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Title: Pleistocene sea-level changes, sapping processes and development of valley networks in the Apulia region (southern Italy)

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Abstract (English): The central area of the Apulia region is characterized by a network of valleys with peculiar features, locally called ‘gravine’ or ‘lame’. They are short, straight valleys, deeply incised in Plio-Pleistocene calcareous sandstones and in Mesozoic limestones. These characteristic valleys cut a staircase of marine terraces. A series of valley generations is recognisable, each one of them leading to the internal margin of a marine terrace representing its base level.

Morphological features and hydrogeological conditions suggest that sapping processes were responsible for the development of the valley network. As the aquifer rests on seawater intruding from the nearby coastal area, sapping processes were enhanced during interglacial high sea-level stands so that each ancient coastline is marked by its own generation of valleys. However, the longest and deepest valleys formed at the Ionian side during OIS 7. This is due mostly to a fast sea-level rise accompanied by very humid climatic conditions that increased the hydraulic head at the springs and the intensity of sapping processes.

Sapping valleys could be useful for regional correlation of marine terraces and as indicators of relict coastlines at present placed below sea level.