



Retrievals of CO₂ and Surface Pressure from GOSAT TANSO FTS radiances in pristine conditions

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We present preliminary results of retrieved CO₂ mixing ratio and surface pressure over pristine locations using GOSAT TANSO-Fourier Transform Spectrometer radiances from Band 1 (0.765um) and Band 2 (1.65um). The algorithm is based on the Gauss-Newton method. Aerosol absorption and scattering and Rayleigh scattering is simulated with a Gauss-Seidel vector radiative transfer model. Gaseous absorption is modeled with either a Voigt or a Speed Dependent profile and the HIRTRAN 2008 spectroscopic parameters.

We focus on GOSAT retrievals over two locations with minimal aerosol optical depth: Birdsville Australia and Railroad Valley Nevada. These are both AERONET (AErosol RObotic NETwork) sites so aerosol absorption and size distribution information are available. We will examine retrievals from pristine days with almost no aerosol scattering and days with moderate aerosol loading. Retrieved CO₂ concentrations will be compared with the closest TCCON sites. A three-dimensional chemistry transport model will facilitate the comparison between the CO₂ concentrations at the TCCON sites and the retrieved values at the AERONET sites. We will also show the wavelength dependence of the retrieved residuals - the best fit model simulated radiances minus the GOSAT observations – for both GOSAT bands.