Collaborative Study for Analysis of high Resolution
Infrared Atmospheric Spectra Between NASA Langley
Research Center and the University of Denver

NASA Langley Research Center
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Final Report
Summary of Research

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Summary of Research

The Langley-D.U. collaboration on the analysis of high resolution infrared atmospheric spectra covered a number of important studies of trace gases identification and quantification from field spectra, and spectral line parameters analysis.

The collaborative work included:

* Quantification and monitoring of trace gases from ground-based spectra available from various locations and seasons and from balloon flights.

* Identification and preliminary quantification of several isotopic species, including Oxygen and Sulfur isotopes.

* Search for new species on the available spectra, including the use of selective coadding of ground-based spectra for high signal to noise.

* Update of spectroscopic line parameters, by combining laboratory and atmospheric spectra with theoretical spectroscopy methods.

* Study of trends and correlations of atmosphere trace constituents.

* Algorithms developments, retrievals intercomparisons and automatization of the analysis of NDSC spectra, for both column amounts and vertical profiles.

Listed in the following are joint publications completed under this project.


3. C.P. Rinsland, A. Goldman, F.J. Murcray, T.M. Stephen,


11. A. Perrin, J.-M. Flaud, F. Keller, M.A.H. Smith, C.P. Rinsland, V. Malathy Devi, D. Chris Benner, T.M. Stephen, and A. Goldman, "The \upsilon \textsubscript{v1} + \upsilon \textsubscript{v2} Bands of the \textsuperscript{16}O\textsuperscript{17}O and \textsuperscript{16}O\textsuperscript{16}O\textsuperscript{17}O Isotopomer of Ozone," J. Molec. Spectrosc., in press, 2001.


