Geophysical Research Abstracts
Vol. 21, EGU2019-202, 2019
EGU General Assembly 2019


# Age and origin of the Shyok ophiolite-arc complex in Ladakh, NW Himalaya

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The Shyok Suture in the Ladakh Himalaya records the opening and closure of the Meso-Tethys Ocean between the Karakoram Block and Kohistan-Ladakh Arc, prior to the India-Eurasia collision. Until now, the formation age of the Shyok ophiolite-arc complex was unknown making correlations with similar rocks along the Shyok Suture in Pakistan, or coressponding sutures in Tibet, difficult. We report the first zircon U-Pb ages of a newly documented intrusive phase of the Shyok ophiolite-arc discovered along the Shyok Valley in the Nubra region, Ladakh. Gabbro and monzodiorite from the complex yielded Late Jurassic SHRIMP U-Pb zircon ages, and these are the oldest magmatic rocks found within the Shyok Suture. Very positive initial Hf values (+14.9 to +16.9) indicate a juvenile mantle origin for the melt without any continental crust influence on the magma source. Compilation of the available geochemistry data for the extrusive rocks of the Shyok Volcanics and intrusive rocks from the Skuru Complex indicate the presence of boninitic, N- and E-MORB and isalnd arc tholeiite rocks typical of supra-subduction zone environment. Geochemical trends from the ophiolitc rocks show arc evolution from subduction initation to arc maturation during the Late Jurassic before onset of the Ladakh Batholith magmatism. The Shyok ophiolite-arc complex is of a similar age to SSZ ophiolitic rocks along the Bangong Suture in Tibet, suggesting the Meso-Tethys was an extensive ocean basin.