A NEW GLOBAL FIT FOR ^{17}O ENRICHED CO_2

BEN M. ELLIOTT, CHARLES E. MILLER, *Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, M/S 233-300, Pasadena, CA 91109*.

Ground-, air- and space-based remote sensing of atmospheric carbon dioxide (CO_2) require accurate and complete spectroscopic characterization; however, these stringent requirements have been satisfied only for a few absorption bands of the main ^{16}O-^{12}C-^{16}O (626) isotopologue, and significant deficiencies exist in most spectral regions. This paucity in characterization is especially prominent in the case of the rarer isotopologues, particularly the ^{17}O enriched species. As part of our systematic investigation of CO_2 spectroscopy, we report a new global fit for the ^{16}O-^{12}C-^{17}O (627) and ^{17}O-^{12}C-^{17}O (727) isotopologues that includes a critical evaluation of all previously reported data, as well as new data to improve the fit accuracy and coverage. The global, interrelated nature of the present fit also enables accurate predictions of as yet unmeasured bands. The fit is used to produce a new catalog of predicted line positions and uncertainties for use in remote sensing retrievals.