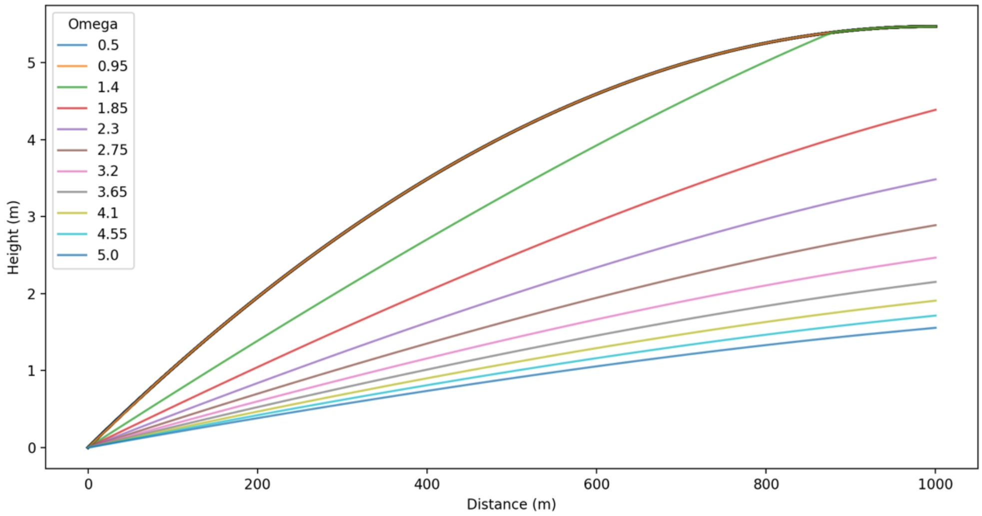
We thank the reviewer John Webb, the handling editor Andreas Lang and the handling associate editor Orencio Duran Vincent for their feedback.

We address both points in the revised manuscript. First, concerning the flat water table, we thought we already addressed this point, however, we added further explanation according to Braun et al. (2016) in the manuscript:

Line 227: "The steady-state geometry of the water table depends also on the values of Ω and Γ. In steep topographies typical of tectonically active regions Ω~1 and Γ>1, the water table is close to the bedrock (base of the regolith layer) as observed and assumed in Rempe et al. (2014). In all settings, Ω is a direct measure of the ratio between the surface slope and the steady state slope of the water table (Braun et al. 2016)." We added "In our reference model, the value of Ω (~ 6) implies that the water table slope is six times smaller than the surface slope. As explained in details in Braun et al. (2016), a higher water table slope could be obtained by decreasing the value of Ω, by decreasing the value of the hydraulic conductivity, for example."

The next figure shows that with decreasing Ω the water table becomes steeper. In our reference models, we use a high value of Ω, which explains the flatter geometry of the presented water tables. We do not think it is necessary to add this figure in the manuscript as this point is already discussed in Braun et al. (2014).



Secondly, concerning the point made about the generalisation to duricrusts or ferricretes: in the revised version seen by the reviewer, we decided to describe duricrusts in more general terms, taking into account the different processes described for the formation of calcretes or silcretes, i.e., by evaporation processes. We now added a few sentences in the introduction for a better depiction of the involved processes. We are aware that some duricrusts, e.e., calcretes and silcretes, do not form through oxidation but rather through other processes such as evaporation, evapotranspiration, or CO2 degassing. The subsection "Hydrological hypothesis of transport mode" has been modified to include this. We added a few new references to address it too.

- Line 56: "Calcrete formation is described under semi-arid to arid climates, with annual precipitation, P , around 200 to 600 mm/yr, and mean annual temperatures, T , at ~18◦C (Eren et al., 2008). Khalaf (2007); Moussavi-Harami et al. (2009) determine that "the suitable climate for calcrete formation include temperatures that faciliate high evaporation rate"."
- Line 110: added a citation, Taylor et Eggleton 2001.
- Line 112 to 114: "During dry periods, the water table height drops and the transported minerals precipitate in response to changing redox (e.g. for ferricretes and alcretes), pH (e.g. for calcretes) and environmental conditions such as salinity (e.g. for silcretes), water availability and evaporation processes (e.g. for calcretes and silcretes) (Taylor and Eggleton, 2001, e.g.). Precipitation takes place in undersaturated environments. For ferricretes, it is where redox conditions are optimal, i.e., where reducing conditions become oxidising."
- Line 119: "[…]. For calcretes, the main drivers are evaporation and evapotranspiration processes linked to water table fluctuations, and CO2 degassing (Alonso-Zarza and Wright, 2010). Such processes only take place at the water table height or in the vadose zone (Moussavi-Harami et al., 2009; Alonso-Zarza and Wright, 2010). Silcrete formation processes remain poorly understood (Thiry and Milnes, 2017; Taylor and Eggleton, 2017). However, evaporation of silica-rich fluids within the regolith is suggested as one of the primary drivers (Taylor and Eggleton, 2001; Thiry and Milnes, 2017). Groundwaters are typically saturated with quartz or amorphous silica (Taylor and Eggleton, 2017).

  The seasonal cycle of dissolution and precipitation repeats itself for thousands of years, with the accumulation of minerals leading to the formation of nodules, which, ultimately, cement into a duricrust."

As noted by the reviewer, calcretes may form through vertical processes in the regolith column. We agree with this statement, and to address it, we would like to note that we are currently preparing a second article which is almost ready for submission, involving the vertical processes for duricrust formation and would better apply to some types of duricrusts, e.g. ferricretes or calcretes.

We thank the reviewer again, and hope we have answered all questions concerning the revisions in the new manuscript.