



Tertiary evolution of Corsica - inferred from fission track analysis applied on elevated paleosurfaces.

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The island of Corsica in the western Mediterranean is traditionally divided into two distinct geological domains – "Alpine Corsica" and "Variscan Corsica". Variscan Corsica is characterized by a moderate to rugged mountainous relief with paleorelief remnants (Rondeau, 1961). Kuhlemann et al. (in press) discriminated two levels of paleorelief: (i) summit paleosurfaces - situated on top of the ridges in the level of local summits (at up to 2300 m a.s.l.); (ii) piedmont paleosurfaces - situated at medium altitudes (600 - 900 m a.s.l.).

In this study, apatite fission-track thermochronology was applied on the samples representing summit paleosurfaces in order to constrain the age of the summit paleosurfaces formation and refine the geodynamic and thermotectonic evolution of Variscan Corsica. The ages range between 105.3 ± 7.2 Ma and 21.4 ± 1.4 Ma. The data reveal an Early Cretaceous cooling event of Variscan basement, which we interpret as to be related to sea-floor spreading in the Piedmont-Ligurian Ocean. In the Eocene, the entire Corsican basement was buried beneath the flysch sediments. During Oligocene to Early Miocene times, the basement underwent fast cooling and exhumation related to rifting in the Ligurian-Provençal Basin, and the flysch sediments were almost completely eroded. Paleosurface formed between c. 30 and c. 17 Ma, during a period of tectonic quiescence. A tectonic event at 17 Ma caused dissection of the paleosurface, which was subsequently uplifted to different altitudes and partly destroyed.

References

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