



Structural setting and sedimentary basins in the Western Margin of the Calabrian Arc

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In this work, the western margin of the Calabrian Arc has been investigated with attention to the recent sedimentary basins evolution and to the relationship between the shallow and the deep tectonic structures. Main tectonic and sedimentary aspects have been described through an integrated approach, involving the analysis of multichannel seismic lines, multibeam data and Chirp profiles, newly acquired onboard the CNR research vessel “Minerva Uno”, during oceanographic campaign “Seismofault 2017” (“Seismofault” Project). A detailed description of these elongate Plio-Quaternary sedimentary basins, and their relationship with the Alfeo Fault System are presented. Through the identification of several seismic sequences, the characterization of basins internal geometry, the lateral variation of thickness and the syntectonic nature it has been possible to link the sedimentary basins configuration with the Alfeo Fault System geometry and activity. In this area both structures related to extensional and compressive tectonic were identified and mapped in a 3D model, that better allowed to define the geometric relationship between faults and basins. On the base of our results, we attributed to the Alfeo Fault System the characteristics of a Subduction Transform Edge Propagator (STEP) Fault. The distribution of faults, the main sedimentary basins and the relationship between deep and superficial deformation allow us to compare the STEP fault features identified in the Calabrian Arc with those of other fault systems in the arc-shaped subduction zones of the world, finding the major affinities with the Carpathian and Barbados arcs.