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Comment

Interactive comment on “Modelling of the hydrological connectivity changes in the Minjiang Upstream after the Wenchuan earthquake using satellite remote sensing and DEM data” by H. Z. Zhang et al.

L. Marchi

lorenzo.marchi@irpi.cnr.it

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My comment deals with the morphometric variables in the connectivity index developed by the authors (equations 3 and 4).

Have the authors considered the correlations between relative altitude and average slope of the upslope contributing area? If these variables are closely correlated, it would be questionable to use both of them in equation 3.

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In equation 4, the summation of cells size multiplied by the cosine of the slope angle adequately describes the flowpath from each cell to the target (i.e., the receiving river). It is thus not clear why also the ratio of horizontal to vertical distance has been used in the computation of the downstream component of the model.

Moreover, as the anonymous referee #2 has pointed out, the units of measure of all variables and the resulting connectivity index HCI should be reported.

The authors could be interested in knowing that a very similar connectivity index, as expressed in Cavalli et al. (2013) based on a previous work by Borselli et al. (2008), is freely available at the internet site of the European Alpine Space Project SedAlp: <http://www.sedalp.eu/download/tools.shtml>

Two versions of the connectivity index have been developed and can be downloaded from the SedAlp internet site: a toolbox for ArcGIS 10.1 and a stand-alone version (SedInConnect 2.0) developed in Python, which also includes the source code.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 1113, 2015.

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