

THE CORINTH RIFT LABORATORY

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European academic and private laboratories as well as oil companies have joined their efforts with the help of the EEC, to investigate fault mechanics and their relation with fluid flow and earthquakes. Continuous monitoring of strain, seismicity, fluid pressure and geochemistry will be carried out at the surface and at various depths in boreholes intersecting active faults. This laboratory is centred on the south shore of the Corinth rift near the city of Aigion. This rift is one of the most seismically active zone of the EU and the faster area of continental break-up (1.5 cm/yr.). The studied faults affect cretaceous carbonate rocks similar to the ones that are the reservoirs of various Hydrocarbon fields in south Italy as well as in the Middle East. The seismogenic zone starts around 5.5 km depth and the project is to drill it in about 4 years. 23 European groups are involved in the consortium and, up to now, we got the founding (4 accepted EC projects, CORSEIS, DG-LAB, 3F-CORINTH and AIGIS and coupled of national efforts) to create the **Corinth rift laboratory** (CRL) with

- Surface arrays of accelerometers, GPS, seismic stations covering an area of 30km by 30 km,
- Several shallow wells for strain, stress and fluid flow monitoring
- 3 wells, 500 to 1200 meters deep, on active faults

Our goal is to have:

- A complete record of stress, strain and fluid flow versus time in, above, and around an active fault plane
- Recent and present strain through paleoseismology and GPS
- Seismic and aseismic transients and earthquake precursors
- No linear effects of soft soils on strong motion
- Seismic hazard assessment methodology
- A precise description of the geometrical complexity and resulting anisotropy of the carbonate around the fault plane
- 200 meters of core and a large set of logging + borehole imaging
- A complete knowledge of the chemical composition of the current fluid above, below and around the fault zone, before, during and after an earthquake.

All the data will be integrated through a description of the fracture network, modelling of fault behaviour, modelling of fluid/rock interactions, modelling of micro-seismicity in terms of stress changes and fluid pulses.

The wells will be drilled fall 2001 after a seismic survey to well define the location; permanent surface array started September 2001, geological fieldwork started in June 2000, geochemical monitoring began by September 2000.