



Capability of the Panchromatic Fourier Transform Spectrometer (PanFTS) to Perform Atmospheric Composition Retrievals

V. Natraj, S Kulawik, M Luo, K Bowman, J Neu, A Eldering, B Nemati, R Key, S Sander, and J Worden
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA (Vijay.Natraj@jpl.nasa.gov)

The National Research Council Earth Science Decadal Survey recommended the Geostationary Coastal and Air Pollution Events (GEO-CAPE) mission to make unprecedented measurements of the spatial and temporal variabilities of trace gases and aerosols that influence air quality over North America from 10 degrees N to 60 degrees N latitude. In this presentation, we demonstrate the capability of the Panchromatic Fourier Transform Spectrometer (PanFTS) to meet or exceed GEO-CAPE science requirements. With continuous sensitivity from 0.26 to 15 micron and high spectral resolution, PanFTS combines the functionality of separate UV, visible and IR instruments in a single package and is designed to measure all of the trace species relevant to GEO-CAPE. We show results from retrievals of O₃, CO, CH₄, SO₂ and NH₃ using simulated PanFTS measurements over the continental US. We also optimize the instrument characteristics (spectral resolution, signal to noise ratio) to maximize retrieval precision.