



NOAA ARL Monthly Activity Report



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Air Resources Laboratory

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1. ***Highlight: New Director for CIASTA*** A new CIASTA Director has been named. Dr. Mark Green was selected in a nationwide search by the Desert Research Institute (DRI) to be the new Director of CIASTA, a NOAA Joint Institute administered by ARL. Dr. Green, who is an Associate Research Professor at DRI,

received a Ph.D. in Atmospheric Science and M.S. in Meteorology from the University of California–Davis and University of Utah respectively. Dr. Green's professional experience is principally in air quality monitoring and data assessment, and includes leadership roles in several substantial regional haze source-attribution program including Project MOHAVE and the BRAVO Study. As a principal investigator for a number of CIASTA projects, Dr. Green is already acquainted with some aspects of the joint institute, and as his first task as Director he plans to identify additional opportunities to match CIASTA technical capabilities with NOAA's research interests. Dr. Green begins his role as CIASTA Director on April 1st, replacing Dr. Richard Reinhardt who has served admirably as the acting director for the last two years. (Marc Pitchford, 702 895 0432)

2. *Highlight: Progress with Air Quality Forecasting Initiative.* A milestone was reached in the development of the PREMAQ software program to link meteorological output from National Center for Environmental Prediction (NCEP) to CMAQ for the air quality forecasting initiative. A 60-layer data from NCEP's Eta model was successfully processed into a 22-layer data set with meteorological variables and a simulation grid that are to be used by CMAQ. The Eta-based meteorology was successfully ingested by the SMOKE emissions processor and by the CMAQ Chemistry Transport Model. This preliminary demonstration shows that a link can be made between NCEP's Eta model and CMAQ. Further refinement of PREMAQ is expected to continue next month. (Tanya Otte, 919 541 7533)

Silver Spring

3. *Ozone Update Through 2001.* Seasonal and annual global total-ozone, Umkehr and ozonesonde values have been updated for 2 more years. There has been little change in global total ozone since the approximate 4% decrease in 1992 and 1993 occasioned by the Pinatubo eruption in 1991; 1994-2001 values remaining about 4% below the 1961-1990 average. In the north temperate zone where the data are best, there is slight evidence for an increase in total ozone during these 8 years. Umkehr and ozonesonde measurements in the north temperate zone are not consistent in this regard, Umkehr indicating a slight ozone increase in low and middle stratosphere (but not high stratosphere) during 1994-2001 whereas ozonesondes indicate essentially no change. Thus, it is not yet obvious that the anticipated reversal in ozone trend resulting from the decrease in atmospheric chlorine is being observed. There has been debate in recent years as to whether the increase in tropospheric ozone so apparent during the 1970's and 1980's is continuing. The present analysis indicates that it is not, at least in the north temperate zone, with both Umkehr and ozonesonde showing even a small decrease in tropospheric ozone during 1988-1995 and little change since, but with the recent tropospheric values still about 10% higher than around 1970. (Jim Angell, 301 713 0295, x127)

4. *Deposition of Mercury to the Great Lakes and other areas.* Work has continued on estimating the atmospheric transport and deposition of mercury to the Great Lakes, the Gulf of Maine, and a number of selected receptors in the northeast, mid-atlantic, and southeastern U.S. The primary recent activity has been to make additional improvements to the atmospheric model being used (a specially configured version of HYSPLIT), including the following: (1) the atmospheric chemistry scheme has been updated to reflect new information on reaction rates; (2) the droplet-equilibrium-solving algorithm has been retooled to make it more robustly able to converge under a wider range of conditions; (3) a more sophisticated approach to estimating liquid water content in the atmosphere has been implemented; and (4) wet deposition algorithms have been reformulated in what is hoped will be a more realistic representation of these processes occurring for atmospheric mercury. Currently, tests and sensitivity evaluating these model changes are being conducted, with an eye towards soon generating a new set of simulation results estimating the fate and transport (and detailed source-receptor relationships) for U.S. and Canadian anthropogenic mercury sources to the Great Lakes and other receptors. mark.cohen@noaa.gov

5. Comprehensive Test Ban Treaty Support. A CTBT dry run test was conducted on February 2nd for a hypothetical measurement at one of their sampling locations in the South Atlantic. Ten other national meteorological centers participated in the test. roland.draxler@noaa.gov

6. Global Forecast System (GFS) information now on READY. The third of three Global Forecast System (GFS) datasets (formerly called AVN) was added to READY in February. The three data sources for the GFS now available on READY are:

- 1: GFS - 3 hourly with forecasts from hour 0 to 84 (1 degree grid resolution)
- 2: GFSx - 6 hourly with forecasts from hour 0 to 180 (1 degree grid resolution)
- 3: GFSlr - 12 hourly with forecasts from hour 192 to 384 (2.5 degree grid resolution)

Unfortunately 12-hourly, 2.5 degree grid files are not available from NCEP from hours 0 to 180, and creating a lookalike set from the 1 degree grid is very difficult. Therefore, we are not able to have one complete file from hours 0 to 384 for use in READY at this time. Plans are to remove the MRF dataset at the end of March now that the GFS covers the MRF forecast period. Eventually the AVN dataset will also be removed on READY. glenn.rolph@noaa.gov

7. MOS Gaussian Dispersion Graphic. For some time we have made available a simple gaussian dispersion forecast using the NWS Model Output Statistic (MOS) product as meteorological input on READY. A graph of dispersion factors with downwind distance as well as a text table is produced. Work has begun to add a plume on a map background and eventually a GIS shapefile output for easier interpretation. glenn.rolph@noaa.gov

Boulder

8. SURFRAD/ISIS. SURFRAD is the aerosol optical depth data source for DOE/PNNL climate model runs. Aerosol optical depth numbers are produced using the new method reported in the February 2003 *Journal of Applied Meteorology* article, "An automated method of MFRSR calibration for aerosol optical depth analysis with application to an Asian dust outbreak over the United States." This exercise proved that the new automated method of aerosol depth analysis for SURFRAD is transferable to other SURFRAD locations, and that it is reliable, i.e., the automated code did not fail. (John Augustine, 303 497 6415)

Oak Ridge

9. Terrestrial Carbon Program. Data collection at the Walker Branch Site has been consistent this period. There were no significant equipment outages or power losses at the site. Progress continues on the logistics for the new tower (CHESS) site. The tower components arrived at ATDD during this period, and the rebar cage for the tower base has been fabricated. The contract for the installation of the guy wire anchors has been awarded, and a site familiarization walk-over was conducted. ATDD has been interfacing with EASC in processing the RFP for the support building. Materials for the installation of the grounding system have been acquired., and discussions with potential contractors have been conducted. The contract for the fabrication of the guy wires has been awarded. (Meyers)

10. VTMX Program. Airborne and surface data from Salt Lake City in 2000 are being examined, seeking ways to identify turbulent episodes caused by gravity waves. The intent is to develop models to estimate the level of turbulence from this source. Current efforts should help identify signatures of TKE derived from waves and to guide experimental design for the proposed field measurements in September 2004. (Dobosy, Nappo)

Analysis of the association of gravity waves and turbulence during the VTMX field campaign includes examining pressure perturbations from the surface array of microbarographs and turbulence from a sonic anemometer located at the same site. Figure 1 shows graphs of pressure and temperature perturbations observed on 18 October from 03:36 to 03:48 MDT. The data have been band-passed filtered for disturbances with periods between 3 to 5 minutes. The pressure and temperature signals are about 90° out of phase which is in agreement with linear wave theory. Figure 2 shows similar plots but for 19 October from 15:21 to 15:33 MDT. Comparing Figures 1 and 2 demonstrates the contrast between stable and convective PBL conditions. Although Figure 2 shows wave-like behavior it is clear that it is not an organized wave as seen in Figure 1. Note also that the temperature perturbations shown in Figure 2 are about an order of magnitude smaller than those in Figure 1. We would normally expect the opposite behavior; however, the temperature perturbations due to gravity waves are often greater than those produced by turbulence. As these analyses continue, a somewhat clearer picture of the characteristics of gravity waves and turbulence is developing. (Nappo, Dobosy)

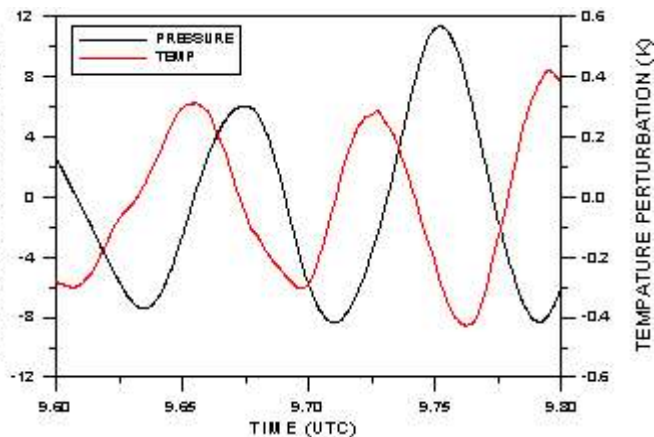


Figure 1: Pressure and temperature perturbations for 18 October 2000

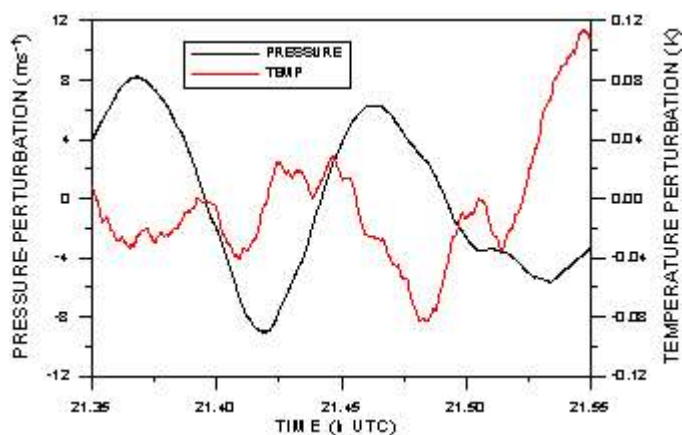


Figure 2: Pressure and temperature perturbations for 19 October 2000

11. Air Quality. During the month of February, sequential tests have been performed to insure the quality of equipment and data for future programs. Analyses of the filter packs for the AIRMoN Dry Network program have continued, which includes the preparation, extraction, and reloading of the filter packs. After the analysis of the filter packs are completed, the data is converted and recorded. (Klemenz, Satterfield)

12. Canaan Valley. Dry deposition of pollutants to the Canaan Valley Area is being assessed through continuing analysis of data from the intensive field study of 2002 Summer. Preparation continues for the installation this summer of several instrument suites: SURFRAD, Climate Reference Network, and two water quality stations. The last will relate measured atmospheric deposition to the resultant quality of surface water. (Vogel, Meyers)

13. Italian National Research Council Sky Arrow. Three Mobile Flux Platform systems are being built for Dr. Enzo Magliulo of ISAFoM-CNR (Italian National Research Council, Institute for Agricultural and Forest Meteorology). The MFP systems and appropriate spare parts will be delivered to Italy for installation in the Sky Arrow aircraft in early June 2003. (Auble, Brooks, Dumas, Ludwig, Mayhew)

14. Urban Dispersion Study. An international meeting of Technical Panel 9 on urban dispersion modeling over a wide range of scales was held at Porton Down, UK, on February 3 - 6. ATDD provided an overview of the field and wind tunnel test programs for Joint Urban 2003, a major urban dispersion study to be performed in Oklahoma City during July 2003. (Hosker)

Planning continued for Joint Urban 2003 with a series of multi-hour teleconferences and a meeting and site visit in Oklahoma City on February 25 - 27. ATDD plans to provide two 30m crank up towers, each with four levels of 3-D sonic anemometry, three complete surface energy balance stations, and - if all goes well - the NOAA Twin Otter airplane, to provide airborne measurements of momentum, heat, and water vapor fluxes upwind, above, and downwind of the city. Discussions with FAA officials in Oklahoma City were very positive. (Hosker)

15. USDA Forest Service National Fire Plan. A new idealized wildfire simulation using LES is being prepared. This simulation uses time-dependent equations for a paraboloid to represent the sensible heat flux and smoke emissions from a dynamic ring of fire that starts at a point and then expands the radius of the fire line at a rate of 0.5 m s^{-1} . The fire line width is specified to be 200 m and the assumption is made that the heat and smoke emissions decrease parabolically toward the center of the growing fire ring. Since the fire ring behavior is prescribed in the model code, the boundary layer winds (a mean wind of 2 m s^{-1} has been specified) and convection-driven turbulence currently have no affect on the shape or advancement of the fire line. An initial attempt at this wildfire simulation failed about 25 minutes after the fire started due to too much heat flux and too large of a time step. This wildfire simulation will be further refined in March. (Herwehe)

Research Triangle Park

16. Community Multiscale Air Quality Model Optimization. Further progress has been made in restructuring the CMAQ model for air quality forecasting applications. Initial testing shows reasonable speed-up in a parallel, message-passing implementation where an output processor task overlaps the computational kernel tasks. The latest development provides four output files that are standard from the release CMAQ: the chemical species concentration file, a dry and a wet deposition file, an integral average concentration file that is a subset of the chemical species concentrations averaged over the output time step and given a time stamp that represents the start of the hour (the standard concentration file is time stamped at the end of the hour). (Jeffrey O. Young, 919 541 3929)

17. Community Multiscale Air Quality Mercury Model. Confirmation of a proper integration of the mercury emissions, physical chemistry, and deposition codes into the latest version of the standard CMAQ continued. All indications are that these special mercury modifications are working properly with the latest CMAQ model. All differences between previous CMAQ-Hg results using the older CMAQ codes as a basis and new CMAQ-Hg results based on the latest CMAQ version have now been resolved, either through the discovery and correction of invalid process linkages between standard CMAQ species and mercury species, or by determination that the differences are themselves valid. CMAQ-Hg model is now up to date with the latest release of the standard CMAQ, and is ready for public release. What remains now is to determine how that public release should be facilitated and documented.

On a technical note, new research indicates that a chemical reaction currently in the special CMAQ-Hg cloud water model for mercury does not occur as previously believed. This reaction, the chemical reduction of generic aqueous Hg(II) compounds to Hg(0) by hydroperoxyl radical (HO_2), apparently does not occur at a significant rate when dissolved oxygen is also present, as would be the case in normal cloud water. Previous determination of the rate constant for this reaction was made using oxalate as the source for HO_2 , with little or no dissolved oxygen present. It appears that the observed reduction of aqueous mercury compounds was due to reaction with the oxalate, and not the HO_2 . This discovery is due to be published in the *Journal of Physical Chemistry A*. Without the effects of this or a similar reducing reaction in the CMAQ-Hg model, simulated cloud water mercury loadings are significantly increased beyond the range commonly observed in precipitation, leading to higher local- and regional-scale deposition of mercury, and a decrease in the simulated importance of background mercury on the total deposition. (Russ Bullock, 919 541 1349)

18. Air Toxics Modeling. Development continues on a version of CMAQ that differentiates between emitted and photochemically produced formaldehyde and acetaldehyde. Work has revised both the SAPRC99 and CB-IV mechanisms for atmospheric chemistry and started testing the revised mechanism through model simulations. These tests compare the surface concentrations between the original and revised chemical mechanisms. Comparisons should show insignificant differences for two reasons. The same input data were used to generate the concentrations while revised mechanisms did not add new production and loss reactions for original species. Expectations were not satisfied at the boundaries of the model domain. The cause remains to be isolated. (William T. Hutzell, 919 541 3425)

19. SMOKE Emissions Processing. A simple model to estimate sea-salt emissions has been developed using the sea spray generation function of Smith and Harrison (1998). A salt-water mask was created for the 32-km national domain and sea-salt emissions were generated for a 15-day test period in July 1999. These sea-salt emissions were combined with existing emissions for testing in CMAQ.

Emissions for the 12-km air quality forecast model have been generated for the September 20, 2002, case. An emissions processing system for air quality forecasting is being developed with this test case. The separation of meteorologically independent components of the emissions processing from the meteorologically dependent components is underway. (George Pouliot, 919 541 5475)

20. Neighborhood Scale Modeling. The overall objective of this project is to develop an improved air toxics and particle model for performing human exposure assessment modeling. The first phase of this study was of a successful prototype development of simulations at 1.3-km grid resolution using the Community Multiscale Air Quality (CMAQ) system. CMAQ simulations made at 36-, 12-, 4-, and 1.33-km grid resolutions centered around Philadelphia were compared. Comparisons between the 36-, 12-, 4-, and 1.33-km grid resolution fields demonstrate that important air quality features are produced at the fine grid scale (1.3 km) that could not be resolved at coarser grid resolution. Work has begun on the second phase of this project, the neighborhood scale modeling for Houston, Texas. For this phase, the investigation will incorporate an advanced and highly-detailed land-surface model, SM2U, and a set of urban canopy parameterizations (UCPs) into the MM5/CMAQ system. The set of UCPs will use gridded, high resolution urban canopy parameters based on building and tree canopy data. This set of gridded UCPs is expected to be delivered under a contract with the University of Arkansas at the end of March. Finally, the effort to develop and implement a methodology to produce the sub-grid concentration distributions as probability density functions is underway. (Jason Ching, 919 541 4801)

21. Physical Modeling for the World Trade Center. As part of an ongoing wind-tunnel investigation of the flow and dispersion within the street canyons of Lower Manhattan, measurements of the vertical profiles of flow and turbulence at 36 locations in the vicinity of the scale-model World Trade Center site have been completed for the westerly wind direction. These non-intrusive measurements, taken with a Laser Doppler Velocimeter yielded vertical variations of each of the three mean and turbulent components of the flow. Within this wide variety of urban street canyons, there is ample evidence of along-street flow, cross-street flow, reverse flows, and interesting vertical sheer patterns. These preliminary data are now available for comparison to the associated flow computed by the Computational Fluid Dynamics model, Fluent. (Steve Perry, 919 541 1896; Roger Thompson, 919 541 1895)

22. Multimedia Integration Modeling System (MIMS). Steven Fine continued to coordinate the development of MIMS. MIMS provides software tools that support composing, applying, and evaluating complex systems of models, such as models of cross-media issues. Fine worked with collaborators within the Division and the Office of Air Quality Planning and Standards, and at the Argonne National Laboratory, University of North Carolina at Chapel Hill, and North Carolina State University to plan and support several applications of the framework. He initiated discussion with modeling framework developers from other agencies on a common applications programming interface (API) for codes for sensitivity and uncertainty analysis, optimization, and calibration. A common API would allow multiple frameworks to more easily share code for those capabilities.

Steve also contributed to planning for the EPA's high performance computing facility. (Steven Fine, 919 541 0757)

While continuing to make Meteorology-Chemistry Interface Processor (MCIP) runs as needed to support the CMAQ nitrate runs, work was started on creating a standalone version of the Multilayer Biochemical Model (MLBC) that was developed by Yihua Wu and Bart Brashers so that it can be put into MIMS. This is not very straightforward because the model is closely tied, in design, to the field study data used to evaluate it. Substantial modifications need to be made to make the model more generally applicable and specifically, for use with data from CASTNet. There are several inputs to the model that will need to be developed for the CASTNet sites and plant types. (Donna Schwede, 919 541 3255)

23. Mexico Emissions Inventory, February 25-26, 2003, Mexico City, Mexico. At the invitation on behalf of the North American Commission on Environmental Cooperation (NACEC), Thomas Pierce participated in the workshop on the Mexico Emissions Inventory. The workshop was sponsored by the NACEC and the Mexican Ministry of Environment and Natural Resources (SEMARNAT). The objective of the workshop was to discuss the development of the Mexican emissions inventory and to learn what advances in emissions inventory science are taking place that may affect future changes. Approximately 70 members of the scientific, regulatory, industrial, and public interest community participated in the workshop. Tom gave a presentation entitled, *The Status of Biogenic Emissions Modeling in the United States*. Hosts of the workshop were from MIT, and have worked vigorously in improving the understanding and shaping solutions to the air pollution problem in Mexico City. From the workshop presentations (which were made in Spanish and translated into English), it is clear that significant advances have been made by the Mexicans to improve emission inventories. A draft version of the 1999 inventory for the six northern-border Mexican states should be available later this summer. This inventory should improve air quality modeling efforts across North America. A complete national inventory for Mexico is scheduled for release during 2004. (Thomas Pierce, 919 541 1375)

Idaho Falls

24. CBLAST-Low. Analysis of LongEZ data from the CBLAST Pilot Study (Summer, 2001) was presented at the annual CBLAST workshop in Miami in mid-February. This analysis, conducted by Tami Grimmert, investigated transfer coefficients, as determined from the LongEZ measurements, and how they relate to sea-state. These very preliminary results illustrate the utility of the LongEZ data and the tremendous potential for continued analysis. jeff.french@noaa.gov, Tami Grimmert

25. CBLAST-High. The annual CBLAST workshop was held in Miami and hosted by the Rosentiel School of Marine and Atmospheric Science (RSMAS) at the University of Miami in mid-February. Investigators from all aspects of CBLAST-Hurricane participated. This included not only those with equipment on the NOAA P3's but also groups from Scripps and University of Washington who will attempt to deploy profiling floats in advance of hurricanes this upcoming season. Discussion focused on the lessons learned from last year's "Pilot" experiment and what needs to be done to ensure success in this year's deployment. Although we are still waiting for the high frequency INS data from the P3 flights last summer, we did present some partially processed data from the BAT probe on the P3 that indicated it does indeed provide high fidelity measurements of aircraft flow angles.

CBLAST-Hurricane has roughly 100 hours on the P3 for the upcoming field campaign. It was determined that we will likely focus on two storms, the first a likely Category II-type storm where we can further test and refine the flight strategies of making low-level penetrations after an initial survey pattern. For the second storm, we will attempt to make measurements over the course of two to three days in a category IV storm. The 'stepped-descent' flux legs will be attempted in three quadrants of the storm to investigate the influences of sea-state on boundary layer fluxes. jeff.french@noaa.gov

26. Joint URBAN 2003. Studies were conducted on Automated Tracer Gas Analysis System (ATGAS) #2 to determine what concentration levels cause carry-over into the lower concentrations and how large this carry-over is. The highest calibration standard of 208,500 ppt was used as a starting point since this would most likely be the worst-case-scenario. The 208,500 ppt standard was analyzed followed by low level standards. The low level standards were varied to provide information about the amount of carryover. The 1.97 ppt standard had an average recovery of 319%, the 3.47 ppt standard had an average recovery of 211%, the 8.28 ppt standard had an average recovery of 168%, the 20 ppt standard had an average recovery of 124% and the 36.6 ppt standard had an average recovery of 116%. Obviously, the between-cartridge cleaning protocol must be adjusted to accommodate any incidences of high level analysis followed by a low level analysis. More studies will be performed using a lower level standard and different ATGAS. Each ATGAS must be tested to determine the appropriate cleaning protocol for its specific needs. debbie@noaa.inel.gov

An SF₆ retention study on new sampler tubing was done on ATGAS #1. The silicon tubing used for the new samplers was put onto the ATGAS in place of the rubber tubing that has been used in the past. The silicon tubing caused a recovery of 3173% when the 1.97 ppt standard was analyzed following the 208,500 ppt standard. The 1.97 ppt standard was analyzed a second time with a recovery of 205%. The analysis of the 1.97 ppt standard using the rubber tubing caused a recovery a 490%, with a second analysis showing a recovery of 152% and a third analysis of 130%. These results mimic the results of the tubing study done earlier for the samplers. The silicon tubing seemed to release most of the high concentration contamination quickly, while the surgical tubing seems to release low levels of the high concentration over longer periods. Therefore, the silicon tubing is best for the samplers since a high level standard should be completely cleaned from the silicon tubing during its purge cycles causing no contamination over time. The surgical tubing is best for the ATGAS since it doesn't release large amounts of high level contamination at one time. Instead, it releases low levels of contamination that can be compensated for by an established cleaning protocol. debbie@noaa.inel.gov

A production prototype of the sampler enclosure and cartridge mechanism was manufactured and tested. Several minor changes will be needed to ensure ease of construction, ease of operation, and total interchangeability of all samplers between all cartridges. One or two more production prototypes will be fabricated and should allow all changes to be made and tested prior to manufacturing all 65 samplers and 325 cartridges. randy.johnson@noaa.gov

27. ET Probe. Talks were held in February with ATDD on getting the ET probe project back into high gear. The main stumbling block has been that ONR, which provides most of the funding, has not yet allocated the FY 2003 funding for the project. ONR has indicated that the funding is on its way, but nearly half of the fiscal year has already passed. We are now faced with having to perform the work on a highly compressed schedule, and during a part of the year when major field experiments (e.g., Oklahoma City) are competing for staff time. At FRD, the main tasks this spring will be to improve the ET probe software and to perform intercomparisons of the ET probe data with the sonic anemometer located at INEEL. These comparisons will include turbulence statistics and fluxes in addition to mean winds and temperature. richard.eckman@noaa.gov and Tom Strong, FRD; Ron Dobosy and Dave Auble, ATDD

28. Rain In Cumulus over the Ocean (RICO). There has been ongoing discussion between Jeff French and Bart Geerts (Univ. Wyoming), Charlie Knight (NCAR) and Bob Rauber (Univ. Illinois) focusing on what platform is most suitable for the use of the Wyoming Cloud Radar (WCR) during RICO. The Science Overview Document (SOD), submitted for review to NSF in January, suggests the WCR would be mounted on the NCAR C-130. Geerts and French, however, argue that the Wyoming King Air would provide a better platform to meet the objectives of RICO as outlined in the SOD. The King Air will be used to investigate cloud processes (micro-physics) and cloud interaction (dynamics) in maritime cumulus clouds. A conference call is set for early March to make a final decision regarding the use of the WCR in RICO. jeff.french@noaa.gov

29. Emergency Operations Center (EOC). Brad Reese and Jeff French participated in an EOC activation exercise on February 12. The scenario involved the Advanced Test Reactor at TRA. The drill used the new hazard assessment for the reactor containment building, which assumes a release of material over a 48-hour time period. There was some confusion regarding what scenarios (from MDIFF) were being displayed in the Control Room. Steps have been taken to alleviate this problem in future activations. jeff.french@noaa.gov and Brad Reese

30. Mesoscale modeling. Version 3-6 of the MM5 model was installed on a FRD Linux server for testing. This version of the model has a new land surface parameterization that includes more cold-season effects. Initial tests of the new version resulted in some problems. It seems to run about 50% slower than version 3-5, and it tends to lock up after a few hours of simulated time. However, the FORTRAN compiler used to build MM5 was upgraded at the same time as the model, so the problems may stem from the compiler and not the MM5 source code. Further tests will be performed in March to determine the source of the problems. richard.eckman@noaa.gov

As discussed in previous months, FRD has been testing a new configuration of MM5 that is mostly initialized from the 12 km Eta model output now available from NCEP. The old configuration is initialized from 40 km Eta grids. The hope was that the higher resolution NCEP output would improve the initialization of such things as snow cover and soil moisture. This hope was often not borne out in February. The high resolution snow cover still does not seem to be very accurate in Southeast Idaho. This winter has been unusually warm in the Intermountain West, and the snow cover has been light or nonexistent in much of the Snake River Plain. In spite of this, the NCEP products have consistently placed large areas of snow in the Plain. This has frequently caused havoc with the MM5 forecast temperatures. richard.eckman@noaa.gov

31. NAERS. The Network of Airborne Environmental Research Scientists will hold its 2nd annual meeting in Trento, Italy in October 2003. NAERS, which began as a vision of Tim Crawford and Jorg Hacker (Airborne Research Australia), held its inaugural meeting in Idaho Falls in January 2002. It consists of a loose organization of scientists from around the world dedicated to investigating complicated environmental problems using small research aircraft. The inaugural meeting included over 25 scientists from 10 institutions on 4 continents. The second meeting is expected to draw an even larger contingent, including scientists from EUFAR (European Fleet of Aircraft for Research) small aircraft group. The NAERS group is seen as critical to the success of the ARL SERA program as a way for scientists from around to world discuss issues unique to the small research aircraft community. jeff.french@noaa.gov

Las Vegas

32. Vulnerability Index (VI). On February 19, staff meeting to conceptualize, to openly express, and discuss ideas and interpretations of a potential VI for use in preparedness for a terrorist incident. (Walt Schalk, 702 295 1262, Darryl Randerson, 702 295 1231, and Doug Soule', 702 295 1266)

Based on these VI discussions, work has begun on a conceptual visual mock-up that will generate a working demo of the concept using ArcView and generic data. This work has focused on developing graphics for the whole U.S. for emergency response requirements. The ensuing work lead to creation of a computer program for displaying the U.S. (lower 48 states) and bordering Canada and Mexico. The new graphic program that displays the U.S. was set up as a subroutine to be used to make a background for plotting other quantities. The initial implementation of the new routine was set up to plot the hourly surface observations for the western U.S. The routine can be used to produce plots of any spatially located data, and the user can set up their program to "zoom" in to any area of interest. (Doug Soule', 702 295 1266, and Walt Schalk, 702 295 1262)

33. DOE Meteorological Coordinating Council (DMCC). The 11th DMCC Technical Meeting was convened in conjunction with the Annual Meeting of the American Meteorological Society in Long Beach, CA, on

February 12. The meeting was very productive and was attended by 20 meteorologists from a wide variety of DOE offices. Technical presentations were given on advances in remote sensing, on research activities at the DOE field offices, on activities at DOE Headquarters, on the reaffirmation project for ANSI/ANS 3.11 (a voluntary meteorological consensus standard), and on DMCC accomplishments during 2002. (Darryl Randerson, 702 295 1231)

34. *CIASTA Mesoscale Modeling.* NV-RAMS ran to completion on the University of Nevada-Las Vegas (UNLV) computer system 27 of 28 days (a 96% completion factor). One non-run day due to the number of CPUs requested for the run. Model is being run out to 48 hours. Data are continuing to be renamed and saved daily, and backed up to CD monthly (4 CDs).

Teamwork with UNLV Super Computer Center staff to test “miser queue” function by implementing normal run at 2000 LT and miser run at 2245 LT, both with 16 CPUs. Tested model runs using various number of CPUs. The most consistent number is 16 CPUs. (Walt Schalk, 702 295 1262)

35. *New MEDA System.* The new MEDA system was delivered to Building 703 on January 30. Acceptance tests are in progress. Work has focused on linking the flow of meteorological data from the field instruments to the radio and computer system. (Gerry Fleming, 702 295 6483, Bob Cullen, 702 295 6483, and Ray Livsey, 702 295 1241)