

The background of the slide features a large, faint, circular seal of Rutgers University. The seal contains the text 'RUTGERS THE STATE UNIVERSITY OF NEW JERSEY' around its perimeter and a central sunburst design. In the top left corner, the word 'RUTGERS' is written in a large, white, serif font, with 'THE STATE UNIVERSITY OF NEW JERSEY' in a smaller, white, sans-serif font directly below it.

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

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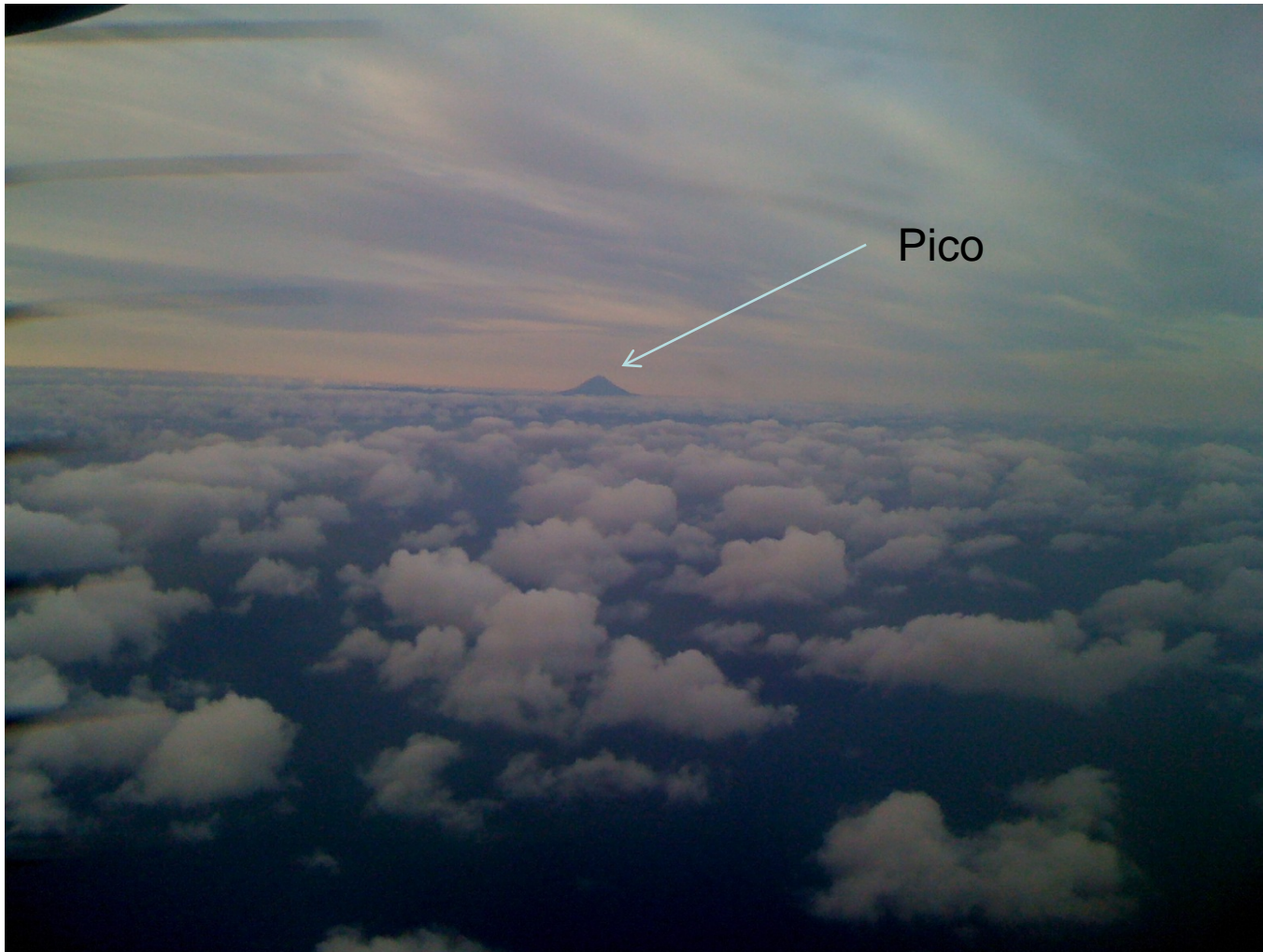
Las Alamos National Laboratory

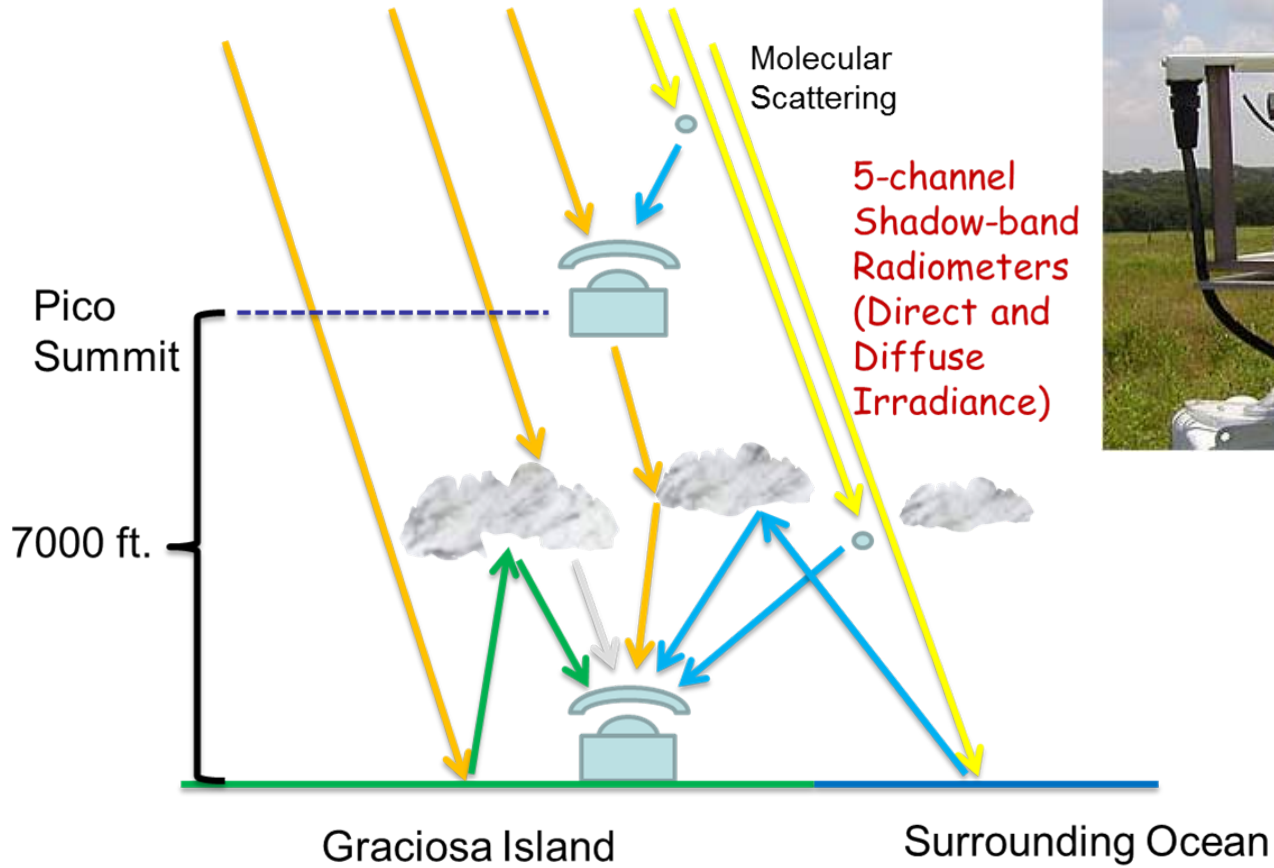
Experimental Design

- total, direct, and diffuse solar radiation above and below clouds
 - marine stratocumulus
 - marine fair weather cumulus
 - multiple spectral bands
- downwelling infrared radiation above and below
- three months (May through late August)

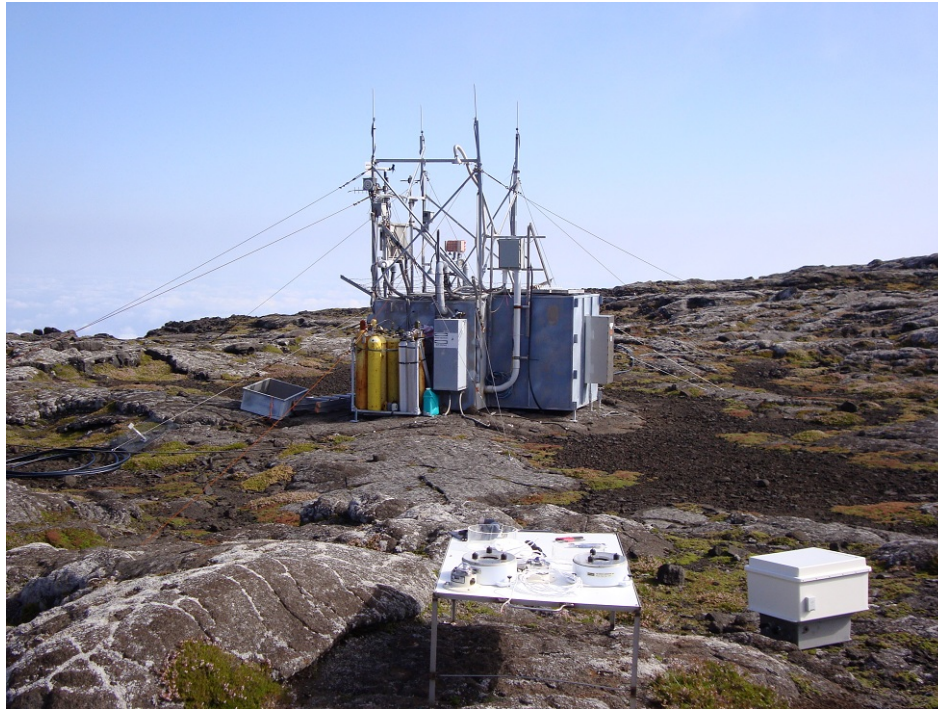
- enables the components of the radiation field to be plotted against cloud structural parameters
- works when there are cirrus above

Pico from above Graciosa (photo: Mike Alsop)





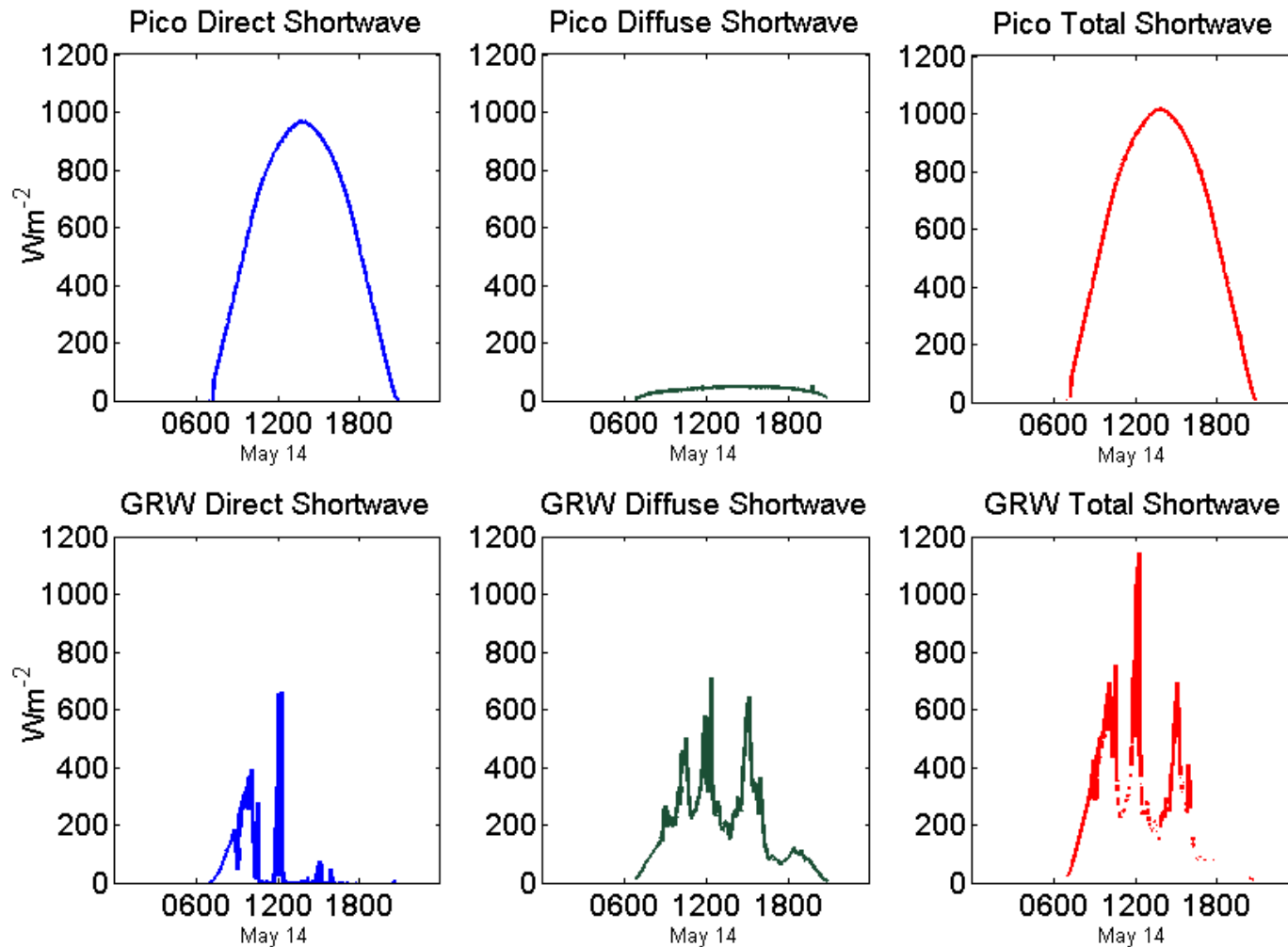
Pico Site



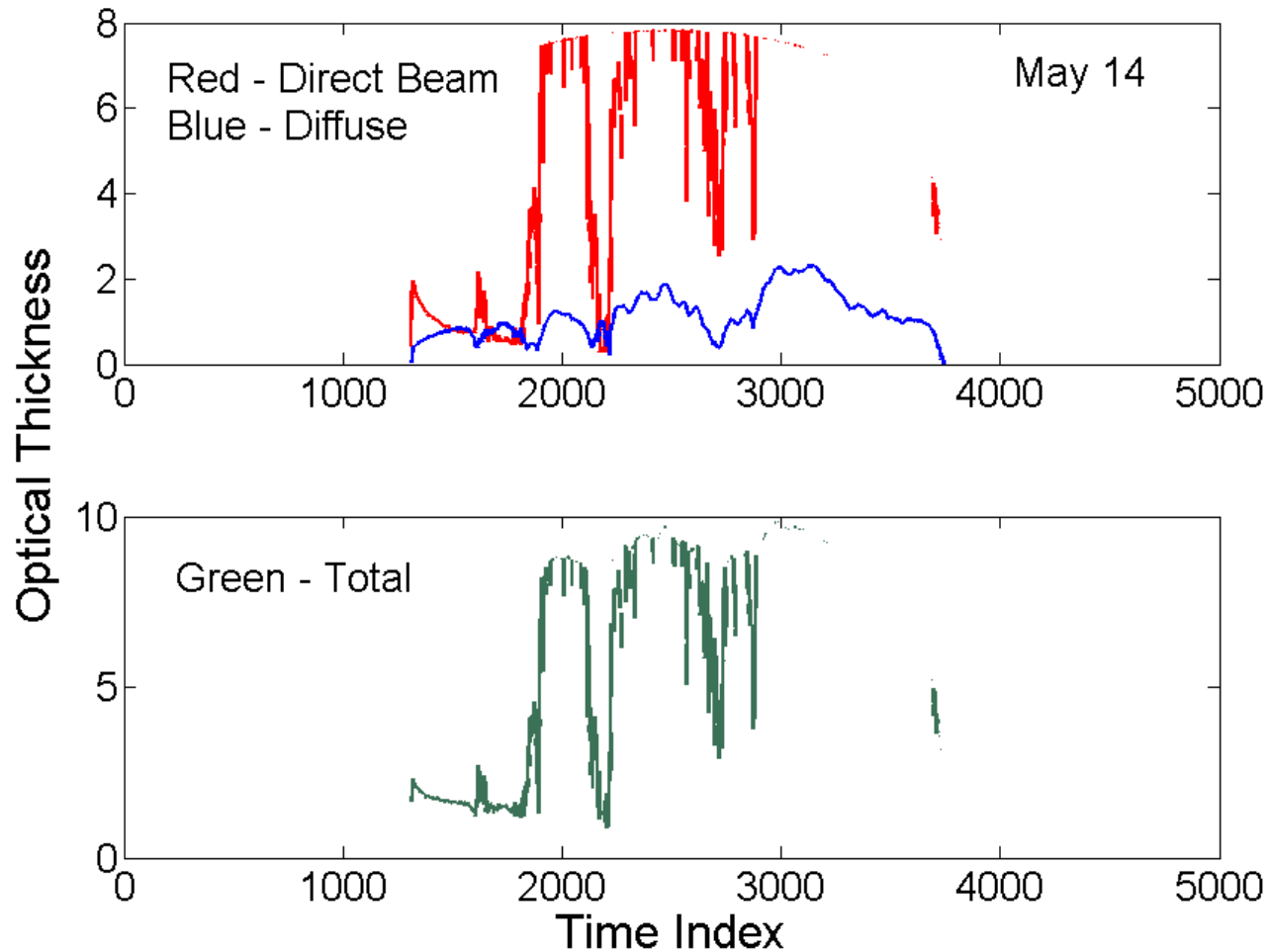
Pico-NARE Observatory
University of Azores
University of Colorado
Michigan Technical University
DOE ARM



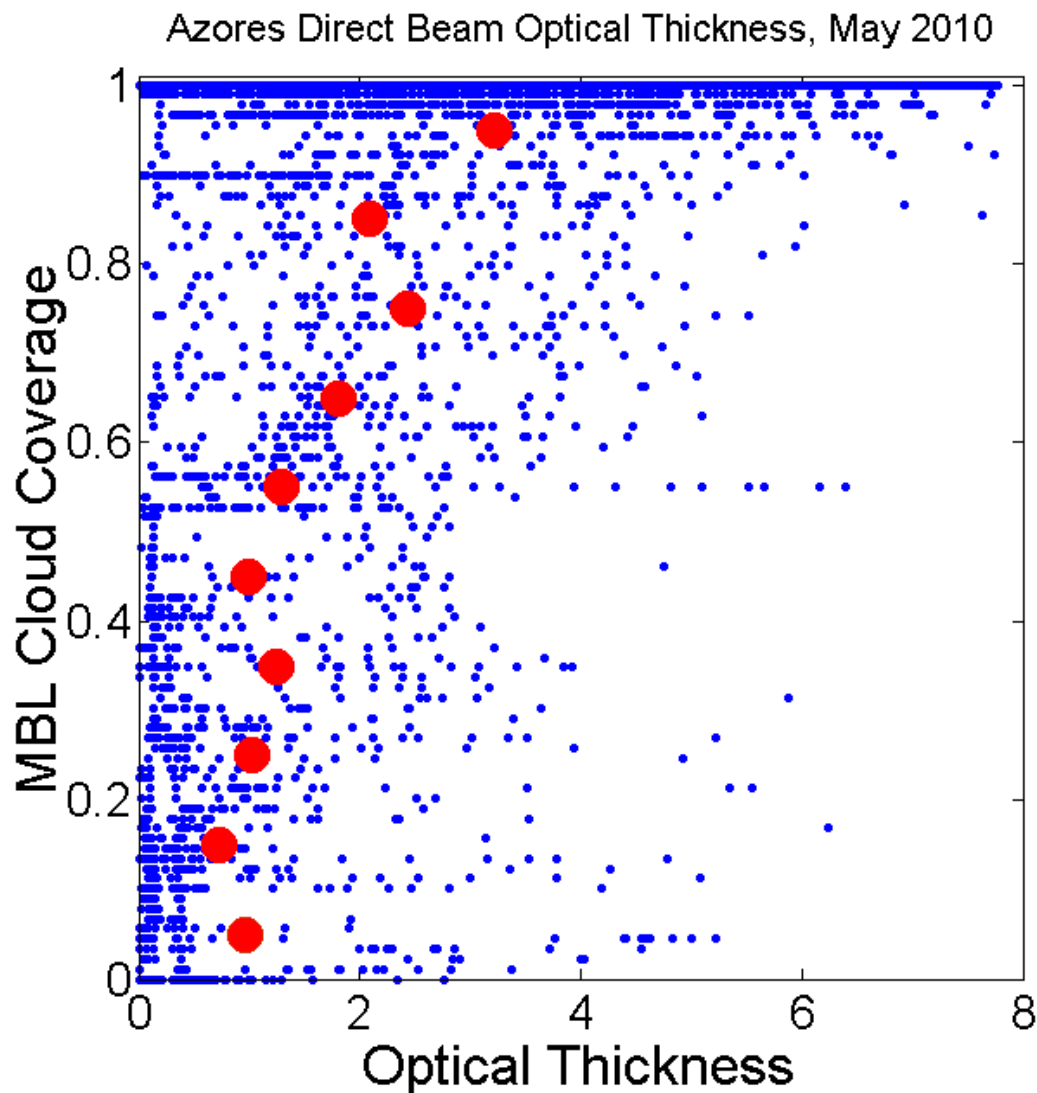
Clear at Pico—Cloudy at Graciosa



Loss of Sun's Disk at Optical Thickness ~ 8



Cloudiness versus Optical Thickness



Early Thoughts

- As the MBL cloud coverage increases, the range of observed optical thicknesses also increases because there is a wider range of cloud depths present in the cloud field.
- Optical thickness approaches the aerosol optical thickness as MBL cloud coverage approaches zero.
- Spread exaggerated by spatial variability in middle and upper level clouds between the two sites.
- See our poster

Thanks!

- Analysis continuing
 - Adding cloud geometry from cloud radar and other instruments
 - Technique looks viable!
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- CAP-MBL Workshop