

bg-2018-522

Review comments by Paul A. Schroeder

Scientific significance: Excellent (1)

Scientific quality: Excellent (1)

Presentation quality: Good (2)

1. Does the paper address relevant scientific questions within the scope of BG?
 - Yes
2. Does the paper present novel concepts, ideas, tools, or data?
 - yes
3. Are substantial conclusions reached?
 - Yes, but I would have broader impact if the results of weathering rate estimates were compared with estimates from other climate and lithologic regimes.
4. Are the scientific methods and assumptions valid and clearly outlined?
 - Yes, but the paper is reliant on the reader being familiar with XRPD and A2M quantitative methods and the modeling concepts of PROFILE. The authors do a good job justifying their assumptions, but maybe a little more explanation would help the reader make the leap of faith to believe in their model. Some might argue that using mean annual temperature and rainfall data in a kinetic model may not reflect the conditions for when the kinetics are the fastest (i.e., what time of year are the reactions taking place?).
5. Are the results sufficient to support the interpretations and conclusions?
 - Yes.
6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?
 - See response to 4 above.
7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?
 - Yes. However, if they are including comparisons to other climatic and lithologic regimes, then clearly, they would give attribution.
8. Does the title clearly reflect the contents of the paper?
 - Yes. However sorry, it's longer but maybe... "The importance of mineral determinations to base cation weathering release rates in Sweden: A case study using quantitative X-ray diffraction and elemental data and the kinetic model PROFILE."
9. Does the abstract provide a concise and complete summary?
 - Yes
10. Is the overall presentation well-structured and clear?
 - Yes
11. Is the language fluent and precise?
 - It's OK. It would improve considerably with the aid of a good copy editor.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?
 - Yes
13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?
 - Fonts on the figure 2 axis labels are a bit small.
14. Are the number and quality of references appropriate?
 - Yes. However, see comment 4
15. Is the amount and quality of supplementary material appropriate?
 - The link to supplementary material did not work....