

## ***Interactive comment on “Deepening roots can enhance carbonate weathering” by Hang Wen et al.***

### **Anonymous Referee #5**

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The manuscript titled “Deepening roots can enhance carbonate weathering” by Wen et al. documents the role that landscape changes (specifically changes from grasslands to woodlands) play in the dissolution of carbonate host rock. The manuscript is well written and addresses the important topic of flow partitioning- vs. soil CO<sub>2</sub>-driven weathering in carbonate terrain. The authors ran detailed model simulations to address their research questions:

1. “How and to what degree do rooting characteristics influence carbonate weathering when considering both flow partitioning and soil CO<sub>2</sub> distribution?” 2. “Which factor (flow partitioning or soil CO<sub>2</sub> distribution) predominantly controls weathering?”

From the title and abstract, I was expecting more discussion of rooting depth and its connection to weathering (as another reviewer points out). However, the paper focuses

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on roots only as they relate to hydrologic flowpaths. Thus, much of the content and modeling is outside my area of expertise so I do not feel I can adequately judge the conclusions of the paper.

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