

Interactive comment on “The impact of road and railway embankments on runoff and soil erosion in eastern Spain” by P. Pereira et al.

Anonymous Referee #2

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This manuscript includes interesting information on runoff and erosion rates in road and railway embankments. These areas act as sources of sediment and water under high intensity precipitation.

The results are expected, but they are useful for increasing the information available on the hydro-geomorphological effects of roads.

The authors should be taken into account the following considerations:

1. The objective of this study is to assess the impact of road and railway embankments as a source of sediment and water, and compare them to other land use (citrus plantations and shrublands). However, this aspect is not reflected in the title of the article.

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2. In the abstract, the authors indicate that erosion rates were $3 \text{ Mg ha}^{-1} \text{ y}^{-1}$ for road embankment and $1.5 \text{ Mg ha}^{-1} \text{ y}^{-1}$ for citrus plantations. This is a mistake, because the values of the simulation can not be expressed in years. As the authors show in Table 4 and in the text, the values should be specified in $\text{Mg ha}^{-1} \text{ h}^{-1}$.

3. In page 12950, lines 20-25, the authors say: “Land degradation (in Mediterranean landscape) is a consequence of forest fire, intense ploughing, use of herbicides, land abandonment, but also due to construction of road and railway infrastructures. . .” It would be interesting to add some quantitative data on the impact of roads and hillroads in the erosion of watersheds.

4. It is necessary to provide more information on the study area. It would also be desirable to include more data of the simulator. It would be important to include photos of the simulator and plots.

5. Simulation experiments were carried out with an intensity of 78 mm h^{-1} . Is it really possible to maintain a constant intensity of precipitation with a rainfall simulator? Does the rainfall intensity not change in 60 experiments?

6. It is necessary to include a section on erosion and sediment yield in the Discussion. On the other hand, it is not appropriate to insert a section (4.3) on connectivity since the experiments were performed on small plots. The information provided in this section and in section 4.4 (Implications for restoration) can be incorporated in the Conclusions.

7. Page 12963, line, 28. Error: $3 \text{ Mg ha}^{-1} \text{ h}^{-1}$

8. References:

Page 12950, line 24. In text, Tarolli et al., 2014; in References, Tarolli et al., 2015. Check it.

Page 12951, line 8. In text, Cerdà, 2005; in References, Cerdà and Doerr, 2005. Check it.

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Page 12952, line 20. In text, Cerdà (1998). Is it “a” or “b”?

Page 12953, line 13. Cerdà (2015) is not include in References.

Page 12954, line 5. Cerdà, 1998. Is it “a” or “b”?

Page 12963, line 19. Humphreys, 1982, is not included in References.

Page 12963, line 20. Coa et al, 2013, are not included in References.

Page 12963, line 20. Blong and Arnáez et al., 2004 is a wrong reference. Check it.

Page 12967, line 24. Cerdà and Doerr, 2005, are not included in the text.

Page 12970, line 30. Keesstra, et al., 2009a, are not included in the text.

Page 12972, line 7. Megahan et al., 2001, are not included in the text.

Page 12973, line 25, Sajjan et al., 2013 are not included in the text.

Page 12974, line 22, Yuan et al., 2015 are not included in the text.

Page 12974, line 27, Zhao et al., 1997 are not included in the text.

Page 12974, line 29. Ziegler and Giambelluca, 1997 is not included in the text.

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