

Aerosol Chemistry in GLOBE

Strategy:

This task addresses the measurement and understanding of the physical and chemical properties of aerosol in remote regions that are responsible for aerosol backscatter at infrared wavelengths. Because it is representative of other clean areas, the remote Pacific is of extreme interest. Emphasis is on the determination of size dependent aerosol properties that are required for modeling backscatter at various wavelengths and upon those features that may be used to help understand the nature, origin, cycling and climatology of these aerosol in the remote troposphere. Empirical relationships will be established between lidar measurements and backscatter derived from the aerosol microphysics as required by the NASA Doppler Lidar Program. This will include the analysis of results from the NASA GLOBE Survey Mission Flight Program. Additional instrument development and deployment will be carried out in order to extend and refine this data base. Identified activities include participation in groundbased and airborne experiments.

Progress:

Progress to date includes participation in, analysis of, and publication of results from Mauna Loa Backscatter Intercomparison Experiment (MABIE) and Global Backscatter Experiment (GLOBE). See references below.

Plans:

More extensive analysis of GLOBE data is presently underway. This includes in-situ comparisons with MSFC lidar data and assessment of climatological features in the aerosol and backscatter. Airborne measurements in the Atlantic and South Pacific are also being planned for 1992 and 1993.

Bibliography:

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Porter, J.N., A.D. Clarke, and F.F. Pueschel, "Aircraft studies of size-dependent aerosol sampling through inlets," J. Geophys. Res. (1992)

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