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\textbf{The Hydrorift Experiment}

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The HYDRORIFT experiment involves ISOR (Iceland GeoSurvey), the energy company HS Orka and a group of French GEOFLUX scientists in a geophysical experiment on the Reykjanes Peninsula (RP) in Iceland. It includes high-resolution TEM/MT resistivity studies, seismic tomography and general analysis of seismic data. The objective is to get a better idea of velocity anomalies discovered in the Krýsuvík area (central RP) following an experiment in 2005, resulting in a more accurate physical knowledge of the geometry and time-evolution of the different reservoirs within the active rift zone in Iceland. Understanding the behavior of fluids in the deep upper crust and at the brittle/ductile crust transition is of importance in both academic and industrial fields. Pore fluids are thought to play a major role in the seismic cycle, mainly by decreasing friction along major faults.

For the purpose of gathering data, an array of thirty seismic stations, including three broadband seismometers, was deployed in the Krýsuvík area in May to October 2009. During the operation period of the network an intense seismic swarm occurred in the region, located mainly within the network. The swarm gives a good insight into the processes at the plate boundary in the area, such as the stress field and the stress release. Furthermore, prerequisites for detailed tomographic analysis existed as well as dense magneto-telluric and transient electromagnetic (MT/TEM) soundings had been made in the area. Comparative analysis of the seismic velocity distribution from seismic tomography and 3D interpretation of resistivity from MT/TEM soundings may shed light on the physical conditions of the rock and pore fluids at depth.