EARTHQUAKE IN SOUTHERN ITALY NOVEMBER 23, 1980

Reconnaissance Tour December 2-5, 1980

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1) The meizoseismal area is clearly elongated in WNW-ESE direction. This direction is marked by the most peripheral locations affected by intensity IX, S. Mango sul Calore in the west and Balvano in the east. The region of intensity VI measures about 100 km in radius around Lioni (see attached map).
   As no surface faulting was observed, the elongation of isoseists can be explained by the breaking of a buried fault with orientation parallel to the long axis of the isoseists.

2) There was a striking lack of surface indications like landslides, rockfalls and ground failures immediately after the earthquake, although several landslides were induced by the wet weather later on. The lack of surface faulting already mentioned conforms to observations after earlier earthquakes in the area.
   With a few exceptions, particularly in the Ofanto valley between Lioni and Conza, the roads and bridges were in almost perfect condition. Traffic interruptions were caused mainly by debris from buildings that had collapsed.

3) Subsoil and topography apparently played a very important role for the damage pattern observed locally, but it was impossible to recognize a systematic variation. A higher degree of damage was observed in some, but not all, valley floors and on hill crests.

4) Collapse of buildings was concentrated on the old village centres. The reason for collapse has to be seen in unsuitable construction methods: Construction of walls in rubble masonry, use of bad mortar, no adhering of wooden floors to the walls. Frequently, roofs falling down on the wooden floors because of failing of the rafters initiated a chain reaction leading to complete destruction.

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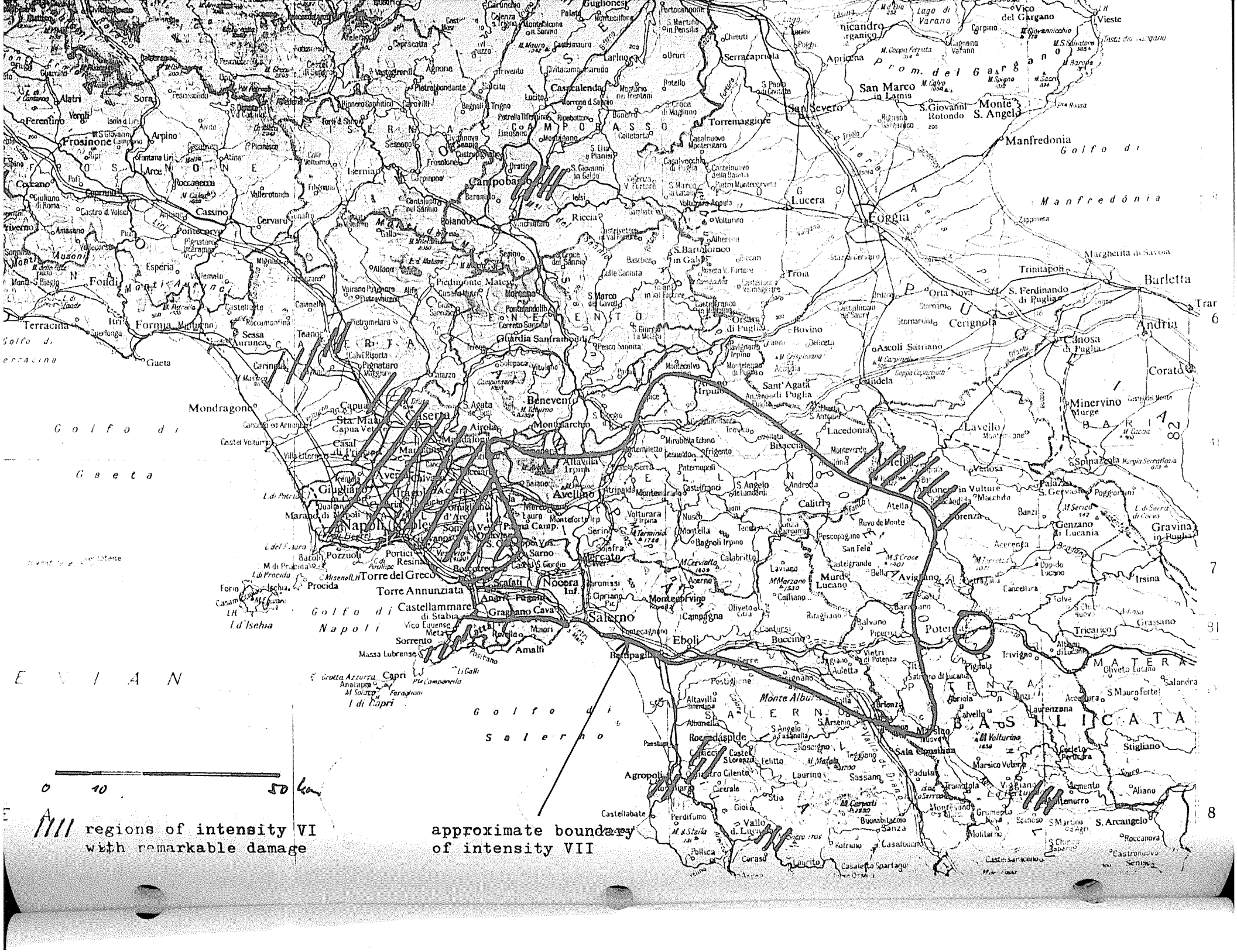
0 10 50 km
regions of intensity VI with remarkable damage
approximate boundary of intensity VII

Damage to modern reinforced concrete buildings was caused by:

- asymmetrical layout (very common in the affected region)
- unfavourable building proportions (very long and tall buildings as seen particularly in Potenza)
- bad quality of construction materials

Structural damage to modern buildings was rather due to joint failure than to insufficient reinforcement.

One-family dwelling in valley floor near Muro Lucano: Undamaged inspite of "soft" ground floor.

[Ed. Note: Other photos of damage have been deleted because of duplication in the forthcoming NRC-EERI Reconnaissance Report.]

Nonstructural damage to ground and first floors of apartment house at Monteforte Irpino (near Avellino). Construction was just finished.

Roof collapse and severe damage to brick building in Avellino (right). Minor damage to reinforced concrete structure (left).

Severe damage to building under construction (Lioni).

Steel tower in paper mill at Lioni: undamaged.

Collapse of 4-storey apartment building near Lioni.