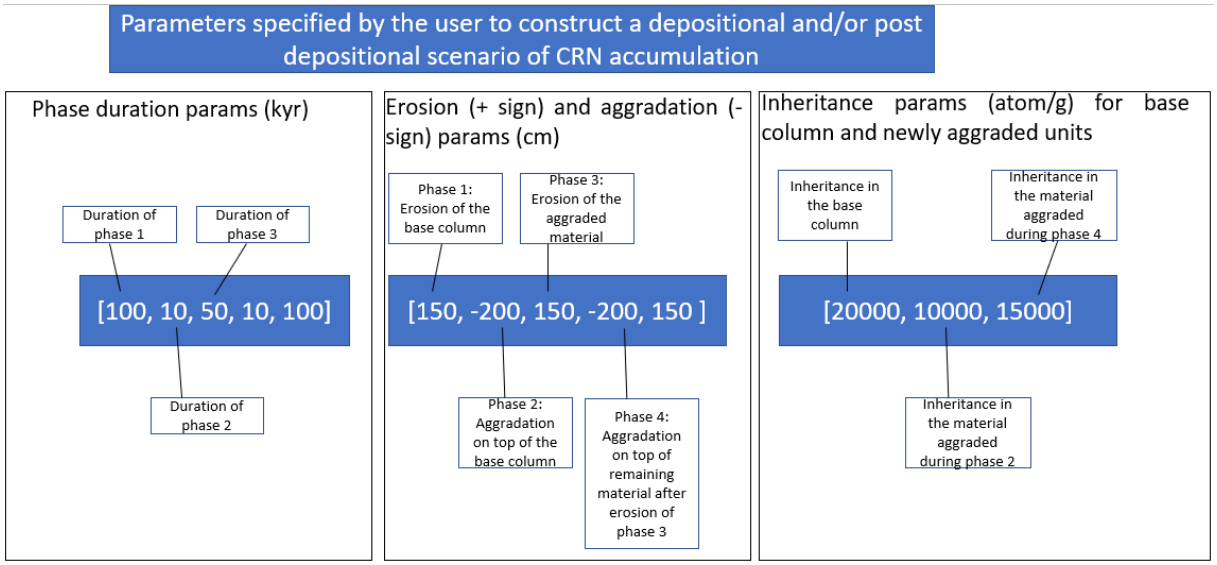
The authors thank the reviewer for its constructive comments. The comments are shown in black font, and our responses are in regular blue font.

Reply to RC2 comments:

General 1) it is assumed that inheritance is constant over the multiple deposition phases for the specific application of this model. That seems reasonable in this case, but is there a mechanism for the model to incorporate different inheritances for the different deposition cycles? Will the model code also be made available to others?

It is correct that we kept the CRN inheritance constant over the deposition phases. In fact, we did several tests before the final simulations where we tested the possibility of having different CRN inheritance values for different deposition cycles. We did not include this possibility in the final model simulations, as the scenarios with best model outcomes always had very similar inheritance for the different cycles. Therefore, we decided to fix this parameter in the model application.

However, the model can account for different inheritances for the different deposition cycles. The figure below illustrates how the model parameters can be tuned by the user. First, the duration of the different erosion/stable/aggradation phases canno be defined. Second, the amount of material to be or aggraded can be specified. Third, the inheritance can be set for the base of the column (that is present at the onset of the simulation) and the material that is added over each aggradation phase.



We are happy to share the code when the paper is accepted. The code will be made available on Git Hub.

General 2) Uncertainties are reported throughout without indication of whether they are 1-or 2-sigma. Please indicate what they are, either with a global statement like "all reported uncertainties are 1-sigme), or with local statements if they are not all consistent.

In fact, the analytical uncertainties are given with 1σ, as is commonly done in CRN studies. We report the ages (obtained by the model) with 2σ to allow intercomparison with other geochronological work in the region. We will further specify in the text how the uncertainty are reported, where appropriate.

For each parameter, the most likely value (i.e. value with highest density of significant solutions) is thus reported with its 95% confidence interval (2σ). The 95% confidence interval is derived from the 2.5 % and 97.5 % limits of the kernel cumulative density function.

We will add this information in the text, in the caption of Table 2 and of Fig. 7.

Lines 129-130: The 10Be half-live value shown here is the combined value of both Chmeleff et al. 2010 and Korschinek et al. 2010. Please cite both references. Also, I believe the 705 ka half-life for 26Al is from Nishiizumi 2004.

We agree with the reviewer, and will add these references to the text.

Figure 3: I find the shaded region on panel (a) difficult to view. I also think this figure would benefit from a simple, regional scale map for context.

We will adapt the figure, and replace the shaded region by a polyline that delimits the area.

Line 204: What is the geosite? Is it a cutbank? A mine? A little more context would be useful here along with a field photo if available.

It is an abandoned gravel pit (so-called "Hermans quarry", Bats et al., 1995). Since 1994, the site is part of a protected landscape. We will specify in the text that the Hermans quarry is an abandoned gravel pit and give the appropriate reference.

Field pictures will be added in Fig. 4, also to account for a similar comment from reviewer 1.

Line 210: Was there any reason, aside from cost, to not analyze 26Al for all 14 with the 10Be?

This issue was also raised by Reviewer#1.

We will clarify in the text our strategy of sample processing for CRN. In fact, the detailed CRN depth profile is based on 14 ^{10}Be analyses, quite an exceptional number for 1 depth profile. We "only" processed three samples for ^{26}Al analyses – one from each of the main sedimentological units. The reasons for doing less ^{26}Al analyses are: (i) cost efficiency, (ii) higher uncertainty on ^{26}Al determination given the combination of uncertainty on AMS and ICP-AES measurements.

Figure 5: This is a great explanatory figure.

Thank you.

Line 320-321: This statement of uncertainty is a bit awkward. I think it means most concentrations have an uncertainty between 5-7%?

The statement will be corrected in the text, to clearly explain that the total uncertainties on the measured ^{10}Be concentrations are below 7%, excepted for the lowermost sample (Heras 02) that is higher.

Line 339-344: So, and I am assuming these are 1-sigma errors, 7.41 +/- 0.92 is statistically 6.75. I get why the authors want to describe the context of a potentially higher depositional ratio, but phrasing the end of this section with "we cannot discard the hypotheses" that they all had a ratio similar to 6.75 seems to imply that an alternative hypothesis is somehow preferable. I think the authors can more simply state that their measured ratio is consistent with that of near surface production for a range of moderate to high erosion rates.

We agree with the comment and will adapt the text to stipulate that the obtained ratios are consistent with near-surface production ratios.

Table 2: Is the mass of the 9Be carrier mass the mass of the carrier itself or the 9Be? If it's the carrier, please indicate the concentration of the carrier in ug 9Be/g.

It is the mass of ^{9}Be that was added in mg. This will be specified in the text, and the column headers of Table 2.

Also, it is somewhat awkward to report ratios for the lab blanks in e-14 and e-15 and the samples in e-12. Also, why were there no blanks for the 26Al reported here? There appears to have been a correction made for a blank

according to line 240—does this mean a batch blank is not used, just a general background value? Please explain.

> We will adapt Table 2, in order to report all $^{10}Be/^{9}Be$ ratios in 10^{-12} and all $^{26}Al/^{27}Al$ ratios in 10^{-13}. For the $^{26}Al/^{27}Al$ measurement at AMS, we prepared two blanks that did not give sufficient current to be measured correctly. That's why we used the background value for the blanks from Lachner et al. (2014) as we followed the same lab procedure and were measuring at the same AMS. We will also specify this in the text.

References:

Bats, H., Paulissen, E., and Jacobs, P.: De grindgroeve Hermans te As. Een beschermd landschap, Monumenten en Landschappen 14(2), 56-63, 1995.

Lachner, J., Christl, M., Müller, A.M., Suter, M., and Synal, H.A.: ^{10}Be and ^{26}Al low-energy AMS using He-stripping and background suppression via an absorber, Nucl. Instrum. Methods Phys. Res. B: Beam Interact. Mater. At. 331, 209–214, https://doi.org/10.1016/j.nimb.2013.11.034, 2014.