



Early Results from the NASA Orbiting Carbon Observatory-2 (OCO-2)

David Crisp and Annmarie Eldering

Jet Propulsion Laboratory, California Institute of Technology, Earth and Space Sciences Division, Pasadena, United States
(david.crisp@jpl.nasa.gov)

The Orbiting Carbon Observatory-2 (OCO-2) is NASA's first satellite designed to collect the measurements needed to estimate the column-averaged carbon dioxide (CO_2) dry air mole fraction, XCO_2 , with the sensitivity, accuracy, and resolution needed to characterize the CO_2 sources and sinks on regional scales over the globe. OCO-2 was successfully launched from Vandenberg Air Force Base in California on July 2, 2014 and joined the 705-km Afternoon Constellation (A-Train) on August 3, 2014. The three-channel imaging grating spectrometer was then cooled to its operating temperatures and a comprehensive series of characterization and calibration activities were initiated. Since early October 2014, the observatory has been routinely collecting almost 1 million soundings over the sunlit hemisphere each day. Early cloud screening results indicate that 15-30% of these measurements may be sufficiently cloud free to yield precise estimates of XCO_2 . Initial deliveries of calibrated, geo-located OCO-2 spectra to the NASA Goddard Earth Science Data and Information Services Center (GES DISC) began on December 30, 2014. Preliminary estimates of XCO_2 retrieved from these data are currently being validated against observations from the Total Carbon Column Observing Network (TCCON) and other standards. Routine deliveries XCO_2 and other products, including surface pressure and chlorophyll fluorescence, to the GES DISC are expected to begin before the end of March, 2015. This presentation will summarize the status of the OCO-2 mission and the coverage, resolution, and accuracy of its early results.