

Use of Remote Sensing data, terrain analysis and stochastic modeling to predict current and future flood risk in a small Mediterranean catchment (T. Teiro, Italy)

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Mediterranean catchments are particularly sensitive to temperature oscillations, rainfall intensity and human activities. Especially intensive precipitation events, changing land-use and thin soil layer trigger surface runoff generation and hence, soil erosion, sediment transport, flooding and related damages. In this study, we illustrate the use of Remote Sensing techniques to derive spatially distributed input data to assess surface runoff and river discharges in a small Mediterranean watershed in Liguria region. (NW of Italy). Particularly we focus on the triggering landcover and soil information that can be derived with multispectral remote sensing techniques together with terrain analysis and stochastic modelling. To study the hydrological dynamics of the Teiro catchment we applied the Soil Conservation Service Curve Number method for different precipitation events related to return periods. The discharges obtained show reasonable values that have been validated with mapped flooded areas of the 04.10.2011 flood event. This event corresponds roughly to a 10 years return period. However, it is striking that a 50 years return period event yield the double amount of discharge and thus is a major threat for the local population.