

Figures

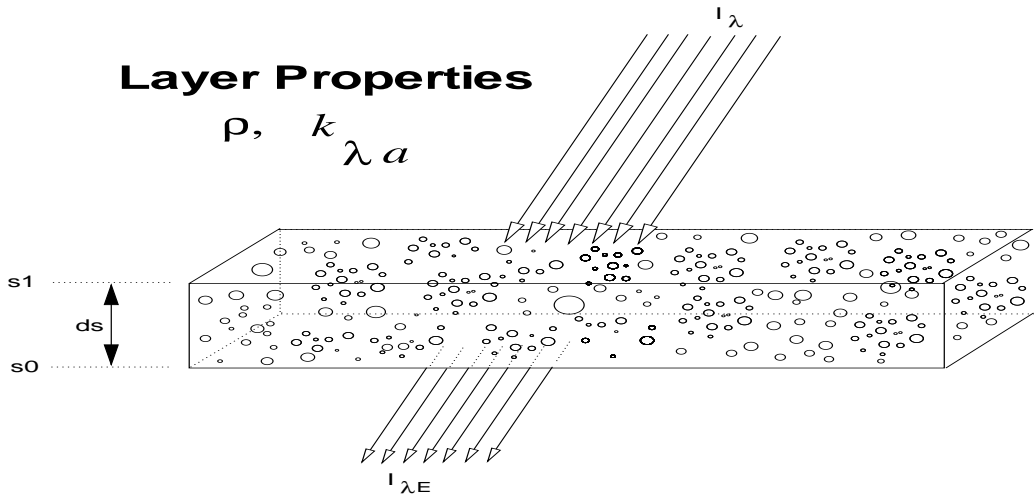


Figure 1. Arbitrary layer of thickness, ds , having density, ρ , and absorption coefficient, $k_{\lambda a}$. The limits of ds range from 0 to s_1 .

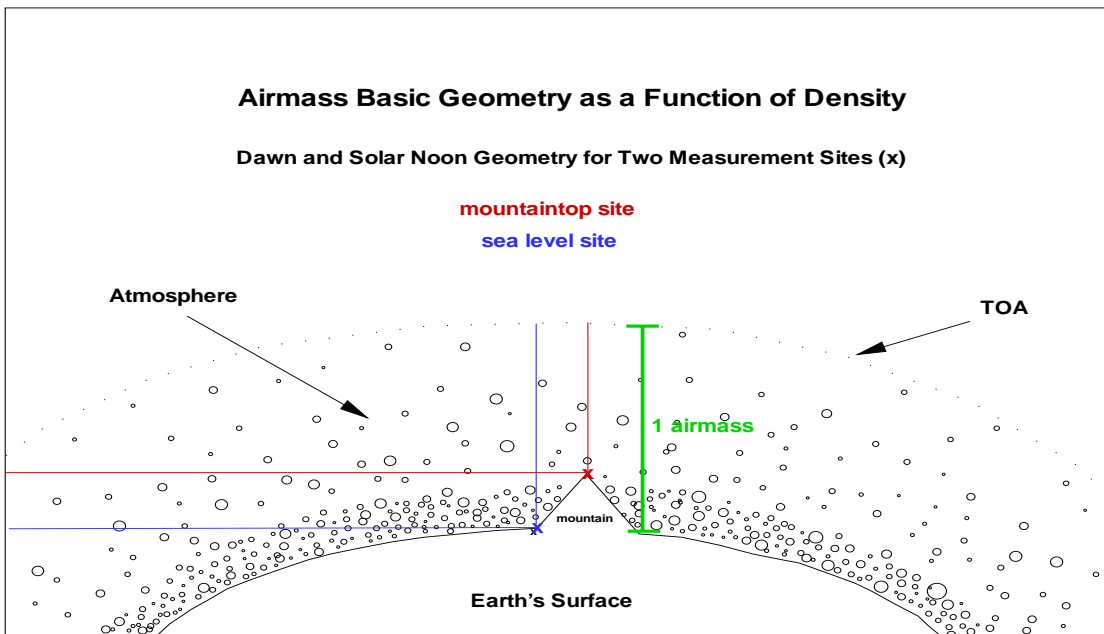


Figure 2. Schematic showing density dependence of airmass.

**fldsp648 -400 nm
Langley Calibration Results**

file: mlo98-038-fldsp648-400.out

Julian Date: 038 Location: Mauna Loa Observatory tau: -.25048
 Vo: 10.1976 lower 95% CI: -0.2510 upper 95% CI: -0.2499 Vo: 10.1993 26883.41
 LA Output => Channel 1: 26883.39534 26155.67322 0.25048 0.00255 62:98:

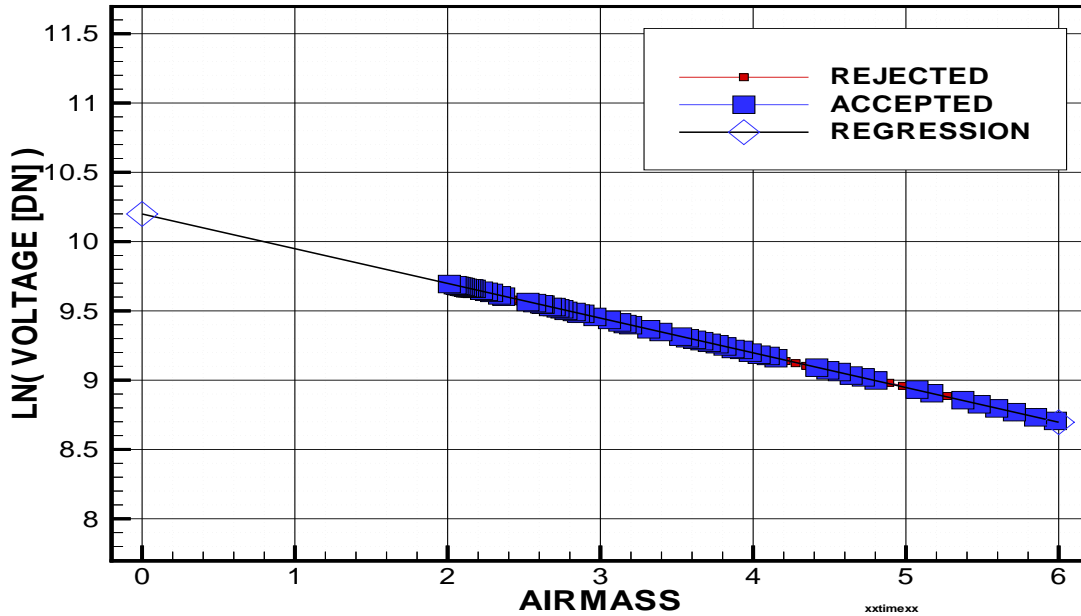


Figure 3. Example Langley regression plot for data from a spectral radiometer used in sun photometer mode.

MLO Langley Calibration Data

Instrument/Filter Specific File: mlo98-038-fldsp648-400.out

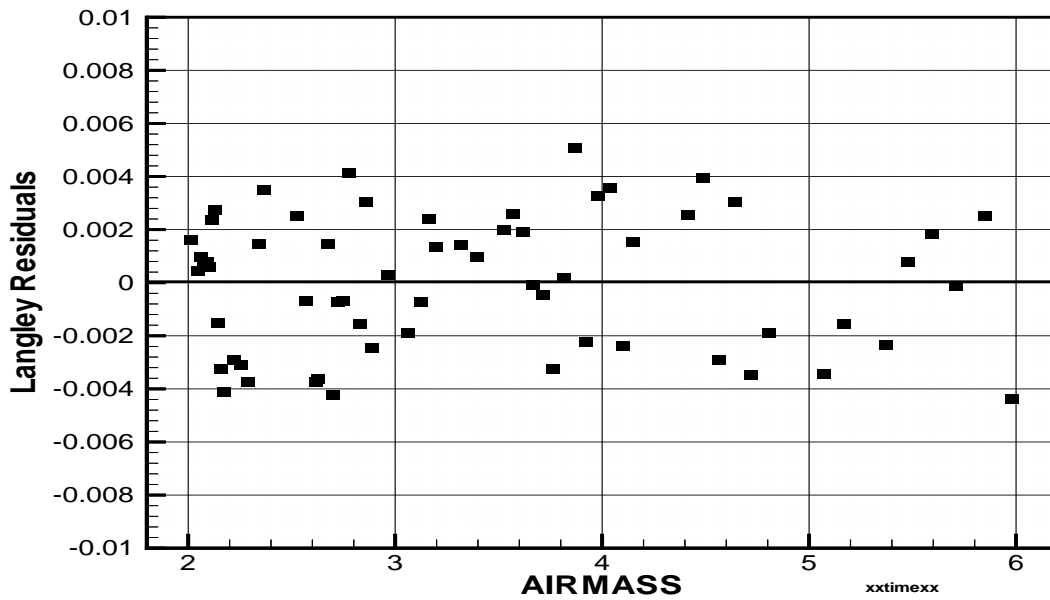


Figure 4, Example Langley regression residuals plot for data from a spectral radiometer used in sun photometer mode.

MFRSR Langley Analysis Results Feb 7-16, 1998

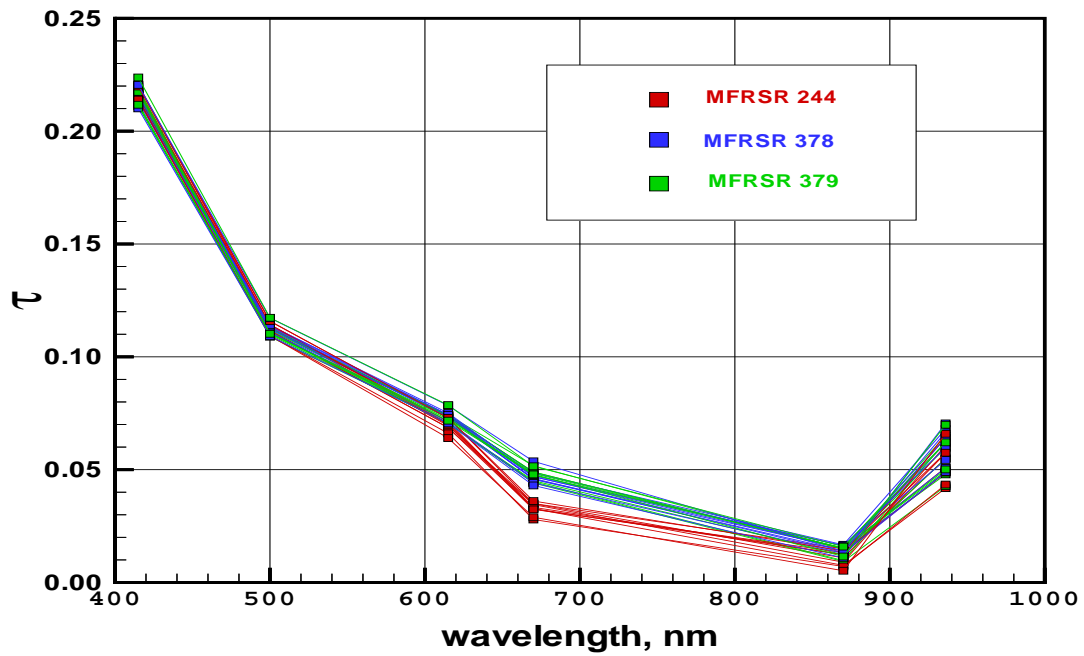


Figure 5. Measured optical depths for each instrument, for each channel, for each day.

MFRSR 378 Langley Analysis Residuals

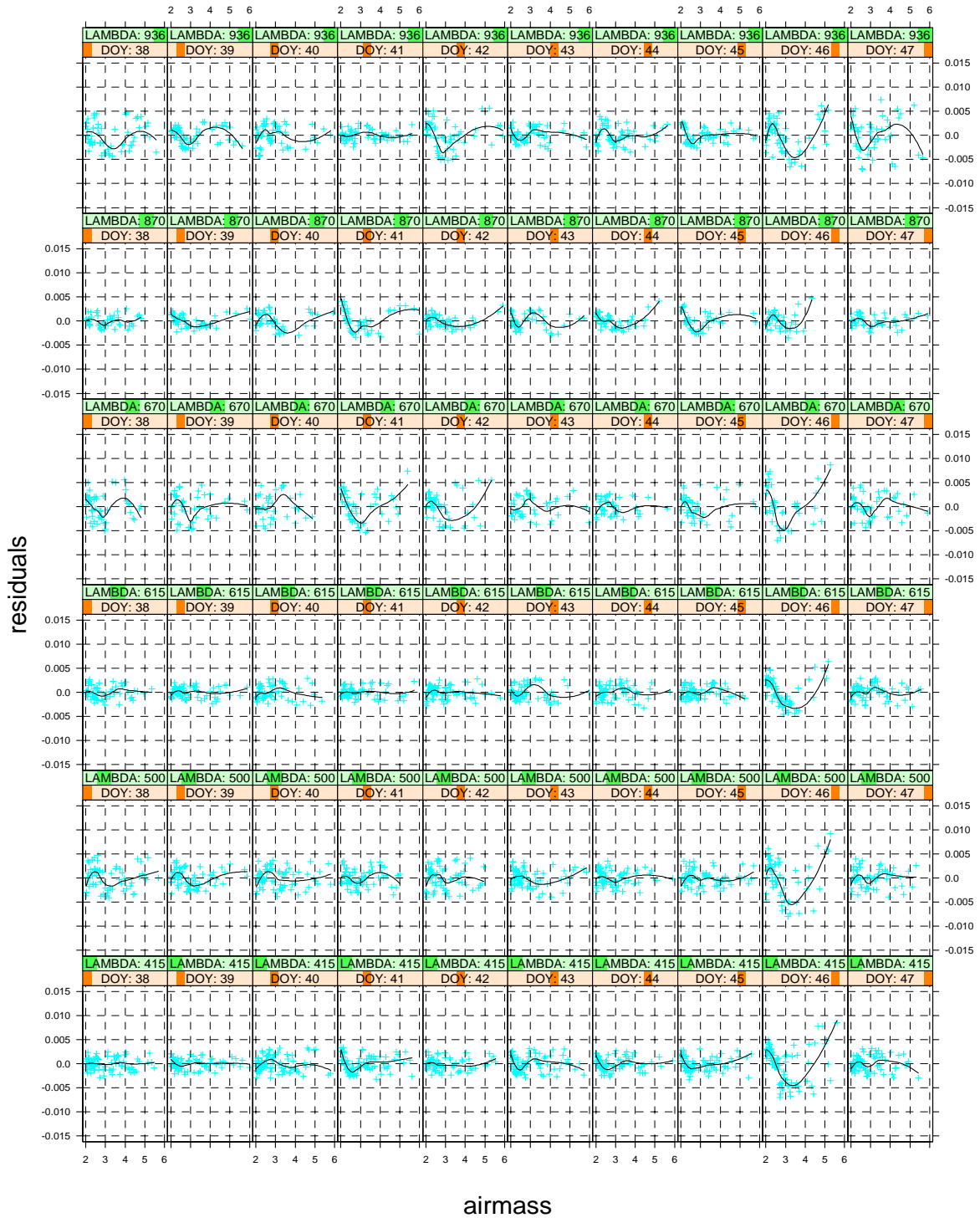


Figure 6a. MFRSR 378 Langley analysis residuals for all days, for all wavelengths.

MFRSR 379 Langley Analysis Residuals

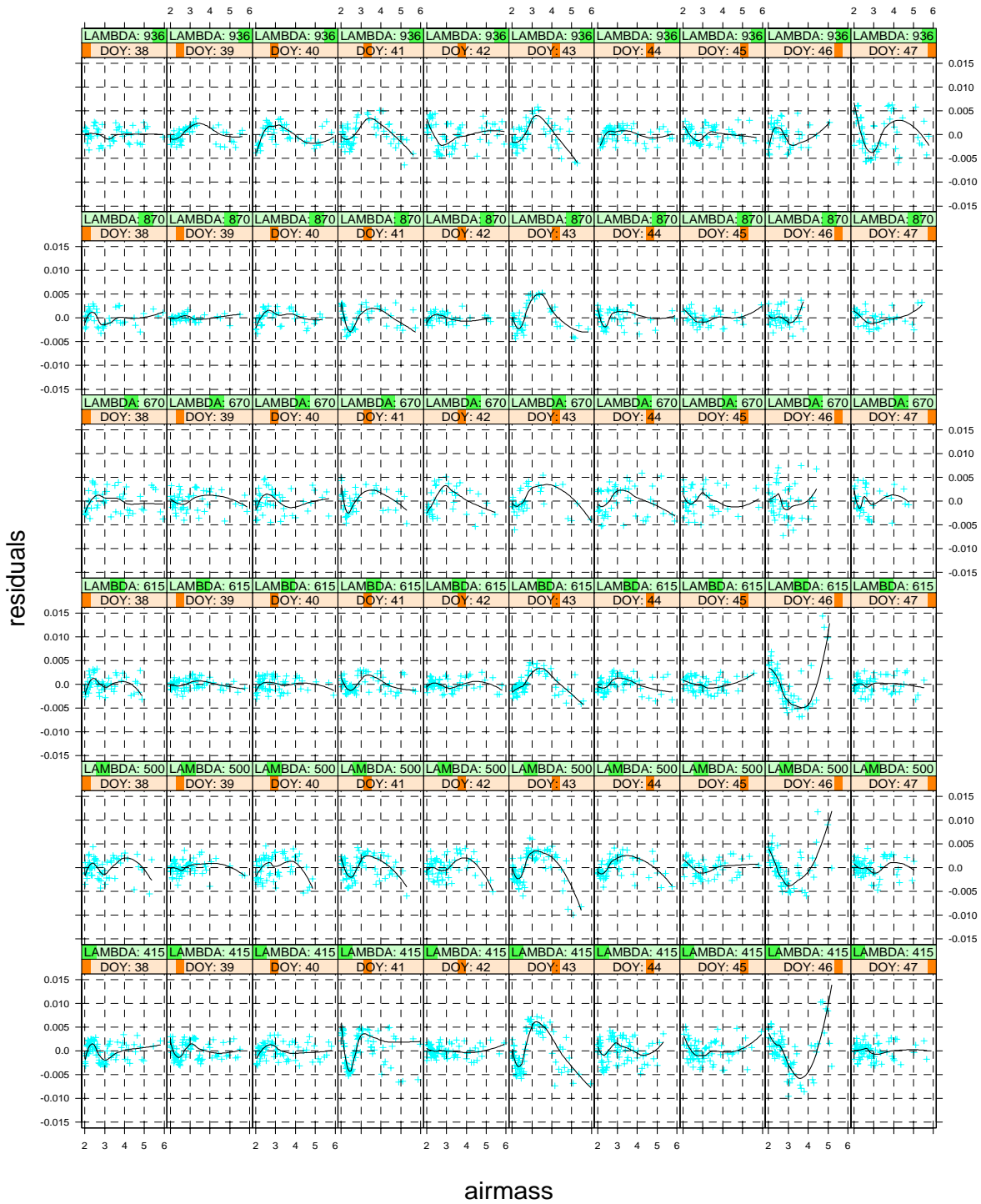


Figure 6b. MFRSR 379 Langley analysis residuals for all days, for all wavelengths.

MFRSR 244 Langley Analysis Residuals

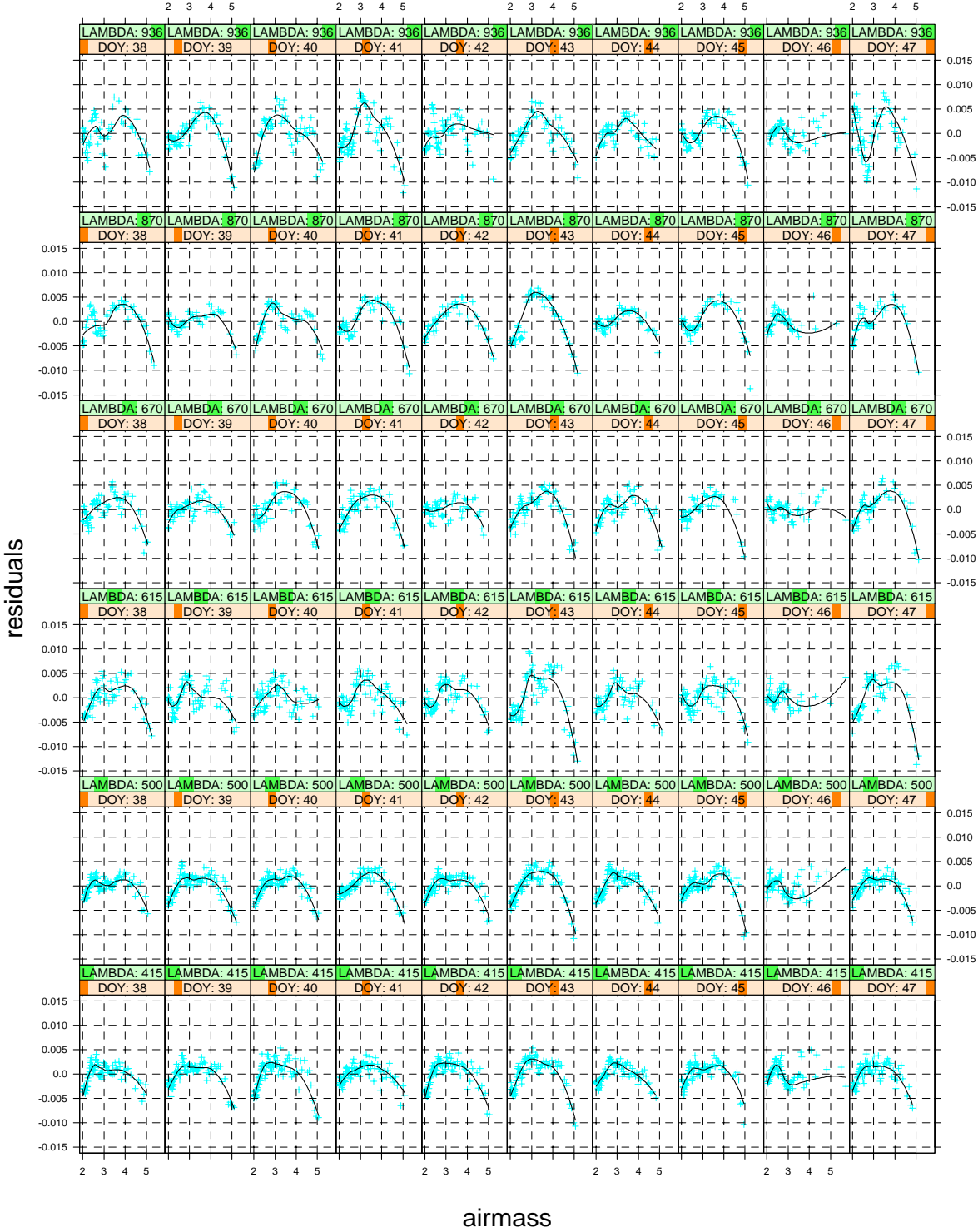


Figure 6c. MFRSR 244 Langley analysis residuals for each day, for each wavelength.

February 1998 Total Column Ozone Over MLO

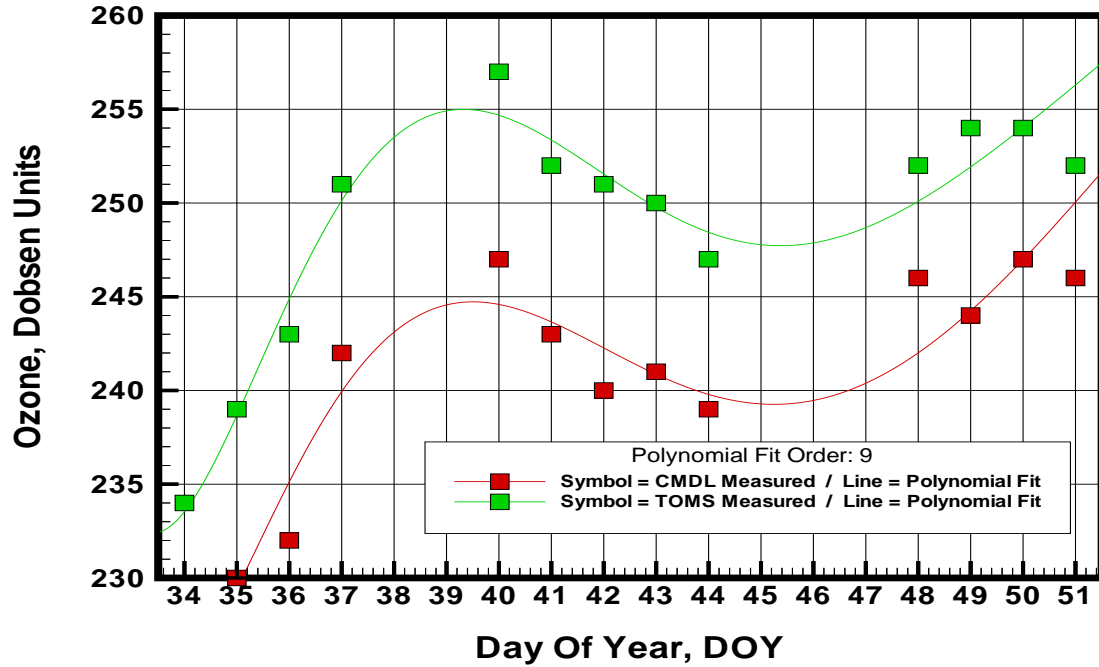


Figure 7. Measured ozone over MLO for the month of February, 1998.

Precipitable Water Above MLO During Calibrations

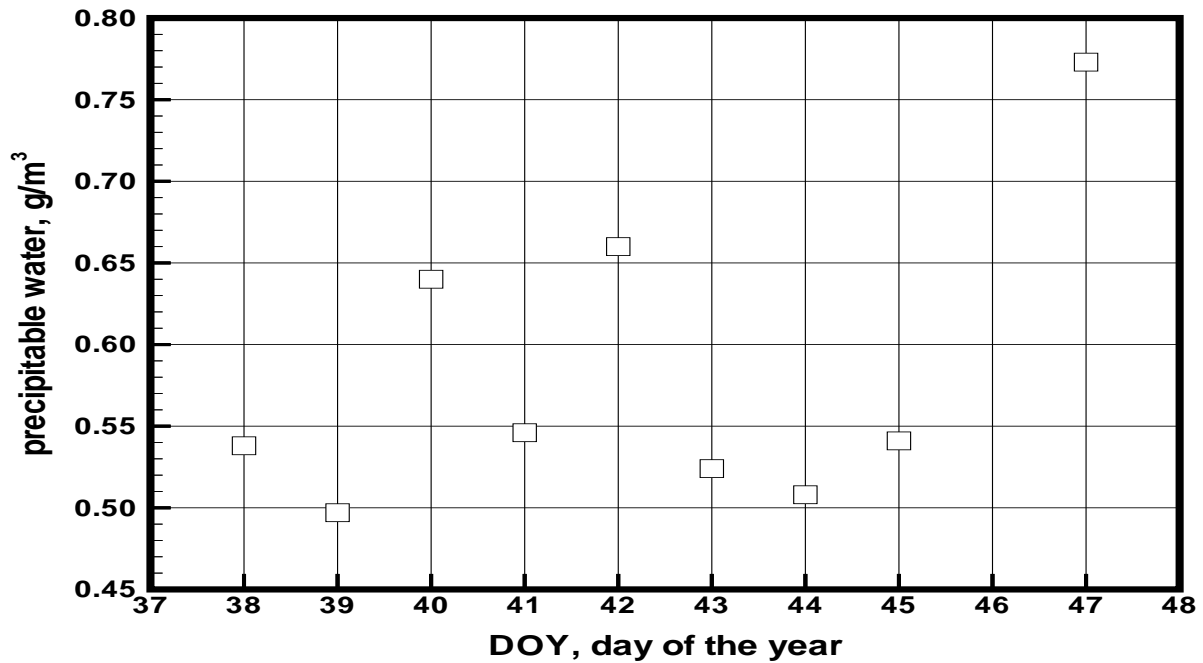


Figure 8. Measured precipitable water over MLO during calibration period.

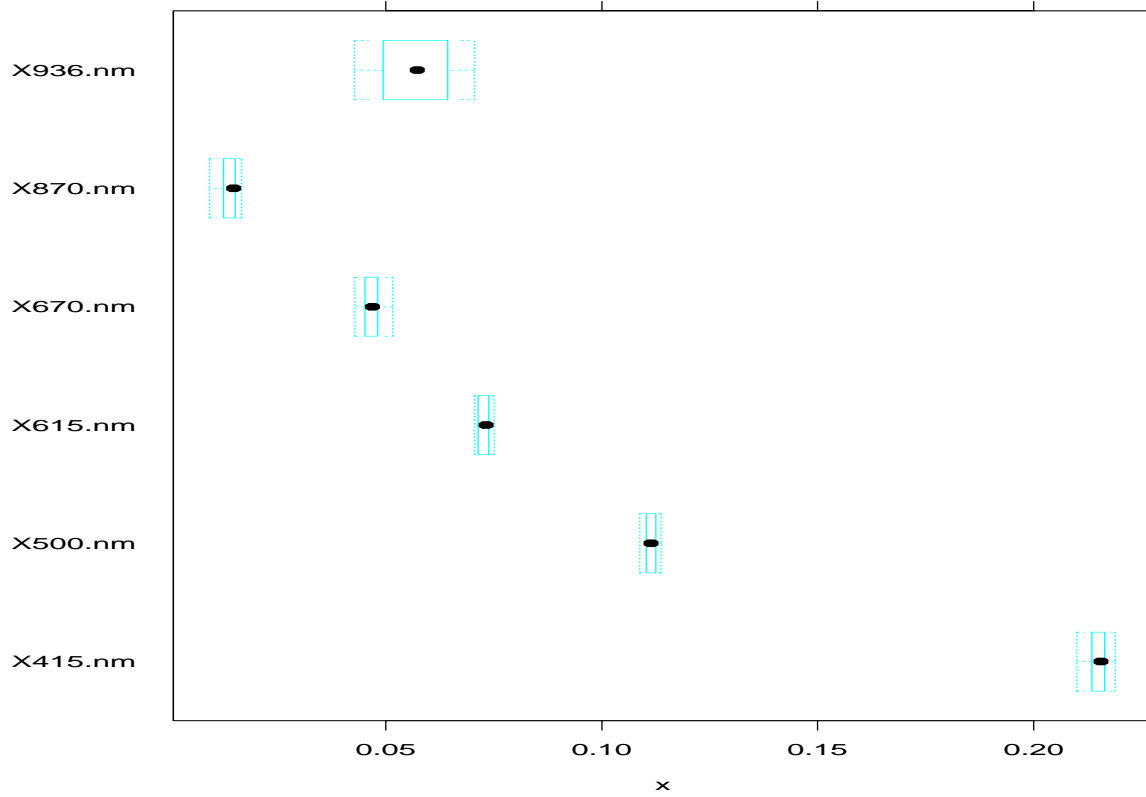


Figure 9. Boxplots of total optical depth data for MFRSR unit 378 and 379.

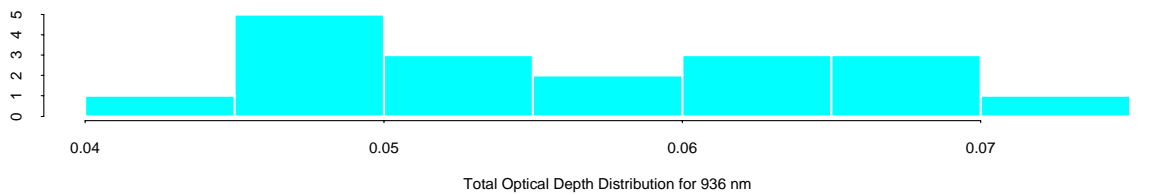
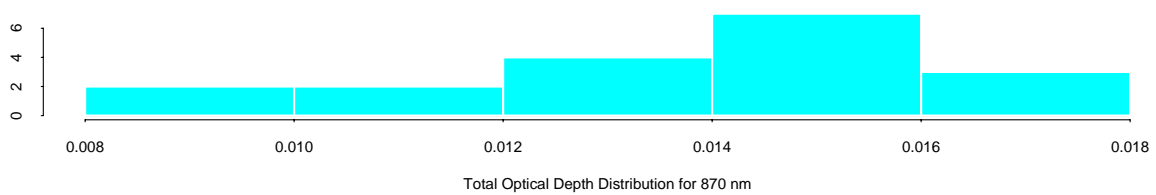
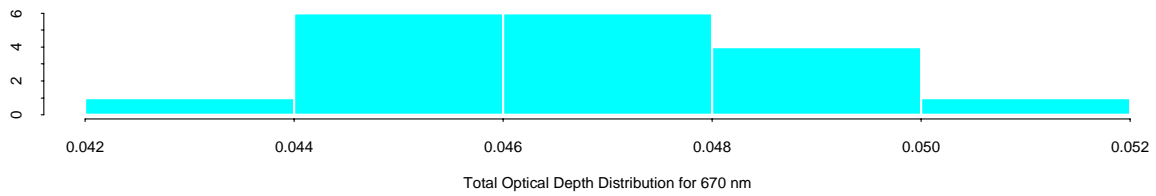
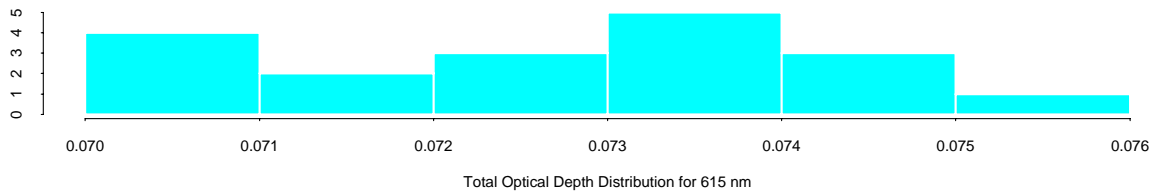
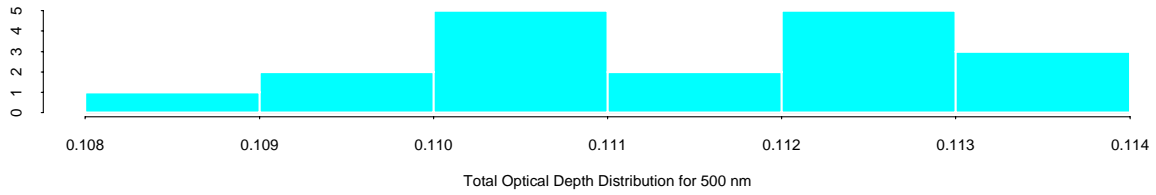
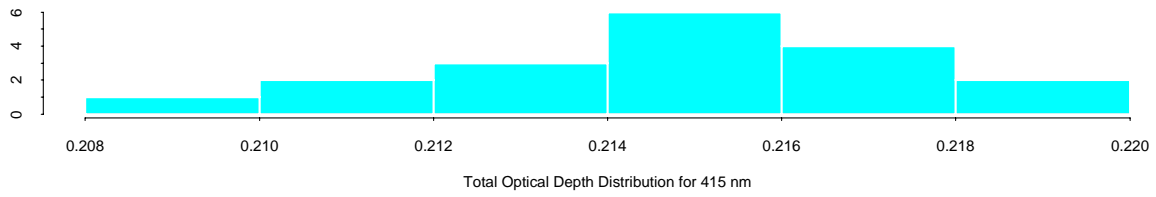


Figure 10. Distributions of total optical depths from MFRSR units 378 and 379 for all calibration days and for all wavelengths.

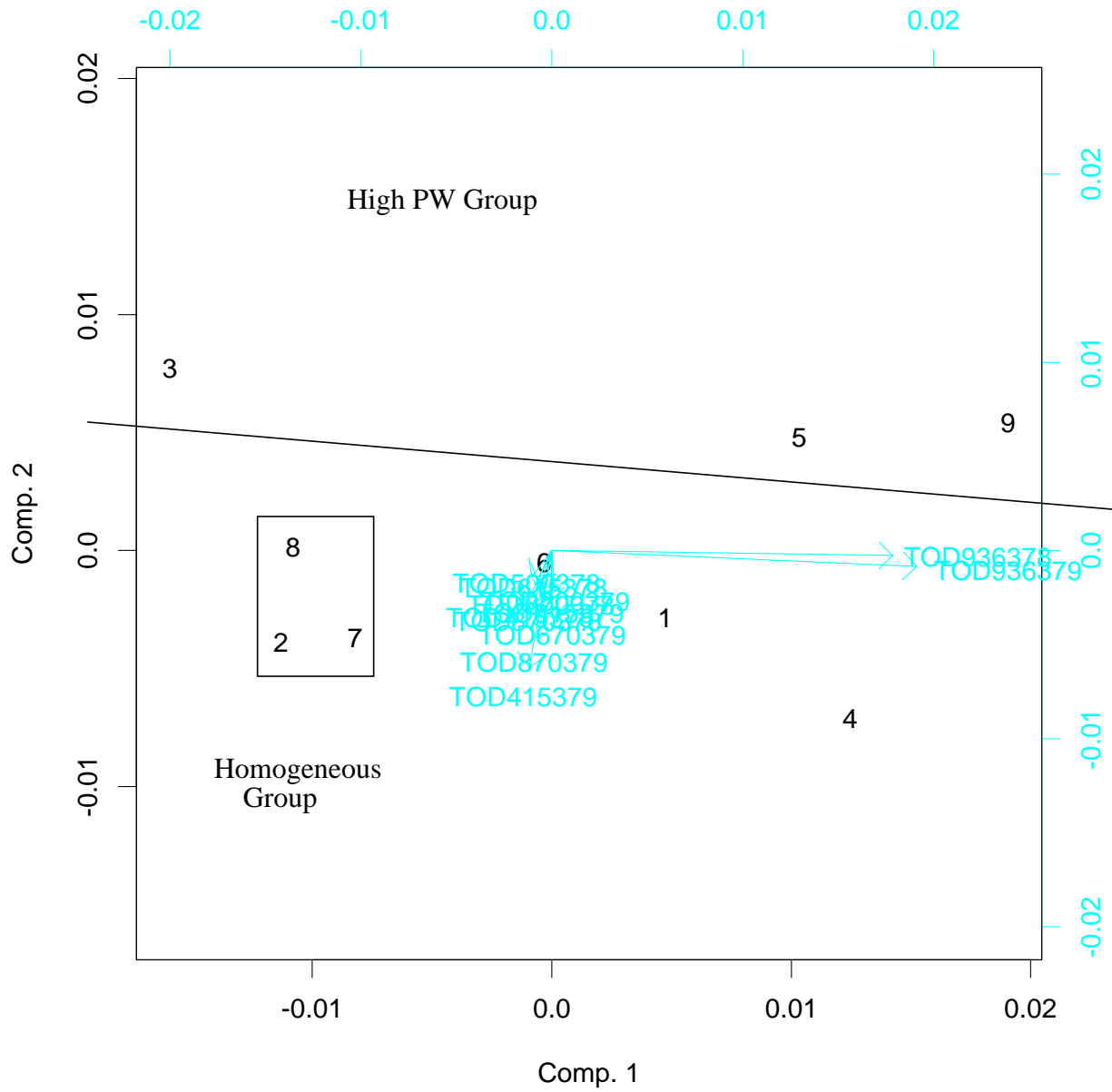


Figure 11. Component loadings plot from PCA of total optical depth data with 12 dimensions.

FieldSpec FR and Microtops Langley Analysis Results Feb 7-16, 1998

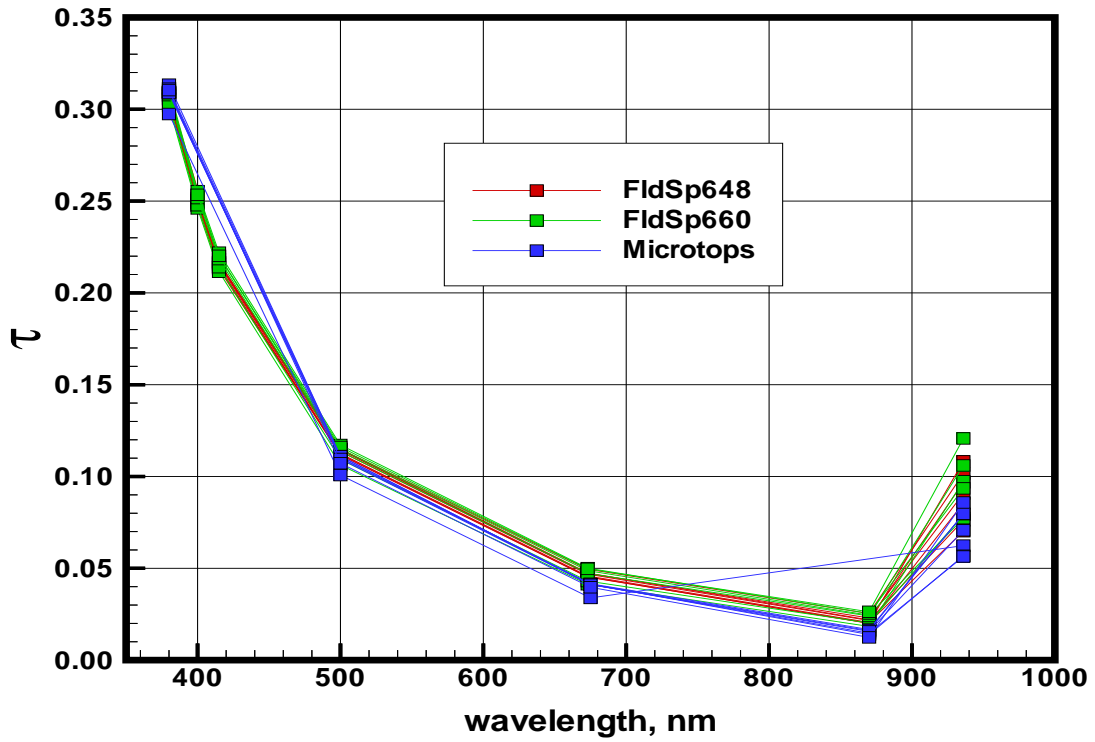


Figure 12. Measured optical depths for each instrument, for each channel, for each day.

Fieldspec 648 Langley Analysis Residuals

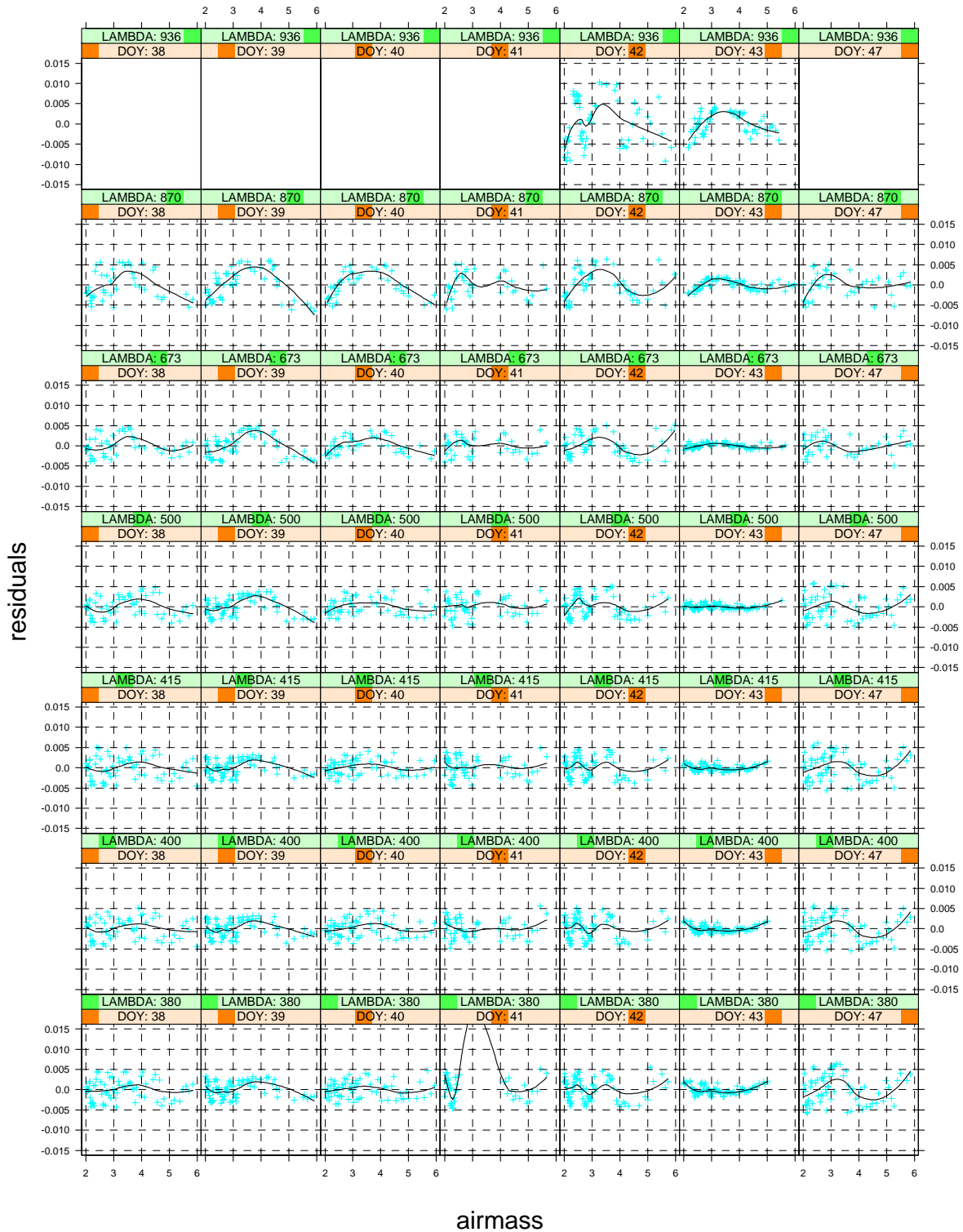


Figure 13a. FieldSpec FR unit 648 Langley analysis residuals for all days, for selected wavelengths.

Fieldspec 660 Langley Analysis Residuals

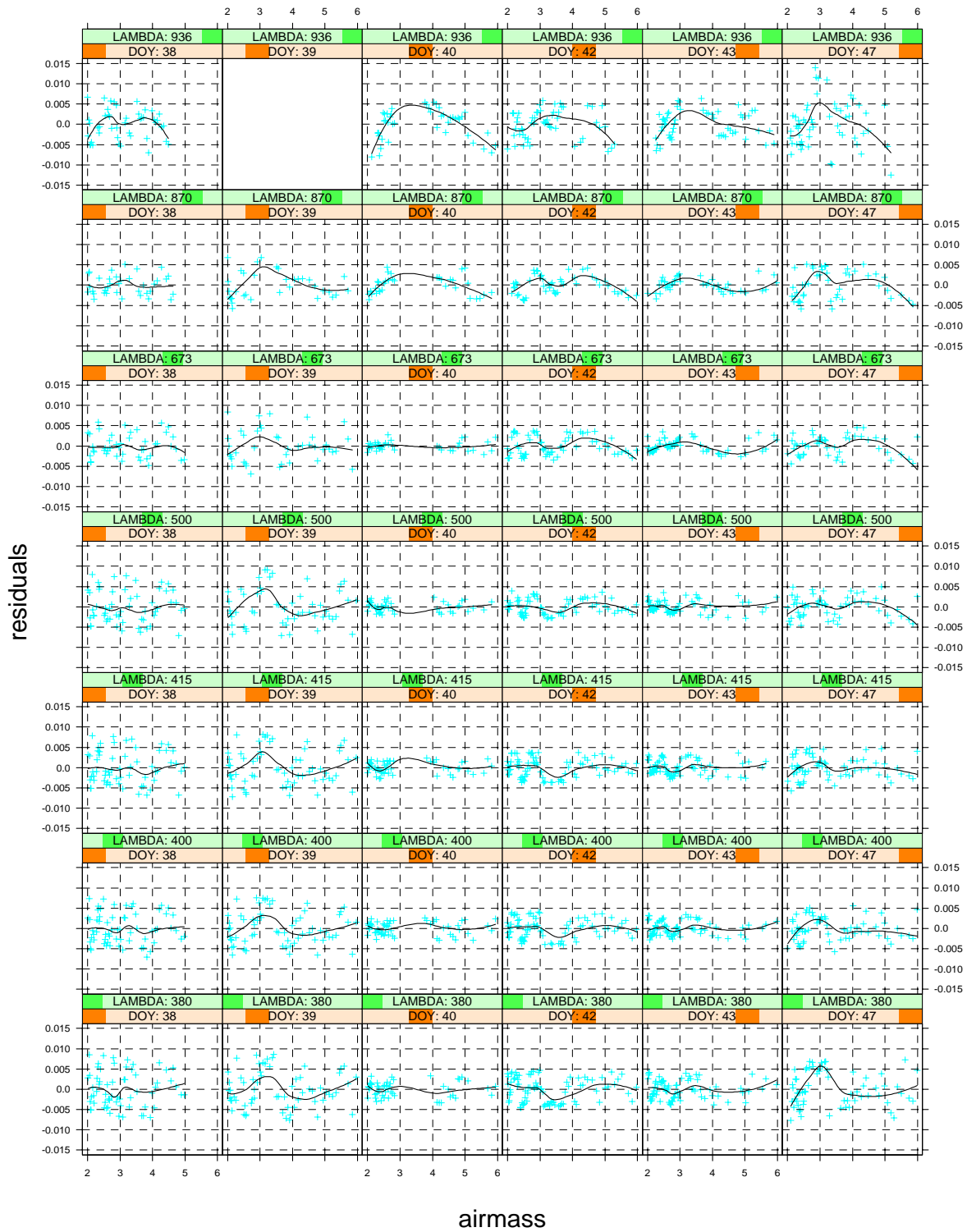


Figure 13b. FieldSpec FR unit 660 Langley analysis residuals for all days, for selected wavelengths.

MICROTOPS II MLO Langley Residual Result

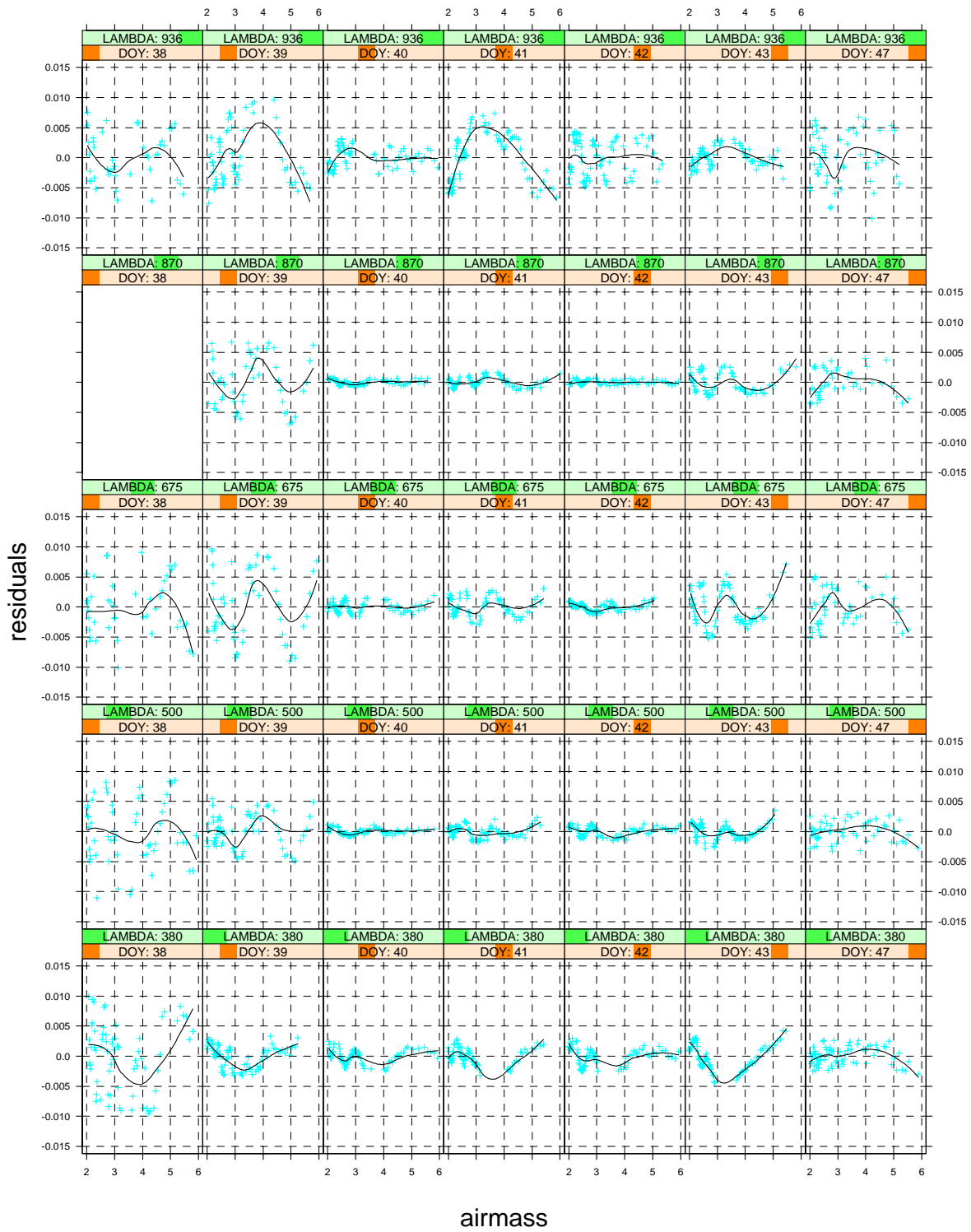


Figure 13c. MICROTOPS II Langley analysis residuals for all days, for all wavelengths.

Comparison of 500 nm Optical Depths for All instruments

(bars based on measured optical depth ranges)

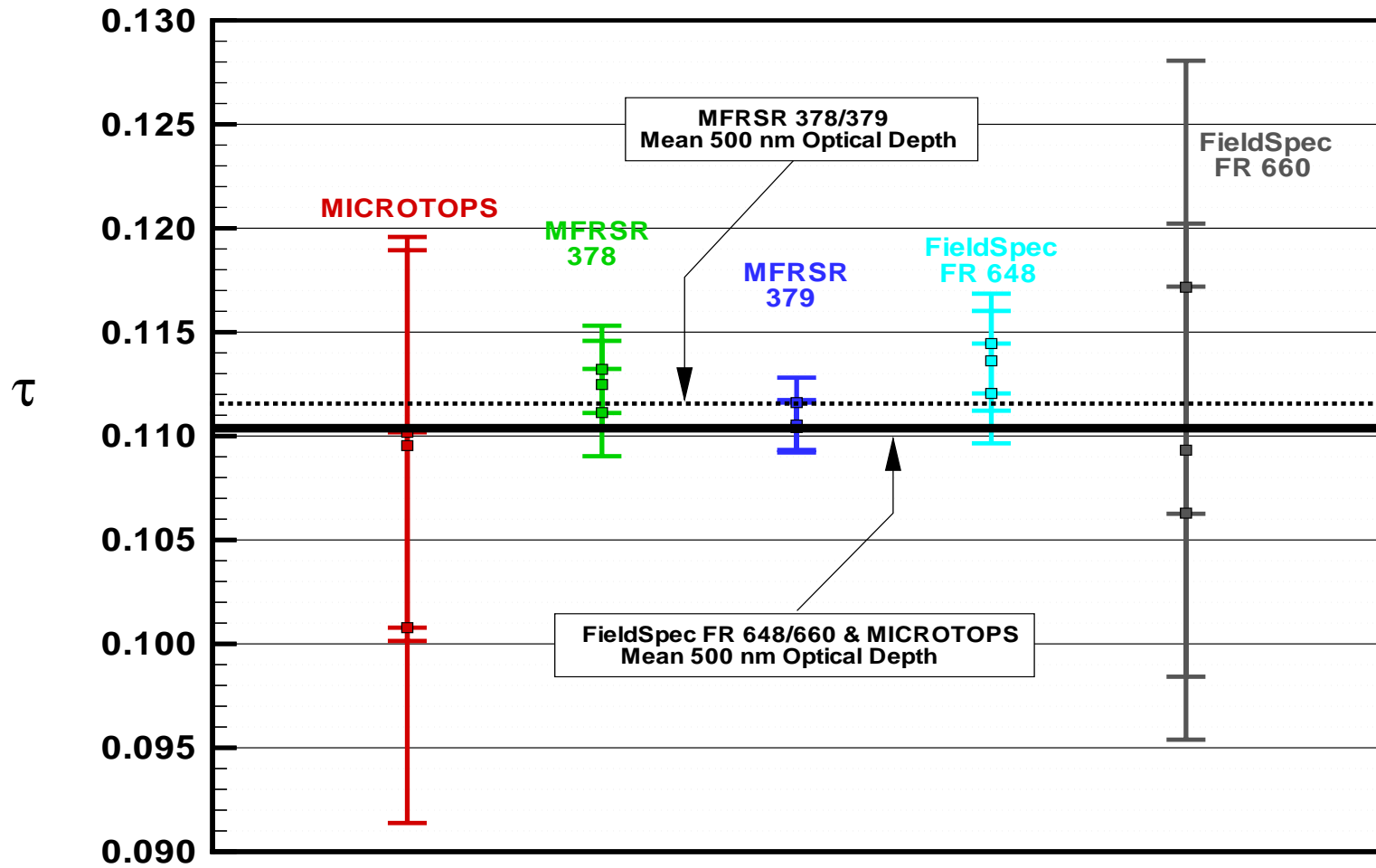


Figure 14. Comparison of total optical depths using calibration data only..

