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Civil protection and damaging hydrogeological events: comparative analysis of the management of the September 2000 and November 2015 events

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The civil protection is the set of activities put in place to protect the integrity of life, properties, settlements and the environment from damages or risk of damages arising from disasters. Calabria (southern Italy) is one of the main flood prone region of the Italian peninsula. This is due to its rough orography and fast hydrologic response of most watersheds. During the rainy season episode of intense rain affects the region, triggering flash floods and mass movements that cause damage and fatalities. In addition to these phenomena, the region is exposed to costal floods projected to increase as the sea level rises.
In this work, a comparative analysis between two events that affected the region and, particularly, its southeast sector is presented.
The first event, the so called Soverato event, after the name of the municipality where it reached the highest damage severity, occurred between 9th and 10th of September 2000. During this event, in the Soverato area, more than 200 mm of rain felt in 24 hours and caused a disastrous flood that swept away a campsite, killing 13 people and hurting 45. Besides, the rain affected a larger area, causing damage in 89 (out of 409) municipalities of the region.
The second event, which is one of the most recent, affected the same regional sector between 30th October and 2nd November 2015. The daily rain in the area reached almost 400 mm. 109 out of the 409 municipalities of Calabria suffered damage. The event caused a casualty killed by a flood. The most heavily damaged element was the road network but housing was damaged too. Consequently, 486 people were temporarily evacuated from home.
The study aims to highlight similarities and differences in both the causes and the effects of the two events that occurred at a temporal distance of 15 years.
The comparative analysis focus on two main aspects: the intensity of triggering rain and the evolution of emergency management. In particular, the comparative analysis of rain is made by comparing the return period of both daily and cumulative rain. The emergency management is analysed by comparing the types and extend of civil protection alerts, diffused in the two studied cases.