

MELD Meeting Minutes

2020 NADP Fall Meeting

Virtual

October 26, 2020

Co-chair: Richard Haeuber

Co-chair: Colleen Flanagan Pritz

Secretary (unofficial): Katherine Ko/Colleen Flanagan Pritz

Action Items

1. Await Minamata monitoring guidance and provide comment – January / February 2021
2. Follow up with Hg measurement workgroup and Hg measurement evaluation team, and prepare for January 2021 workshop
3. Consider fire as an important research direction, given fire is intricately tied to environmental mercury, wildfires are only expected to become more frequent and more intense, and ongoing efforts to reduce global emissions from anthropogenic sources.
4. Per discussions at the Joint Meeting, consider incorporation of discussions on litterfall, etc. at future MELD meetings.
5. Plan for Spring 2021 meeting

Meeting Agenda (1-6 pm EST)

1pm: Welcome and Introductions

1:15 pm: Updates on the Minamata Convention on Mercury: Effectiveness Evaluation and Multi-Level Engagement Strategy

1:45 pm: Minamata Discussion

2:15 pm: Mercury Measurement Workgroup

3:00 pm: BREAK

4:00 pm: Mercury Emissions and Wildlife: Lightning Session

4:50 pm: Lightning Session Discussion

5:10 pm: Round Robin – recent related work

5:40 pm: Talk Teasers

5:55 pm: Wrap Up

6:00 pm: ADJOURN

- Meeting commenced at 1:00 EST
- Colleen reviewed progress since 2020 spring meeting, and logistics of Zoom meeting
- Rick presented an overview of the agenda and meeting objectives

Minamata Intercessional Update

Guest Speaker: Liz Nichols, Dept. of State

- Next up is COP4 – Bali, 1-5 November 2021
- Working on revising EE Framework
- Secretariat has developed timelines to create technical guidance documents
- They will be looking for feedback and input in Spring of 2021, maybe as early as January 2021.
- Canada and Norway are coordinating an effort for parties to address other concerns not undertaken by a Secretariat-driven process (e.g. institutional arrangements, ICC report, etc.)
- Intercessional
website: <http://www.mercuryconvention.org/Meetings/Intersessionalwork/tabid/8279/language/en-US/Default.aspx>. For tracking timelines and activities

Minamata Monitoring Update

Guest Speaker: Terry Keating, US EPA

- Monitoring under Minamata: Article 22 and Article 19
- Evolved from Technical Expert Group (TEG-) Identified Questions to TEG Recommended Framework on COP3 Decision
- US EPA has a schedule of drafting meetings to complete a draft set of guidelines for both Monitoring Guidance and Effectiveness Indicators by January 2021. Reviewal process complete by March 2021. Final Consultation meeting May 2021. Document finalized July 2021.
- Challenges Ahead:
 - Balancing Short-Term Plan and Long-Term Vision, i.e., What monitoring would be needed now to support the first EE compared to the comprehensive monitoring which would be needed for a more robust EE in the longer-term.
 - Articulating a tiered monitoring approach to address varying policy objectives and the potential for an evolving monitoring infrastructure
 - Balancing Multiple Monitoring Objectives
 - Defining "Comparability"

Mercury Interagency Group (MIG)

Guest Speaker: David Krabbenhoft, USGS

- Multi-level Engagement Strategy
 - NADP/MELD
 - Mercury Interagency Group (MIG)
 - Chair: Dave Krabbenhoft, USGS
 - US Minamata Delegation (State Dept. & EPA)
 - Minamata Monitoring Team (MMT)
 - Chair: Terry Keating, US EPA
 - Minamata Convention
 - Monitoring Guidance Development Process
- Minamata Discussion
 - D. Evers: Ongoing Efforts for Biota, Air, and Human Exposure. The Secretariat's work towards developing monitoring guidance for the effectiveness evaluation, includes the work of consultants hired by UNEP to flesh out monitoring plans for biota (D. Evers),

humans (N. Basu), and air (L. Martin). Also, GEF-STAP: Global Environment Facility Scientific and Technical Advisory Panel has funded the development of a centralized knowledge platform in 2021 for mercury biota.

- It was noted that under the GOS4M project, a knowledge platform for mercury in air and biota is also being developed. The GEF funded effort should be coordinated with this.
- Plans for linkages to human exposure information need to be developed.
- T. Keating: webinar in Jan/Feb to give update on process for review of monitoring guidelines

Mercury Measurement Workgroup Update

Kristi Morris and David Schmeltz

- There is a need to fill network data gaps; new passive and low cost active atmospheric mercury measurement methods provide some potential options.
 - Current methodologies (Presentations at NADP 2020 – Thursday, Oct. 29th, 2020):
 - MerPAS – passive GEM
 - USGS, Madison – active TGM with isotope option
 - University of Nevada, Reno – active and passive GOM and PBM
 - Japan Gold Amalgamation Trap Method – manual active TGM
- Evaluation criteria will be developed. Considerations include:
 - Cost
 - Suitability in routine national monitoring network
 - Use of data
 - Performance (e.g., accuracy, precision, comparison to known standards or methods), reliability, reproducibility
- Evaluation Team Members:
 - Charley Driscoll, Syracuse University
 - Barkley Sive, NPS
 - Russ Bullock, EPA
 - Martin Shafer, WSLH
- Tasks:
 - Refine list of candidate methodologies and evaluation criteria
 - Conduct evaluation
 - Submit report with recommendations to MELD for consideration

Mercury Emissions and Wildfire: Lightning Session

1. *Rich Schwab, NPS/National Interagency Fire Center - Overview of the 2020 Wildfire Season*
 - Monitoring Trends in Burn Severity website: <https://www.mtbs.gov/>
 - <https://www.landfire.gov/>
2. *Jack Webster, CSU Chico – Estimating wildfire-generated Hg emissions from forests of the Western US*
 - 92% of forested locations emit within 0.5 and 30 g-Hg ha⁻¹

3. *Randy Kolka, USFS – Post Fire Forest Floor Fire Severity Index Relationships with Soil Mercury Pools*
 - Fires are a major sources of forest floor Hg to the atmosphere
 - Like most others have found, forest fires are not a major source of Hg from mineral soils
 - Forest floor fire severity index is effective at predicting Hg emissions
 - Thanks to new funding, they are going to go back and revisit these plots and run more mercury analysis.
 - They have their archive of data if anyone wants to run tests on different metals. They only tested for mercury.

4. *Sandy Steffen, Environment Canada – Airborne Mercury Measurements in a Canadian Forest Fire in 2018*
 - Flyover fire with Tekran monitor
 - Measured [GEM] was 2.4 times higher than background. GEM significantly correlated with the co-emitted carbon species (CO, CO₂, and CH₄)

5. *Mae Gustin, UNR – A first glance at what four measurement systems tell us about atmospheric Hg downwind of large fires*
 - Tekran-based systems (GOM, GEM, PBM), Membrane-based systems (CEM with and without PTFE, and with elutriator), and Air Quality Data
 - GEM higher during fires that was closest
 - GOM not significantly elevated
 - PBM increased with increasing fire events
 - RM concentrations: RMAS > UNR-DCS > UT-DCS > Tekran
 - PBM concentrations: UNR DCS = RMAS
 - Similar results to previous work regarding fires primarily GEM generated

Round Robin

- D. Burns: Special issue of *Ecotoxicology* journal (Dec. 2020, vol. 29, issue 10, lead synthesis paper is open access at <https://doi.org/10.1007/s10646-020-02291-4>) focused on mercury cycling studies in the state of New York, USA. Many of the papers are open access.
- E. Prestbo: study ready for submission to ACP: *A field intercomparison of three passive air samplers for gaseous mercury in ambient air*
- S. Steffen: Canada is working on a forum for a data repository that people can link to. More information to come.
- W. Luke: NOAA has shut down the AMNET site in Grand Bay. They were hoping to move this site to Barrow, Alaska this summer, but now they are aiming to have that done next season.
- A. Rose: Fire and Smoke Map: <https://fire.airnow.gov/>
- R. Kolka: Ed Nater is retiring at the end of December
- M. Gustin: Happy to share papers on more work if anyone is interested. For anyone who has limited access to scientific journals, STOTEN has some papers available for open access for a limited amount of time, including a special issue on mercury.
- B. Sive: Fire and smoke maps have included sensor data, and the National Park Service is trying to ramp up and regularly deploy more monitors (Purple Air) as well.

Talk Teasers

- D. Krabbenhoft: A National Survey of Total Gaseous Mercury Stable Isotope Composition and Concentration across the US.
- M. Sather: Comparison of pre-MATS rule and post-MATS rule GOM Dry Deposition Measurements in the Four Corners Area
- K. Bishop: Relaxed Eddy Accumulation for Hg shows annual net loss of Hg to the atmosphere: is that possible?
- D. Obrist: Micrometeorological flux-gradient approach method to estimate annual net ecosystem exchange of GEM over a remote temperate forest

Wrap Up

- C. Flanagan Pritz presents next steps

Meeting adjourned.