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Upper Atmosphere Data Program (UADP)

Principal Investigator and Institution

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Research Objectives

Rapid, effective access to the increasing volume of information on stratospheric trace gases, both from measurements and model calculations, is important in advancing our knowledge of the Earth's atmosphere. The data have their origins in a variety of sources, ranging from satellite experiments and two-dimensional model predictions to individual balloon measurements, and are found in a variety of locations and formats. This task focuses on development and operation of an electronic data base for such trace gas data. The objectives are to provide effective access to these diverse data sets; to foster electronic data access, manipulation, and display; and to support periodic assessment and intercomparison activities.

Summary of Progress and Results

Over the past 2 years, an operational data base has been implemented from the original data pilot. The software system utilizing the ORACLE data base management system, the Transportable Applications Executive (TAE), the Interactive Data Language (IDL), and specialized Fortran codes has been incorporated. Remote access over the TCP/IP Internet has been added to the existing access over SPAN and via telephone lines. A user base has been established for both general access to public data and private access to proprietary data. Public data sets now include several hundred balloon profiles and LIMS, SAMS, SBUV, and ATMOS satellite data. With advice from the modeling community, a standard latitude and pressure data grid has been established to aid in comparison of different data sets, and the UADP model data and satellite data have been transformed to this grid. Data sets have also been added along with color contour capability.

A major emphasis of the UADP during this period was the support of a model intercomparison activity focused around a workshop held in September 1988. Data from 16 modeling groups around the world were put into the data base for the workshop. The UADP provided the data compilation, access, manipulation, and display services. During the workshop, real time data services were provided both through an on-site workstation and through high speed modem access to the remote UADP computer. Subsequently, updated model data have been incorporated and put onto the standard grid. Graphics of the workshop data, involving over 1600 plots, were generated and included in the workshop report.

Publications

"Conference Proceedings: Two-dimensional Intercomparison Workshop." Jackman, C., Seals, R. K., Jr., and Prather, M., Editors, in press, 1989.