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Morphology of the SW Adriatic margin: tectonic deformation, slope-failure blurring and bottom-current brushing

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The main morpho-structural features of the SW Adriatic margin reflect its long-term tectonic history and recent sedimentary evolution including late-Quaternary slope failure and bottom current activity. The SW Adriatic Margin is dissected by several tectonic lineaments developed during two distinct phases: a Mesozoic phase of extensional tectonics and rifting; and a Cainozoic phase of compression tectonics during which previous extensional faults were re-activated as inverse or strike-slip faults. These tectonic lineaments include regional fold and fault belts oriented cross-strike (E-W) or sub-parallel (NW-SE) to the bathymetric contour. Some of these deformation belts are still active, as evidenced by shallow growth folds affecting late Pleistocene-Holocene deposits and faults locally offsetting the seafloor.

Three large-scale morpho-tectonic features dissecting the margin are: a NW-SE seaward-plunging anticline showing evidence of recent slope failure affecting its flanks; Gondola fault system, elongated E-W and including a major sea-floor-offsetting trans-tensional segment on the upper slope; and Bari Canyon, generated by tectonic deformation and failure. Active deformation along these tectonic structures impacts on sea floor morphology by: a) influencing shelf-margin progradation during Quaternary glacio-eustatic cycles; b) enhancing slope failure by generating areas of increased slope gradients (such as in the case of anticline flanks intersecting the shelf edge; c) creating slope-transverse morphological barriers confining energetic deep-water currents. Based on recently acquired high-resolution bethymetry, we discuss the interplay between tectonic growth, slope failure and bottom current activity in shaping the SW Adriatic area.