Solid Earth Discuss., 6, C92–C93, 2014
www.solid-earth-discuss.net/6/C92/2014/

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Discussions
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Interactive comment on "Crustal heat flow measurements in western Anatolia from borehole equilibrium temperatures" *by* K. Erkan

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Received and published: 8 March 2014

I appreciate very much the constructive comments from the reviewer.

Temperature logs were taken using Amarada portable temperature logging tool. The tool returned data in printed format; then data was digitized in office environment for further processing.

The holes used in the study are 10.75" in diameter in standard. They are cased entirely but not grouted (behind the casing is filled with gravel); so vertical fluid flow (intra-borehole activity) is not constrained. The casing is also perforated at certain depths.

For making the map in Figure 3, data was gridded using minimum curvature method with grid spacing of 0.02 degree in latitudes/longitudes. Then, a 31x31 node Gaussian

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filter was applied (about 30 km in radius).

Effect of sedimentation and erosion is calculated by the solution of heat conduction equation in a moving solid (Carslaw and Jaeger, 1959, p. 387; Beardsmore and Cull, 2001). For generating Figure 4, I used the spread sheet application of Beardsmore and Cull (2001). The link to the application is given in the acknowledgements section of the paper.

Decoupling of surface and ground temperatures are expected at high altitudes in Turkey where the snow stays in the ground for a long period in winter. This is not the case for the study region. Furthermore, I did not use the meteorological data for calculating the gradients. T_o values in Table 1 were calculated by extrapolating the T-D curves to the surface.

Temperatures logs in Figure 2 were collected below the water table. The swings near the surface in Figure 2a/2b do not represent in-situ equilibrium temperatures; they are only transient measurements in air above the water table. These parts could be removed from the plots to eliminate misunderstandings.

References:

Carslaw, H.S., and J.C. Jaeger: Conduction of Heat in Solids (2nd Ed.): Oxford University Press, USA, 520 pp.,1959.

Interactive comment on Solid Earth Discuss., 6, 403, 2014.