

The 1980 Irpinia-Basilicata earthquake: the environmental phenomena and the choices of reconstruction.

Sabina Porfido (1), Giuliana Alessio (2), Paola Avallone (3), Germana Gaudiosi (2), Giovanni Lombardi (3), Rosa Nappi (2), Raffaella Salvemini (3), and Efisio Spiga (4)

(1) CNR, IAMC, Naples, Italy (sabina.porfido@iamc.cnr.it), (2) Istituto Nazionale di Geofisica e Vulcanologia, Sezione di Napoli Osservatorio Vesuviano- Italy, (3) CNR, ISSM, Napoli, Italy, (4) Independent Researcher, Avellino, Italy

This paper, by means of a multidisciplinary approach, deals with changes of the urban and territorial setting in many localities of the epicentral area of the 23 November 1980 Irpinia earthquake.

The 23 November 1980 earthquake, known as the “Irpinia-Basilicata earthquake” was the strongest seismic event of the last 80 years in the Southern Apennines of Italy (Mw 6.9, I0=X MCS). It was felt nearly everywhere in Italy, from Sicily in the South, to Emilia Romagna and Liguria in the North. This earthquake was characterized by a complex main rupture, composed of three major sub-events, interpreted as a succession of normal faulting events. Many localities in the Avellino, Salerno and Potenza provinces were nearly completely destroyed (I=IX-X MSK, Postpischl et al., 1985); among them Castelnuovo di Conza, Conza della Campania, Lioni, Santomenna, San Mango sul Calore, San Michele di Serino and Sant’Angelo dei Lombardi. About 800 localities suffered serious damage (Balvano, Bisaccia, Calitri, etc); 75,000 houses collapsed totally and 275,000 were badly damaged. Casualties were 3000, and 10,000 people were wounded. A large amount of information on primary and secondary environmental effects, over all slope movements, was available on the basis of several geological surveys of the area affected by this earthquake. The amount of surface faulting was about 40 km in length and the maximum displacement about 100 cm, while the total area interested by slope movements was estimated in 7400 km² (Porfido et al., 2002, 2007; Serva et al.2009).

In this study we aim to describe trends and specific effects that have taken place in the 35 years following the 1980 earthquake: how the urban and territorial setting have changed, especially in the villages located in the epicentral area; the consequences of the environmental effects on the choices of reconstruction, both in situ, and far from the original historical centre. Therefore, some case histories as San Mango sul Calore and Calitri villages, affected by severe landslide phenomena, and in situ rebuilt, will be examined; whereas Conza della Campania, on the basis of the suffered damages, has been reconstructed far from its original position.

In addition, we also illustrate the socio-economic implications that the choices of reconstruction have had, not only for the local communities, but also on the whole Italian country.