



The Orbiting Carbon Observatory – 2 (OCO-2) Mission and Preparation for 2014 Launch

Annmarie Eldering, Michael Gunson, and David Crisp

JPL/Caltech, Earth Atmospheric Sciences, Pasadena, United States (Annmarie.Eldering@jpl.nasa.gov)

The Orbiting Carbon Observatory-2 (OCO-2) is the first NASA satellite designed to collect the measurements needed to measure atmospheric CO₂ with the precision, resolution, and coverage needed to identify and quantify atmospheric sources and sinks on regional scales over the globe. OCO-2 is currently scheduled to launch from Vandenberg Air Force Base at 3 AM 1 July 2014. After a series of maneuvers, OCO-2 will be inserted at the head of the 705-km Afternoon Constellation (A-Train), about 6 minutes ahead of the GCOM-W1 satellite. OCO-2 will fly along a ground track that is displaced 217.3 km to the east of the World Reference System-2 (WRS-2) track followed by the NASA Aqua platform, such that it overflies the ground footprints of the CloudSat radar and the CALIPSO lidar. The OCO-2 spacecraft carries a single instrument that incorporates three, high-resolution, imaging spectrometers designed to measure the absorption of reflected sunlight by CO₂ and O₂. This instrument will collect about 1,000,000 soundings over the sunlit hemisphere each day. Rigorous instrument characterization has been completed to verify that it will meet requirements for sensitivity, with a high signal to noise ratio, large dynamic range, over a small sounding footprint (< 3 km²) that will enable OCO-2 to determine CO₂ concentrations at regional scales with better than 1 ppm uncertainty. These capabilities have been incorporated into the main data processing and retrieval software for testing. This paper will describe pre-launch plans for testing both based on simulations and with the continuing data stream from the Japanese GOSAT instrument. We describe post-launch plans to further down-select the 1,000,000 soundings to those for immediate processing, user help in data quality assessment, and the schedule for data release to the science community.