Geophysical Research Abstracts
Vol. 12, EGU2010-14736-1, 2010
EGU General Assembly 2010


# Peneplains on Tibetan Plateau: a long-term archive of exhumation and slow erosion

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Peneplains are not only representative and well recognizable geomorphological features but also archives of slow erosion and long-term exhumation. In the Lhasa terrane between the Banggong Suture in the north and the Nyaingentangtha Mountain range in the south, especially in the area around lake Nam Co, peneplains were graved into Jurassic and Cretaceous granitic intrusions. Some peneplains are crossing massive Jurassic sandstone. Characteristic outstanding paleosurfaces are wide planar surfaces that extend over 1 km at different elevation. They are not to mix up with also present sub-recent, smaller sized plane surfaces which were formed by abrasion processes of the local lakes.

We used low–temperature chronological methods such as (U–Th)/He and fission track (FT) for dating heavy minerals such as apatite and zircon to measure and extract information about processes like erosion and exhumation that are closely related to orogenic stacking and uplift. Around hundred samples in particular from Cretaceous to Eocene granites, volcanics and sedimentary rocks were taken from the peneplains and their surroundings. Apatite crystals from more than 25 samples and zircon crystals from ten samples have been successfully analysed by (U-Th)/He method. While (U-Th)/He apatite ages cluster in Paleocene and Eocene ranging from 38 to 60 Ma, apatite and zircon FT ages cluster in Late Cretaceous. The age clusters are internally consistent in areas smaller than 100 km2. This first thermochronological data lead us most surely to a Late Cretaceous to Early Tertiary thermotectonical event which is probably connected to erosion and planation of the paleosurface. The deposition of Late Cretaceous to Eocene siliciclastic sediments close to the currently exhumed peneplains are also evidence of such an event.