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1. Title of Research Task

Stratosphere-Troposphere Exchange Project Management

2. Investigators and Institutions

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3. Abstract of Research Objectives

The purpose of this task is to manage the Stratosphere-Troposphere Exchange Project (STEP). Since the last field program for this project was held in January and February of 1987, this includes holding and planning science team meetings, organizing sessions at conferences devoted to the results and objectives of STEP field programs, putting together special journal issues or special sections of journal issues devoted to the results of STEP, and planning and producing technical memoranda on STEP.

4. Summary of Progress and Results

There were three major field programs devoted to STEP, two midlatitude field programs in Spring of 1984 and Spring of 1986, and a tropical field program in winter of 1987.

The production of a special section of JGR devoted to the STEP 1984 experiment is well underway. This section will include an overview paper written specifically under this research task. Of the six planned papers, three (including the overview paper) have been accepted, one has been submitted but requires major revisions, one has just been submitted, and one will be submitted by 1 November, 1989. The 1986 field experiment was the smallest of the three STEP field programs, and data analysis (and even data reduction) has been held up by the rush of other aircraft field programs since that time. Work is just beginning on the five science flights for the STEP 1986 field program. The project scientist has gathered essential ancillary meteorological data, and has been gathering the aircraft measurements to begin analysis.

Progress on the tropical field program includes: (1) the preparation of satellite imagery including aircraft flight tracks, and distribution to the science team; (2) a science team meeting held in May of 1988; (3) organizing a special session on STEP results during the American Meteorological Society Middle Atmosphere Conference held in San Francisco in April, 1989; (4) planning for a technical memorandum on the tropical phase of STEP which is expected to be published sometime in 1990.

5. Publications

Russell, P. B., E. F. Danielsen, R. A. Craig, and H. B. Selkirk, 1989: The NASA Spring 1984 stratosphere-troposphere exchange experiments: science objectives and operations. Accepted for publication in J. Geophys. Res.