Colorado State University  
Center for Geosciences/Atmospheric Research (CG/AR)  
Quarterly Report No. 7  
by T.H. Vonder Haar and Collaborators  

Reporting period: April 1 – June 30, 2014  
Cooperative Agreement #W911NF-12-2-0066  

Overview  

Colorado State University was awarded a new Cooperative Agreement with the Army Research Laboratory concerning the Department of Defense Center for Geosciences/Atmospheric Research (CG/AR), which became effective September 20, 2012.  

Four Initial Research Task Options for the new Cooperative Agreement, as developed by Center leadership and the DoD Review Panel, in response to the DoD environmental research needs as coordinated by ARL and in consideration of CSU capabilities.  

With no new FY13 funding for CG/AR available yet, all research projects are in an ending mode. Fortunately, the non-required CSU cost-sharing for the Center allowed the last two graduate students supported by CG/AR to complete their degrees without interruption. Several ideas for research collaborations between CSU and DoD scientists cannot be developed. In view of travel restrictions, the 2014 Annual Program Review and Research Discussion was cancelled.  

Task 1: Coordination and Staff Rotation with ARL Scientists to Improve Core Capabilities of ARL  

Task 2: System Improvements to the AFWA Cloud Advection Process  

Task 3: Creation of an AFWA Probability of Cloud Free Line of Sight (PCFLOS) WRF Post-Processing System  

Task 4: Soldier Health and Aerosol Source Trajectories  

Task 5: Army DMSP Follow-on Soil Moisture Project - This task established with the addition of funds via modification of the Cooperative Agreement  

Additional research topics are periodically explored with our DoD colleagues as potential needs arise and funding opportunities are identified.  

The University has provided some cost-share funding both to support tasks as needed and also to allow cooperative study of other environmental issues important to the DoD.  

The following report will provide details of each of the ongoing tasks as well as the cooperative study of some new issues.
Colorado State University
Center for Geosciences/Atmospheric Research
Scientific Interactions October 2012 to Present

- Tom Vonder Haar with Gorden Videen, Pamela Clark, James Cogan and others at ARL/Adelphi
- Sonia Kreidenweis with Tom DeFelice and Alan Wetmore (ARL)
- Tom Vonder Haar with Gorden Videen, Pamela Clark (ARL)
- Tom Vonder Haar and Loretta Wilson with Dr. James Cogan (ARL)
- Andrew Jones with Dr. Jeffrey Cetola (AFWA) and others
- Andrew Jones with Gary McWilliams and others
- Tom Vonder Haar with Jeff Cetola and others at AFWA
- Tom Vonder Haar, Vince Larson, Russ Schumacher, John Forsythe, Andy Jones, Don Reinke, Jeff Niemann, Steve Miller, Phil Partain, John Haynes, Lauren Potter and Sam Atwood with James Cogan and Bob Dumais (ARL)
- Tom Vonder Haar, Andrew Jones, Vince Larson and others with Jeff Cetola and Steve Rugg (AFWA) and John Eylander (ERDC/CRREL)
- Andrew Jones with the Army Soil Moisture Working Group
- [Note: From this date onward, meetings involving travel were greatly reduced due to budget problems and restrictions.]
- Andrew Jones with John Eylander (ERDC/CRREL), Li Li (NRL-DC) and Maria Stevens (ERDC/GSL)
Task 1: Coordination and Staff Rotation with ARL Scientists to Improve Core Capabilities of ARL (Research Theme: Coordination and Staff Rotation)

Administrative

Professor Tom Vonder Haar, RPM for CG/AR and CSU Vice President for Research, Dr. William Farland wrote to Mr. Al Shaffer in the OSD, RDT&E about the need for funding to continue the DoD Center for Geosciences/Atmospheric Research at CSU.

Research activity and/or results

Nothing to report this period.

Travel

None.

Equipment/systems status

No report.
Task 2: **System Improvements to the AFWA Cloud Advection Process** *(Research Theme: Clouds, Icing, and Aerosols Effects)*

Task 3: **Creation of an AFWA Probability of Cloud Free Line of Sight (PCFLOS) WRF Post-Processing System** *(Research Theme: Clouds, Icing, and Aerosols Effects)*

**Administrative**

The visit to AFWA for presentation of final results is now tentatively planned for early August 2014.

**Research activity and/or results**

No significant activity; had several calls for clarification of software delivered earlier to AFWA.

**Travel**

None.
Task 4: Soldier Health and Aerosol Source Trajectories *(Research Theme: Urban and Boundary Layer Environment)*

**Administrative**

The principal project on Soldier Health has been completed and a Special Technical report is being prepared for ARO/ARL.

**Research activity and/or results**

Two journal papers sponsored by earlier CG/AR funding for Boundary Layer Environment research were published during this period and have been added to the publication list in Appendix 2.

**Travel**

None.
Task 5: Army DMSP Follow-on Soil Moisture Project *(Research Theme: Hydrometeorology)*

**Administrative**

A CG/AR spin-off Soil Moisture SBIR Phase 2 project was funded via ARL.

**Research activity and/or results**

1) Dr. Jones continued weekly telcons with the Army and NRL Soil Moisture teams.

2) The final draft End-to-End Error Budget Analysis and report, a major deliverable, was completed.

3) An Army Soil Moisture Working Group meeting was held at CG/AR in Fort Collins April 7-8. Participants included Andrew Jones, John Eylander (ERDC/CRREL), Li Li (NRL-DC) and Maria Stevens (ERDC/GSL).

4) Dr. Jones presented the SMWG poster at the NASA Soil Moisture Active-Passive (SMAP) Workshop in Boulder, CO, April 9-10.

**Travel**

Dr. Jones commuted to Boulder, CO for participation in the two-day Soil Moisture Active-Passive Workshop.
## Appendix 1

### CG/AR Researchers under Cooperative Agreement W911NF-12-2-0066

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<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Department</th>
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### CG/AR Graduate Students

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Appendix 2
Publications


Presentations

