

The Radiatively Important Trace Species (RITS) Data Recovery Project¹

J.D. Nance^{2,3}, T.M. Thompson³, J.H. Butler³, and J.W. Elkins³

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²Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder 80309; 303-497-7002, Fax: 303-497-5590, E-mail: David.Nance@noaa.gov

³NOAA Climate Monitoring and Diagnostics Laboratory, Boulder, CO 80305

In 1985, the Radiatively Important Trace Species (RITS) program was launched to provide in situ monitoring of several ozone-depleting and greenhouse gases measured by CMDL. Three-channel gas chromatographs with electron capture detectors were installed at five sites (e.g., Figure 1) over a 5-yr period (1986-1990) for the purpose of measuring nitrous oxide (N₂O), the chlorofluorocarbons CFC-11 (CCl₃F) and CFC-12 (CCl₂F₂), and the chlorocarbon solvents methyl chloroform (CH₃CCl₃) and carbon tetrachloride (CCl₄). Secondary calibration standards referenced to primary gravimetric standards were prepared in the laboratory and shipped to the field sites for sampling alternately with the outdoor environment. By the end of 1991, RITS systems at all stations were injecting samples every 30 minutes, producing a total of up to 4700 chromatograms every week.

Between March 1999 and August 2001, the RITS systems were replaced with newer and more capable four-channel Chromatograph for Atmospheric Trace Species (CATS) systems. Over the 16-yr history of the RITS program, numerous modifications to system hardware and software and to sampling conventions has given an evolutionary aspect to the basic structure and storage format of the RITS database. Early chromatogram analysis and quality-control measures were significantly constrained by limitations in processing power. The computation of atmospheric concentrations from processed chromatograms has largely been performed in a piecewise fashion on an annual basis.

Since the termination of the RITS program, an enhanced system of quality control methods and graphical analysis techniques has been implemented for the purpose of re-examining the RITS data in its entirety. This poster focuses on the effort to assemble all the RITS data into a standardized and finalized form for inclusion in NOAA data center archives.

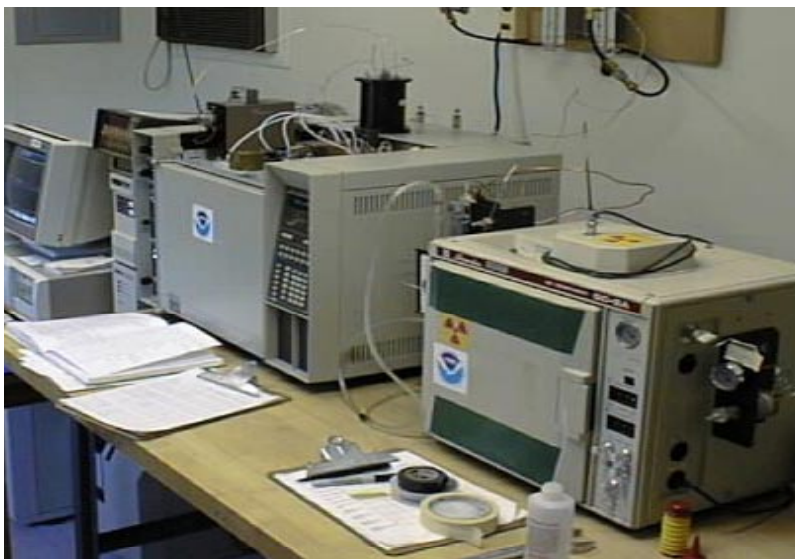


Figure 1. The RITS system at Niwot Ridge.