

DMAG FALL 2023 MINUTES

(From Friday, October 13, 2023)

Attendees: Zac Najacht, Nichole Miller, Amy Mager, Mark Kuether, Jayde Alderman, Greg Beachley, Greg Wetherbee, Amanda Cole, Casey Lanham, Aaron Pina, Dana Grabowski, Richard Tanabe, Tim Sharac & David Gay

Welcome to a new member: Jayde Alderman. Jayde has been working with Chris Rogers at WSP for about a year and will be reporting to him on DMAG activities.

Data Review and Reporting:

Network	Current Sample Set	Approx. Sites	Approx. Samplers per month
NTN	Mar. 2023 (for fall mtg)	255	1075
MDN	Mar. 2023 (for fall mtg.	82	240
MLN	2022 in review	24	Seasonal / Variable
AMoN	Mar. 2023	92	230
AMNet	2022 in review	11	8640 (5 min/month)
PRECIP	Ongoing	NA	1200 (300 weekly)

Zac reminded the group of the review process. The incoming samples are grouped by the month they are received. As a reviewer, Zac checks for gaps and overlaps, pulls precip data and lab data into the record, and generates preliminary reports. The dataset is then delivered to Mark Kuether (Data Manager) for final processing. This often includes discussions between Zac and Mark on outliers before the data is published to the web.

Question from Aaron Pina about Lag Time:

Aaron asked about the data lag targets, commenting that they appear to currently be at 7 months between when the samples are received to when the data is published on the web. Zac indicated that the NADP target is to provide the primary review, with initial reports sent out, after 90 days of receiving the samples. The final publication time to the web does not have a set target, but it is typically posted within a month or earlier after data review has sent out its initial reports. Staffing changes and new job responsibilities for the Zac and Dana as NTN and MDN data reviewers have impeded the progress.

Aaron asked further about long term plans to improve the process efficiency. Zac indicated that NADP is starting to implement a different workflow to process the samples more efficiently. This involves moving the pH and conductivity work to the Agriculture Drive building to free up

labor for the receiving team. Zac plans to have the receiving team help with processing so the process can be more parallel and less serial in nature.

Website Data Status:

Mark indicated that MDN, NTN, and AMON networks all had weekly data posted to the web up to January 2023. The Annual aggregations were also completed for the 2022 period.

Mark also commented on the status of the Data Manager SOP. The intent was to provide both a high level and detailed SOP. The high level SOP is intended to provide a basic overview of the data flow. The detailed SOP provides detailed steps on how to process each type of data. The High level SOP was on hold while the detailed SOPs were being developed. NTN and MDN were mostly complete. Maps, MLN, and AMoN SOP's were still being produced.

General Changes and Updates for NADP PO Data Processing

Precipitation Processing Efforts:

Mark, Zac, Dana, and Casey are involved in an effort to migrate the precipitation processing from an older VB program to a Java based program. This will still have a web interface for data processing. Additionally, the Outlook script used to process emails with precipitation data needs to be updated because Microsoft is likely to block script functionality of this variety in future version of Outlook. Casey is also hoping a new intern that recently started in OIS can help this move along quicker.

Zac also mentioned that plans for upgrading the NTN daily precipitation format to be similar to MDN have been put on hold. This is slated to be taken up again after some of the larger and more immediately needed precipitation updates are made.

Data Request Form:

Mark and Richard discussed a pending data request form. This would allow NADP to track the number and scope of requests made, as well as streamlining request process. By requiring certain details in the form, the Data Manager will not need to ask as many follow up questions before working on building the report. The form is almost completed, and Mark will send out a version prior to release to gather feedback. The form covers both chemistry and precipitation data requests.

Amanda Cole noticed that an earlier form link only had precip data. This was a preliminary request form – the data request form will be broader in scope than just precipitation. Richard also mentioned that once the precipitation web page is completed, we may be able to remove precipitation from the form.

Data Review – Reviewer Flags, Qualifiers, and comments:

Zac discussed moving data qualifier information from a spreadsheet into the Data Review program. The qualifier pertains to items noted during sample logging and handling. The Data Review program can automatically apply flags to these codes, which speeds up the review process. This update also means that the reviewer explanations also no longer need to be typed in by hand.

Zac discussed another approach being considered was using statistics to identify samples that are very unlikely to change. These would typically be either very clean “A” samples, or clearly disqualified “C” samples. If these “outliers” can be identified, then the data review team can skip those and reduce the number of samples that actually need to be reviewed by human eyes.

Tim asked if this was related to earlier discussions about how long term site outliers are easier to identify than new sites based on the number of samples. The term “Outlier” might not be the best description to describe this – a Tree Structure might be more appropriate. By identifying factors that identify a very clean or clearly disqualified sample, we can automate the identification of those samples and remove them for the samples being manually reviewed.

MLN (Litterfall) notes codes and QR codes:

The 2021 dataset has been fully reviewed and sent out. The 2022 dataset is still undergoing final review. The team is working to determine what types of notes and QR codes may be applied to the MLN data, and how it would be applied. Some possible candidates may be (analogous to MDN codes) – “d” for debris, “f” for Field Protocol Error, “i” for Low Volume Sample, “l” for Laboratory Error, m for missing data, and q for minor quality control issues. Since MLN does not have many sites, this is not very critical. However, as the number of sites increase, this will become more important.

Chart and Map Updates:

Printing Updates:

With the annual report no longer being printed, we are able to expand our charts. We will be making the following updates; The K concentrations and deposition charts will now be included in the reports. The AMoN Quarterly pie charts will be broken into multiple maps instead of one. This will remove overlapping charts and make it easier to read the pie charts.

AMoN Quarterly Chart update proposal:

Mark discussed some of the challenges with the current AMoN Quarterly pie charts. The difficulty of pie charts with varying sizes is that smaller sizes are difficult to read. Mark asked the group what the focus of the quarterly chart was. If the focus was on the quarterly values, as opposed to geography, a different format may suite that need better. Mark suggested using a normalized stacked bar chart, where all bars would be the same size and each chart would hold about 10 – 15 sites of data.

Greg Beachley asked if it would be possible to have the height represent the annual concentration value. Mark advised it was possible, but made grouping sites in charts difficult. Sites with much smaller concentrations would be much smaller than sites with larger concentrations. Amy Mager suggested putting the total concentration at the top of bars, and also advocated for possibly having multiple solutions. Richard Tanabe commented that, in the future, having an automated / web based solution may be ideal, where the user would see details if they clicked on each site. Aaron Pina suggested that a useful version might be a quarterly breakdown across multiple years like a financial chart. Amanda Cole recommended gathering feedback at the fall meeting from the primary users of these charts.

NADP Website Status:

Precipitation Plots:

Mark, Richard, and Casey gathered a list of updates required and met with the web developers. Items were prioritized and the web developer provided an estimated time line. They hoped to begin development by February, and have most fixes, including a prototype of the precipitation network page, by the spring meeting.

Map and Grid Files:

Mark provided an update for the concentration and deposition maps. The scripts used for producing the maps have been rewritten and are now working. They cover the basic production of the precipitation, NTN, and MDN raster maps. Mark used historic maps, dating back to 2012, for comparison to the maps the updated scripts are producing. They were a very close match. With the scripts working, Mark should be able to produce the corrected NH₄ rasters, as well as other grid files. Going forward, Mark will need to update to ArcGIS Pro, which will require an update to the scripts as well. This can also aid TDEP's study for site reduction impact.

Data Access Format:

The internal web API for the web site has been corrected by Casey. He will work with the web developers to integrate the changes. Another desired change is to transition AMoN to draw from a static table like other networks instead of a dynamic source. This will not need custom web development work. Also, the trends plots functionality is currently being reviewed.

Web Data Change Log:

Mark is maintaining a log to record changes to web data when corrections are made. The team originally wanted to publish this, but prioritized completing the 2022 data processing. Currently, the NADP downloaded data has a "Date Modified" column in the data set, similar to the CastNet "Update Date", so researchers know when updates were made. Mark intends to provide the change log as a web resource at some point in the future.

Other Topics:

Siting Criteria Update:

Tim indicates that several products have been produced from this effort. These include reports with wind rose diagrams for orientation recommendations. There are also siting criteria evaluation results in a spreadsheet. Tim is wondering where these can be stored. It was suggested that Richard might add a “Workgroup” section under QAAG, and possibly link to that from the NOS page in the list of charges.

DMAG going forward – open questions:

Mark and Zac have found it productive to co-chair DMAG, and will continue doing so going forward. This keeps them both in the loop over issues and helps ensure all aspects of NADP Data processing is considered.

Aaron Pina asked if there was any automated or API functionality for downloading data. In the old web site, he used a script to download data regularly, but the new web site doesn't support this. Mark agrees that this would be a good feature to have. Casey will discuss this with Justin to see what would be involved. Aaron would like this to be discussed in the next spring meeting. Casey asked if Aaron can email him with this request so he can discuss this with Justin and the other web developers.

ACTION ITEMS:

Check out the AMoN maps and charts – provide any additional feedback you feel that could increase their utility.

MOTIONS:

There were no motions to bring to the executive committee.