Optical Measurements of Aerosols for MIRAGE-MEX

Bill Eichinger
John Prueger
Piotr Lewandowski
Heidi Holder

National Soil Tilth Laboratory

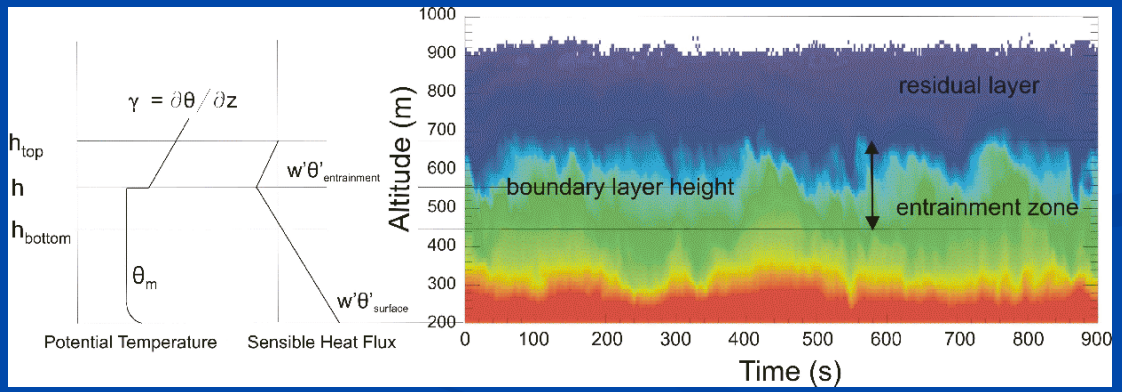
IIHR Hydroscience & Engineering

University of Iowa

Optical Measurements of Aerosols for MIRAGE-MEX T0 Site

Vertical Sounding Lidar

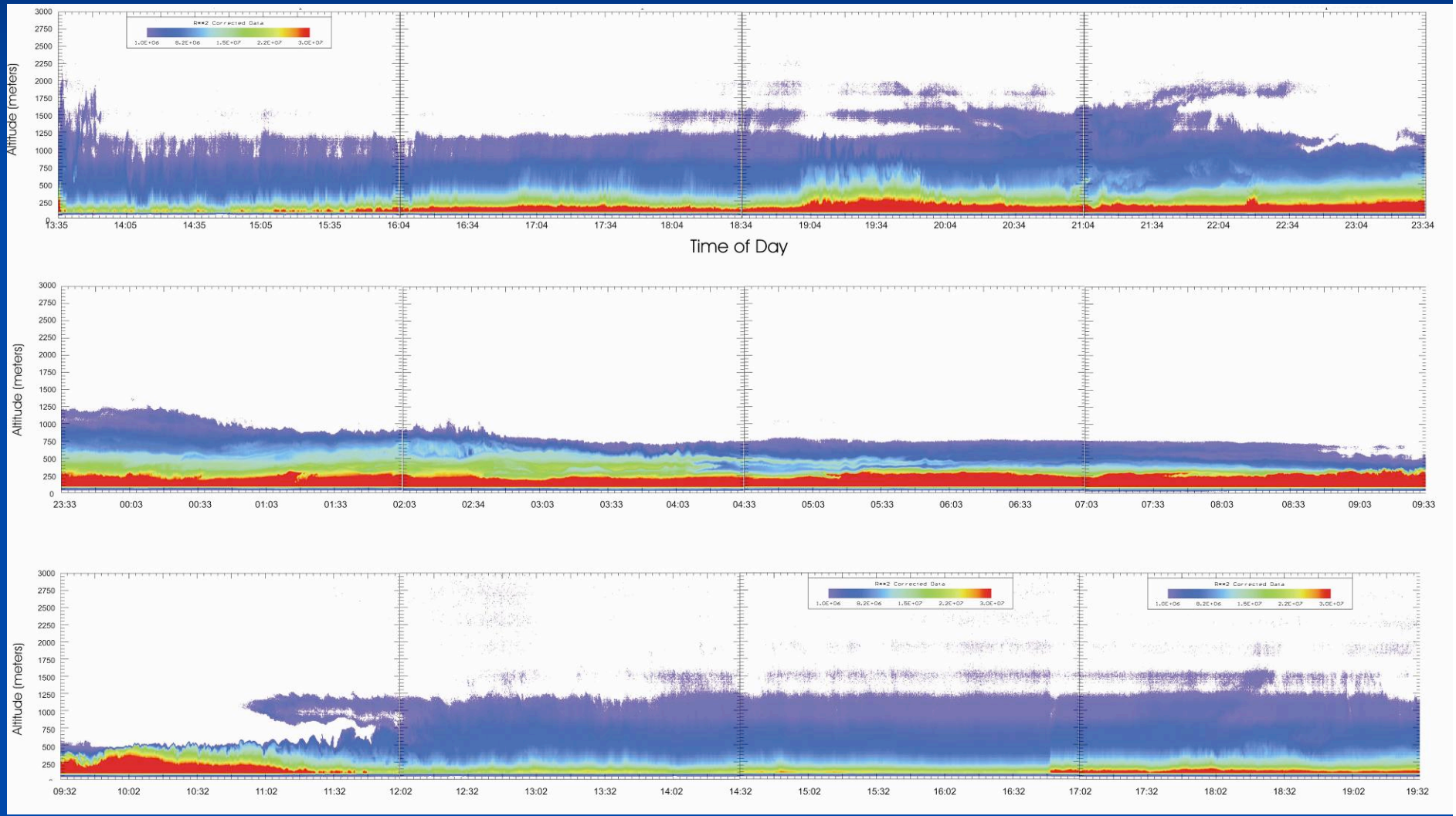
High Resolution Aerosol Profile Measurements



Hydroscience & Engineering

University of Iowa

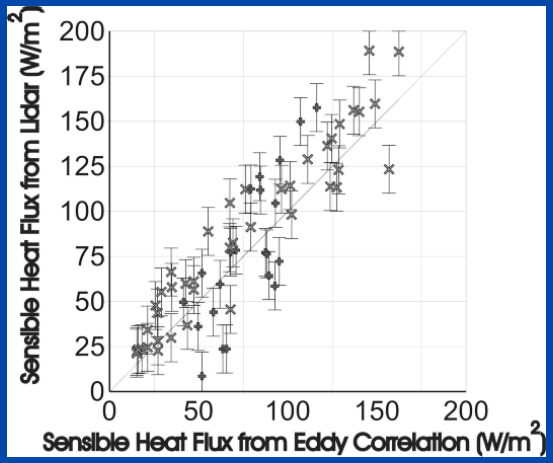
Optical Measurements of Aerosols for MIRAGE-MEX - T0 Site



Optical Measurements of Aerosols for MIRAGE-MEX – T0 Site

Derived Products

- **Boundary Layer Height**
- **Residual Layer Height**
- **Entrainment Zone Depth**
- **Entrainment Parameter**
- **Regional Sensible Heat Flux**



IIHR Hydroscience & Engineering

University of Iowa

Meteorological Measurements - T0

Fast Response
- **3D Sonic Anemometer**
- **CO2, Water Vapor, Temperature**

Upwelling/Downwelling, long and short wave radiometer

Temperature, Humidity, pressure

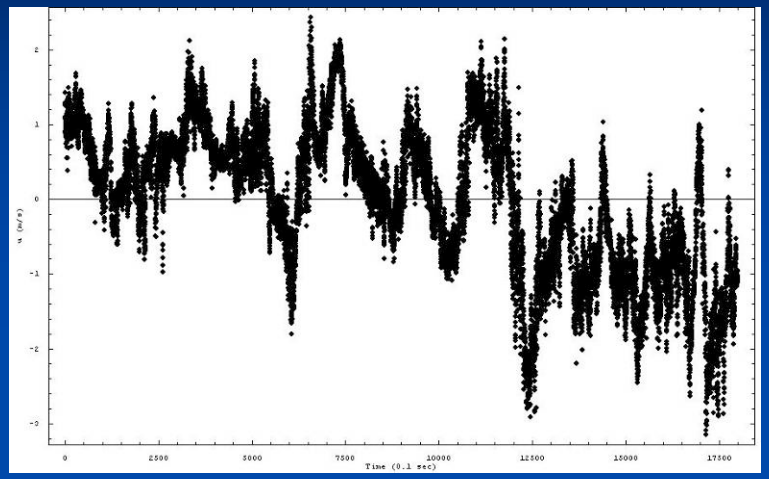
Latent, Sensible, CO2 Fluxes

National Soil Tilth Laboratory

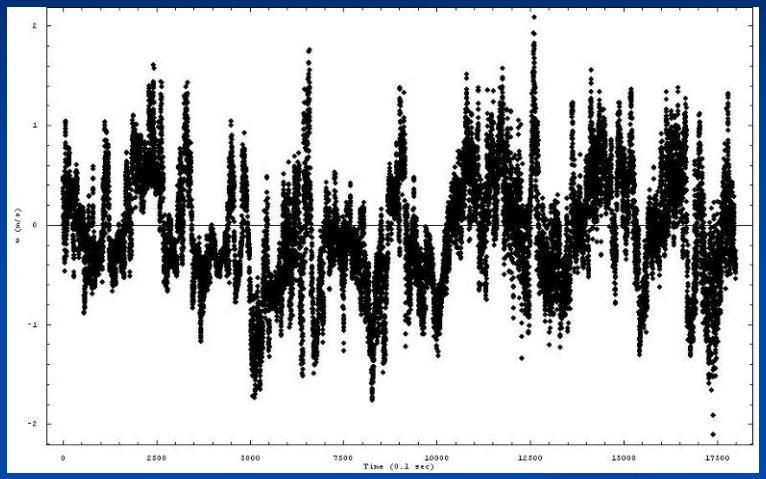
IIHR Hydroscience & Engineering

University of Iowa

Meteorological Measurements - T0

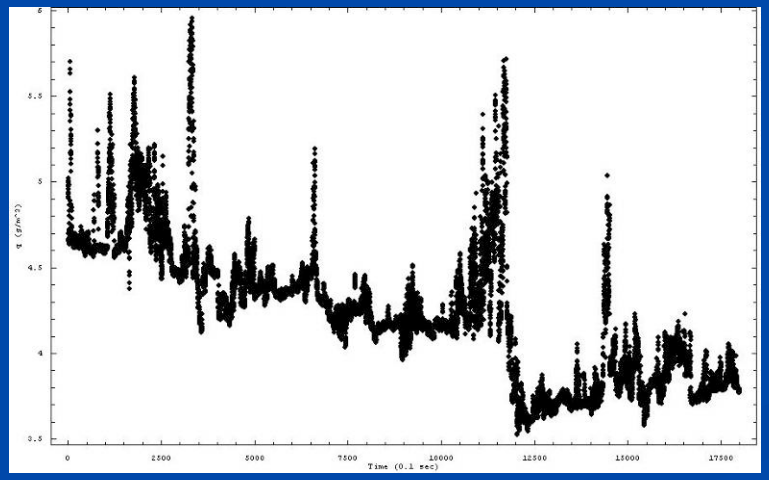


Horizontal Wind Speed

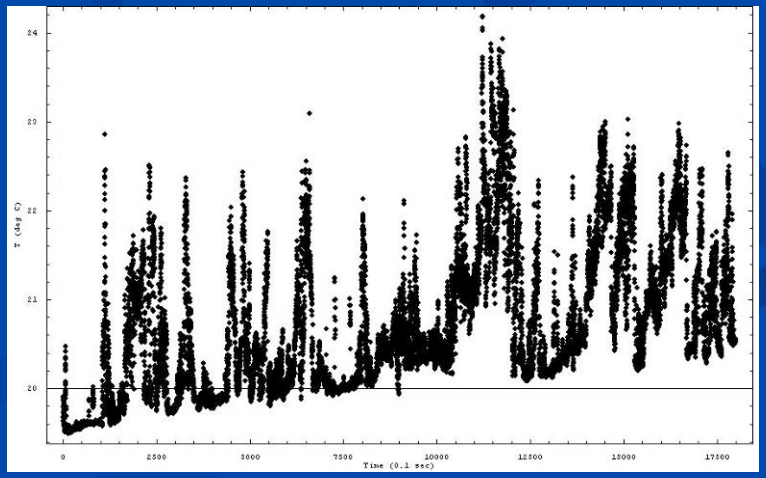


Vertical Wind Speed

Water Vapor



Temperature



Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance

Solar Spectrometer

High Resolution Vertical Lidar

POM 01

IIHR Hydroscience & Engineering

University of Iowa

Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance

IIHR Hydroscience & Engineering

University of Iowa

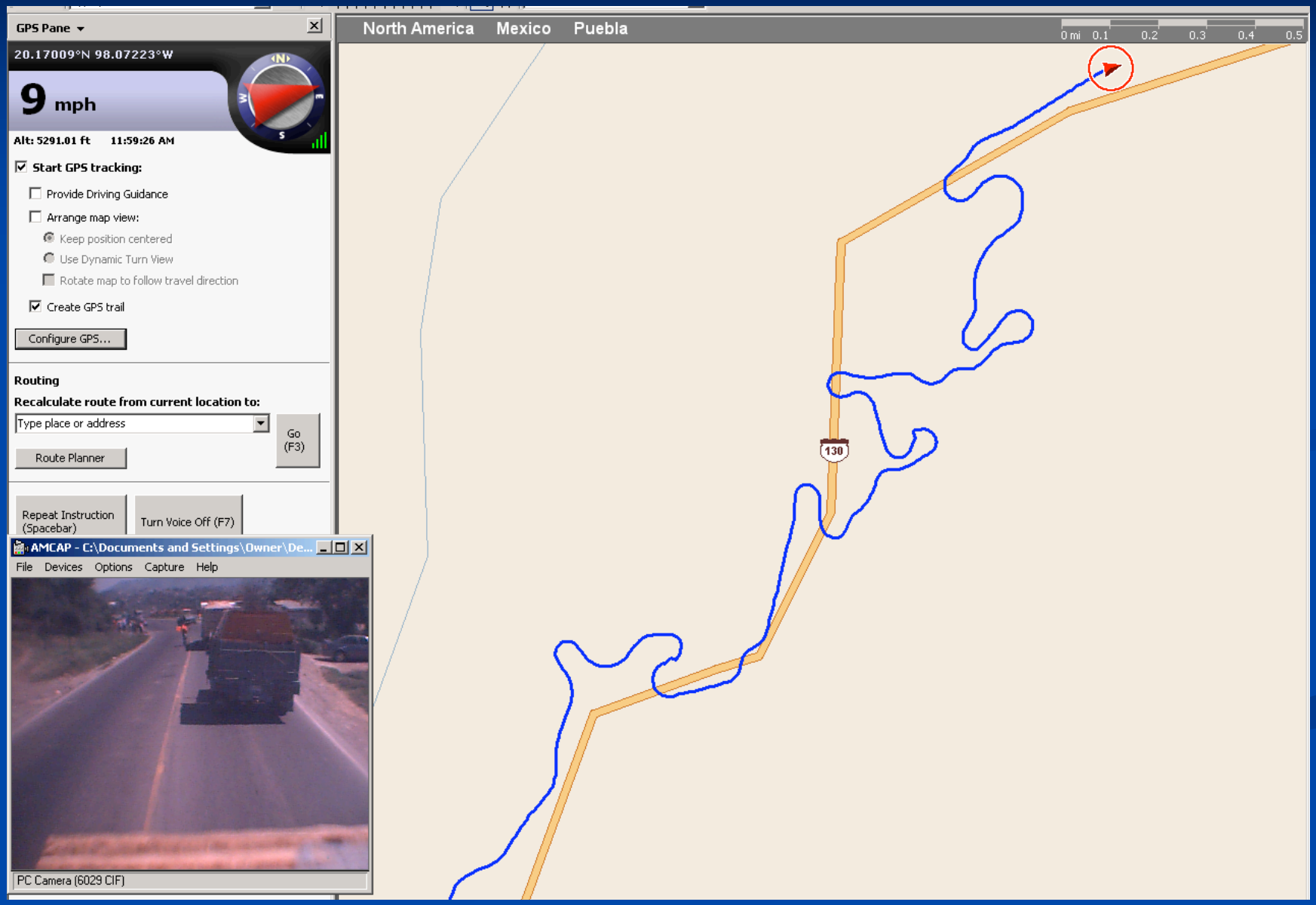
Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance

Hydroscience & Engineering

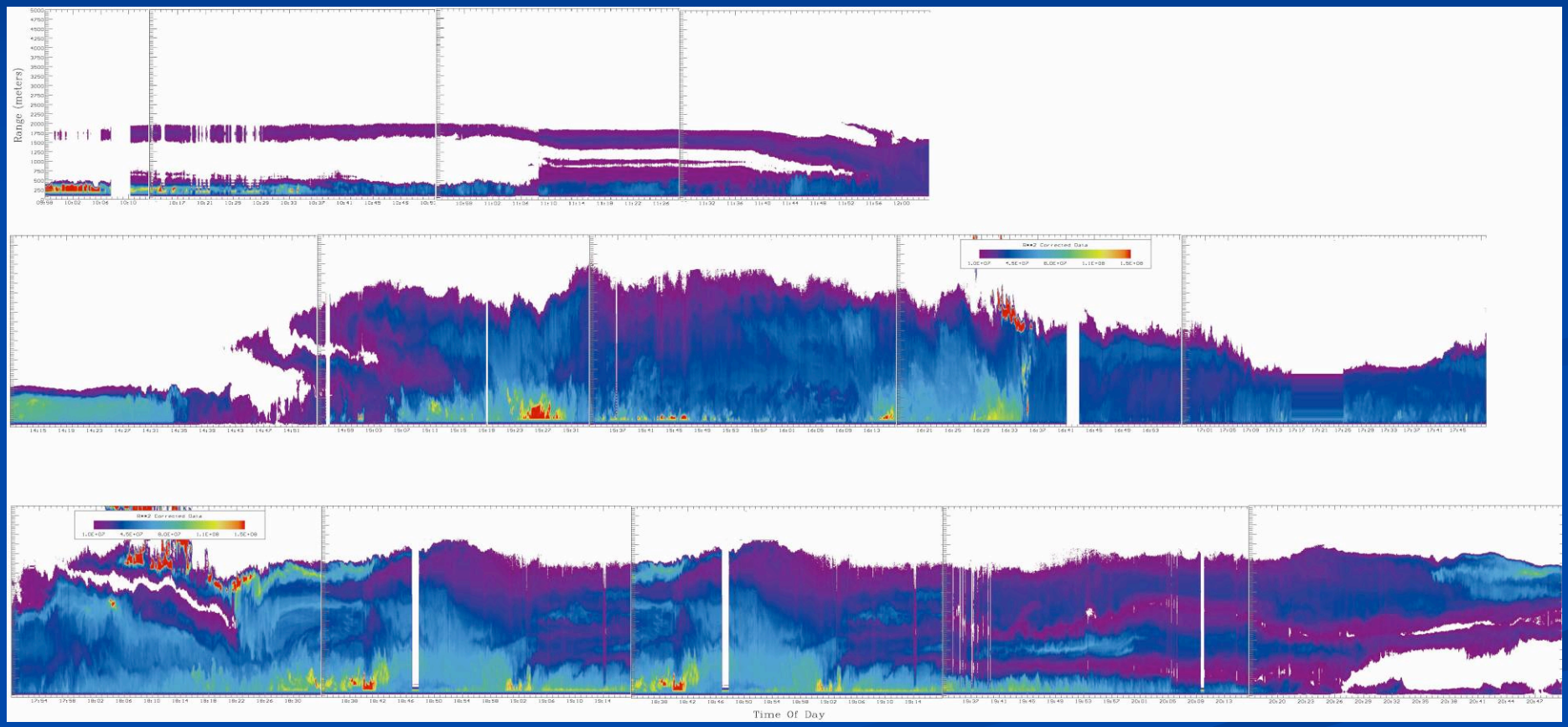
University of Iowa

Lidar Mapping of Aerosols from Mexico City



Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance



Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance

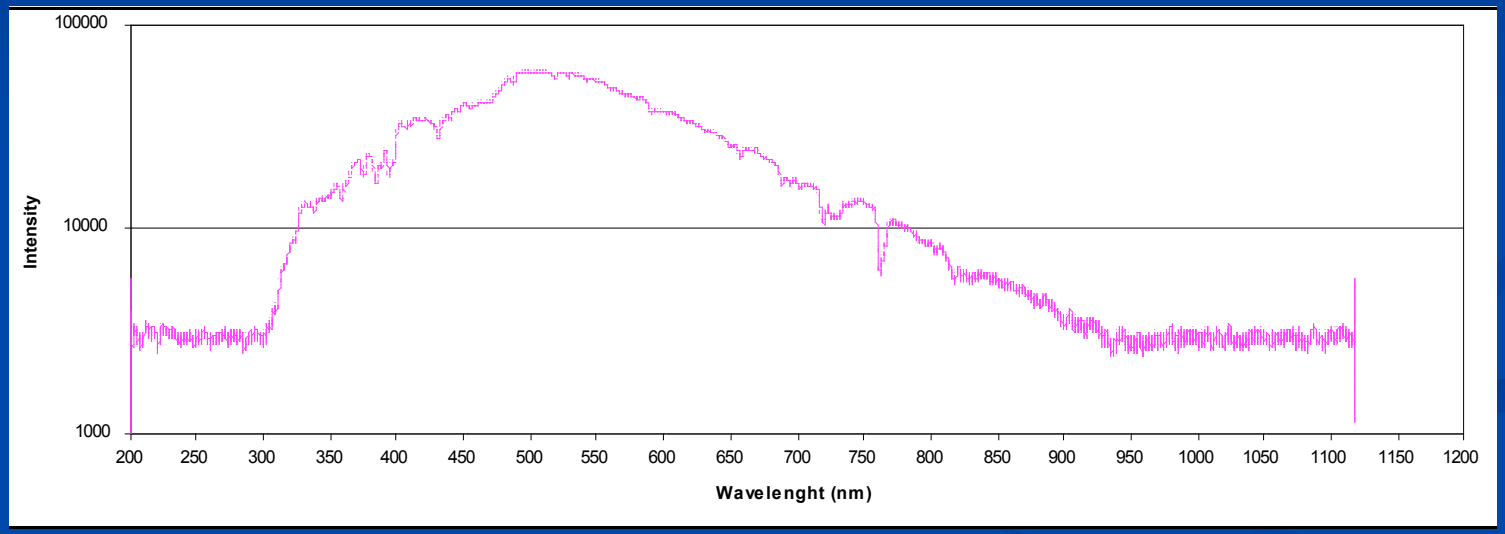
Solar Intensity with Wavelength

IIHR Hydroscience & Engineering

University of Iowa

Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance



Solar Intensity with Wavelength

IIHR Hydroscience & Engineering

University of Iowa

Lidar Mapping of Aerosols from Mexico City

Changes in Distribution, Size, and Optical Properties with Distance

Looking for ways to take advantage of our capabilities

william-eichinger@uiowa.edu

IIHR Hydroscience & Engineering

University of Iowa