

Glacial Aquifer Team conference call

11-04-2004 2:00-4:00 EST

(509)353-2617

Participants: Kelly Warner, George Groschen, Bill Morrow, Mary Ann Thomas, Dan Feinstein, Ted Moran, Dave Lorenz, Wayne Lapham, Mike Yurewicz, John Mullaney, Sarah Flannagan

Discussion of budgets – looking at budget spreadsheet from Mike Y. We are currently on a continuing resolution. The part NAWQA has currently held back should be able to cover the deficit after the new appropriation.

Hydrochem Regions (Terri) –

ACTION (Terri): Add SUID piper diagrams on the web page.

Have done a preliminary analysis that shows differences by GAPT stratification – variability across the glacial aquifer. I have modified the variables used for the cluster analysis based on preliminary analysis and a principal components analysis. The variables I am using include: calcium, chloride, DO, magnesium, NO₂NO₃, potassium, sodium, sulfate, iron, temperature, silica, fluoride, pH, and alkalinity. Currently using 7 clusters and trying to validate them based on consistency, reproducibility, and predictability.

Web discussion – can be parts of the internal web page be made public? Add things that are not interpretive? Mike may organize a liaison committee/public relations plan for the MRBs and PAs. Some external regional organizations could use some of this information – there is nothing public about what we're working on. Something needs to be added to the National NAWQA web page. (we could make info from our poster public)....

ACTION (Kelly) – Tell District chiefs and topical teams know about the availability of our GAPT web page.

Deicing (John Mullaney) –

Dave Lorenz is going to be helping on this report. Started looking at urban land use study data and doing comparisons of Major Ions and Chloride in particular. Interesting how concentrations fall out by study unit. Using only urban LUS and reference studies. Higher concentrations are in the central areas (Wisconsin, Minnesota, Upper Illinois). Highest in PUGT area where they are not using road salt at all. They are looking into using previously summarized info based on Data warehouse variables (500m buffer info, etc) and GIS variables. There are relations between a number of variables. Recharge rates seems to be an important variable. May also take a look at Ag areas to compare/contrast.

ACTION (John): share GIS overlays that have been done – joined characteristics to QW dataset

Still need salt loading rates so they can see how it varies by region. Typical rates are highly variable by location and road type. Connecticut may be a good contact for info. We may never have salt loading rate information at the per-site level. Looked at regression models to see if they could predict the max chloride level; nicely distributed residuals. Increase in urban land use also relates to increase in chloride. May look at some flow path areas.

Also looking at other ions and looking for changes in ion chemistry due to sodium. Base cations by alkalinity on a graph showed interesting patterns.

Arsenic (Mary Ann Thomas) –

There is a question about whether we should include the CCPT in the glacial studies because they are all outside the glacial boundary. Most people surveyed said they should not be included in our analysis. How consistent should these reports be? We are all using different networks. You have to fit the best data set for the objective you want to answer. As long as it is clear in the report what data you have used for the analysis. Everyone has to carefully describe what they use/don't use. CCPT includes both glacial and bedrock wells.

This issue is related to data archiving. We need to make sure we archive the individual data sets used for each of the reports.

ACTION (All): Send Terri a CD with your data set when you send your report out for Colleague review – especially if you bring in different/additional data or use a subset of the data. Data sets need to be documented.

We have put together some ideas for hypothetical flow modeling for this report – about to begin work on this. Not much progress to relate since our meeting in Connecticut. The hypothetical models may be relevant to other reports. Other work in glacial aquifer shows arsenic is related to reducing conditions/older ground water. Take 3 type settings with different hydrogeologic characteristics and use them as a basis for a model of ground water flow paths as a way to look at ages and model redox conditions – compare redox of alder water in the different type settings which can be related to arsenic in the central Midwest. Modeling will be tied to the datasets collected (organic content in sediments for fe reducing conditions. Trying to understand mechanisms – models will be calibrated so qualitative extrapolations can be made. This is tied into TANC work and a continuation of study of arsenic in Midwest states building on previous work.

ACTION (Mary Ann): Send list of networks by framework to Terri to put on the web page.

We think it is a lot of work to find geologic information about well networks from the data warehouse. There is no consistency with what is described so comparisons among study units are difficult. If we tag Glacial wells in the data warehouse now, it is going to be important for the field to be continually updated by Study Units in Data Warehouse for new networks/sites.

Trace Elements (George) –

We are going to try and do a combined concentration/index for TE (which will include arsenic and radionuclides). The other 2 reports will be the outlet for reporting about arsenic and radionuclides – they will only be used for the index in this report. The index has not been published yet – it will be like a pesticide toxicity index and may use a weighting factor. In the review process, make sure it gets specially reviewed. To start with , we'll just sum the values and see if there are any variations.

ACTION (George): If you do an index then show the methodology to Neil first to get some feedback about the method before colleague review.

ACTION (Mike): Send George a copy of the report about health based screening levels as an example.

After looking at the spatial distribution of the trace element data – not ideal.

Lori sent a draft of the report about QA analysis of the TE data to Neil for review before sending to Colleague

Radionuclides (Sarah) –

Tried to correlate warehouse GIS variables to radionuclides. Found interesting correlations to Uranium – climate, land use, water use dependant. Uranium related to phosphate fertilizer processing (phosphate fertilizers are rich in uranium). Most of the uranium is from the local geology (according to GD). Sediment is naturally rich in uranium.

ACTION (Sarah): Send Terri HDSN wells so they can be verified if they are in the glacial or not.

Domestic Wells (Kelly) –

Will be comparing Domestic and Public Supply water quality. Look at well parameters related to nutrients and pesticides. We are out of time so Kelly will update us on her report during our next call.

Next GAPT call: January 13 2:00-4:00 EST (second week of January).