



Analysis of debris-flow recordings in an instrumented basin

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On August 24 2006, a debris flow event took place in the Moscardo Torrent, a basin of the Eastern Italian Alps instrumented for debris-flow monitoring. The debris flow was monitored by two seismic networks located in the lower part of the basin and on the alluvial fan, respectively. The event was also recorded by a pair of ultrasonic sensors installed on the fan, close to the lower seismic network. The comparison between the different recordings outlines particular features of the August 2006 debris flow, different from that of events recorded in previous years. Moreover, a typical debris flow wave was observed at the upper seismic network, with a main front abruptly appearing in the torrent, followed by a gradual decrease of flow height. On the contrary, on the alluvial fan the wave displayed an irregular pattern, with low flow depth and the main peak occurring in the rear of the wave both in the seismic recording and in the hydrographs. Recorded data and field evidences indicate that the surge observed on the alluvial fan was not a debris flow, and probably consisted in a water surge laden with fine and medium-sized debris. The change in shape and characteristics of the wave can be ascribed to the attenuation of the surge caused by the torrent control works that were implemented in the lower basin during last years