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An excursus in the coastal hazards of the Sele river plain

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Since several years, the Italian Environment Agency-Geological Survey (APAT) and the Institute for the coastal and marine environment (IAMC-CNR) are carrying out multidisciplinary studies in the coastal sector of the Sele river plain on the Tyrrhenian side of southern Italy. The aim is to provide a contribution to the understanding of the recent geomorphological evolution and underlying processes, as a tool to define future trends and hence sounder management practices. The area is densely inhabited for the fertility of the land since Greek-Roman times: Poseidonia-Paestum is the most renown archaeological site, but others are widespread in the area. This provides an excellent constraint to define the landscape evolution in historical times and the interplay of nature and man in such a delicate and mobile environment. In the coastal plain, dominant natural factors in the landscape are the floods of the Sele river, the dune and lagoon system near the sea, typical consequence along the Italian coasts of the rapid sea level rise in the early Holocene after the LGM. Another factor under scrutiny, whose relevance is still to be understood, is the ongoing tectonics. This environment was rapidly destroyed in the XX century, following extensive land reclamation works and the economic development, with often unregulated urban and industrial growth and sea resorts and holiday houses. So, now various hazards threaten the area: subsidence (south of the river Sele the subsidence has exceeded 70-80 cm in 50 years), beach erosion (beaches at both ends of the plain are nearly gone and the sea is menacing roads and resorts), river flooding, seismicity (especially site amplification in the soft sediments). To them should be added: pollution of the sea and the aquifers, progradation of the salt wedge, loss of habitats of wild fauna. Field (including alongshore high resolution seismic sounding) and literature studies have been supported by elaboration of photographic and multispectral remote sensing images (Landsat ETM

and Spot 4 Xi) to permit a first picture of the historical landscape evolution, to be confirmed with now ongoing research.