https://doi.org/10.3301/ABSGI.2022.01

Catania (Italy) 4-10 July 2022

ABSTRACT BOOK

a cura della Società Geologica Italiana

DRT Catania (Italy) 4th -10th July 2022

GEO-THINKING THE FUTURE PLANET

DRT 2022 – 23rd International Conference on Deformation mechanism, Rheology and Tectonics

Università di Catania

3D modelling of Quaternary faults in Southern Calabria

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Keywords: active tectonic, seismogenic faults, Calabria, 3d modelling.

A multidisciplinary analysis was carried out in southern Calabria to define, through a 3D analytical model, the geometry, kinematics and dynamics of the main Quaternary tectonic structures slicing across the area. Some of these fault structures (e.g., Serre, Cittanova, S. Eufemia and Scilla faults; Jacques et al., 2001) are thought to be the seismogenic sources of the 1783 seismic sequence (M 6.5-7). The geometry of the Cittanova fault plane, as well as the related strain-stress field, was determined using the distribution of crustal seismicity projected on a schematic geological section, reconstructed through the interpretation of CROP seismic profiles (M-2B and M2-A/III; Finetti, 2005), and morpho-structural investigations. Modelling isperformed through the MOVE software's 3D kinematic tools, and the TDE (Triangular Dislocation Elements) analytical method (Meade, 2007). The geometric, seismological and kinematic properties of the modelled fault have been validated by comparing results to empiricalmodels (e.g., Wells & Coppersmith 1994, Manighetti et al., 2001). These results and methods are applicable to the kinematic inversion of available GNSS geodetic data with the GAME software (Cannavò, 2019) and may be used to study other active tectonic structures in the southern Calabria area.

Acknowledgements: This work is supported by the GeoMatic & GeoDynamic Laboratory, University of Catania.

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