

Interactive comment on “Detection of seasonal erosion processes at the scale of an elementary black marl gully from time series of Hi-Resolution DEMs” by J. Bechet et al.

Anonymous Referee #1

Received and published: 17 February 2016

This paper deals the erosion processes measured from multi temporal lidar data in a small catchment located in the South East of France. The approach developed by the authors is interesting for their purpose. I am surprised that no mention of slope is made in the paper. Are there some relationships between erosion amount and slope value? I think that this paper could easily concern a broader audience if the discussion part was more developed. I list also some minor points: Abstract: the results are not described in the abstract. Please remove sentences such as “Comparisons of the TLS sediment budget map with the in situ sediment monitoring (limnigraph and sedigraph) in the stream are discussed” by sentences with more content.

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Page 1559 Line 8: I don't think that your model conceptual explains but it describes. P1559 l19: What is IRSTEA ? P1560 l9: Is there a relationship between erosion intensity and the deep of sedimentary layers ? P1560 l10: Pinus nigra instead of Pina Negra. P1561: Are the hyper concentrated flows trapped in the sediment trap ? If not how do you take them into account in your measure of sediment export? P1563 L1: replace as by has. P1164: the discussion concerning the accuracy is not clear for me. Could you develop? You discuss only the vertical accuracy. What about the horizontal one? In such high relief environment, a horizontal error will produce high errors in topographic balances. P1564 L21: the images are small and difficult to analyze. P1565: Did you try to evaluate the accuracy on flat area on which erosion or deposit is negligible? P1565L13: I don't see any mention of density in table 2 or I don't understand what you mean. (Perhaps it concerns volume variation). P1565L21: Do you mean that 40% of the sediment are not trapped? P1566L13: Could you explain why interpolation reduces measurement errors? Generally interpolation propagates errors. P1568: I think that you could be clearer concerning the relationship between rainfall and erosion. What is finally the main parameter? The instantaneous amount of rain? The history of rainfall in the few days before the erosion occurs? Is the soil saturation an important parameter for erosion? P1169L27: June? P1571L11: event

Interactive comment on Earth Surf. Dynam. Discuss., 3, 1555, 2015.

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