

# Planned Aerosol Measurements at the Elevated Site of the Pico Mountain Observatory in the Azores

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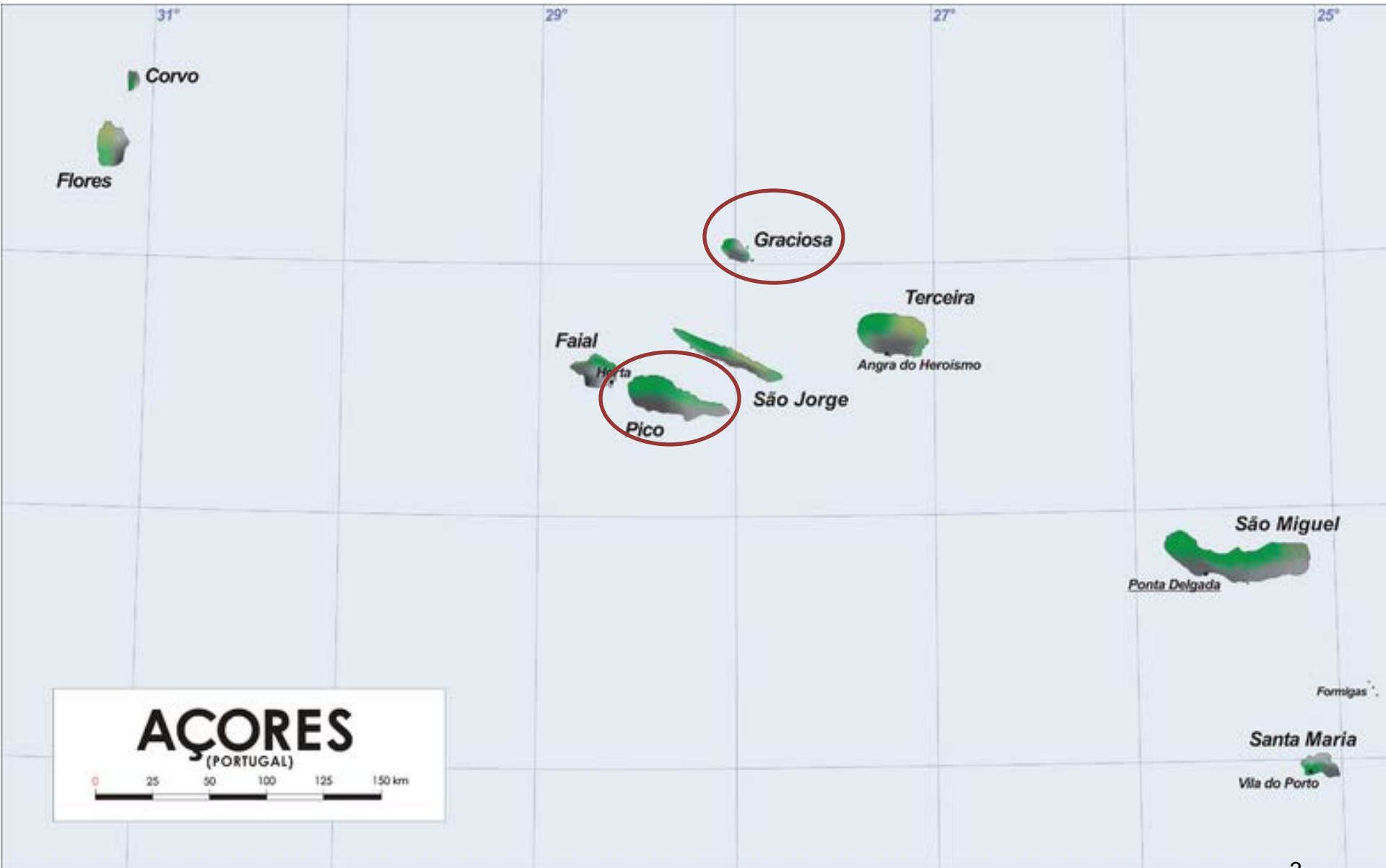


# In Memory of:

*Dr. Richard E. Honrath  
1961 - 2009*



# The Azores



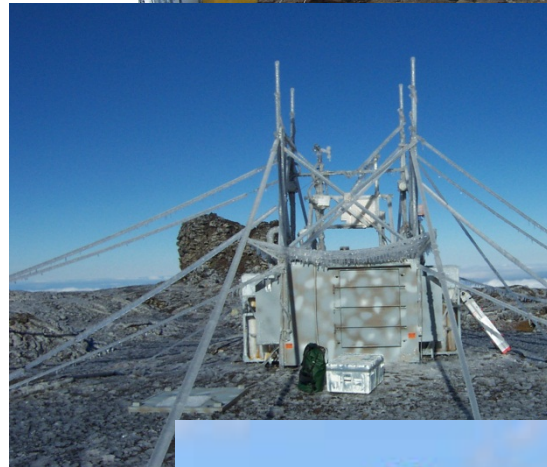
# Some facts about the station

- Location: Azores, Pico Island (~50-60Km from Graciosa)
- Elevation: 2225m (Pico summit - 2352m). Established in 2001 by Honrath and colleagues
- Initially focused on gases measurements (especially CO and O<sub>3</sub>, NMHC) and black carbon
- Typically above the marine boundary layer
- Airmasses typically from North America
- In 2008 the ownership was transferred the Regional Government of the Azores
- Station operation coordinated by the University of Azores, MTU and CU

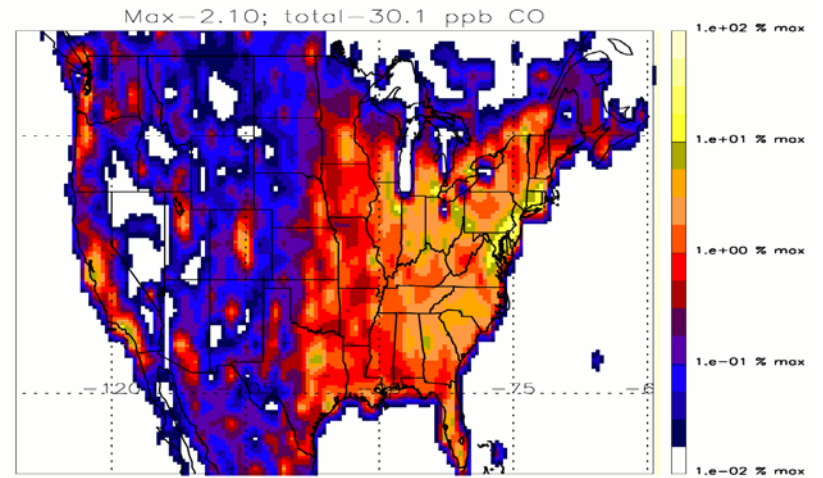
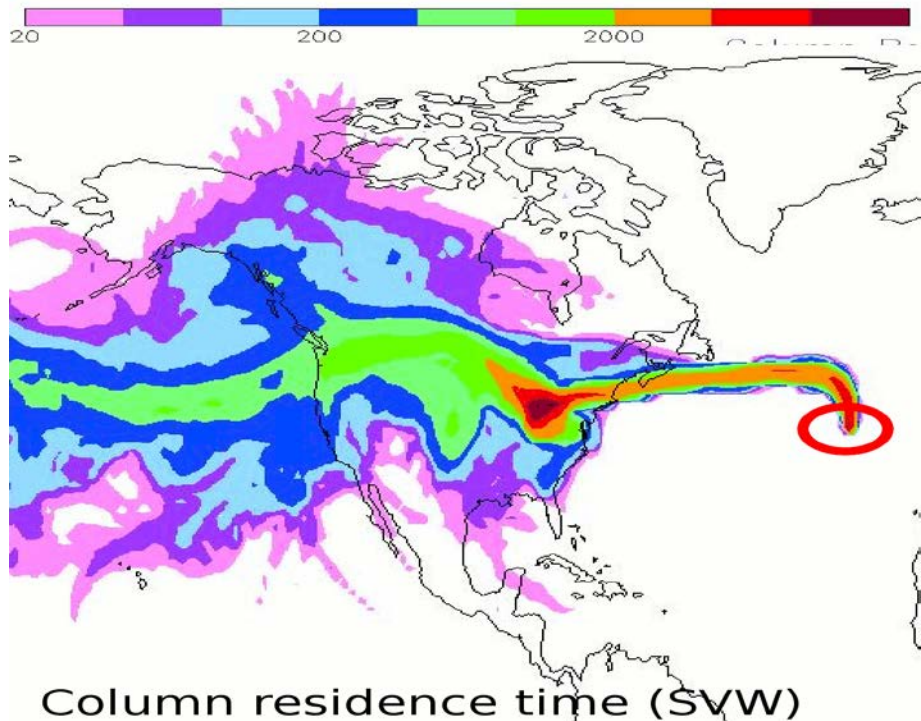


# Challenges

- Limited power and space
- Harsh winter conditions
- Can be reached only by foot or helicopter

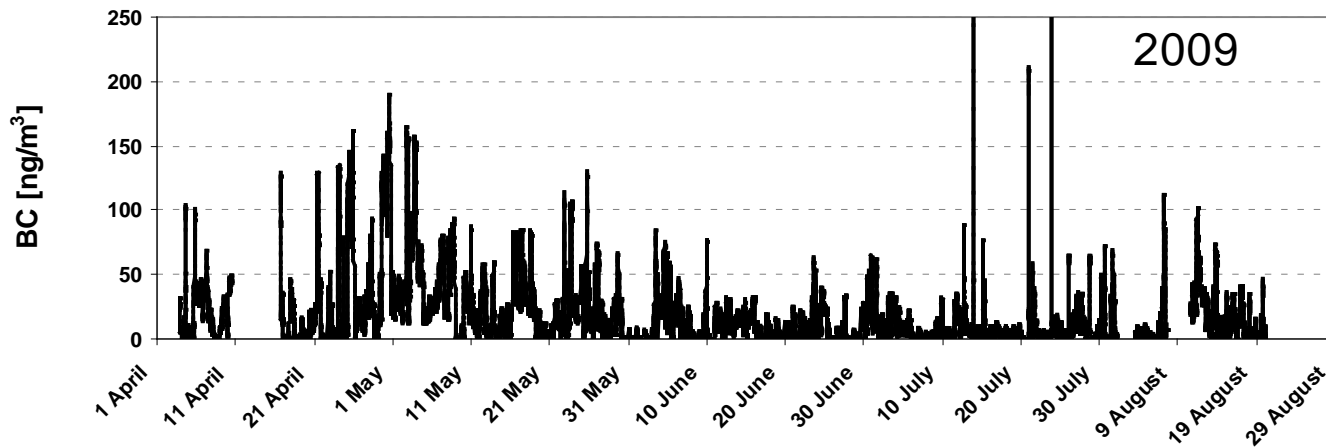


# Some Previous Work



CO measurements and FLEXPART Modeling

Column residence time (SVW)

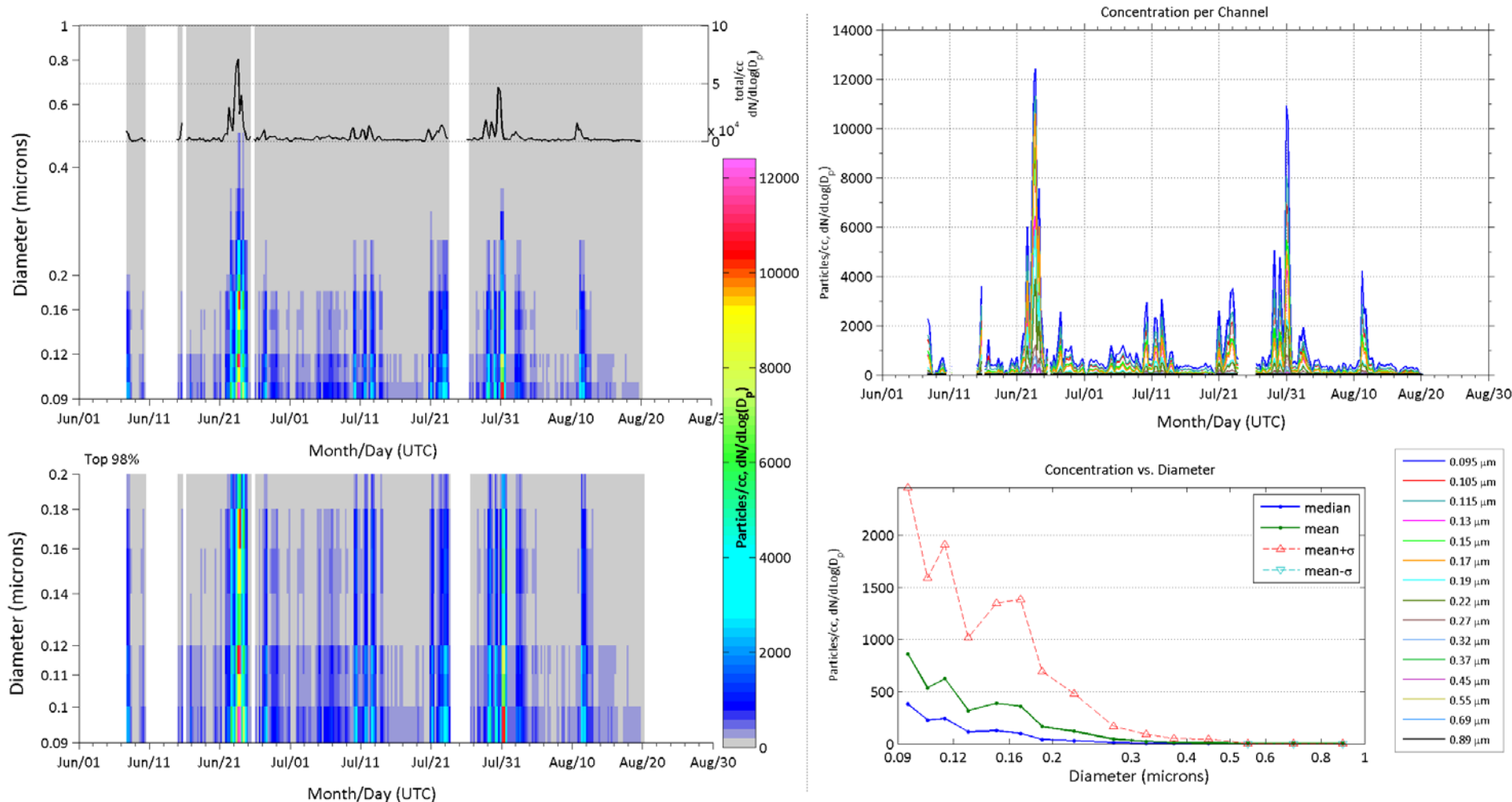


Aethalometer Data of equivalent black carbon in 2009

# Aerosol Size Distribution

*(0.09-1 $\mu$ m) Since 2010*

Pico 6hr avg. June-05-2010 12:00AM to August-21-2010 6:00PM



# Plans and Opportunities

- **Just started: DOE and NSF projects to study the aerosol chemical, physical and optical properties at the site**
  - New instrumentation/analysis:
    - a) Nephelometer (aerosol total and backward scattering at  $3\lambda$ )
    - b) Automated filter sampler for single particle electron microscopy analysis
    - c) High-volume samplers for chemical speciation and EC/OC analysis
- **Objectives**
  - Study the radiative properties of aerosols above clouds and in clear sky
  - Study chemical, physical, optical and morphological transformations of long-range transported aerosols from different emission regions
- **Future opportunities?**
  - Collaboration/contribution with/to ARM team (e.g. “high altitude” and above cloud radiative measurements, remote sensing of column integrated aerosol properties above the boundary layer for comparison with satellite or ARM retrievals)

Poster on This afternoon, Raw 21, “Aerosol Measurements in the Free Troposphere at the North Atlantic Pico Mountain Observatory in the Azores” Mazzoleni et. al.





VisualLightBox.com



# Acknowledgments



- DOE – ASR
- NSF
- Bortas
- Coauthors-Co-PIs-Collaborators:
  - Lynn Mazzoleni, Detlev Helmig, Paulo Fialho, Robert Owen, Louisa Kramer, Seth Olsen, Kyle Gorkowski, Mike Dziobak, Jacques Hueber, Katja Džepina, Sumit Kumar, Mark Miller...
- Richard Honrath