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Evolution of a Normal Fault System on the Southern Flank of the Corinth Rift

S. Bourlange, D. Jousselin, M. Ford, C. Le Carlier de Veslud CRPG/CNRS – ENSG, Nancy, France (sylvain.bourlange@ensg.inpl-nancy.fr)

In the Aegean region a new plate boundary is evolving rapidly, making this the most seismically active area of Europe. Many studies are focused on currently active faults, which bound the inner flanks of the Corinth rift. However, many prominent faults outcrop over a broader area, recording the past evolution of the rift.

We present a detailed tectonic map of the southern flank of the Corinth rift and assess the importance and the evolution of the fault system. This map serves as data input for a gOcad model, that is used to study relationships between topography, erosion, sediment deposits, small and large faults. In several areas the total fault displacement can be estimated and compared to that of the more recent faults. The old fault system seems very discontinuous and may be partially concealed by large synrift sediment infill. This leads us to investigate whether or not a significant part of the deformation is taken up by small faults or diffuse deformation throughout the extension history. This observation may explain why geodetic studies show a large and homogeneous deformation, which does not seem to be entirely explained by current active faults.