

Interactive comment on “Reviews and syntheses: Weathering of silicate minerals in soils and watersheds: Parameterization of the weathering kinetics module in the PROFILE and ForSAFE models” by Harald Ulrik Sverdrup et al.

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Received and published: 1 June 2019

Comment to Reviewer #2

The way Al³⁺ is calculated has been much discussed over the years. It is generally recognized that this is an empirical equation, and that it can be tweaked to operate reasonably well (Sverdrup, de Vries, Henriksen 1990, Mapping manual for critical loads, Nordic Council of Ministers). It is generally agreed among both soil scientists and modelers that the mineral Gibbsite does not have anything to do with it, it is merely a name

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that is used for an empirical equation. For silicate "kaolinite" expression approach used here, it is the same. It is not the mineral kaolinite that is involved, this is a name for an empirical equation. This was discussed by the members at the 2016 Ystad Workshop, where a simple approach and a complicated approach were evaluated. The 2016 Ystad Workshop agreement was to try the simple expression first, and only go to the full mass balance and dissolution and precipitation equations if the simple approach did not give satisfactory results. We have stuck to the workshop conclusions, thus that is why it is like it is. The tests of the model on field data shows that it does work, and this is the judge for whether it is a good approach or not.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-38>, 2019.

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