



## **Integrated use of numerical analysis, geological, geophysical and satellite data for the study of present-day intraplate deformation in Central Europe.**

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The large scale crustal deformation observed in Europe is a result of a complex interplay of different geodynamic forces, such as the Africa-Eurasia convergence, the mid-Atlantic spreading and the post-glacial rebound. When Global Positioning System data are used to constrain predictive geophysical modelling, they reveal their crucial role in distinguishing different geodynamic processes responsible for the deformation. We present the results of a suite of spherical, thin sheet, finite element model used to investigate the present day horizontal tectonic deformation within Central Europe. The analysis integrates numerical modelling with geological, geophysical and satellite data and incorporates horizontal rheological heterogeneities at crustal and mantle level. Different tectonic models has been implemented, accounting for different boundary conditions associated to the major processes. Particular emphasis has been given to the boundary conditions associated with Africa-Eurasia convergence which have been based on the most recently acquired GPS solutions for the relative motion between the Africa plate with respect to the stable Europe, which show significant deviation from the commonly used NUVEL-1A plate tectonic model.