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Reconstruction of a large debris flow in an alpine basin. Chieppena Torrent (Italy), November 4^{th}, 1966

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The reconstruction of triggering conditions, geomorphic effects and produced damage for historical floods and debris flow significantly contributes to the assessment of hazard, thus making possible the definition of improved measures for risk reduction. Methods for the analysis of historical floods greatly vary with type and quality of available data, which are influenced by the time of occurrence of the events. For the floods and the debris flows that occurred in the Alps a few decades ago (indicatively between 1950 and 1980), the documentation is usually better than for previous periods but, differently from the events of the most recent years, quantitative data are usually scanty and the description of the events does not aim at processes recognition according to the current terminology and classifications. Potential and limitations of historical information available for the reconstruction of historical debris flows in the Alps have been explored by analysing a high-magnitude debris flow that occurred on November 4^{th}, 1966 in the Chieppena Torrent (Northeastern Italy). The reconstruction of the event was based on the use of written documentation, terrestrial and aerial photos, topographic and geomorhological maps. The analysis was aimed at defining the temporal development of the phenomena, recognising the type of flow processes and assessing some basic flow variables, such as volume, channel-debris yield rate, erosion depth, total travelled distance, runout distance on fan. The historical development of torrent control works both before and after the debris flow of November 1966 was also analysed, with regard to the technical solutions devised and their performance.