## Abstract

Ar/39Ar cooling ages of hornblende, biotite and muscovite are presented from the Taita Hills-Galana River area, SE Kenya. Ages of ~580-560 Ma are derived from hornblende and biotite from rocks belonging to a S-SW oriented thrust pile in the westernmost part of the study area (Taita Hills). These ages document cooling subsequent to a phase of thrusting and uplift in the orogen. Muscovite from an unfoliated pegmatite from the same area shows an age of ~505 Ma which is interpreted as incipient post-tectonic cooling. An adjacent domain characterized by large-scale strike slip shear (western Galana River) exhibits cooling ages of ~525 Ma (hornblende) and ~500- 490 Ma (biotite), respectively. These ages most likely constrain a late phase of post-collisional tectonics in the orogen. Between both domains biotites from a small zone containing distinct gneiss rigdes show a cooling age of ~548 Ma. In the easternmost part of the study area (eastern Galana River) a hornblende cooling age of ~519 Ma suggest a tectonic relationship to the strike slip domain. A combination of the 40Ar/39Ar- and recent U-Pb- and Sm-Nd age data support a polycyclic metamorphic evolution of the region as well as differences in the cooling history for certain domains.