

Memorandum from SLTT Chair (Matti) to SLTT Sedimentary and Surficial subgroup members (2/15/2001)

Sedimentary and Surficial Subgroup Colleagues:

02/15/2001

Now that the surficial and sedimentary SLTT teams both have launched their deliberations, we need to address an issue of concern to both teams.

Several members of the sedimentary group have indicated concern about possible overlap between “unconsolidated” sediment and unconsolidated surficial materials. This concern originates from the British Geological Survey’s (BGS) classification of sedimentary materials into “lithified” and “unlithified” materials:

"The primary classification of sediments and sedimentary rocks is based on their compositional attributes present at the time of deposition. This allows sediments to be classified by the same compositional boundaries as sedimentary rocks."

The following points address this issue, and seek to clarify the unique assignments of the surficial-materials team and the sedimentary team. As you see fit, please comment on any of the points

- (1) I do not think the BGS blurs the boundaries between their “unlithified sediment” and “unconsolidated surficial materials”;
- (2) The BGS scheme simply provides names for unlithified sediment that are parallel with the names for lithified sedimentary rock;
- (3) The surficial team is charged with developing a classification of surficial materials like “alluvium”, “colluvium”, “landslides”, and so forth. I suspect that the group will come up with classification categories such as “alluvial deposits”, “colluvial deposits”, “landslide deposits”, etc., all representative of surficial materials that are relatively “unlithified”;
- (4) These surficial materials will have certain physical properties (such as grain size, particle shape, bedding thickness, grain composition, grain-matrix ratios, color, etc.) that will overlap with the physical properties of sedimentary materials, both lithified and unlithified. This overlap will be especially obvious between surficial materials that are water-laid and unlithified sediment that is water-laid: the two are one and the same, are they not? And that is the source of the apparent overlap;
- (5) Should both the surficial team and the sedimentary team independently create classification schemes for (a) unlithified sand bodies that form bars on the Platte braided-river plain or (b) unlithified sand bodies in coastal chenier plains or (c) unlithified oolitic shoals in the Bahamas or (d) unlithified mudrock and channelized sand bodies in the Mississippi River delta?
- (6) My answer to question (5) is “no”. I expect that the surficial team will view those specific examples as surficial materials that could be classified and named and mapped as (a) alluvium, braid-plain type or (b) paralic deposits, chenier-plain type or (c) marine surficial deposits, carbonate, oolitic-shoal type or (d) alluvial deposits, deltaic (to name some hypothetical possibilities);

- (7) I believe that the physical properties of unlithified deposits and the *naming of specific sediment types they contain*, are the purview of the sedimentary team. This is the position the BGS takes, I believe;
- (8) Thus, for points (5) and (6): (a) alluvium, braid-plain type, may consist of medium-bedded, texturally massive to flat-laminated, moderately sorted, medium- to coarse-grained quartzofeldspathic lithic sand, while (b) paralic deposits may consist of crudely bedded flat-laminated to trough-laminated, well-sorted, fine- to medium-grained quartz arenite sand while (c) marine surficial deposits, carbonate, oolitic-shoal type may consist of.....etc.;
- (9) I think the tasks of the two teams will be clarified if we adopt the following:
- the surficial team is classifying deposit types that can be used as map units, and that also may occur within map units, but are not specific lithologies or petrographic sediment names
 - the sedimentary team is classifying rock types that occur as specific lithologies in outcrops and in map units
 - the sedimentary team will develop much of the classification and description nomenclature for specific rock types, but they must do so in partnership with the surficial team so that cross-pollination occurs
- (10) The distinction between “consolidated” and “unconsolidated” or between “lithified” and “unlithified” is going to be a vexing issue, irrespective of the issues raised in the preceding nine points. I will not venture into this now.

Please ruminant over the ideas in this note. If we are not on the same page on this one, we could get into trouble. I am just thinking out loud, so give it your own treatment.

Adios, Jonathan