The Geodetic Alpine Integrated Network (GAIN) - First Analysis and Results of a permanent GPS Network in the Alps

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The ALPS-GPSQUAKENET project has been funded by the EU Community Initiative INTERREG III B Alpine Space Programme in order to install a high precision space geodetic network in the Alps. This network - known as the GAIN network - consists today of roughly 40 permanent GPS stations. The network does not completely cover the Alpine Space because project partners from Switzerland and Austria were not able to join this project. Nevertheless, these gaps were in parts filled by already existing permanent GPS stations. All these sites together with several sites of the EUREF Permanent Network (EPN) allow the estimation of accurate positions in the Alpine Space with an accuracy of a few millimetres. Therefore, it is also possible to monitor crustal deformation caused by plate tectonics or eventually even earthquakes, which in turn will improve our understanding of geotectonic processes in the Alps. The data of this network are processed by three individual analysis centres from France, Germany and Italy. The analysis is carried out independently by each group using different software packages and analysis strategies. This presentation will summarize the results of the three analysis centres and will show the deformation field estimated with data covering approximately three years. Comparisons with existing models for the surface deformation will be shown and first conclusions will be drawn.