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eEarth Discussions

Interactive comment on "A normalised seawater strontium isotope curve and the Neoproterozoic-Cambrian chemical weathering event" *by* G. A. Shields

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Although not considered in either my paper or in either review, changes in the carbonate versus silicate weathering Sr flux may change through time. Carbonate weathering is controlled largely by denudation rates as detrital carbonate can be considered to be negligible; however, silicate weathering is only secondarily so controlled - and my ultimately be controlled by outgassing rates on geological time scales (Berner paradigm and Walker et al., 1981). In this regard, it is interesting to note that Jacobson and Blum (2003), in Geology v. 31, p. 865-868, note that the "proportion of streamwater Ca and Mg from carbonate weathering increases as the rate of mechanical erosion increases".

Their conclusion is that “mountain building increases atmospheric CO2 consumption rates by only a factor of about 2” as a result. Although this does not imply that mountain building must change global CO2 consumption and silicate-derived weathering fluxes to the ocean, as these may ultimately be controlled by CO2 outgassing rates, it is clear that the global carbonate vs silicate weathering rates will be affected by tectonic uplift and denudation rates. The possibility that this ratio may be changed in this way will be added to any future version of the paper. I am unaware of any other relevant papers at this stage on this subject but this only reflects my ignorance and I would greatly appreciate sugegstions of relevant publications.

Interactive comment on eEarth Discuss., 2, 69, 2007.