



# FRD ACTIVITIES REPORT

## April 2005



### Research Programs

#### *Urban Dispersion Program (New York City Dispersion Study)*

A planning meeting for the UDP was held at Stevens Institute of Technology in Hoboken, NJ on April 14 and 15. Several participants and potential participants attended, including a representative from FRD. The meeting focused mainly on budgets, many of which were cut to match the available funds. FRD's proposed scope of work and funding was reduced along with those of almost all other participants. Although the money is not yet available from the Department of Homeland Security, FRD is now anticipating receipt of \$500k to deploy 40 bag samplers and 5 real-time analyzers. The deployment will occur between August 6 and August 26 and will focus on the Midtown Manhattan area bounded by 3<sup>rd</sup> and 8<sup>th</sup> Avenues and 40<sup>th</sup> and 59<sup>th</sup> Streets. A background SF<sub>6</sub> study in the test area is planned for sometime in May or June. (Kirk Clawson, 208-526-2742)

Air samples of New York City were collected during the April UDP planning meeting. These were analyzed at FRD for SF<sub>6</sub> concentrations and for possible perfluorocarbon interferants near the UDP test bed. Sulfur hexafluoride concentrations were elevated near the area of concern, as expected, due to close sampling upwind and downwind of the 49<sup>th</sup> Street electrical substation that is known to be leaking SF<sub>6</sub>. The elevated concentrations reached only into the 1,000 ppt levels, however, and dropped off dramatically with distance. There did not appear to be an abundance of perfluorocarbon interferants, as expected. The data are being reviewed to substantiate this conclusion. The data were sent to the UDP program directors for their review. (Debbie Lacroix, 208-526-9997)

Documents describing the FRD quality control practices for both the Programmable Integrating Gas Samplers (PIGS) and the real-time SF<sub>6</sub> analyzers were sent to Ray Lagomarsino who will be making quality assurance recommendations for the UDP program. Included in the documents was a Standard Operating Procedure (SOP) for the Automated Tracer Gas Analysis Systems (ATGAS), copies of the quality control sections from the preliminary Joint URBAN 2003 report, and numerous examples and documents. It is assumed that these documents will be the foundation for developing overall project quality control procedures. (Debbie Lacroix 208-526-9997, Roger Carter)

#### *ET Probe*

A presentation on the ET probe 2004 hurricane data was given at a CBLAST workshop in Miami in early April. Useful discussions were held with other attendees at the workshop, including some discussion about using the ET probe data along with other ground-based instruments to study the structure of organized rolls that are often observed in the hurricane boundary layer.

Shortly before the workshop, the Office of Naval Research announced that a two-year extension of CBLAST funding was being planned for fiscal years 2006-07. A brief research statement and budget was submitted to ONR in response to this extension. It was also discovered during the workshop that in October 2004 Congress enacted the National Windstorm Impact Reduction Act, which includes funds for studying winds associated with hurricanes and other storms. Funding is expected to begin in fiscal year 2006. Discussions are under way within NOAA about getting the ET probe linked to this program. (Richard Eckman, 208-526-2740)

### ***ATGAS Multiple Tracer Upgrade***

A major software upgrade to the Automated Tracer Gas Analysis System (ATGAS) was completed this month. The change allows the ATGAS to simultaneously analyze multiple tracer gases such as perfluorocarbon tracers (PFTs) and potential new tracers to replace SF<sub>6</sub>. The upgrade included some important analysis features such as a printout of the entire chromatogram for all peaks including analyte labeling and colored markers for better targeting of the retention time windows. The upgraded software has been installed and is being used during the development of PFT capability. (Roger Carter 208-526-2745, Debbie Lacroix)

## **Cooperative Research with DOE NE-ID (Idaho National Laboratory)**

### ***Monitoring and Surveillance Committee***

The latest meeting of the INL Monitoring and Surveillance Committee was held at the Radiological and Environmental Sciences Laboratory (RESL) on 28 April. One FRD staff member attended. RESL is located at CFA in Building 690, which is where FRD used to be housed many years ago before moving into Idaho Falls. The committee was given a tour of the RESL facilities, which includes the production of synthetic human torsos and lungs that are used in radiological quality control procedures. (Richard Eckman, 208-526-2740)

### ***INL Climatology***

The INL climatology continues to be worked on. Draft sections on wind and temperature were received for review from the editor. The section on wind was reviewed and returned to the editor for additional changes. (Neil Hukari, 208-526-0503)

### ***Mesoscale Modeling***

A point forecast for the INL Materials and Fuels Complex (formerly ANL-W) was added to the suite of products available from FRD's MM5 mesoscale model simulations. This is part of FRD's plans to split INL into three forecast zones, since climatological studies show that different parts of INL often experience different conditions, particularly regarding winds. MM5 point forecasts are now produced for all three zones. These point forecasts are also being archived so that comparisons with the INL Mesonet observations can be performed. (Richard Eckman, 208-526-2740)

### ***Semiannual Calibration and Maintenance***

About two thirds of the INL Mesonet weather stations have had their semiannual calibration and maintenance completed. The remaining stations should be completed by the middle of May. (Randy Johnson 208-526-2129, Tom Strong, Shane Beard)

We have encountered an interference problem with an FRD weather station located at the Blackfoot Middle School. When data is being sent to the display sign at this station, radio communications become intermittent resulting in slow or non-existent data retrieval. Disconnecting the sign from the datalogger fixes the problem, but is not a suitable solution. We will be trying other options to resolve the problem over the next few weeks. Only the Blackfoot and Rexburg stations have this particular type of display sign. The Rexburg display sign is much farther away from the station and has not exhibited the same problem. (Randy Johnson 208-526-2129, Brad Reese, Tom Strong, Shane Beard)

### ***INL Radar Wind Profiler***

In December 2004, the INL telephone contractor identified deterioration in the telephone line used to retrieve data from the 915 MHz radar wind profiler located on the INL. After several months and much paper work, the cable was finally replaced the week of April 18. The system is operational again and profiler data is being retrieved in near real-time. (Roger Carter 208-526-2745, Tom Strong)

## **Other Activities**

### ***Papers***

Clawson, K.L., R.G. Carter, D.J. Lacroix, C.A. Biltoft, N.F. Hukari, R.C. Johnson, J.D. Rich, S.A. Beard, T. Strong. 2005. Joint Urban 2003 (JU03) SF<sub>6</sub> Atmospheric Tracer Field Tests. NOAA Technical Memorandum OAR ARL, Air Resources Laboratory, Idaho Falls, Idaho, *in review*.

### ***Safety***

The video "Radon-A Homeowner's Guide" borrowed from The Laboratory Safety Institute was shown at the monthly staff meeting. (Debbie Lacroix, 208-526-9997)

### ***Travel***

Rick Eckman, April 3-6, Miami, FL, to attend the annual CBLAST workshop and present a talk on the ET probe.

Kirk Clawson, April 12-15, Hoboken, NJ, to attend an Urban Dispersion Program planning meeting regarding the upcoming New York City dispersion study.

## *Personnel*

The Quick Hire Vacancy Announcement for a Meteorologist position at ARL FRD opened on April 4 and closed on April 29. There were 12 non-status and 3 status applications received for this vacancy. FRD management will be reviewing the applications and interviewing qualified applicants in May.