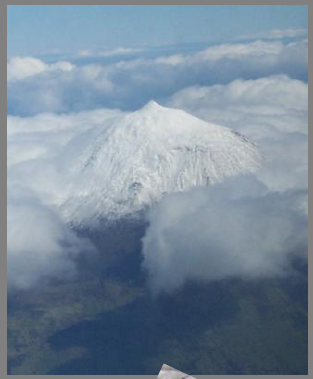
The Pico Mountain free tropospheric station

Richard Honrath, Michigan Tech (reh@mtu.edu)
Paulo Fialho, University of the Azores (fialho.paulo@gmail.com)
Detlev Helmig, University of Colorado

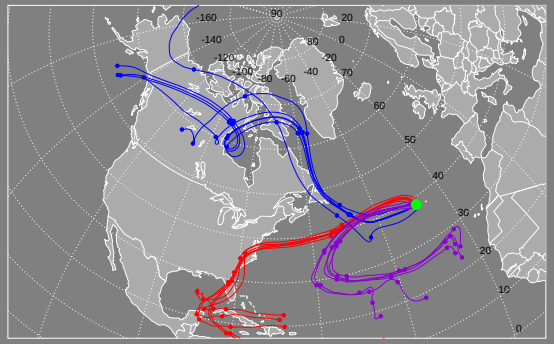
View from sea level; Station height 2225 m



Winter

Station is usually above the MBL [Kleissl et al., 2007]

Ideal location to sample impacts on the remote atmosphere



Note haze layer from Quebec wildfires

- Dominant transport patterns bring
  - Aged North American anthropogenic emissions.
  - Aged biomass burning emissions from boreal North America and Siberia.
  - Tropical North Atlantic air.
  - (African, European flow).

- Note haze layer from Quebec wildfires

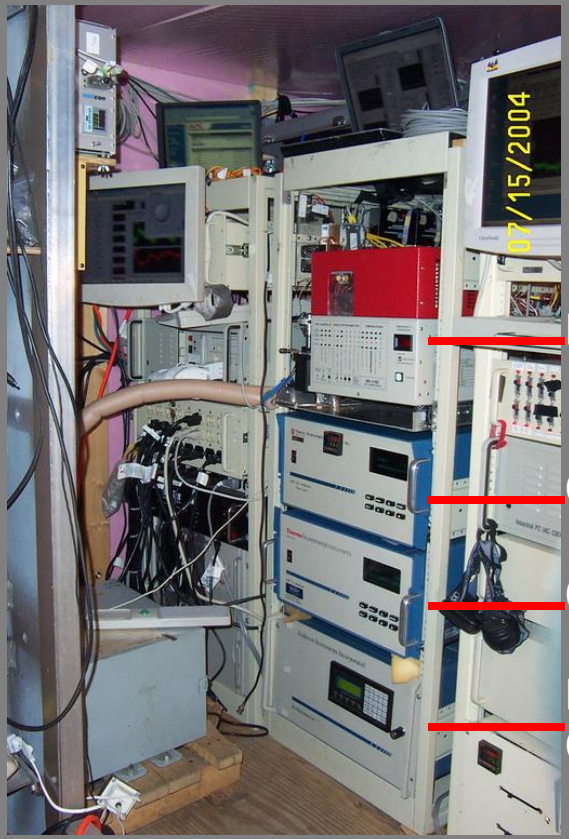
Pico Mountain publications

- Mechanisms for trans-Atlantic, lower-FT transport [1].
- North American anthropogenic pollution impacts; NMHC analyses to assess photochemical processing [2, 3, 4, 5, 6].
- Black carbon and iron aerosol (Aethalometer measurements) [7, 8, 9].
- Boreal wildfire impacts [2, 10, 11, 12, 13, 5].
- Impact of upslope flow on Pico Mountain observations is low relative to other mountaintop stations [14, 15].

Station status

- Operation began in 2001.
- Donated to the University of the Azores by Michigan Tech in 2006.
- Regional Government of the Azores is supporting development toward Global Atmosphere Watch station status; Portuguese Met Institute supports.
- So far, only partial upgrade of generator system and wireless internet, plus Univ. Azores Aethalometer; possibly electrical power.
- Old power cable (2.5 km long) still requires Michigan Tech support.
- Michigan Tech, University of Colorado, NOAA field measurements: through summer 2009: NO, NO_2, NO_y, PAN, CO, O_3, basic met.
  Current plans call for removal of these in Sept. 2009.
- 2010: BORTAS, U.K. aircraft study of boreal fire plumes over the North Atlantic, ARM on Gracioso.
- Operation of the station in 2010 would require U.S. support (e.g., on-island power cable maintenance, possibly generator fuel).
  (Only possible if work begins ∼now.)

Inside of the station



Station infrastructure

- Cabling for high wind and ice loads,
- Lightning rods,
- Heat exchangers,
- Cell phone antenna,
- Inlets etc.

References

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