

## Network Operations Subcommittee (NOS) Meeting

Madison, WI

April 23-24, 2013

- **Motion to approve minutes** by Mark Rhodes. Seconded by Bob Brunette. Minutes approved
- **USGS External QA Report for 2012**, Greg Wetherbee
  - Total mercury contamination looked good and had a mass constant at approximately 0.2-0.3 ng/sample
  - The MDN Inter-lab comparison had 11 laboratories participate. They're losing samples due to bottle damage shipping to China. They are investigating other shipping options. Three GMOS labs were invited to participate with no response.
  - The HAL's results for 2012 look good, there's typically a -0.5 pseudo-sigma bias; in June and July of 2012, there were a handful of QA samples with a positive bias.
  - The NTN samples analyzed at the CAL look good, slightly more variability than previous years, but well within control limits. The blanks analyzed by the CAL look good. There are too few bromide samples for an evaluation.
  - The USGS external QA program is working on a new website and is in the testing mode now.
  - The NTN field audit for 2010-2012 showed potassium and ammonium having a few samples with maximum contamination levels exceeding the NTN 10<sup>th</sup> percentiles.
  - The collocated sites for last year were: CA76 : 76CA (2 OTT Pluvios with N-CON/ ACM), CAN5 : CAN6 (2 Noah-IVs with N-CON/ACM), and CO98 : CO89 (2 Noah-IVs with 2 ACMs)
  - The collocated sites for this year are: CO00 : 00CO, CO13 :13CO, and 02CO
  - USGS publications:
    - 2009-2010 external QA report nearly in editing for approval
  - The CAL is performing well. Slightly more variability with sodium, sulfate and pH
- **NADP/CAPMON Collocated sampler results**, Greg Wetherbee
  - Purpose of the study was to quantify bias between CAPMON and NADP different sampling methods.
  - Median difference in sample volumes for 2005-2012 was 0.8 mm
  - CAPMON collects the higher volumes and slightly higher concentrations, probably due to CAPMON samples not being filtered, the collector opening slightly earlier, and the samples being collected daily rather than weekly.
  - The results are consistent and comparable with previous studies, and merging of the data from 2 networks is appropriate. The bias has been quantified and the variability between the two is consistent.
- **Tritium Pilot Network**, Greg Wetherbee
  - The pilot tritium network could be piggybacking along with NTN samples.
  - The analysis requires 100 mm of sample
  - Composite samples will be sent to Colorado State University
- **AMNet Report**, Mark Olson
  - 10 site visits were performed
  - A training course was conducted at VT99 with 10 participants
  - New data is available with >200,000 observations per analyte

- AL19, GA40, and FL96 have submitted 2009 data for inclusion in the State of AMNet publication.
  - The data sets are password protected; DMAS will discuss the password requirement.
  - Working towards decreasing time from sample collection through QA review and eventually have real-time data submission.
  - Evaluating Tekran 2537X, 2537A, two 1130s, and two 1135s.
  - Upcoming will be expediting data transfer, more site visits, expanding into Asia, collocating w/ Wisconsin DNR and a precision and accuracy publication.
- **Equipment Testing Updates, Mark Rhodes**
    - Sensor study results:
      - More variability and more openings with the ETI optical
      - There have been some initial operational issues such as: corrosion of wires and connectors, broken sensors, Hobo software bug, and cracks in Thies sensor
      - Next steps will be to repair broken sensors, bury cable for 2 sensors, and continue study
    - Sensor power:
      - Thies sensor with original heater draws 1.36 Amps at peak, and then settles to 0.61 Amps. Modifications to the heaters reduced initial peak to 0.51-0.66 Amps.
      - The best candidate heater maintains a high enough temperature to melt snow is in the 80-150 ohms range.
      - Converting the motor box from 24 VAC to 24 VDC or 12 VDC would save power and eliminate the need for an inverter. Honeywell does not have a substitute motor.
    - NTN Bag sampling:
      - Difference between nitrogen in bag samples and bucket samples was less than expected. May be due to less biological activity during winter months. Will continue sampling through summer and anticipating more variability during summer months.
      - The bag sampling helps cut shipping costs and simplifies logistics for international sites.
    - MDN Evaporation study:
      - No new results
    - Belfort Electronic Rain gage:
      - Belfort would like to lend 2 gages for network comparison to eventually be an alternative gage for the networks.
      - Would also like their double-alter windscreens to be tested.
      - It was decided that Mark Rhodes would proceed with field testing, with one gage at the Beltsville, MD site and one gage at the Bondville, IL site.
  - **Field Deployable Mercury Monitor, Brooks Rand Instrument- Joel Creswell**
    - Developing a field deployable mercury monitor for water samples to be beta tested in May '14 – Jan '15 with final product scheduled for April '15
    - Funded by Department of Energy's Small Business Innovation Research Program.
    - Benefits will be high frequency sampling, real-time data, reagent-free and could be less expensive.
    - Looking at a reporting level of 0.1 ng/L.

- **AMoN Report**, Melissa Puchalski
  - 61 sites in network, increase of 3 sites this year
  - Testing a new design for hanging samplers
  - Travel blank variability has improved
  - Ran a SAS Arima analysis to detect if there was a significant shift in concentrations during the May-Aug 2008 when samples were shipped in plastic, disqualifying 4 months of data at all sites.
  - CASTNET/AMoN intercomparison journal article upcoming.
  - Marga 1-S system collocated at Beltsville, MD
  - Data added to total deposition map products
  - Carnegie Mellon is using CASTNET and AMoN data.
  
- **USGS Equipment Upgrades**, Amy Ludtke
  - 76 sites have electronic gages operational
  - 62 of 76 sites have an N-CON collector installed
  - The 10 solar sites did not perform well over the winter, losing on average 29% of the last 29 weeks of data due to insufficient power
  - USGS is holding off on future solar installations until power consumption problems are resolved for N-CON collectors.
  
- **NED Update**, Mark Rhodes
  - NED continues to house equipment replacement and repair parts
  - Part replacement needs are changing with the new equipment and now includes: Honeywell motor box for N-CON, AC-DC power inverter for gage, AC-DC power inverter for DC sites and transformer for N-CON
  
- **Site Survey Status Report**, Eric Hebert
  - Seeing more electronic rain gages and N-CONs in the field
  - Communication between the RMM and the PDA or flash drive poses technology problems for the operators.
  - Electronic gages are performing well
  - Belfort gages are adjusted in the field as well as possible
  - Site operator training continues to be an issue, specifically operators are not wearing gloves, are heating samples to melt ice, and are swirling samples around buckets collecting particulates from bucket walls before decanting.
  - EE&MS double enters field data and have an error rate of approximately 0.5%
  - Campbell Scientific has developed an iOS/Android application called, LoggerLink to communicate with IP-enabled dataloggers.
  
- **Standard Operating Procedure (SOP) Progress Report**, Mark Olson
  - 78 SOPs are needed, 13 have been approved previously, 27 need to be written, 7 are written but need edits, and 37 are ready for approval.
  - Approval makes them available on-line, but still allows for minor modifications to be made
  - Documents will be converted to PDFs, grouped by instruments and made available on line from the NADP web site.
  - *Motion* by Mark Olson: "The 37 standard operating procedure (SOP) documents listed above are accepted and approved for network use. These documents will supersede all

*previous documents.” Motion moved by Jason Karlstrom, seconded by Kevin Mishoe, Motion was approved.*

- **CAPMON ETI Flash Drive Transfer Modification**, Richard Tanabe
  - Created an external attachment to easily download data from the rain gages without having to open the unit up. System uses a Campbell Scientific SC12 cable with a CS I/O port, a weather rated electrical box with a spring loaded door and a fixed mount to the bottom of the gage.
  
- **Substitute Precipitation Issue**, Greg Wetherbee
  - There’s confusion when the precipitation volume is missing and there are multiple backup measurements, as to which value to use.
  - Bob Brunette suggested when there is missing digital or Belfort data then the NTN bucket catch should be used.
  - NADP protocol is to use this order for precipitation depth: gage depth -> substitute gage depth -> NTN bucket depth -> MDN bucket depth.
  - Wetherbee, Brunette, and Dr. Elizabeth Boyer at Penn State will discuss. Wetherbee will update findings at the fall ’13 meeting. Dr. Boyer is expected to be in attendance at the fall meeting.