

EXTREME RAINFALL EVENTS AND FLOODS IN A KARSTIC ENVIRONMENT (SOUTHERN ITALY)

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The hydrogeological features of karstic areas widely cause a low amount of runoff respect to underground flow. This aspect is particularly relevant where the climate is arid or semi-arid, as in the case of the low Murge Plateau (*Murgia*), located in Southern Italy. The runoff is appreciable only as an effect of very high intensity rainfall for the high hydraulic conductivity of karstic outcropping rocks.

In these conditions the occurrence of runoff is extremely rare but when it happens it is often associated to natural flooding of wide portion of territory; this phenomenon is widespread emphasized by low gradient of ground surface and by the presence of endoreic areas. The runoff frequency is so low the human memory can be induced to underestimate the flooding risk and the consequences of the utilisation of natural flooding areas.

Agriculture and land use changes in the latest decades have generally caused degradation of the karstic environment also due to the practice of stone clearing and crushing, potentially favouring development of erosion, desertification and modifying the water cycle. At the same time, other anthropogenic activities such as hydraulics works, realisation of road and railway crossings, quarries and the realisation of works and buildings in river and flooding areas have increased the vulnerability along the drainage network.

The contribution highlights the peculiarity of flooding risk evaluation in the case of the selected karstic area, characterising the role of human effects on the damages caused by more dramatic events. The recent flooding events are utilised to test our capability to estimate occasional river flow using traditional rainfall measurement and remote sensing data.

