Spatiotemporal Earthquake Patterns

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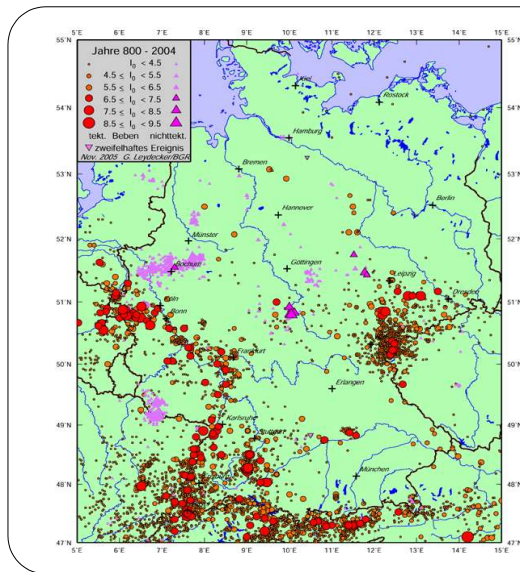*Institut für Geowissenschaften*   *Institut für Physik*

Challenges of the Project:

The analysis of seismicity patterns helps to

- ... map geologic structures and faults
- ... estimate tectonic deformation rates
- ... extract information about the earth-quake generation process and inter-actions between different earthquakes
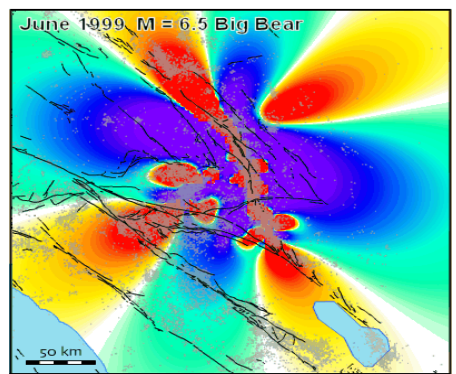- ... improve seismic hazard estimations

Data:

- earthquake catalogs
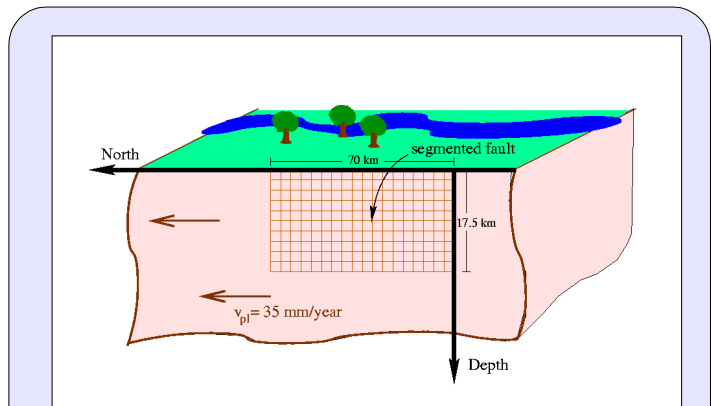- deformation fields
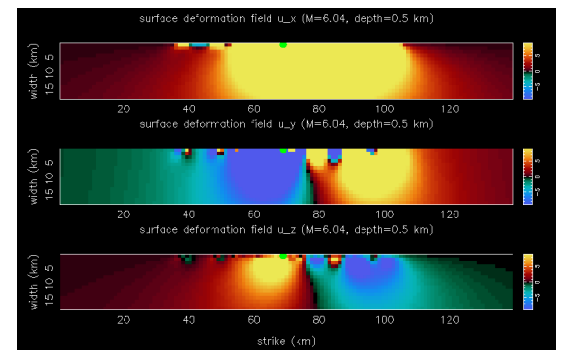
Methods:

- spatiotemporal cluster analysis
- statistical earthquake modeling
- calculations of distribution functions to unveil scaling laws
- Coulomb stress calculations

Comparative Model Simulations

We perform simulations of small and large scale fault systems embedded in an elastic half-space, where spatial heterogeneities (asperities, barriers, creep, pore pressure diffusion,..) are considered.

References:

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for more references see:

http://www.geo.uni-potsdam.de/mitarbeiter/Hainzl/hainzl.html
http://www.agnld.uni-potsdam.de/~gert/