



Paleogeodynamic reconstructions concepts and examples; using GIS and database.

(1) **C. Hochard**, (1) G.M. Stampfli

(1) Institute of Geology and Palaeontology, University of Lausanne , Switzerland (Email: Cyril.Hochard@unil.ch)

Thanks to paleomagnetic data, the location of continents through space and time can be constrained to a certain extent. If paleolatitudes can be defined and even if the technology and scientific knowledge grow everyday, the paleolongitude uncertainties are still present, and pole position for continents located at the equator are a matter of debate. It is well admitted since the early 80's that the driving forces of plate tectonics are directly related to the excess density of the lithosphere in subduction zones (Stern, 2004). Thus, in order to understand the motion of the lithospheric plates through time plate boundaries must be reconstructed. In order to constrain paleolongitudes, paleomagnetic data are used as a framework and are associated to numerous other constraints (such as velocity limits, geological data, paleobiogeography...) and geodynamic concepts to reconstruct lost oceans/plate boundaries. Thus, Paleogeodynamic reconstructions require dealing with a large and diversified amount of data. Numerous softwares, devoted to plate motion calculation have been developed lately, but none of them can directly associate plate kinematics to geological data. GIS softwares are specifically dedicated to geographical data management; we transformed them for plate tectonic reconstructions and we are currently developing a database dedicated to the paleogeodynamic work.

Stern, R.J., 2004. Subduction initiation: spontaneous and induced. *Earth and Planetary Science Letters*, 226(3-4): 275-292.