TITLE: ATMOSPHERIC BACKSCATTER RESEARCH

RESEARCH INVESTIGATORS INVOLVED:

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SIGNIFICANT ACCOMPLISHMENTS TO DATE IN FY-84:

1. Refined scientific rationale for ongoing atmospheric backscatter research program based on "clean"/"dirty" airmass hypothesis. This research supports technology development studies for NASA's proposed space-based Doppler Lidar wind measurement system.

FOCUS OF CURRENT RESEARCH:

1. Analysis of MSFC airborne CO_2 backscatter measurements from previous field programs to evaluate spatial scales of backscatter variability and the correlation of backscatter and water vapor concentrations.

2. Analysis of backscatter measurements obtained by MSFC and other groups, as well as aerosol measurements obtained by other means, to evaluate the "clean"/"dirty" airmass hypothesis.

PLANS FOR FY-85

1. Analysis of MSFC airborne CO_2 backscatter measurements to be obtained during the FY 84/85 Doppler Lidar System field program.

2. Continuing analysis of backscatter measurements by other groups and aerosol measurements obtained by other means.

3. Continuing investigation of backscatter/water vapor correlations.

RECOMMENDATIONS FOR NEW RESEARCH:

1. Evaluate the potential of satellite imagery of atmospheric water vapor distributions to determine the distributions of aerosol backscatter.

PUBLICATIONS PREPARED SINCE JUNE 1983:

1. Bowdle, D. Aerosol effects on wind measurements from space: Rationale for an aerosol backscatter research program. In Preparation.

2. Oberbeck, V., and D. A. Bowdle. Atmospheric aerosol measurements in the central Pacific Ocean during the Global Tropopheric Experiment. In Preparation.