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Interactive comment on "Long-chain diols in rivers: distribution and potential biological sources" *by* Julie Lattaud et al.

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Reply to the interactive comment of the reviewer 1 on "Long-chain diols in rivers: distribution and potential biological sources" We thank reviewer 1 for his/her helpful comments on our manuscript. Below follows our reply to the main comments. General comments "The critical problem is the conclusion that LCDs in fast flowing parts of rivers are not coming from in situ living plankton but from stagnant waters of these river systems such as lakes or side ponds. The authors should sample SPM and surface sediments in these lakes or side ponds." We agree with the reviewer that lakes and side ponds are the logical subject of a follow-up study. It is known from the literature that LCDs occur in most lakes investigated (e.g. Rampen et al., 2014). We are currently sampling several lakes that are part of a river system to prove the hypothesis

developed in our manuscript. The results of this sampling campaign will be reported in a future manuscript. Specific comments -1 "Page 11, lines 5-9, the authors should confirm it by sampling the SPM at different depth in the water column" A depth profile has been analyzed for the Godavari River. Three depths (0, 4, and 8 m below the river surface) were sampled close to the river mouth in both wet and dry seasons (W10 and G10, respectively, see supplement and as illustrated in figure 1). No consistent difference were found in diol distributions between the different depths. We will state this more explicitly in a revised manuscript. -2 "The authors analyzed the GDGTs, except the BIT index what other information could you get from the GDGTs?" The current manuscript is focused on the LCDs and their ability to trace fluvial input into the marine environment. Similarly, the BIT index can be used to trace soil and riverine OC transported to the marine environment by the same river, which makes it a straightforward parameter for comparison. The occurrence and distribution of GDGTs, as well as their ability to transfer environmental signals from the catchment to the marine sedimentary archive have been discussed extensively in Freymond et al. (2017) and Freymond et al. (2018) for the Danube River. The data for the Godavari River are subject of another, still ongoing study in this area on soil OC transport.

-3 "What is the relationship between temperature, precipitation and LCDs?" There is no relation between temperature and LCD as is written in lines 2-6, page 13. There might be an indirect link between precipitation and LCDs. For example, in the Godavari system the concentration of LCDs in the riverbed sediment is higher during the wet season than during the dry season, in contrast to the SPM, where LCD concentrations are higher during the dry season. This link will be more clearly stated in a revised manuscript.

References Rampen, S.W., Datema, M., Rodrigo-Gámiza, M., Schouten, S., Reichart, G.-J. and Sinninghe Damsté, J.S.: Sources and proxy potential of long chain alkyl diols in lacustrine environments, Geochimi. Cosmochimi. Acta, 144, 59-71, doi.org/10.1016/j.gca.2014.08.033, 2014. Freymond, C.V., Peterse, F., Fischer,

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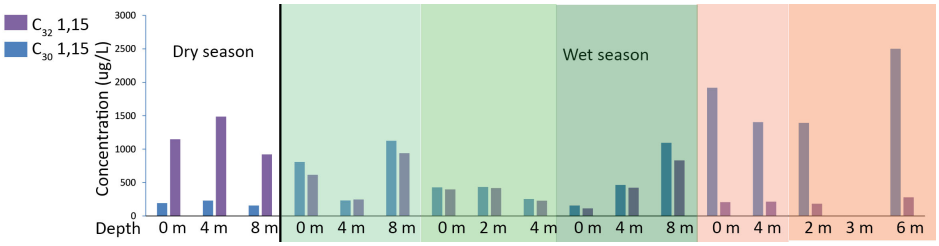

Fig. 1. Depth profile of the concentration of C32 1,15- and C30 1,15-diols in the Godavari River (location 10, close to the river mouth and 28, in the middle of the river).