

Interactive comment on “Debris flows in the Eastern Italian Alps: seasonality and atmospheric circulation patterns” by E. I. Nikolopoulos et al.

Anonymous Referee #1

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The manuscript of Nikolopoulos and co-authors entitled “Debris flows in the Eastern Italian Alps: seasonality and atmospheric circulation patterns” is an interesting well-structured manuscript combining correctly the climate data with the debris flow system. The paper addresses relevant scientific and technical questions which are within the scope of NHESS.

General comments

Authors conclude that Debris flows events during the summer are associated with lower rainfall accumulation and shorter duration while during the fall DF events are characterized by higher accumulations and longer durations. However, no physical explanation on the hydrologic system is proposed to justify such behavior.

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The section 3.4 is devoted to the DF rainfall thresholds. The intensity–duration (ID) threshold was applied to different season and weather circulation type. However, the evaluation of false positives is missing and should be considered to improve the overall quality of the paper.

Particular remarks

Page 7198, line 1-2 “The work examines the seasonality and large-scale atmospheric circulation patterns associated to debris flows occurrence”, instead of “The work examines the seasonality and large-scale atmospheric circulation patterns of debris flows”

Page 7203, lines 8-9 “DF occurrence is dominated by long duration (> 24 h) events which account for 82% of the DF occurrences”. Authors should specify the long duration concept (up to XX h).

Figure 1 – The grey circles representing debris flows cannot be distinguished on zones with higher elevation.

The reviewer would prefer a more formal figure caption for figures 6, 7 and 9.

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