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Climate of the Past Discussions

Interactive comment on "Thermal log analysis for recognition of ground surface temperature change and water movements" *by* M. Verdoya et al.

M. Verdoya et al.

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Answer to Referee #1

The referee raised six specific points. All the suggestions were incorporated in a revised version of the manuscript.

1) In the abstract, we specify that we used a generalized least-squares inversion method.

2) It was mentioned that deeper borehole can help in reconstructing GST histories back to the last ice age. Additional references were incorporated as suggested by the referee.

3) A more precise (quantitative) definition was given instead of the generic expression "relatively elevated terrain".

4) We agree that two decimal digits for the inferred POM might be excessive, as well as three digits for warming/cooling rates. Thus in the new version, POMs are given with one digit approximation and rates of temperature change with two digits.

5) One major problem in POM assessment is the possible presence of underground water movements. The paper principally addresses to this topic, and widely discusses assumptions and limitations of the adopted approach. Besides water flow, other factors can, in principle, affect the inferred POM. A deep analysis of other sources of error is beyond the scope of the paper. However, further discussion and references were added in this regard.

6) The generalised inversion procedure adopted for GST calculations gives errors of 10-15% for a change occurred 50 years ago. For older temperature changes, the same reliability is hold only for quite long time intervals (50 years), i.e. the reconstructed GST can be considered as a long-term average of 50 years intervals. A short discussion was incorporated and references added.

Technical note: the referee suggests repeating units when a value range is given, but this does not appear as the editorial standard of CP.

Interactive comment on Clim. Past Discuss., 3, 95, 2007.