

Contributions to the Orbiting Carbon Observatory -2 Carbon Dioxide Measurements from Space

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NASA's Orbiting Carbon Observatory -2 (OCO-2) was launched in July 2014 to measure atmospheric carbon dioxide from space. The unprecedented accuracy and near-global coverage of the satellite are expected to lead to groundbreaking results with respect to the sources and sinks of this greenhouse gas, and thus unveil long-persisting mysteries in the global carbon cycle.

This poster will concentrate on presenting the OCO-2 observations, and ongoing and planned OCO-2-related activities at the Finnish Meteorological Institute (FMI). The topics include 1) validation of the retrieved CO₂ concentrations at Sodankylä, Finland; 2) research on quantifying the effects of aerosol and cloud particle light scattering on carbon dioxide retrievals, and 3) uncertainty quantification work related to spatial correlations in the retrievals and the application of Markov-Chain Monte Carlo methods on the retrieval of the CO₂ vertical profile. The FMI hosts an important validation site at Sodankylä, which provides regular ground-based column CO₂ retrievals as a part of the Total Carbon Column Observing Network, flux tower measurements, and AirCore flights to support the OCO-2 validation efforts.