

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 30 SEP 1997		2. REPORT TYPE		3. DATES COVERED 00-00-1997 to 00-00-1997	
4. TITLE AND SUBTITLE Development and Validation of New Dual-doppler Analysis Techniques with Emphasis on the Vertical Velocity Problem				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Oklahoma,School of Meteorology,Norman,OK,73019				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

DEVELOPMENT AND VALIDATION OF NEW DUAL-DOPPLER ANALYSIS TECHNIQUES WITH EMPHASIS ON THE VERTICAL VELOCITY PROBLEM

Alan Shapiro
University of Oklahoma
School of Meteorology
Norman OK 73019
tel: (405) 325-6097
email: ashapiro@ou.edu

Award #N00014-97-1-0763

LONG TERM GOALS

The development of new dual-Doppler analysis techniques with an emphasis on improving estimates of the vertical velocity field.

OBJECTIVES

The objectives are two-fold. The first objective is to tackle a problem of longstanding interest in radar meteorology, the determination of the vertical velocity field from dual-Doppler radar measurements. A second objective is to train a student of US citizenry in methods of conventional and new dual-Doppler radar analysis, and in general, how to perform original research and to think critically about scientific and technological problems.

APPROACH

The first phase of the work is the development of new techniques (based on variational methods and dynamical constraints) to analyze the wind and vertical velocity field from dual-Doppler radar data. The second phase of the work involves testing the new techniques on simulated radar data sampled from runs of a high resolution numerical weather prediction model, the Advanced Regional Prediction System (ARPS). The final phase of the work involves testing the methods with real Doppler radar datasets obtained, in part, from the Doppler-on-Wheels (DOW).

WORK COMPLETED

This past August, the first month of the grant, I recruited Paul Stanko to work on this Grant as part of his M.S. degree requirement at the OU School of Meteorology. As part of my training of Mr. Stanko (and with an eye on training other graduate students), I have written detailed notes for a lecture describing conventional dual-Doppler radar analysis, vertical velocity problem and the O'Brien method of adjustment. This October I had the opportunity to present this lecture to graduate students gathered in Taegu, Korea for a conference on mesoscale meteorology and radar meteorology (where I was an invited speaker on single-Doppler velocity retrieval).

RESULTS

No results are available at this stage.

RELATED PROJECTS

The ASSERT Grant is related to the parent grant funded by the DoD (ONR): "Remote Sensing and Prediction of the Coastal Marine Boundary Layer," Grant N00014-96-1-1112.