Advisory Group for the Ministry of Economic Affairs

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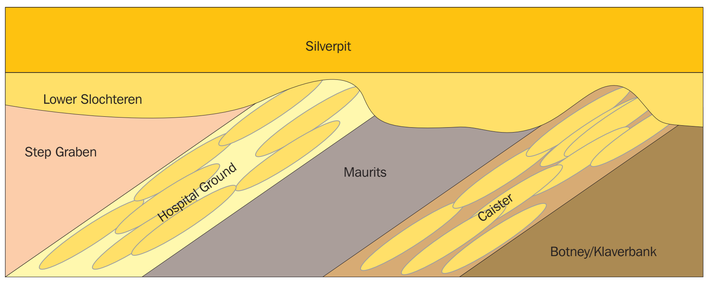
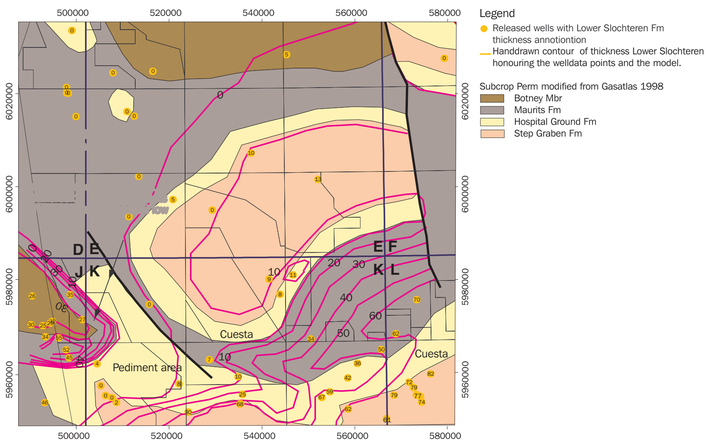
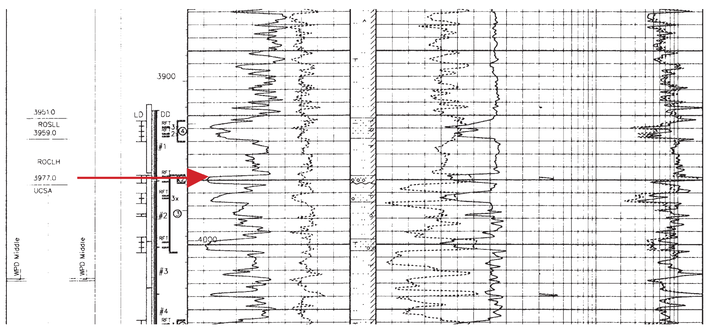
Distribution and thickness of Permian basal Upper Rotliegend sandstones

A sequel of the Rotliegend featheredge model



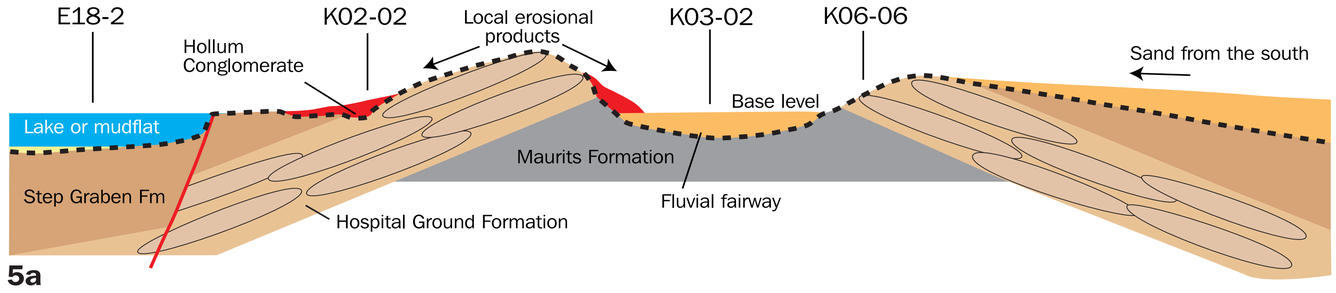


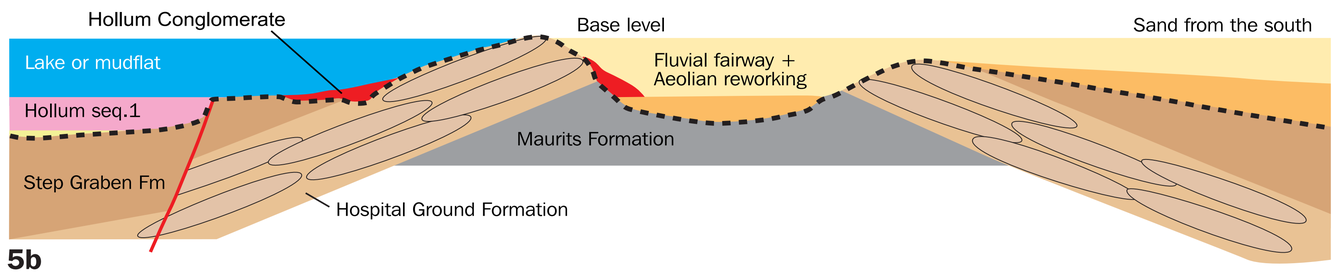
All holes filled with Lower Slochteren Sandstone?
No!
Presence of Hollum Claystone.



Figures 1, 2 and 3. Well K2-2. Note the presence of the Hollum Mbr (ROCLH) under the Lower Slochteren Mbr. The Carboniferous subcrop is interpreted as a veneer of Hospital Ground Fm above Step Graben Fm. The conglomerate (arrow) below the Hollum Claystone Mbr is here interpreted as Hollum Conglomerate. Core inspection may conclude that it is a Carboniferous conglomerate and a Hollum Conglomerate of only a few centimeters thick (BPU controversy)

Figure 4. N-S Correlation panel of the Rotliegend series of wells E18-2 <-> K2-2 <-> K3-2 <-> K6-6.





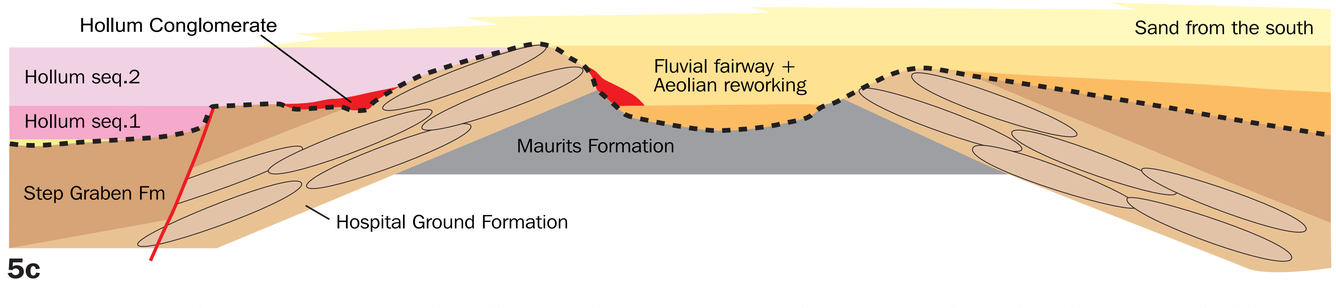
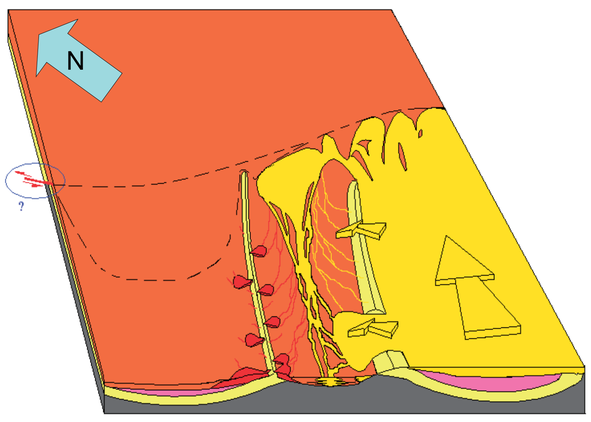
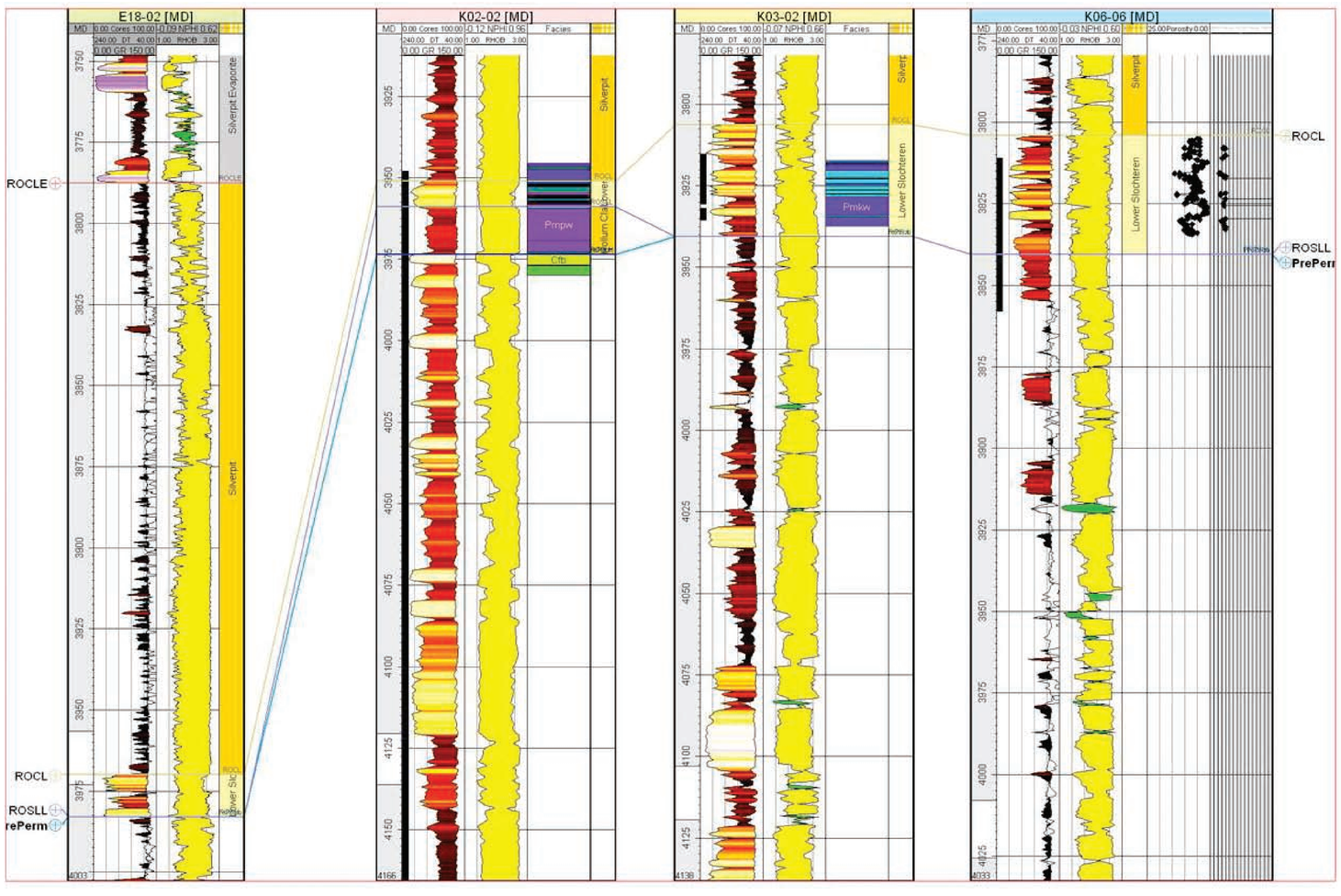


Figure 5a. No sand reaches K2 area yet only Hollum conglomerate is deposited on erosional flat and "Hollum clay in the lake or mudflat. In the depression to the south fluvial sediments are deposited (eg. sheetflood & mudflat).
Figure 5b. Lake expands and takes the ramp, Hollum Claystone seq 2 is deposited. In the depression to the south mixed fluvial and a possibly some aeolian sediments are deposited.
Figure 5c. Palaeo-relief is filled in and sand from the south can reach the K2 area.



Figures 6. Paleogeographic skech.

Figure 7. Photo of Panamint Valley USA taken northward from the main E-W road. Note the clay sediments, the big boulders on the clay, alluvial fans and the dunefield on th mountain slope.



Conclusion

Not all depressions are filled with Lower Slochteren Sandstone. The availability of sand, or better the possibility of sand transport to the depressions governs the presence of a Lower Slochteren sandstone sediment.

The palaeo-relief is, on this local scale, caused by differential erosion (relief inversion at the BPU) and fault escarpments. In the larger K2 area the Carboniferous Hospital Ground Fm forms elevations (questa's) and the Step Graben & Maurits Fm depressions.

The K2 area is sheltered from sand input from the south because of the presence of the K3-K6-K5 Maurits depression and the Hospital Ground ridge. Sand sourcing from the east was also hampered if one presumes the lake/mudflat inundated that area. Lower Slochteren Sandstone occurrences would then be from an earlier sequence.

Prediction of the presence and thickness of Lower Slochteren sand not only requires a detailed mapping of the palaeo-relief but also a model of sand sourcing and distribution.

Poster Mijnlieff 09HB