



Fault Plane Solutions of Microseismic Events near Landau and Insheim, SW Germany

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We study micro-earthquakes that occurred between 2009 and 2011 in the Upper Rhine Graben, Southwest Germany. Close to the villages of Landau and Insheim a series of induced events happened which are caused by the exploitation of geothermal energy. A temporary seismic network was deployed and is continuously extended by the Geophysical Institute of the Karlsruhe Institute of Technology with 12 stations (surface and shallow borehole) using instruments of the KARlsruhe BroadBand Array (KABBA). In total more than 35 stations are currently operated by four operators for the microseismic monitoring of the region.

Besides the precise localisation of the events (see Groos et al., this volume), we want to determine the fault planes and rupture mechanisms. A major obstacle is the low signal-to-noise ratio of the weak events which are recorded in the very noisy sedimentary setting of the densely populated Upper Rhine Graben. Furthermore, the ray paths are not well known yet, because the 3D seismic velocity structure is poorly known. We present focal mechanisms which were determined with P- and S-wave onset polarities using the FOCMEC code. The main feature in these fault plane solutions is a normal faulting component.

This study is part of the research project MAGS (Microseismic Activity of Geothermal Systems) which is funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany (FKZ 0325191A-F) and supervised by Projektträger Jülich (PT-J).