

Glacial conference call

Sept. 14, 2001 2:00-4:15

Participants: Kelly Warner, Greg Steele, Paul Stackleberg, Tim Cowdry, Mary Ann Thomas, David Saad, Steve Kalkhoff, Mike Yurewicz, Wayne Lapham, and Terri Arnold.

Purpose: to talk through some issues of the stratification design.

Kelly has been pulling data (up to June this year) from NAWQA data warehouse.

Kelly wants to finalize the stratification. She explained the current stratification design.

1st layer ==> source of deposits

2nd layer ==> continuity of deposits (morphology)

3rd layer ==> vulnerability

People had questions about layers 2 and 3

In Till, the actual aquifer material is sand and gravel (in lenses)

Which is the most important hydrogeomorphic factor, shape or sand and gravel/till?

Discussion refocused on the 1st layer.

We want to show over this region, where are the differences? Where are the similarities?

The 3 regions are important because of the source material (glacial lobes). Is the importance of the 3 regions natural or anthropogenic? Natural. Is the source bedrock in Canada different? Yes. The lobes from Lake Superior basin are high in crystalline and low in limestone and clay. In east there is a paleozoic bedrock influence.

There was discussion about the source of glacial material - is it from local sources more?

TO DO: Kelly. Justify why there are 3 regions and how the lines were drawn.

TO DO: Tim. Define why the Western/Central boundary was chosen.

TO DO: Kelly. Define why the Central/East boundary was chosen.

TO DO: Kelly. Maybe change the diagram to say "Source of glacial material" or "source area"

TO DO: Kelly. Include info on climate, landuse, etc from other background maps to say why 3 regions were chosen.

** Everyone agreed on the 1st layer with explanation of what is noted above. The first layer will show susceptibility to natural factors.

2nd layer discussion:

Morphology of glacial deposits - next most important thing.

only surficial material -- coarse vs fine grained (not including thickness)

TO DO: Kelly. In description make connection of fine/coarse grained to confined/unconfined.

TO DO: Make second layer only surficial deposits and do not use thickness.

** Everyone agreed on the 2nd layer if only surficial deposits used. (only identify coarse and fine grained material) to show texture and to give an indication of susceptibility to anthropogenic contaminants.

3rd layer:

Much discussion. Suggest saying "sand lenses in till"

Question on western region on diagram regarding thickness of sand lenses ==> this information was included on the diagram to remind us of differences in study units and what SUs have done.

In East region we're talking about valleys in bedrock. In West and Central region there are both valleys in bedrock and in till.

The shape of deposit may make a difference in QW. especially where valleys are in contact with a present day stream or once were (discharge area). This is a different setting than a "sheet deposit"/

Layer or thick lens or region vs local lens. The people on the call didn't like the "sheet" term or the concept of the shape of the deposit from a QW standpoint.

TO DO: Kelly. Use only "Valley fill" or "layer or lens" for the 3rd layer. Add a note saying layers and lenses are mostly till containing some sand and gravel and that the sand and gravel deposits could either be thick or thin.

In ND the yellow areas are not all valley fill deposits.

There is a problem with the explanation of the pink areas. There are no sand and gravel deposits greater than 200 ft thick.

** Everyone agreed that there would be only 2 divisions for the 3rd layer: "valley fill; or "layer or lens". Also there will be an explanation that the layers or lenses could be very thick or very thin deposits. Define clearly what is meant by "valley fill deposits" (in bedrock or till or either?)

TO DO: Kelly. 4th layer - confined vs unconfined ==> drop off because already kind of included in 2nd layer by making it sand and gravel/till.

TO DO: Kelly. Maybe add landuse as 4th layer to distinguish vulnerability from susceptibility? We can discuss later.

TO DO: Kelly. We'll put out notes from meeting, revise stratification, and put out to group to look over. We'll have another conference call to discuss in about 3 weeks (week of Oct 8-12). The exact date will be determined later.