

Revisiting the grammar throughout the manuscript would do the work better justice but the paper is well structured and easy to follow. I have highlighted some of the sentences below that would benefit from clarification/rewording. The conclusion would also be made more impactful if there was a more holistic summary of the work. Minor comments below:

Line2: remove 'the' from 'the relief evolution'

Line3: suggest change to 'Models can be used to explore the statistics of CN concentrations in sediment grains'

Line7: change to 'The concentrations of various CNs can be tracked in these grains.'

Line10: not clear what a 'grain-by-grain distribution' is. Rephrase sentence?

Line12: Rephrase, e.g. 'We illustrate the robustness and limitations of this approach by deriving the catchment-average erosion rates from the mean ^{10}Be concentration of grains leaving a synthetic catchment, and comparing them to the erosion rates calculated from sediment flux, for different uplift scenarios.'

Line33: 'but without taking the evolution of the relief into account.' Could you specify why this is important?

Lines47, 226, 261 etc: I think the clarity of the manuscript could be improved by better defining what is meant by the 'true rate' and using this term consistently throughout the manuscript.

Line68: What slope threshold and transport length do you use?

Line85: Rephrase 'they are not useful in terms of presenting the algorithm to calculate the CN concentrations in the grains'.

Line92: Rephrase: 'For example, they can be set randomly on the grid and at depth, or with a higher density in some regions, in order to simulate the different proportions of some minerals depending on the underlying rock type.'

Line189: I like the pseudo code!

Line268: Clarify: 'In the second period, the mean erosion rate decreases to the new dynamic equilibrium value with a maximum elevation of 340 m.'

Line273: different wording? 'where grains were dead...'

Figure 1 caption: Clarify: 'Radioactive decay slightly decreases the mean ^{10}Be concentration calculated by Cidre, and thus the apparent inferred erosion rate neglecting radioactive decay, which is inversely proportional to the ^{10}Be concentration, is slightly overestimated.'

Line297: interesting!

Line329: Why did you chose to test this variable? Include a sentence earlier in the manuscript e.g. paragraph starting line45.

Line348: 'When the number of grains is multiplied by four, this decreases the variability (Figure 8B).' Could you expand on the significance of this? Perhaps in the discussion.

Line399: rephrase 'In a Lagrangian formulation, the approach by discrete grains has advantages.'

Line433: rephrase 'and still faces the difficulty of modelling stochastic processes in a landscape evolution model'

Line437-439: Could this be expanded on a little? I think it is an interesting part of the discussion. Could you also look at connectivity?

Line456: Reword?: 'We present a new coupling of landscape evolution model Cidre with a model of CN concentrations in individual grains.'

Line458: Clarify: 'The algorithm is tested by deriving the mean catchment erosion rate from the ^{10}Be concentration of grains leaving an uplifting catchment.' – how does this test the algorithm?