



Strain, Stress and Seismicity pattern in Switzerland

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Switzerland lies across one of the most complex plate boundary in the world. With a 100 Ma of deformation history, and a wide diversity of deformation mechanism, it is an ideal place to study the link(s) between small strain rates measured at the surface and stress dissipated at depth. The link is of genuine interest for seismic hazard assessment as it provides an independent estimate for moment release within the seismogenic volume.

We use geodetic (GPS velocities, shortening axes, strain maps) and seismic (anisotropy, P-axes, focal mechanisms) datasets in order to assess whether the stress accumulated at depth due to the continental collision reflects the deformation rates measured at the surface and correlates with the seismic activity as well as the stress directions deduced from earthquake focal mechanisms throughout the area - or not.

While the deformation amplitudes of the area are small (less than 10^{-7} yr^{-1}) in some areas of Switzerland, we can relate long- and short-term features of the tectonic processes occurring over the last 10+ Ma. Preliminary results suggest that while deformation rates measured by GPS are large in the Ticino compared to the Valais region - its seismic activity rate is lower. This implies other processes might play important roles in the generation of seismicity.