



NOAA ARL Monthly Activity Report



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Highlights

1. *Homeland Security Joint Action Group.* ARL is providing leadership of the Joint Action Group (JAG) for the Selection and Evaluation of Atmospheric Transport and Diffusion models (SEATD), operating under

the auspices of the Federal Coordinator for Meteorology. The purpose is to improve the Federal government's ability to provide modeling support in the event of a terrorist incident. Initially it was envisioned that this could be accomplished by a review of all transport and diffusion models. From such a review, outdated and redundant models would be detected, and a short list of models would be defined and recommended for specific types of incidents. However, as the discussions have progressed, it is becoming increasingly of concern to the JAG participants that the idea of developing a list of models, from which one would choose a model in an emergency, is a flawed concept. The concept is perceived to be flawed, in that the diversity of models exists not so much because of redundancy and obsolete models still being used, but because the models are tailored to unique and specific requirements for certain user groups. The real concern is not so much as whether the many models in use are obsolete, but whether those envisioned for operational use in the event of a terrorist attack are flexible enough to cover a wide spectrum of conditions since it is unlikely that when such an event occurs, it will nicely fit into preconceived categories of use. It is this flexibility in adaptation in the hands of experienced modelers that is the primary need. Thus the JAG has decided to focus on the strengths and weaknesses of those transport and diffusion models currently in use at the emergency operational modeling centers that are available 24-hours a day/7-days a week, since these modeling centers will be the first responders for modeling support in the event of a future terrorist attack. The review of these operational models has been a major topic of discussion at JAG meetings. (John Irwin, Darryl Randerson, Bruce Hicks)

2. *Dust Storm Simulations.* In collaboration with Dale Gillette, a model for the emission and transport of PM₁₀ dust in the Arabian Gulf region was developed last year using the concept of a threshold friction velocity. A dust emission rate was computed from each location where the local wind velocity exceeded the threshold velocity for the soil characteristics of that emission cell. The initial research model configuration was only suited for use over Kuwait and Saudi Arabia. The model was restructured to use the default HYSPLIT land-use characteristics file defined on a one degree global grid. The calculations proceed on the basis of assumed emissions from desert areas where the local friction velocity exceeded the threshold friction velocity. The Kuwait specific PM10 flux equation was replaced by a more generic relationship. This operational version of the dust model was tested for two different ten day simulations, a dust event in April 2001 and the most recent one in March 2002. Shown in the animation (see <http://www.arl.noaa.gov/ss/transport/dust>) are the daily model particle positions at 0600 UTC superimposed over the TOMS aerosol index for that day. Satellite and model results may not always correspond due to errors in the model simulation as well as the fact that the TOMS results may be influenced by clouds, and tend to be more representative of dust at higher levels in the atmosphere rather than near the ground. However, regardless of the caveats, the match between model results and measurements is at times quite striking, especially for the event of April 2001 as the dust cloud moved across the Pacific. roland.draxler@noaa.gov

Silver Spring

3. *Impact of Anomalous Radiosonde Stations on Seasonal Global Temperature.* Annual temperature anomalies obtained after exclusion of 9 anomalous tropical stations from a 63-station radiosonde network are now available, for the period 1958-2001, for surface and 850-300 mb (troposphere), 300-100 mb (tropopause) and 100-50 mb (low stratosphere) layers for climate zones, hemispheres and globe. The more tedious task of obtaining the seasonal temperature anomalies after station exclusion is necessary for better comparison with other data sets with monthly temperatures, and such seasonal anomalies have already been obtained for tropical and global 850-300 mb layers. During the last decade, the tropical temperatures average about 0.3K warmer after station exclusion than before, and about half this amount globally, indicating that, during winter particularly, the full 63-station network has overestimated the warming of the surface relative to the troposphere. The impact of the station exclusions on seasonal 300-100 mb data is now being examined (it will be greater than the impact on 850-300 mb data), to be followed by the impact on seasonal 100-50 mb and surface data. (Jim Angell, 301 713 0295, x127)

Boulder

4. ***SURFRAD/ISIS***. ISIS data are now processed on a daily basis, automatically. Reprocessing software has also been developed and tested. All ISIS station data since Feb. 1 have been processed in this new way. Data are checked for errors using a NCAR-graphics-based plotting package. Currently, all ISIS raw station data are being retrieved and put into daily files automatically except for Oak Ridge. Campbell modems were ordered for the ISIS stations to help improve communications with the data loggers. (John Augustine, 303 497 6415)

5. ***U.S. Climate Reference Network (CRN)***. Betsy Weatherhead met with personnel involved in designing the U.S. Climate Reference Network (CRN) at the National Climatic Data Center in Asheville, North Carolina. The CRN is being created to measure and record high quality surface observations of air temperature and precipitation at sites throughout the continental U.S., Alaska, Hawaii, and Puerto Rico. ARL's Atmospheric Turbulence and Diffusion Division in Oak Ridge is already extensively involved with the USCRN. Dr. Weatherhead has been asked to provide statistical analyses to assist in optimal placement of the USCRN stations throughout the U.S. (Betsy Weatherhead, 303 497 6653)

6. ***IPCC Arctic Climate Impact Assessment***. Writing continues for the Arctic Climate Impact Assessment, part of IPCC's efforts to address the impacts of climate change. Drafts of Chapter 3, which focuses on Past and Present Changes in Climate and UV in the Arctic, and Chapter 4, which focuses on Future Changes of Climate and UV, were submitted to the International Arctic Science Committee. Betsy Weatherhead is a lead author on both of these chapters. The assessment is expected to be ready for review in fall 2002. More information is available at <http://www.acia.uaf.edu>. (Betsy Weatherhead, 303 497 6653; Amy Stevermer, 303 497 6417)

7. ***Nature's Fury Fest***. OAR, together with the Denver-Boulder office of the National Weather Service, staffed a booth at Nature's Fury Fest at the Denver Museum of Nature and Science. The weekend event was designed to coordinate with the museum's "Powers of Nature" exhibit and was also attended by the U.S. Geological Survey and other agencies. Amy Stevermer worked with Carol Knight of OAR to help educate museum visitors about the work being done by NOAA's research laboratories. (Amy Stevermer, 303 497 6417)

Oak Ridge

8. ***Urban Dispersion***. The horizontal structure of turbulence was measured over the Salt Lake City Valley in October 2000, using the Long-EZ, a light airplane instrumented for turbulence measurements. The flight path was two racetracks oriented north-south covering the southern half of the valley. Data have been analyzed and transmitted to the data hub. Whole-run flux averages were computed for the individual straight legs. The two racetracks contain a total of four such legs, while a further east-west leg connected the two racetracks across the southern end of the valley. Detailed horizontal structure was provided by one-second averages of temperature, winds, and turbulent flux fragments. dobosy@atdd.noaa.gov

9. ***Bay Regional Atmospheric Chemistry Experiment***. Preparation has begun for the airborne component of the Bay Regional Atmospheric Chemistry Experiment (BRACE) in Tampa, Florida this May. BRACE will help define more precisely the budget of nitrates and ammonia in the Tampa Bay system by sampling the deposition from the atmosphere at multiple sites over several years. The NOAA Twin Otter will fly 60 hours this summer, carrying the normal samplers of atmospheric state and turbulence, along with a full set of chemical and particulate samplers: NO, NO_x, NO_y, SO₂, O₃, HNO₃, CH₂O, CO, CO₂, H₂O₂, H₂O, and condensation nuclei (CN). Equipment installation begins in Tampa on April 15. The experiment is May 1 to

May 31. Twin Otter operations involve personnel from Boulder, Idaho Falls, ATDD, and ARL Headquarters. gunter@atdd.noaa.gov

10. Canaan Valley. The ARL measurement site near Davis, WV, is moving rapidly towards completion with the installation this autumn of instrument suites for SURFRAD and the Climate Reference Network. Current computer equipment used to process the data has been upgraded to accommodate the additional instrumentation. vogel@atdd.noaa.gov, Meyers

11. Climate Reference Network. At the Bondville, IL site five EcoHarmony and ten Geonor rain gauges were installed. Two of the Geonors were installed with three vibrating wires each and eight of the Geonors were installed with only one vibrating wire each, as that depleted the vibrating wire stock that had been received from Geonor. Five EcoHarmony gauges had previously been installed. Two CRN sites near Stillwater, OK were installed. These sites include small-scale DFIRs, three vibrating wires per rain gauge, and chain-link fence around the towers. hall@atdd.noaa.gov, Black, Brewer, Randolph, French, Heuer

12. Mercury in the Arctic. Improved relaxed eddy accumulation systems for mercury flux measurements at Barrow and Station Nord Greenland were prepared and sent to the sites. The Barrow system suffered a minor valve failure but is now working very well. Measurements show strong downward (deposition) fluxes of reactive gaseous mercury, particularly on calmer, sunny days. Fine Particulate Mercury (FPM) concentrations peaked this year at 330 pg m⁻³ early in the morning of March 4th, 41 days after polar sunrise. Since FPM forms during the night, daily peaks of concentration occur in the dawn hours. These peaks steadily rose from polar sunrise until early March, but have since been steadily decreasing with the shortening period of darkness. brooks@atdd.noaa.gov; Meyers; and Lindberg, ORNL

13. USDA Forest Service National Fire Plan. In preparation for an upcoming Forest Service meeting, two idealized 2-h midday wildland fire simulations were performed using the RAMS model in large-eddy simulation (LES) mode. The first simulation instantaneously turned on the fire heat and smoke from a 2 km x 2 km area in the upwind portion of a 20 km x 10 km x 4 km domain at 30 min. into the simulation. The second simulation gradually increased the fire heat and smoke flux to full strength during the second half-hour of the simulation. Maximum heat from the idealized fire was represented by 5 kW m⁻² of sensible heat flux from the (2 km)² area. A passive tracer of arbitrary source strength represented the smoke emissions. A 2 m s⁻¹ mean westerly wind was also specified. Due to the large amount of heat released, the convective updraft over the fire impinged upon the domain top a couple of times, but the solution was otherwise well-behaved after the overshoot, with the smoke generally transporting and diffusing downwind within and near the entrainment zone between the convective boundary layer and the free troposphere (around 2100 m AGL). In fact, the fire updraft was strong enough to force some smoke to advect and diffuse upwind against the 2 m s⁻¹ mean flow along the inversion base. herwehe@atdd.noaa.gov

14. Ozone Analyzer Development. A new fast-response ozone analyzer is being developed. The new features include a much smaller PTM (photo-multiplier tube) and an all stainless-steel reaction chamber. auble@atdd.noaa.gov, Womack

Research Triangle Park

15. Community Multiscale Air Quality Model (CMAQ). The latest version of CMAQ is being tested in preparation for the June 2002 model release. Model testing involves simulations of the SOS/Nashville 1999 field study by MM5 and CMAQ with three nested grids at 32/8/2-km horizontal grid resolution. New features include an improved aerosol model, improved biogenic emission model, the SAPRC-99 chemical mechanism, a new dry deposition model, which uses components from the Pleim/Xiu Land Surface Model that is part of MM5 meteorological model, and a new PBL scheme known as the Asymmetric Convective Model. The

modeling includes a series of sensitivity tests to check out many of the new components and to make comparisons to previous model releases. Preliminary evaluation includes comparison to observed O₃ and SO₂ from the AIRS network and comparison to aerosol measurements from the CASTNet and IMPROVE networks. In addition, results from all three horizontal grid dimensions are being compared to detailed chemical and meteorological measurements from the SOS/Nashville 1999 field study. (Jonathan Pleim, 919 541 1336)

A new aerosol module, version AE3, was integrated into the plume-in-grid (PinG) code and a test simulation of the updated PinG model was successful. Additional testing of the combined photochemical/aerosol PinG model is anticipated with speciated PM point-source emissions. Analyses of simulation results with the previous aerosol AE2 version in PinG revealed that more formation of fine sulfate aerosol occurred in plumes from comparable SO₂ point sources emitting lower NO_x emission rates than those with the highest NO_x emissions. (James Godowitch, 919 541 4802)

The process of getting the CMAQ mercury model moved to a European modeling domain and downloading MM5 input data from NCAR continued. MM5 applications are now being set up with the data collected thus far. European air emission data for mercury and other pollutants were prepared for input to the emissions processing software. Some final adjustments to the CMAQ mercury model were also made in order to use the latest aerosol modeling codes to treat particulate mercury. (Russ Bullock, 919 541 1349)

16. Forest Fire Emission Module. A forest fire emission module is being developed, to interface with the SMOKE emission processor. Douglas Fox of CIRES is the lead in developing the module under an EPA cooperative research agreement. It is planned to be ready to work with MCNC (developers of SMOKE) on inclusion of the fire module later this year. Forest fire smoke emissions are difficult to simulate and can play a significant regional role in air quality simulations. (William Benjey, 919 541 0821)

17. Portable System to Measure Turbulence, Momentum, and Heat Fluxes. With the extensive help of and collaboration with Tilden Meyers from NOAA's Atmospheric Turbulence and Diffusion Division (ATDD), we have built a small, portable system to measure turbulence, momentum, and heat fluxes. The instruments are being checked and calibrated in the meteorological calibration facility in the new EPA laboratory. This system will be used in a study to look at the mechanisms of ozone damage to sensitive indicator plants in the Great Smoky Mountains National Park this summer. The data collected by the system will be used with ATDD's sub-canopy flow and dispersion model to estimate levels of ozone and light within stands of Rudbeckia. This research is being done with plant pathologists from Appalachian State University, Boone, North Carolina, Auburn University, Auburn, Alabama, University of Newcastle, UK, and the U.S. Park Service. (Peter Finkelstein, 919 541 4553)

18. Biogenic Emissions Inventory System. BEIS3 will be used with the next version of the CMAQ modeling system. For their air quality modeling activities, MCNC has decided to use BEIS3.09 in the next release of the Sparse Matrix Operational Kernel Emissions (SMOKE) processing system, replacing BEIS2. In the meantime, we are performing CMAQ sensitivity tests with BEIS3.10. BEIS3.10 improves upon BEIS3.09 by offering emission factors for 33 VOC compounds (rather than only three VOC classes), and by including a soil NO algorithm that considers the effect of soil moisture, crop growth, and fertilizer schedule (rather than simply adjusting for temperature). Comparisons of CMAQ with two versions of BEIS3 (v.09 and v.10) as well as BEIS2 are continuing during April 2002. The Division's current plans are to release BEIS3.10 as a separate *plug in* to the SMOKE processor when CMAQ is released during June 2002. (Tom Pierce, 919 541 1375)

19. Evaluation of Ammonia Emissions. Initial results of inverse modeling using the CMAQ modeling for the available 1990 months suggest that the 1990 annual NH₃ emission estimates from the U.S. EPA National Emissions Inventory are too large. This potential conclusion has substantial policy implications, and several regulatory groups are watching the results closely. (Alice Gilliland, 919 541 0347)

20. Wind and Sand-Flux Data Analysis. Analysis has been completed of surface sand suspension studies from January 2001 through November 2001 at the Jornada del Muerto experimental range. These data will be added to the set collected for 1998 through January 2001 for a paper entitled, *Sand flux in mesquite-dominated desert landscapes: Application of the concept of sand-transport “streets” in the northern Chihuahuan desert, New Mexico, USA*. With the increased data set, it seems that evidence is now sufficient to substantiate the model being offered of wind erosion in Mesquite-dominated desert lands. (Dale Gillette, 919 541 1883)

21. Methodology for Modeling Urban Area Impacts of Air Toxic Pollutants. Although many air quality models can be used for estimating urban-wide ambient concentration, many air toxic applications deal with the use of the Industrial Source Complex model, which estimates near-field impacts from industrial facilities. This model has been extensively used in analyzing impacts from a single or a few facilities and this report should help provide transition to the more complex issues associated with urban-wide applications. A report has been completed to provide a methodology for modeling urban-area impacts of air toxic pollutants, a demonstration of a methodology for use in city-specific analyses, and an example application of city-specific air toxics modeling application. (Joe Touma, 919 541 5381)

22. Meteorological Modeling for Air Quality Simulation. Plans have been finalized for a series of MM5 modeling analyses focusing on developing high-quality meteorological inputs for several upcoming regulatory actions. Model data sets will be generated for the following scenarios: 1) a national 36-km grid covering the continental United States for the entire year of 2001, and 2) separate eastern and western United States grids for multiple 10-15 day episodes of ozone and fine particulates in 1999-2001. Several diagnostic analyses will precede the completion of each data set to determine which configuration(s) of MM5 yield optimal results for the scenarios at hand. Additionally, each of the model output data sets will be evaluated against ambient meteorological data. As a separate activity, an investigation will be completed as to the feasibility of using existing archived meteorological forecast model data (e.g., ETA, RUC) to drive air quality models. The work is expected to be completed by January 2003. (Pat Dolwick, 919 541 5346)

23. NRC Committee on Research Priorities for Airborne Particulate Matter. Robin Dennis and Ken Schere participated in the National Research Council Committee on Research Priorities for Airborne Particulate Matter review held in Research Triangle Park, March 12-13, 2002. The committee was reviewing the progress of the EPA particulate matter research and comparing it to the NRC PM research portfolio of priority research developed several years ago. Robin presented CMAQ model evaluation results for PM. The main conclusions of the evaluation results to date are that (1) CMAQ does well for sulfate, (2) the science in CMAQ is capable of doing well for nitrates, if the inputs are appropriate, and (3) it is premature to make a call vis-a-vis organic carbon. New paradigms for estimating organic carbon are being put into the version of CMAQ that will be released and evaluated this summer.

24. Expanding Your Horizons – Exposing Girls to Science. Tanya Otte and Donna Schwede represented ASMD at the Expanding Your Horizons (EYH) Conference on the campus of North Carolina State University, Raleigh. EYH is a national program that holds more than 100 local conferences annually, generally on the campuses of colleges and universities. At this EYH, nearly 600 seventh-grade girls were encouraged to consider careers in science, mathematics, and engineering through hands-on workshops led by local women scientists. Tanya and Donna coordinated and led two *Weather Jeopardy* workshops for 10-15 girls. The workshop was modeled after the *Jeopardy* television show, but all of the categories for the questions were related to weather. In each game, the girls were split into three groups. In the two main rounds, no points were subtracted for wrong answers. There were no double jeopardy questions, but the final question allowed each team to wager up to the number of points they had. One of the goals was to expose the girls to weather concepts in a non-threatening manner. The girls all had fun in the games. It was exciting to watch the teamwork develop among groups of girls who had not necessarily met before our workshop. Both Tanya and

Donna have represented ASMD at EYH several times. Copies of the HTML Jeopardy software can be made available upon request; it can be easily adapted for other outreach activities. For more information on EYH, go to <http://www.expandingyourhorizons.org>. (Tanya Otte, 919 541 7533)

Idaho Falls

25. Urban Dispersion. We are in the process of documenting the meteorological measurements made by FRD during the URBAN 2000/VTMX field project. The project was conducted in Salt Lake City in October 2000. FRD fielded two 3-D sonic anemometers, a radar profiler with RASS, a sodar and a surface meteorological station. The sonic anemometers were placed on a mast mounted in the wake of a building near the downtown SF₆ tracer dissemination point. The remainder of the instruments were deployed in a suburban area near the north-central portion of the Salt Lake Valley. Figure 1 shows a summary graph of the sonic anemometer data for 7 nocturnal intensive observation periods (IOPs) when the tracer was disseminated. Most IOPs were quite similar except for IOP9, which had a wind speed nearly two times that of the other IOPs. The average kinematic sensible heat flux was positive only during IOP kirk.clawson@noaa.gov, Jerry Crescenti

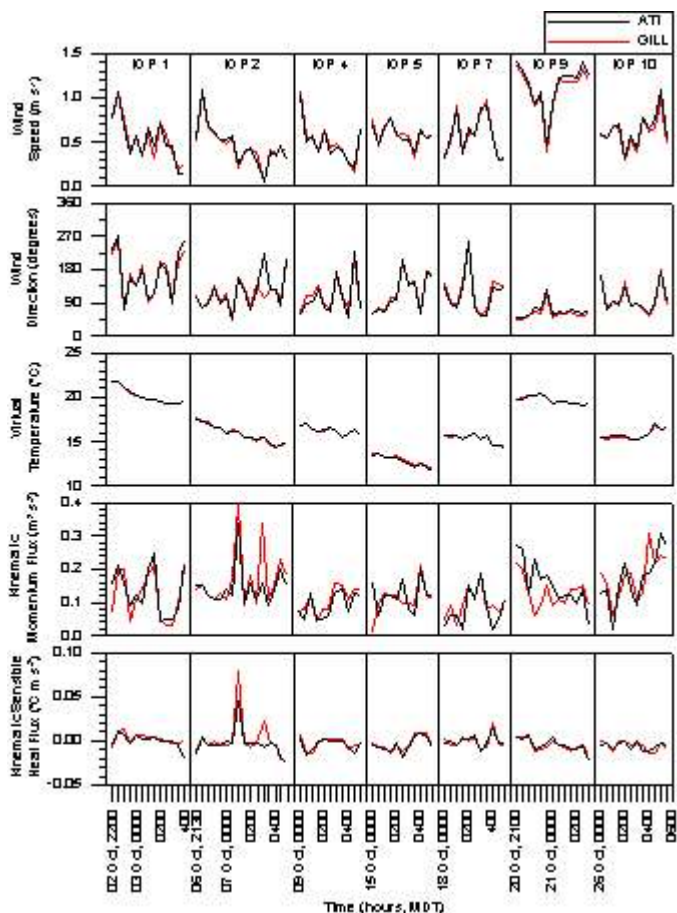


Figure 1

26. IMS Development. An Ion Mobility Spectrometry (IMS) based instrument for measuring atmospheric tracers is being developed. In order to speed the development, we are working in parallel on several tasks. We have contacted the U.S. Nuclear Regulatory Commission and begun working on an application to handle low-level radioactive material that may be required for ionization sources in the instrument. We are also investigating the possibility of contracting with a university or another company to handle the sources for us. At the same time, we are constructing two prototype instruments that will allow us to begin testing various components and ionization sources. The first is very simple and should be operational in a few days, assuming parts that have been ordered arrive as promised. The goal of the project is to develop a smaller, cheaper, more adaptable tracer instrument. roger.carter@noaa.gov, Debbie Lacroix, Shane Beard

27. New Sampler Pump Flow Control. A standard Sensidyne "A Series" micro pump with a datalogger has been set up to test a number of flow rate control possibilities for an upgraded atmospheric tracer sampler. Since the pump will be powered by a single 1.5 volt alkaline battery, it is essential that the control technique be as power efficient as possible. After testing of several alternatives, a decision was made to employ a variable voltage from a high efficiency, micro-power switching power supply which is controlled by a continuous analog output on the datalogger. randy.johnson@noaa.gov

28. INEEL Mesoscale Modeling. During part of March, the MM5 runs at FRD showed a large negative bias in the forecast temperatures at both Idaho Falls and INEEL. It was determined that the bias was due to the model's snow-cover initialization. The initial snow cover for the MM5 runs comes from the NCEP Eta model's

output. The Eta model insisted on putting a broad mound of snow out in the middle of the Snake River Plain during parts of March. A quick look out the window and a check of the satellite pictures indicated that no such mound existed. MM5 would spend most of the forecast day melting off this snow, which led to unrealistically cold temperatures and other problems. Even though MM5 often melted this snow within 12 hours or so, the reinitialization of the model with Eta output on the following day would put the snow mound right back in. MM5 was therefore forced to melt the same snow over and over on sequential days. The mound eventually disappeared from the Eta output later in March. richard.eckman@noaa.gov

29. Community Monitoring Stations. In October 2001, the Rexburg Middle School and Blackfoot Middle School Community Monitoring Stations were equipped with new hardware (Campbell Scientific CR23X) and software that would allow these stations to communicate on the FRD mesonet data telemetry network and send serial data to the existing Light Emitting Diode (LED) display signs. The new Wind Chill Temperature index from the National Weather Service was available and was implemented for these two new stations. However, it was implemented without checking for speeds below 3 miles per hour, which is the minimum wind speed for this calculation. Therefore the displays would display wind chill temperatures greater than actual temperature at low wind speeds. The program used in the Campbell Scientific CR23X has been modified to test for low wind speed conditions before sending the calculated Wind Chill Temperature to the LED display signs. randy.johnson@noaa.gov

30. INEEL Mesonet Radio Narrowbanding. Teresa Maraia at the NOAA Boulder Radio Frequency Management Office has been contacted requesting a waiver to narrowbanding our mesonet radio frequency. Presently we will be required to convert or upgrade the present equipment from 25 kHz spacing to 12.5 kHz unless a waiver is granted. Campbell Scientific has been contacted to determine if it would be practical to modify the existing radios to narrowband. Their communications expert, Joe Thurston, has indicated that it would be cost prohibitive to make the modifications to the old radios and we would still have outdated radios that are no longer manufactured. randy.johnson@noaa.gov

31. NOAA LongEZ N3R. Last month we reported the major conclusions from GSA's Interagency Committee for Aviation Policy (ICAP) Aviation Resource Management Survey (ARMS) report on ARL use of LongEZ N3R. We were pleased that the ARMS review found the Long EZ operations by FRD not only safe and efficient but also quite cost effective. In addition to the usual thirteen review areas, OMAO had specifically requested the ARMS suggest how to best continue the use from an administrative standpoint. On 5 March, OMAO and OAR management met and agreed to implement the ARMS recommendation that the LongEZ should be leased, placed under Aircraft Operations Center (AOC) operational control, but leaving functional control with ARL. ARL is developing the lease in cooperation with AOC. FRD is also working with AOC to develop necessary operational procedures. tim.crawford@noaa.gov, Richard Artz and Tom Watson

Las Vegas

32. Poland and ARL RAMS Cooperative Initiative. The official agreement between NOAA and Poland was signed in January. During March work began on this initiative. Several issues were presented via e-mail. The first step is to get the POLAND system running in a stable manner in real-time. They have reported extremely slow data transfer rates that could delay Emergency Response assets. The current ftp location was studied and NCEP was contacted about the current location. The information received confirmed the slow transfer rate and that this location is being phased out. NCEP provided two new ftp locations for data transfer that should be significantly faster. One supported 24/7 and the other not. This information was passed on to Dr. Zelanzy (Poland) so they can implement this new ftp location. They are in the process of implementing this new ftp location. The next step was to determine a suitable US location for a cooperative comparison. Based on the fact that we run RAMS at SORD for the southwestern US, it made sense to select this area for our cooperative

study. Dr. Zelanzy then officially requested a sample input file, input dataset, and an output dataset for initial comparison. (Walt Schalk, 702 295 1262)

33. Regional Planning Organization (RPO) Meetings. ARL-SORD staff participated in two RPO meetings in March: Western Regional Air Partnership (WRAP) Technical Operations Committee Planning meeting in Phoenix, AZ (March 7-8), and Central States Regional Air Partnership (CENRAP) meeting in Baton Rouge, LA (March 18-19). RPOs are groups of states and Indian tribes working together to implement the federal regional haze rules promulgated by EPA. SORD staff provides technical support directly to WRAP and CENRAP monitoring and data analysis technical committees. In addition, SORD staff is actively involved in the coordination and communications among all five of the RPOs for monitoring and data analysis. A national data archive and analysis system designed specifically for the ambient data needs for regional haze has been endorsed by all of the RPOs. The original plan was initiated for WRAP two years by contract with the Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University and will be expanded to cover the entire US. The system is designed to be a one-stop public web site location for all haze-pertinent particle, optical, meteorological and summary emissions data. It also includes numerous data compilations (e.g. derived parameters), data products (e.g. statistical summaries, plots, and maps), and data analysis tools for doing custom data summaries and displays. SORD staff was selected to chair the multi-RPO steering committee instituted to oversee the expanded data system. (Marc Pitchford, 702 895 0432)

34. Interagency Monitoring of PROtected Visual Environment (IMPROVE). ARL-SORD staff participated in a site visit to the Breton Island IMPROVE monitoring site located in the southeastern side of the Mississippi Delta (March 20) and in an IMPROVE Steering Committee Meeting in New Orleans, LA (March 21-22). A group of 24 state and federal representatives involved in the IMPROVE program took the four-hour (1-way) combined car and boat trip to visit the only IMPROVE site on the Gulf of Mexico west of the Florida. For some of the visitors this was the first IMPROVE monitoring site that they've seen. One of the purposes of the trip was to determine the appropriateness of the site for adding a radar wind profiler with RASS. The equipment is available from the Minerals Management Service (MMS) and would be co-funded by them and possibly the CENRAP RPO. The site was determined to be suitable and plans to place the equipment there are being pursued. The steering committee meeting was the first since the full deployment of the 110 site expanded IMPROVE network. The network-averaged data completeness the expanded network was reported to be 89%, which exceeds the performance of the network prior to expansion. However, 10 to 15 of the sites had data completeness that was considered unacceptable due to a combination of technological problems (e.g. power reliability, instrument malfunctions, etc.), and operator related issues. Actions were taken to address both causes of the poor performance sites. Other topics discussed at the steering committee meeting include quality assurance practices, documentation, and independent audit programs that have been recently enhanced and plans for several special studies to better understand the quality and adequacy of the data being collected by IMPROVE. (Marc Pitchford, 702 895 0432)