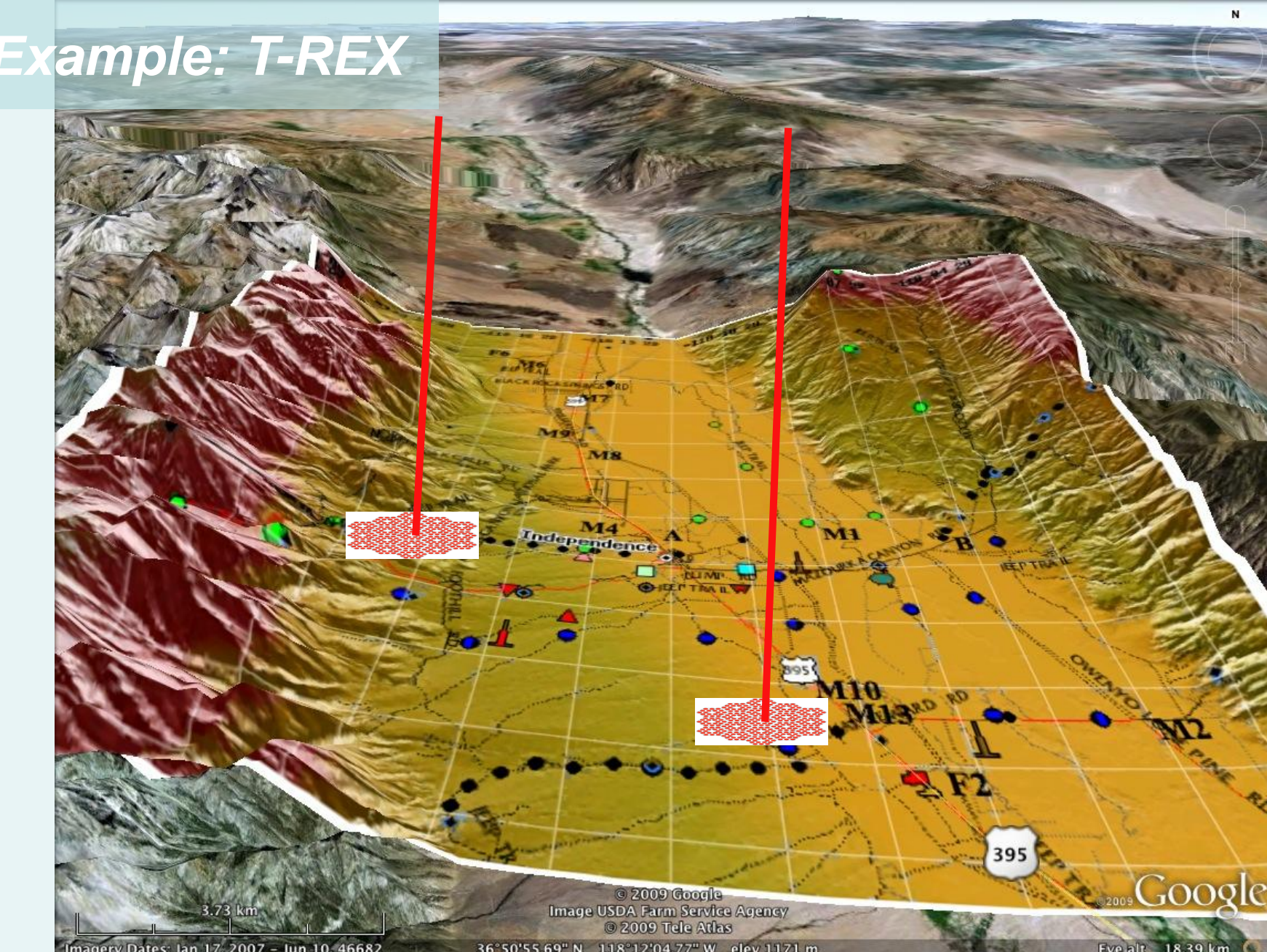


- An ST radar (19-panel)
- up to 15 km
  - 100-m to 200-m altitude resolution
  - 5-minute time res.

## 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

