

Interactive comment on “Impact of sediment-seawater cation exchange on Himalayan chemical weathering fluxes” by M. Lupker et al.

M. Lupker et al.

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We'd like to thank the editor for considering our manuscript and spend the time to provide additional comments.

We have implemented all minor comments and these are not detailed here. We appended a revised manuscript to this revised submission so that changes that were made to the manuscript can be tracked and evaluated.

#1 Comment: “3.18: do you have to monitor potential addition of Ca^{2+} to the solution as a result of adding the calcite?”

#1 Answer: Non-reacted (non-exchanged) CoHex solution was used as base line or reference for the measurement of exchanged cations so that the initial concentration in

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Ca²⁺ is accounted for.

#1 Changes in the manuscript: - §2.2 p3: Additionally, major cations (Ca²⁺, Mg²⁺, Na⁺, K⁺) released by the sediments during exchange were determined by atomic absorption spectrometry at SARM-CRPG on the same solution, using a non-reacted Co-Hex solution as reference.

#2 Comment: 6.30-34: This seems like a very important finding. Higher solid:dissolved ratio (i.e. more turbidity) does not necessarily mean more CE. You make this point in the next paragraph too, but I wonder if it could be more clearly drawn out (and worthy of pointing out in the abstract).

#2 Answer: It has been added to the abstract

#2 Changes in the manuscript: - Abstract p1: The limited exchange fluxes of the Ganges-Brahmaputra relates to the lower than average CEC of its sediment load that do not counterbalance the high sediment flux to the oceans. This can be attributed to the nature of Himalayan river sediment such as low proportion of clays and organic matter.

Please also note the supplement to this comment:

<http://www.earth-surf-dynam-discuss.net/esurf-2016-26/esurf-2016-26-AC3-supplement.pdf>

Interactive comment on Earth Surf. Dynam. Discuss., doi:10.5194/esurf-2016-26, 2016.

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