

High resolution Continuous Tilt measurement on Trizonia Island, Corinth Rift, Greece

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Abstract:

The Island of Trizonia is localised close to the northern coast of the Gulf of Corinthe, 5 to 10 km with the balance of the principal active normal faults of northern dip. The rate of deformation and its space gradient are maximum there, according to measurements GPS. Thanks to the support for project CORSEIS of the European Community, of measurements of deformation and of inclinometry could begin in October 2002 on this island, in order to detect transitory deformations related on the opening and the seismicity of the rift. In particular, they aim at detecting possible aseismic deformations related to the frequent seismic swarms of the zone, in a radius of 20 km. Two inclinometers hydrostatic NS and two EW, 15 m length one filled with mercury, the water second, were built by the IGP and were installed simultaneously with 3 m under ground in two distinct perpendiculars. Afterwards of multiple instrumental mechanical improvement we managed to very strongly decrease the parasitic influence of the weather parameters on the levels with mercury by increasing the resolution R of $5 \cdot 10^{-8}$ rad with $(5 \cdot 10^{-9}$ rad a possible aseismic deformation would have been observed by an extensometer of the Sacks-Evertson type to 1 km of the site inclinometric with an amplitude of $10 \cdot 10^{-9}$ str. We are able thus from now on perhaps to detect this type of deformation with the inclinometer with mercury.