



Continuous GPS network monitors the Upper Rhine Graben deformation.

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The Rhine Graben characterized by moderate seismicity and a combination of sinistral strike-slip and extension is a major active structure within the “stable” Eurasian plate. How the strain observed in the Rhine Graben is linked to deformation to the south in the Alps, and to shortening in the Jura, remains debated. To better constrain present day strain, we aim at constraining the strain rates across the graben, but also to determine the vertical and horizontal movements along the margins of the graben. In the frame of the Geodetic Alpine Integrated Network (GAIN) and the “ALPS-GPSQuakenet” EU Interreg Alpine Space III-B Project, we have installed several GPS stations across the Vosges massif and Rhine graben. This network will be used to quantify rates of deformation in the mm/yr range across the graben shoulders but also to replace the deformation within the frame of the regional plate kinematics. Together with geodetic surveys, the project will also target known seismogenic faults to perform paleoseismological and geomorphological investigations to determine long-term millennial strain rates, magnitude of past events, as well as average recurrence time of earthquakes. These data combined with the geodetic strain rates will contribute to the knowledge of natural hazards. We will present preliminary results from the new operating stations in combination with existing permanent stations surrounding the Rhine graben.