

Joint Subcommittee Meeting
Madison, WI
April 23, 2013

- **Motion to approve minutes** by Greg Wetherbee, seconded by John Sherwell. Minutes approved.
- **State of the NADP (David Gay)**
- NTN status
 - There are currently 265 NTN sites. In 2012 NTN lost 3 sites, but gained 3 sites in Canada, two SEARCH sites, NJ and NY sites (6 new NY sites).
 - NY participation
 - NYSERDA and NYS DEC converted their precipitation sites to NTN and/or MDN sites in 2012.
 - The AMNet site at Huntington Wildlife Forest will be taken over by NYS DEC while mercury litterfall sites were added at Huntington and Biscuit Brook.
 - NY signed a 5 year contract with the PO – largest NADP contract
 - Argentina (AG01) NTN site has been operating for 14 months using a bag sampler. This site is still having some issues with data completeness and shipping.
 - Bromide has been added to the database.
- AIRMoN status
 - VT99 will be discontinued this summer, unless additional funding can be found.
- AMoN status
 - 6 new sites added between April 2012 – April 2013.
 - Possibility of additional growth – other divisions within EPA are interested in AMoN.
- MDN status
 - Since April 2012 network has lost 3 sites (with the possibility of 2 more), 1 added (CO13).
 - Currently 109 sites. 17 sites include methyl Hg and 54 MDN sites are collocated with NTN.
- AMNet status
 - Since April 2012 the network has lost 3 sites (OH02, PA13 and WV99), but 3 were added.
 - Currently 18 AMNet sites operating. Taiwan site is still operating and NOAA is still operating Mona Loa site.
 - DMAS will discuss a new data release policy for AMNet.
 - SOPs are complete and have been approved.
 - Proposal for using Environment Canada's dry deposition model for estimating mercury deposition discussed during the Total Deposition Science Committee Meeting.
 - Publication on AMNet pending in Atmospheric Chemistry
- New Initiative: Mercury Litterfall status
 - August 1 start date. Currently 14 sites have joined.

- Analyses have been performed and data will be available soon.
 - SOPs are in place.
- 170 Publications used or mentioned NADP data in 2012
- The collocated sites at IL11 had very different raingage readings during snow event in March, 2013.
- Electronic raingage installations are nearly complete. The network is 80-86% digital. No new upgrades since last fall. Agricultural Research stations have not upgraded.
- New pumps are being set to operators which allow them to empty the raingage without removing the bucket.
- Training has shifted to monthly webinar-based training. The CAL and the HAL alternate months.
 - David Gay offered to purchase handheld video cameras.
 - CAL and the HAL agreed to generate training videos and have them posted to the PO website.
- **CAL report (Chris Lehmann)**
- New staff/new roles: Brian Kerschner hired for data review, QA and site support; Tracy Dombek is now at RTI; Kim Attig no longer with CAL; Jeff Pribble is performing site support and webinar coordination; Nina Gartman is working as the QA manager; Lee Green is the laboratory supervisor; Hired a new chemist.
- New analytical methods: sulfite by IC; nitrite by colorimetry (FIA); passive samplers for NO₂ and SO₂; analyzing samples for total nitrogen with John Walker
- New reports and data products include: sample receipt record and electronic field form are submitted to site operator for their review; updated sample coding (proposal to be discussed in NOS); faster data turnaround – 39-60 days for all 3 networks
- NTN issues include power (Appalachian Mountains) and the NCON collector is not performing well with solar power. USGS is continuing to work on the power issues.
- Developing separate method detection limits for NTN and AIRMoN have been established, will do the same for passive ammonia.
- AMoN sampler issues resolved after using updated cleaning procedures which include washing bodies with manufacturer recommended soap solution and storing the cleaned bodies in zipper-type storage bags inside the positive pressure laboratory hood.
- NTN and AIRMoN sample archive availability - back to 2007 for NTN and 2008 for AIRMoN.
- Related activities –
 - Carbon deposition project.
 - Intern from Brazil will focus on ammonia deposition and monitoring work. Possibility of adding passive samplers in a grid system to look at spatial variability.
 - St. Louis study is complete.
 - British Columbia study at Rio Tinto Alcan. Deployed passive samplers at industrial sites.
 - Total nitrogen study in progress with collaboration from John Walker.
- **Hal report (Bob Brunette)**

- Looking at importance of MDN on assessing Mercury Air Toxics Standards (MATS). MATS has been challenged in court by industry and 3rd parties. Implementation date is set for April 16, 2015 and requires a 90% reduction in Hg emissions by 2015 from EGUs and Portland Cement facilities.
- Reported that the ICMGP meeting will be held in Scotland this year
- MDN has a net zero gain/loss of sites in 2012.
- The HAL is looking for operator for the Alaska site.
- Coastal, high elevation sites are showing high concentrations of Hg in wet deposition due to the use of PRISM precipitation grids. HAL is looking to add sites along the northwest coast to better understand impacts.
- WA03 Makah – funding challenges (working with EPA TAMS center).
- Current network includes 61 ACM collectors, 47 NCON collectors, 12 Belfort gages, and 96 digital raingages.
- HAL has hired a new QA manager: David Wunderlich.
- Provided an update on the deployment of the HAL's new SQL database. Parallel testing phase began in October. The HAL will provide the production database to the PO when approved.
- The methyl mercury database has been submitted to PO
- Trace metals 12 point plan will be submitted to ad hoc review committee
- EPA is sponsoring 2 intensive sites for estimating dry deposition of RGM using passive samplers
 - Publication on RGM passive samplers submitted to Atmospheric Pollution Research
- **QA report (Mark Rhodes)**
- The 2013 external review team for the PO will be Gary Lear, Amy Ludtke and Kristi Morris
- All 2012 QA reports are in progress
- Webinar based training is easier and more flexible than bringing operators and equipment to meetings
 - CAL has held trainings on sample change out, electronic raingages, NTN sample processing (May 2013)
 - HAL has held trainings on sample change out, motorbox and sensor change out (May 2013)
 - AMNet and USGS field audit program webinar trainings are pending
 - Feedback has been positive – 100% of the operators have said they would participate again
- Discussion on the proposal to reprioritize the analysis order for NTN analytes. This proposal came from the CAL Review in 2011. Currently, pH and conductivity measurements are performed first for NTN samples. For low volume samples, this may consume the entire sample before other analyses can be performed. 4-6% of NTN samples are wet-dilute samples and another 3% of the NTN samples are analyzed for pH and conductivity only.
 - Presented results from FR50 testing comparing unfiltered, undiluted; Filtered, diluted; and filter blanks (filter, undiluted). Also showed results for dilution of real precipitation

samples using dilution factors of 1.5-2.5. Results showed little variation for S and N species. Greater variability for other analytes (e.g., Ca^{2+} and Mg^{2+})

- Next step is to test dilutions greater than 2.5x's.
- Bob Larson said DMAS will discuss how to deal with samples where all analytes are not measured, and therefore the ions are not balanced due to partial chemistry or low volume samples.
- **Motion:** The NTN analysis order should be changed moving pH and conductivity measurements from the start of the analysis sequence to the end of the analysis. The CAL should implement this change as soon as possible. If the change cannot be implemented by fall meeting, a timetable should be presented at fall meeting for implementing the change.
- **Discussion:** Jason Karlstrom asked what the data users are looking at – pH or the chemistry? Users are typically downloading everything. Chris Lehmann said this is a large change to the network operations with a quick deadline. He recommended making the change in January of 2014. Chris Rogers mentioned that this was only affecting 3% of the NTN samples. Tom Butler made the point that even though it's affecting 3% of the samples, that number is not based on sample volume. The change would really only affect ~1% of the sample. Mark Allen stated that we need to have a better understanding of the errors introduced by each analyte and suggested running collocated sites for dilution analysis. Mark Rhodes stated that there is already ~15% difference at collocated sites so it would be difficult to determine real differences.
- This motion was moved into NOS with a recommendation to bring suggestions back to Joint. NOS passed a motion to have Chris Lehmann come to the fall meeting with any concerns that the laboratory may have with revising the analysis order and a recommended schedule for reprioritizing the analysis order.

- **Trace Metals Update (Bob Brunette)**

- Bob stated that the MDN was originally intended to be trace metals network. The HAL has been measuring trace metals unofficially for 14+ years.
- Trace metals network is necessary for understanding atmospheric transport, health and environmental impacts of metals on deposition. There are also new regulatory drivers.
- **Discussion:** Marty Risch asked what would happen to the historic trace metals data? Bob responded that the new data is stored in the HAL's LIMs. Prior to using the LIMs, the data is available but it would be more difficult to access due to the use of different formats, etc. Marty asked if there have been any changes to the procedures over the 14 year period. Bob responded that there have been some variations to the equipment used (NCON versus ACM collectors) but the analysis has always been the same. Greg Wetherbee asked what the next step is and if he, as an advocate of the network, could receive a copy of the 12-point plan. Beth Boyer voiced her concern that the data may become public before they have a chance to review the data and determine what it means. There needs to be a time period set aside for site sponsors to review the data. Chris Lehmann asked Bob if there is a standard suite of measurements included in the

trace metals network. Bob responded that the sponsors select which metals their samples are analyzed for depending on their needs – some ask for 17 and others only ask for 9, etc.

- **Webinar Training Update (Jason Karlstrom)**
- Range of 20-55 attendees for trainings held in March and April.
- Still working out issues with the new equipment, webcams, Bluetooth and mics/transmitters. The webinars are not recorded automatically.
- May HAL webinar will be on motorbox and sensor change out and replacement procedures and the CAL webinar will be on NTN sample processing (decanting and shipping).
- David Gay asked if it would be helpful if the PO purchased a handheld video camera? Jason stated that would be useful because the web camera is difficult to maneuver around.
- Agreed to post all webinars on the NADP website. Training notifications are submitted to site operators and site supervisors.

- Subcommittee chairs listed the agenda items they would be discussing in their afternoon and Wednesday morning meetings.

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- Each subcommittee chair gave a report on their meeting highlights.
 - See each subcommittee's minutes for highlights from the individual meetings.
 - Rich Poyout provided an update on SCUAM (subcommittee on urban atmospheric monitoring). The meeting consisted of 15 – 20 participants. Tasks include assembling a database of participants, assembling a database of entities that perform monitoring in urban areas and finally to define a scope - including 'what is urban monitoring'. A goal of SCUAM is to expand existing NADP networks into urban areas and to interact with existing urban networks. Questions that remain unanswered include what is the best way to make the measurements and what is the scale of observations. SCUAM will look into using passive samplers to supplement existing networks and expand to urban areas. Expanding into urban areas is a way to reach out to citizen scientists.

- **Litterfall Initiative Update (Marty Risch)**
- The network is still in the transition phase with 14 sites being supported by several different sponsors. Cost per site/year is \$2,600. The sample preparation and analysis is covered by USGS.
- The network enhances measurements made by AMNet and MDN by providing a more complete Hg deposition budget.
- Protocol is to deploy 8 passive samplers randomly in a forest from August through the end of leaf drop. Every 4 weeks the operator collects the sample and ships it to the USGS lab where it is weighed and freeze dried. The lab then analyzes sample.
- Sites are located in mixed forests. The highest Hg concentrations have been seen in oak/hickory forests. The litterfall data compares well with the MDN data.

- They have seen low variability between the 8 samplers (less than 20% RSD) and all samplers catch some litterfall
- Data is being reported to the PO and site sponsors
- USGS is offering archive samples for future analyses
- Discussion: Tom Butler asked if there are any signs of emission of mercury with the passive samplers. The samplers could also be gaining Hg while the samplers are sitting in the forest for 4 weeks. This hasn't been determined. Additional discussion on whether this network could be a way to collaborate with the agricultural community by looking at Hg uptake of crops. Eric Prestbo asked how much Hg is being reemitted from litterfall and being taken up by new leaves. He stated that this is an opportunity for more research. John Walker stated that this is a gap in our understanding of NH₃ uptake also.

- **Neon Update (Jeff Taylor)**

- Neon is adopting many of the NADP/NTN methods for their wet deposition sites. They plan to add 55 wet deposition sites for the 30 year study and may add an additional 14 wet deposition sites to their aquatic sites. Sites will have an N-CON dual chimney collector.
- All data, models, algorithms and maps will be publicly available.
- Site selection was based on 20 eco domains and each domain has 3 tower sites. At the tower sites the collector and raingage will be located on the tower (above canopy). Other tower measurements include climatic and precipitation measurements. Profile measurements will be made for gases (O₃ and NO_y at 40 sites and CO₂ and H₂O vapor at all sites).
- NEON and NADP will participate in an intercomparison study beginning 2014. NEON plans to use a 2-week wet deposition sample. Rick Artz asked if they were familiar with the WMO report on 2-week samples and suggesting NEON may be trying to reinvent the wheel. Doug Burns stated that NY uses a weekly sample unless there isn't enough precipitation but they have seen nitrate loss in the samples that have been deployed for more than 1-week.
- Mark Nilles stated that the NADP initiative process can be used to create a sub-network, using NEON protocols and they may gain other sites from interested agencies. David Gay mentioned that the PO offered this option to NEON already.
- Gary Lear asked what the reasoning was behind deploying additional sites instead of joining existing networks. Jeff responded that they want consistent measurements across their sites and consistent long-term measurements. They will be relocating several sites in 9-years and existing networks can submit proposals to have NEON at their site locations.

- **Fall 2013 Annual Meeting and Science Symposium (Chris Rogers)**

- Meeting will be held from Oct 8 – 11th in Park City, UT
- Session topics will include high elevation, energy development and IMPROVE
- Proposing a field trip on Thursday night instead of Friday due to the scheduling conflict with the Nitrogen Workshop on Friday.

- **Suggested Spring 2014 Meeting Location (Melissa Puchalski)**

- Final vote Charleston, SC selected as #1 and Jacksonville, FL selected as #2.
- Motion to adjourn by John Sherwell and seconded by Pam Padgett.