Geophysical Research Abstracts,
Vol. 11, EGU2009-10558, 2009
EGU General Assembly 2009

Tectonically influenced drainage evolution in an uplifting area: the case of the Sila Greca (Calabria, southern Italy)

P. Molin, G. Fubelli, and F. Dramis
Roma Tre University, Geological Sciences Dpt., Rome, Italy (p.molin@uniroma3.it)

Sila Greca is the northern portion of the Sila Massif (Calabria, southern Italy), a high-standing plateau with a rolling upland surface lying between 1000 and 1900 m. It is underlain by crystalline and metamorphic rocks thrusted over Mesozoic carbonates and flysch. The Sila Massif is surrounded by low-standing extensional basins, filled with several upper Tortonian to Holocene marine and fluvial deposits. Since the end of Early Pleistocene, the Sila Massif has been uplifted regionally as indicated by deeply incised river valleys and flights of marine terraces. The low relief Sila upland surface is the remnants of a pre-uplifted landscape developed during a long time of stable base level. Our study examines the tectonic geomorphology of Sila Greca, from the northern flank of the massif to its interiors including the Cecita Lake. We focused on the general topographic metrics, drainage patterns, and river long profiles, based on field surveys and air-photo interpretation. Our goal was to investigate the local tectonic constrains on the evolution of the Sila Greca drainage network in the context of the Calabrian Arc uplift. Our results indicate that the drainage evolution has been strongly controlled primarily by local tectonics and secondarily by regional uplift. In particular, we suggest that the northward continuation of the informally-named Cecita Lake Fault has recently reorganized the Sila Greca drainage by west-side down subsidence of the hanging wall. This segment of the Cecita Lake Fault, that is considered by some researchers to be active in the Quaternary by offset stratigraphy as well as by proximal microseismic activity, could play an important role in the seismic hazard assessment of Sila Greca.