



The three exceptional winter flash floods of 2004-2006 in Central-East Sardinia and their geomorphological consequences (Italy)

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The three subsequent winters of 2004-2006 have been exceptional for what concerns extreme meteorological events in Central East Sardinia. A first flash flood has occurred from 6-11 December 2004 with epicenter somewhat South of Gennargentu mountains (Villanova Strisaili), provoking two human victims and great financial losses. A second exceptional rain event occurred towards the end of January 2006 and caused further damage in an area located a little bit to the North. The same area was once more the target of a third flash flood between 15 and 23 December 2006. This means that in the last three winter seasons this part of the Island was repeatedly subjected to severe and intensive storms.

All three floods have led to the modification of the river bed morphology: the first cleaned the channel, ripping of all vegetation, and transported loads of sediments moving meter big boulders; the second and third, finding a substantially clean river bed, moved greater quantities of sediment and elaborated the debris left by the first flood. The combined results have led to a visible landscape modification in many areas. Also the morphology of the major known underground river caves has been subjected to modifications. The most impressive changes have been documented in the fluviokarstic regions of Supramonte and the Gulf of Orosei. This paper deals both with the meteorological data and their elaboration, and the geomorphological impact of these flash floods in the cited karst areas.