



Quantitative Debris flow Risk Assessment in Volcanic Areas

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We studied the debris flow events that occurred in May 1998 in the area of Sarno, Southern Italy aiming at characterising the relationship between the impact intensity of debris flows and the physical damage to buildings. The quality of data and hence quantification of structural damage was influenced by several factors including the complexity of the morphology of the area.

We obtained maps of velocity and dynamic pressure of eight of the flows at Sarno and integrated them with data on structural damage and building typologies to determine the onset of destruction. We conclude that although structural damage may start at dynamic pressures of ~ 6 kPa, these results are similar to the failure loads of buildings under the action of high and low density currents obtained from engineering modelling work. These results may constitute the starting point for the development of a quantitative loss estimation methodology by debris flows in volcanic areas, which will ultimately contribute towards the improvement of land use planning and mitigation strategies and may result in increased interest by the re-insurance industry.