

MINUTES
NADP Joint Committee Business Meeting
Tuesday, May 2 – Wednesday, May 3, 2006
Historic Mission Inn, San Diego Room (5/2) and Music Room (5/3)
Riverside, CA

Attendance: A spreadsheet containing the names, affiliation, and contact information for the attendees was created by Kathy Douglas. The meeting began at approximately 8:40 a.m., May 2, 2006 in the San Diego Room of the Historic Mission Inn Hotel. Mike Kolian, 2006 Joint Chair

1. Welcome – Kristi Morris (National Park Service)
2. Introductions and meeting called to order - Mike Kolian, 2006 Joint Chair (USEPA, Clean Air Markets Division)
3. Overview of Riverside area, smog problems, nitrogen deposition and ecosystem effects, and field-trip logistics – Pam Padgett (USFS)
4. Approval of Fall 2005 Joint Committee Meeting minutes

Karen Harlin (ISWS) moved to approve as written.
Greg Wetherbee (USGS) – Second motion
Motion was approved without opposition.
5. Program Office Report – Van Bowersox (ISWS, NADP Program Office)
Introduced Roger Claybrooke and Matt Layden as Site Liaison Team
Announced fall meeting location and dates
NADP Program Office is looking for a programmer.
6. HAL Report – Bob Brunette (Frontier Geosciences, Inc., Mercury Analytical Lab)
 - New and pending MDN sites: CA94, AZ02, OK15, AB13
 - Ten (10) new sites are expected within the next 9 months.
 - Sites that are/will shut down include AK99, HD01, and OA02.
 - HAL production is now at 1,800 samples/month.
 - HAL staff now at 8 with new personnel: Amber Dichter and Andrew Dawson.
 - Transition to monthly data delivery is underway.
 - Methyl mercury (MeHg) database has been merged with the total mercury (THg) Database. A trace metal database is established as well.
 - A draft Site Operations Manual is complete and ready for Network Operations Subcommittee (NOS) review.
 - A draft version 2 of the Quality Assurance Program Plan has been completed.
 - HAL and PO have co-located MDN collectors at WA18 with 3 ACMs, 1 MICB, 2 Belforts, 1 Stick gage, 1 Gas Phase Hg, and 1 Particulate Hg. David Gay will present data in a poster at the Mercury 2006 Conference.

- Puerto Rico site has N-CON MDN collector on solar panel to look at throughfall in rain forest. Installing collectors on jungle floor below MDN site. Throughfall is 2-to-5 times wet deposition. Looking at both MeHg and THg.
 - HAL 2003 audit – 98% of issues resolved, 2% in progress – database user manual and IT procedures.
 - HAL training course scheduled for October 11-12.
 - Trace metals are being monitored at selected sites for proof of concept.
 - HAL will move to Fremont, WA in November/December 2006.
 - There will be a strong HAL and MDN presence at the Mercury 2006 conference in August.
7. CAL Report – Karen Harlin (ISWS, Central Analytical Laboratory)
- 257 sites at present with new sites at: CO90, FL32, CA94 (pending)
 - WI32 closed, and AIRMoN now has 8 sites.
 - Sample load is 1,200 samples/month and approximately 15,000 individual analyses per month.
 - One year now since discontinuation of field chemistry. Only 2 sites have purchased field chemistry check solutions in 2006.
 - Site Operations Manual has been tuned up.
 - Scott Dossett is back part time working on manual updates.
 - Monthly 4-in-1 shipment protocol implemented network wide August 2005. There have been some problems with bag abrasion. Bags cost \$1.07/each.
 - The 2007 CALendar will feature coastal sites and Chesapeake Bay area.
 - 2006 NTN Site Operator Training Course scheduled for May 23-25 with 15 operators to attend. New format includes more hands-on activities.
 - New ion chromatograph, ICP, and upgraded FIA are performing well.
 - CAL move into new/renovated space completed April 2006. Space is more functional and much appreciated.
 - There is a need to expand shipping/receiving. There are 2 new bucket washing units. Nina Gartman is doing pH and conductivity now. Erin Bristow is running IC and FIA with help from Scott Smith. Tracy Dombeck is now the lab supervisor.
 - Jane Rothert and Chris Lehmann are working on blank data with University of Illinois statistics class students.
 - Every 2 weeks, blind blank samples are run through laboratory, and results showing MDLs for nitrate and sulfate are up slightly.
 - Data transfer to PO should be on schedule in June 2006. AIRMoN data through February have been transferred to PO.
 - CAL is getting positive feedback from site operators on new color-coded reports.
 - New data screening checks have been added to LIMS at data entry level.
 - Research and outside study participation includes: WMO sample preparation and shipment, perchlorate research with Texas State University, continued nitrogen isotope and total nitrogen work.

8. MDN Report – David Gay (ISWS, NADP Program Office)
 - MDN has 93 active sites, 22 with methyl-mercury (MeHg) including 5 weekly composite sites and 17 4-week composite sites.
 - MDN has co-located sites at WA18, VT99, and WI36. Data from these to be presented at Mercury 2006 conference.
 - Five new urban sites operating now. New sites also planned or operating at: SC05, NC08, NJ30, ME95, CA94, and AZ02. Eight new possible sites coming up, and 9 new sites have committed to joining MDN.
 - USEPA is spearheading interest in multiple Midwest sites to look at source terms, uncertainty, and radius of investigation questions.
 - N-CON MDN collector intercomparison with ACM collector is going on at 3 sites. This is to be discussed more in the Network Operations Subcommittee (NOS).
 - A 10% reduction in the PO fee has been implemented, now at \$2,700/year/site.
 - LODA price for ACM collector is up \$685; now at \$4,585/each.
 - CA94 is first site to install an electronic rain gage. They have an ETI NOAA IV. Next two electronic rain gages to be installed at sites in Oklahoma.
 - PDA is ready for field operation. Bob Larson to give presentation.
 - HAL is turning out data monthly, which exceeds their contractual obligation.

Mark Nilles commented that Culpeper MDN site is at risk of shut down.

9. Electronic Rain gages, Pocket PCs, and Electronic Field Form Update – Bob Larson (ISWS, NADP Program Office)
 - HACH/OTT Pluvio-NADP Type is ready for production/purchase. Features include RS232 output of 1 reading/minute, depth and intensity resolved at 0.01inches. Package cost forthcoming.
 - The “brain” for each site will be a CR1000 datalogger with 4 serial input and 16 voltage inputs, packing 2 MB memory, new data table structure (replacing array data), and programmed using CRBASIC. Contracted with Campbell Scientific to write program for OTT with data collection at 5-minute intervals for 3 collectors. Modifications also include protocols for scan skipping, a machine-friendly menu, datalogger status and diagnostics.
 - ETI NOAA-IV program modified for CR1000 datalogger. Bluetooth works with ETI / Campbell setup, but it requires lots of power. Therefore, operators need to be able to switch it on and off. ETI cost will be \$5,640.
 - Pocket PC interacts with Campbell program and works with both gages plus Bluetooth serial cable.
 - Bob demonstrated the function of the wireless Pocket PC for Campbell CR1000 download. Download creates 2 files, both comma delimited and .xml files. The .xml file can be transmitted via internet on TCP/IP Port 80.
 - Operators will continue to report daily values on an electronic field form which will be emailed to PO as a .xml file.
 - Still need to minimize hardware models and strip out unneeded programs plus remove easy access.

- ETI NOAA-IV is ready for field, but OTT still needs some field testing. A trace precipitation ID needs to be established for both gages.
 - Field testing of electronic field form will occur this summer, and feedback from sites is requested. The pocket PCs will cost about \$300-\$350/each.
10. Taking Monitoring to the Next Level – New Protocols for High Altitude Sites – Chris Lehmann (ISWS, NADP Program Office) and Greg Wetherbee (USGS)
- NADP sites with most precipitation as snow typically are located at altitudes greater than 2,000 meters (m), do not meet all NADP completeness criteria, do not appear in annual NADP isopleth maps, but are used to study sensitive ecosystems. Site sponsors want to see their data in the NADP map products.
 - NADP precipitation depth data compare well with SNOTEL station data. MDN site collection efficiency is higher than NTN during non-snow months, but reverse is true during winter. High-altitude sites are “doomed” to never meet Criterion 4 for 75% collection efficiency due to snow undercatch resulting from low bucket aspect ratio (depth), lack of sensitivity of sensor, and sensor/collector cycling. Collectors at altitudes 2,000 meters or more have at least 45% precipitation as snow.
 - Concentrations are higher during non-frozen precipitation seasons anyway. So, most of annual deposition occurs in form of rain, not snow.
 - Proposed change 1: Relax completeness criterion 4 for sites at altitudes greater than 2,000 meters to require collection efficiency of at least 50%. This would have allowed 4 sites to make the 2004 map: CO91, CO98, CO18, and WY98.
 - There are other factors, including “u”, “c”, and “v” validation coded samples. These cases need more study.
 - Proposed change 2: Use unique color-coded symbol(s) and font(s) for high altitude data not meeting completeness criteria 1, 3, and 4, but do use data from these sites to compute magnitude, shape, and locations of isopleths.
 - Proposed change 3: Create seasonal maps of either concentration, deposition, or both.
 - Precipitation Regression on Independent Slopes Model (PRISM) presented and discussed. This model is run and serviced by the Oregon Climate Service, at Oregon State University’s Spatial Climate Analysis Service. The model is funded by NRCS, USFS, and NOAA. USDA considers PRISM map to be the official precipitation map for the Nation. NADP could use PRISM precipitation depth grids to create constituent deposition maps. This approach was not endorsed by the entire Joint Committee. Some skepticism is shared among the Joint Committee members pertaining to PRISM. More investigation is needed.
 - Proposal 4: Improve high-altitude instrumentation, including: deploy electronic raingages and possibly use gage as sensor; establish high elevation site classification; encourage more frequent sample collection; and look into precipitation melting techniques that won’t affect chemistry. Also, shield collectors and raingages, modify the collector sensors to better detect snow, increase collector bucket aspect ratio, modify high-altitude collectors with linear-drive motorboxes.

Van Bowersox (ISWS) made the following motion: “For year-round operations at NTN sites with frozen precipitation comprising 60% or more of the annual total, install the new linear actuator drive mechanism designed by NED staff and install a taller collection container at sites with >70% frozen precipitation in year 1 and at sites at altitudes above 2,000 m in year 2, pending success of year 1 modifications. The motion was seconded by Mike Kolian (USEPA) and unanimously approved.

The Joint Committee meeting recessed at noon for the subcommittee sessions and resumed at approximately 1:40 p.m., May 3, 2006 in the Music Room of the Historic Mission Inn. Mike Kolian (USEPA) Joint Committee Chair called the meeting to order.

11. Network Operations Subcommittee (NOS) meeting summary report– Mike Kolian (USEPA)

- Siting Criteria Document was discussed, and edits were made in the meeting. The edited document was approved by NOS. A motion was made to evaluate network windshields to possibly upgrade windshield guidelines to rule status, and the motion was seconded and approved. A final motion to make the new siting criteria retroactive to sites installed as of January 2006 and new sites being installed on or after May 15, 2006.
- NOS approved accelerated wear testing in extreme conditions for the LODA ACM-2005 and the “Osborne Alternative” linear actuator. Replacement of MDN-ACM rubber boots with Gortex ones was unanimously approved as well.
- USGS solicited input on use of co-located sites. Options include: a) testing of new LODA ACM with linear actuator, b) using deeper buckets for snow, c) using the rain gage as a collector sensor, d) deployment of Yankee Environmental Systems (YES) collectors, e) lid splash reduction using nylon screens, and f) testing ACM with Osborne Alternative linear actuator. Many ideas were provided by NOS, which was appreciated by USGS.
- A draft Data Quality Objectives (DQO) document has been prepared and is ready for review by the subcommittee chairs by the July Executive Committee Meeting.

12. Vaisala Rain Gage - Roger Claybrooke (ISWS, NADP Program Office)

- Roger presented testing results for the Vaisala rain gage - a new candidate rain gage. The results indicate that the gage works as well as the OTT Pluvio and ETI NOAA-IV. There are some false positive problems that can be easily eliminated. The gage appears to be reliable, and perhaps a little less expensive than the approved rain gages.

13. Environmental Response and Outreach Subcommittee (EROS) Report – Pam Padgett (USFS)
 - Party stats provided.
 - Invitation brochure in preparation for recruiting new NADP participants/sites.
 - Ideal network design: Network is doing more than designed to do. Original vision was 150 sites, and now there are more than 250 sites. A document on ideal network design is forthcoming for Exec. Committee Meeting.
 - NADP needs to play a significant role in establishing critical loads, especially since NADP structured such that many agencies work well together.
 - Discussion of high altitude monitoring generally endorsed decision to do seasonal maps and implement practical changes to collectors.

14. Overview of Fall 2006 Meeting – Maggie Kerchner (NOAA)
 - Norfolk, VA, October 4 24-26
 - Thursday night field trip
 - Agenda topics to include: Critical Loads, MTN, LTER, National Estuary Programs, Woodshole work, Isotopes as Tracers, Mercury Session, Boston Ammonium.

15. Why Can't We Get a Handle on Dry Deposition of Air Pollutants? – Pam Padgett (USFS)
 - Not a single, simple constituent, nor a single phase.
 - What goes up does not come down at same time.
 - Dry deposition of gases depends on deposition velocity.
 - Different diameter particles deposit at different rates.
 - N, S, and P are essential nutrients of all organisms, so biology affects uncertainty.
 - Terrain complicates picture because wind is primary delivery mechanism.
 - Wet deposition is an integration of several events leading to single phenomenon of acid rain, but dry deposition is not a single phenomenon.

Tom Butler (Cornell Univ.) – Commented that 2007 meeting in Boulder, Colorado needs a theme. Dry deposition could work.

16. Data Management and Analysis Subcommittee Report – Chris Rogers (MACTEC)
 - DMAS voted to include additional AIRMoN data products on the NADP website and in printed form.
 - DMAS suggests streamlining coding of data to simplify going from one database to another (e.g. NTN to MDN to AIRMoN) and to eliminate fixed-width data products.

- Chris moved to have Chris Lehmann and Greg Wetherbee quantify bias of new rain gages and submit a plan to do so by the fall 2006 meeting. DMAS suggests using 30 sites with 1 year of co-located operation for each site. The sites should be geographically distributed to cover many ecoregions. Van Bowersox seconded the motion. Discussion ensued about the number of sites and scope of such a study. The motion was approved unanimously.
- DMAS is pressed to start dealing with new electronic data from rain gages and from electronic field forms.
- With respect to high-altitude data and proposed new data products, DMAS recommends putting actual measurements and flags on the internet instead of censoring the data. No alternative mapping methods should be pursued at this time except for seasonal maps.

17. Quality Assurance Report – Chris Lehmann (ISWS, NADP Program Office)

- 2004 HAL QA Report accepted
- 2002 CAL QA Report accepted
- 2006 CAL Review format and participation has been finalized, and it is scheduled for June 13-15. Team consists of Lara Autry and Mike Kolian (USEPA), Dave Maxwell (NPS), Greg Wetherbee (USGS), Mary LaFavre and Chris Lehmann (ISWS).
- HAL review will occur in fall of 2006, preferably before November 2006.
- The QAAG came to resolution on calibration of NWS stick gages for AIRMoN sites. A unique correction factor will be estimated for each gage by the PO using geometric dimensions of each stick gage. The correction factors will be supplied to each site to adjust their past data. Each AIRMoN site will swap out their gage with a PO-calibrated gage, each with its own, new correction factor.
- The network Quality Assurance Program Plan is scheduled to be in draft form by fall 2006. Currently, the DQO appendix is nearing completion. The Quality Management Plan will be revised to incorporate the DQOs thereafter.
- 2002 CAL QAPP is in revision and is expected to be complete in June 2006.

18. Summary of the Mercury Trends Network Workshop on May 1, 2006 – Marty Risch (USGS)

- Marty summarized the key elements of the 12-point plan and the process for its review, revision, and approval (or rejection). The plan will have to be voted on by the Technical Committee at the fall 2006 meeting. Regional meetings planned to gather input and prioritize objectives.
- Existing protocols will be used, and data will be gathered into a central location. Draft SOPs will help sponsors to decide whether or not to join network. Need to include sites with air pollution monitoring, terrestrial, and aquatic mercury monitoring. Look for ways to adjust network.
- Competition for resources (e.g. new NADP rain gages) is an issue especially because MTN startup and annual operating costs are considerable. Jane Rothert asked about costs, and Marty responded: Automated Sites = \$140K

for instrumentation + \$40K labor, and Manual Sites = \$30K for equipment + 30K for analysis + labor.

- Preliminary objectives: 1) Quantify uncertainty with reactive gaseous mercury (RGM) and particulate mercury (PHg) measurements, 2) quantify mercury species concentrations, transformations, and interactions, 3) advance science of modeling dry deposition and mercury transport.
- A summary report should include point data rather than isopleths in the early years, and only 12 sites should be included in startup network (comment by Tom Jones (ATS Chester)).
- Modelers will be consulted about most appropriate inferential dry deposition model to use. Dry deposition estimates may be reported if associated assumptions and limitations are clearly stated and updated over time.

David Schmeltz (USEPA) commented that a map of a potential network is too aggressive at this time. The network will start small with established sites that are willing to participate to reduce costs.

Mark Nilles (USGS) expressed concern about the network name, which connotes that it is the trends network when it is only part of the whole picture.

19. Spring 2007 Meeting Venue Poll – Marty Risch (USGS)

- Marty polled the attendees on four potential cities for the spring 2007 meeting. The choices included: Burlington, VT; Indianapolis, IN; Memphis, TN; and Pittsburgh, PA, and the winner is...Burlington, VT. The Spring 2007 meeting will be in Burlington.

20. How Do Things Get Accomplished within NADP? – Mark Nilles (USGS)

- A technical structure is needed. In the July executive committee meeting, Mark will present a proposal which could be voted on at the fall 2006 meeting.

Cari Furiness (NC State Univ.) announced the 4th International Nitrogen Conference in Sao Paolo, Brazil where NADP could present a monitoring workshop/session.

Much deserved thanks were given to Pam Padgett for hosting a successful and very pleasant meeting and BBQ mixer. Thanks, as always, was also extended to Kathy Douglas for her tireless work in pulling off yet another smoothly operating, organized, and productive meeting. Cari Furiness moved to adjourn the meeting at approximately 4:00 p.m. Mark Nilles seconded the motion, which was approved unanimously.