

High Pressure Granulites from the Taita Hill-Tsavo East National Park Area, Kenya

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The Taita Hill-Tsavo East National Park (Galana river) area is located in Southeast-Kenya and is part of the North-South trending neoproterozoic Mozambique belt. Structurally this area can be subdivided into 3 units: (1) the easternmost part of the basement along the Galana river is characterized by subhorizontal slightly to the West and East dipping foliation planes; (2) several km East of Lugard's falls, a shear zone with subvertical foliation planes extends for about 30 km to the West till the Taita Hills; and (3) the slightly to the N dipping Taita Hills. The most common rock type in all units are migmatitic Am-Bt-Fsp-Qtz±Grt±Px±Scap orthogneisses with cm to m thick bands of amphibolites. Metasedimentary rocks (coarse grained, graphite bearing marbles, Cpx-Grt-Am-Pl-Cc±Wo calcsilicates and Grt-Bt-Ky-Sil-Fsp-Qtz-Rt metapelites) are found mainly in units 1 and 3. In the eastern part of the Galana river (unit 1) Sil is the stable aluminosilicate phase, whereas in the Taita Hills mainly Ky is stable. Peak PT estimates for unit 1 are around 780°C and 9 kbar. Temperatures in units 2 (shear zone) and 3 (Taita Hills) are also around 770°C-800°C, but pressure increases from North to South from 9 to 12 kbar. Sillimanite inclusions in garnet, sillimanite growth around kyanite and retrograded PT calculations from metapelites of 680°C and 8 kbar constrain a clockwise PT path. Financially supported by FWF-P12375-GEO.