Pyroclastic rocks from Kanchanaburi and Uthai Thani Province, Inthanon Zone, Western Thailand

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A series of pyroclastic rocks are mapped as a Silurian-Devonian unit in the Kanchanaburi-Uthai Thani area, Western Thailand, which belongs to the Inthanon Zone. These pyroclastic rocks were discovered and described for the first time in 1977 and mentioned in the 1:250,000 Suphanburi geologic map sheet and report. Since then these rocks were poorly investigated and their formation and geotectonic setting is unclear. As a result, we report petrographic, geochemical and geochronological data of these pyroclastic rocks. Petrographically, the pyroclastic rocks can be described as a meta-quartz-K-feldspar crystal tuff, a meta-quartz crystal tuff, and a meta-lithic tuff. They are made up of mm sized clasts in a finely grained matrix. The clasts consist of potassium feldspar, rounded quartz, embayed quartz, trachytic and metasedimentary rock clasts embedded in a highly altered devitrified fine-ash matrix containing sericite.

The whole-rock composition shows enrichments in SiO₂ and K₂O and a strong depletion in CaO and Na₂O which is related to late alteration of the volcanoclastic rocks. Based on the immobile element classification plot of Pearce 1996, the tuffs can be classified as trachyandesite, trachyte, dacite and rhyolite. Their chondrite-normalized REE patterns display light REE enrichment with nearly flat heavy REE and a negative Eu anomaly, typical for calcalkaline volcanic rocks. Most samples fall in the volcanic arc granites field in the granite discrimination diagrams of Pearce 1984.

Zircons extracted from the tuffs will be used to constrain their crystallization age by U-Pb LA-MCICPMS dating. This allows us to constrain the age of formation and to place this in context with the closure of the Paleotethys.