

Magmatic history of central Myanmar and implications for the evolution of the Burma Terrane

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Abstract

The Burma Terrane is a microplate at the eastern edge of the Tibetan-Himalayan orogen, the origin of which remains poorly understood. Its basement comprises metamorphic and igneous rocks forming the Wuntho-Popa Arc (WPA) and has been correlated with Tibetan, Gondwana or Transtethyan rocks. Yet, little is known about the magmatic history of the WPA. We report elemental and Sr-Nd isotopic compositions of magmatic rocks, crystallization (zircon and apatite U-Pb) and exhumation (apatite fission-track) ages from rocks and river sands, and structural measurements from the Wuntho Ranges, central Myanmar, where the WPA is best exposed. We show that the WPA in the Wuntho Ranges is characterized by two magmatic events at 108-90 Ma and 46-32 Ma. Magmatism is subduction-related for both events, characterized by depleted Nd and Sr isotopic compositions, with more enriched values with time. Apatite fission-track data suggest arc exhumation during the 39-22 Ma time interval, partly overlapping with the last magmatic event. Structural data indicate NW-SE-striking tilting, folding, and thrusting that we associate with at least two phases of deformation, in the Cretaceous and the late Paleogene. Correlating the WPA with Tibetan, Gondwana or Transtethyan rocks based on its magmatic history remains ambiguous: however, models arguing for a Transtethyan origin for the WPA are most compatible with our results combined with available Burmese geological data. (C) 2020 International Association for Gondwana Research. Published by Elsevier B.V. All rights reserved.

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