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Title: Low Level Remote Sensing: The Doppler Radar Wind Profiler

Investigators: Dr Gregory S. Forbes
Department of Meteorology
Pennsylvania State University
University Park, PA 16802
(814) 863-2458

William Syrett
Department of Meteorology
Pennsylvania State University
University Park, PA 16802
(814) 863-2458

Catherine Carlson
Earth Science and Applications Division, ED44
Marshall Space Flight Center, AL 35812
(205) 544-2755

Significant Accomplishments:

A research study is in progress to investigate mesoscale phenomena such as thunderstorm and sea breeze frontal circulations using a 50 MHz Doppler wind profiler at the Kennedy Space Center. The profiler installation will begin October 1, 1988 and will be completed by February 17, 1989. A proposal is currently being reviewed, and a research grant is expectd to be awarded before fiscal year 1989.

Focus of Current Research and Plans for Next Year:

(1) Examine vertical velocities associated with local thunderstorm activity and sea breeze frontal circulations and compare the vertical velocities to conceptual mesoscale models.

(2) Implement space-time conversion analysis techniques to blend profiler data with National Meteorological Center's model output and other wind data such as jimsphere, windsonde and rawinsonde for mesoscale analysis.

(3) Develop suggestions for use of wind profiler data in mesoscale analysis and forecasting at Kennedy Space Center.

(4) If problems are detected in the quality of the profiler data during this research project, researchers will work closely with MSFC to identify and solve the data quality problems.

Publications:

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4. Forbes, G. S., D. W. Thomson, and J. J. Cahir, 1985: Hourly wind profiles in a region of frequent air traffic--the Penn State wind profiler network. Preprints, 2nd Int'l. Conf. Aviation Wea. Systems, Montreal, Amer. Meteor. Soc., 172-176.

5. Strauch, R. G., B. L. Weber, A. S. Frisch, C. G. Little, R. A. Merritt, K. P. Moran, D. C. Walsh, 1987: The precision and accuracy of profiler wind measurements. J. Atmos. Oceanic Tech., 4, 563-571.

6. Syrett, W., 1987: Some applications of 50 MHz wind profiler data: detailed observations of the jet stream. M.S. Thesis, The Pennsylvania State University, 135pp.

7. Watson, A.I., R. E. Lopez, R. L. Holle, and J. R. Daugherty, 1987: The relationship of lightning to surface convergence at Kennedy Space Center. Weather and Forecasting, 2, 140-157.

8. Weisman, M. and J. Klemp, 1986: Characteristics of isolated convective storms. Chapter 15 in Mesoscale Meteorology and Forecasting, P. Ray, ed., Amer. Meteor. Soc., boston, 331-358.