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Interactive comment on "Distributions of glycerol dialkyl glycerol tetraethers in surface soils of Qinghai–Tibetan Plateau: implications of GDGT-based proxies in cold and dry regions" *by* S. Ding et al.

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General comments:

The manuscript of Ding et al. provides new, interesting GDGT data from the Qinghai-Tibetan Plateau. It is well structured and written (but I am not a native speaker and didn t focus on language), and appropriate references are cited. I recommend publication in BG, although I think more statistical analyses could possibly improve the manuscript:

- The authors show that the MAP (mean annual precipitation) is better correlated with

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MBT and CBT (R2 0.5) than the MAT (mean annual temperature, R2 0.36, page 494). Then in the next step, when they present a recalibration for all Chinese soils, they do this ONLY for MAT. Why not also for MAP? Why not for an Aridity Index?

- Although the isoprenoid GDGTs are measured as well, they are not fully included in the statistical analyses and discussion. The Ri/b and BIT have been shown to correlate with environmental conditions (aridity), so why not testing respective correlations and including the isoprenoid GDGTs and an Aridity Index in the statistical analyses?

Specific suggestions:

The molecular structures of the GDGTs have already often been published in manuscripts. I would put Fig. 1 in the appendix.

Figures 6 and 7 are not really necessary. As all the seasonal parameters are not improving the correlations much, I would keep only Fig 6a, 7a. I would also delete fig. 8b.

Minor specific suggestions:

On page 482, line 4, you may want to write " ... are NOVEL proxies", or "... are POTENTIALLY useful proxies". There are many remaining unknowns and uncertainties related to GDGTs.

On page 484, lines 22 and 23, check your reference to the equations.

In line 24: I think the extended dataset are 278 soils? But n in the following equations is only 176? Maybe clarify this in the text (I am wondering whether it is statistically justified to exclude the missing samples and whether this causes a bias in the calibration!?)

On page 485, double check equation 5 (MAT on the right should probably be MBT?)

In line 7, you might want to write "... the MBT-CBT proxy has been INCREASINGLY used", not SUCCESSFULLY.

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On page 496, line 14: "The reason . . . IS ...“ sounds too confident for my taste. Better " . . . MIGHT BE . . .“?

Interactive comment on Biogeosciences Discuss., 12, 481, 2015.