



Overview of Molecular Line Parameters for the Orbiting Carbon Observatory

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The Orbiting Carbon Observatory, scheduled to launch early in 2009, will make spatially resolved measurements of the column averaged CO₂ dry air mole fraction, X_{CO_2} , with precisions of 1 ppm to distinguish their spatial and temporal gradients of CO₂. Achieving this goal requires implementation of non-Voigt line shape models, line mixing and improved molecular line parameters for near infrared absorption bands of O₂ (near 760 nm), and CO₂ (near 1600 and 2060 nm). The first interval is dominated by the absorptions of the O₂ A-band while the others contain strong CO₂ features, as well as weak transitions of water and methane. The OCO linelist is composed of results from numerous new laboratory studies undertaken to improve experimental precisions and to characterize line mixing effects. The sources and accuracies of the new linelist for the three OCO channels¹ will be described.

The research described in this paper was performed at the Jet Propulsion Laboratory, California Institute of Technology, under contract with The National Aeronautics and Space Administration.