

Interactive comment on “Reviews and syntheses: How do abiotic and biotic processes respond to climatic variations at the Nam Co catchment (Tibetan Plateau)?” by Sten Anslan et al.

Anonymous Referee #2

Received and published: 20 November 2019

In this manuscript, the Sino-German TransTiP research consortium provides a broad literature overview on work that has been conducted in respect to climatic variation at the Nam Co lake catchment on the Tibetan Plateau. The Tibetan Plateau is considered the “third” pole of earth and is under strong pressure of annual temperature increase over the past decades. In this literature review, the manifold environmental changes affecting abiotic and biotic processes in this area are summarized. Overall, it was a pleasure to read this well formulated and well structured review, which will certainly serve as important reference point for future studies in this area and for cross-comparison to other alpine as well as arctic regions. I have only a few minor points, which the authors may wish to consider before final publication.

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p2. l. 28. Please consider to write either Yellow river or, as with the other rivers the native name: Huang He. p. 4 Fig 1C. Please provide for the salinity also the ppt value for ease of cross-comparison to other literature references. p. 8, line 6. It would be worth mentioning that ammonia oxidizing archaea are autotrophic microorganisms that contribute to CO₂ fixation primarily in the aphotic zones of lakes and thus contribute to (dark) primary production - especially of deep and oligotrophic lakes. As an example, have a look at the following references: Callieri et al., 2014 (J. of Limnology), Callieri et al., 2016 (Aquatic Sciences), Herber et al., 2019 (Environ Microbiol). p. 13., line 24. Change “anaerobic” conditions to “anoxic” conditions. Anoxic refers to a physicochemical condition, anaerobic refers to the ability of an organisms to live w/o oxygen or its respective metabolism. p. 13, line 25. ...for methanogenic activity, which results in increasing CH₄ emissions to the atmosphere... p. 14, l. 4. It might be worth to include a short paragraph on N₂O emission to the atmosphere from soils, if such literature exists for the TP. N₂O is, in addition to CH₄, a very potent greenhouse gas and may be released in areas of intense livestock farming. p. 19, l. 2. ...anoxic conditions...

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-50>, 2019.

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