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SAFARI 2000 AIRBORNE SUNPHOTOMETER AEROSOL OPTICAL DEPTH AND WATER VAPOR DATA

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Summary:

The NASA Ames Airborne Tracking 14-channel Sunphotometer (AATS-14) was operated successfully aboard the University of Washington CV-580 for 24 data flights during the dry-season airborne campaign from August 13 to September 25, 2000. Flights originated from Pietersburg, South Africa; Kasane, Botswana; and Walvis Bay, Namibia. The AATS-14 instrument measures the transmission of the direct solar beam at 14 discrete wavelengths (350-1558 nm) from which we derived spectral aerosol optical depths (AOD) and columnar water vapor (CWV). Flying at different altitudes over a fixed location allows derivation of layer AOD and CWV. Data taken during vertical profiles allows derivation of aerosol extinction and water vapor density.

The SAFARI 2000 dry-season airborne campaign studied the complex interactions between the region's ecosystems, air pollution, atmospheric circulation, land-atmosphere interactions, and land use change. The field campaign was timed to coincide with the annual winter fire season in Southern Africa. This challenging campaign, coordinated ground-based measurement teams, multiple research aircraft, and satellite overpasses across nine African nations. Among many others, unique coordinated observations were made of the evolution of massive, thick haze layers produced by industrial emissions, biomass burning, marine and biogenic sources.

More information can be found at: <http://geo.arc.nasa.gov/sgg/SAFARI/>

Data Citation:

Cite this data set as follows:

Schmid, B., P. B. Russell, and J. Redemann. 2002. SAFARI 2000 Airborne Sunphotometer Aerosol Optical Depth and Water Vapor Data. Data set. Available on-line [<http://www.daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. doi:10.3334/ORNLDAAC/643.

References:

Schmid, B., P. B. Russell, P. Pilewskie, J. Redemann, J. M. Livingston, P. V. Hobbs, E. J. Welton, J. Campbell, B. N. Holben, M. McGill, and J. Spinhirne. Airborne sunphotometry and closure studies in SAFARI 2000 dry season campaign. 2001. Presentation at 8th Scientific Assembly of the International Association of Meteorology and Atmospheric Sciences, Innsbruck, Austria, July 10-18, 2001.

Data Format:

The format and processing of the 14-channel Ames Airborne Tracking Sunphotometer (AATS-14) results obtained during SAFARI-2000 aboard the UW CV-580 airplane are described in the following file:

http://daac.ornl.gov/daacdata/safari2k/remote_sensing/ames_sunphotometer/comp/AATS14_readme.txt

The data files have the names UWxxxx_A14_ddmmmyy_all_r.asc (entire flight), and for selected cases there are aerosol extinction profiles (UWxxxx_A14_ddmmmyy_hhmm_p.asc) The exact format is described in the header of each file. xxxx is the CV-580 flight number. For the profile files hhmm is the start time of the profile.

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