

Basaltic sills of the Central Magmatic Province (CAMP)

Large igneous provinces (LIPs) synchronous with main stage boundaries triggered large scale biotic and environmental turn-over events of the Phanerozoic. A good example is represented by the Central Atlantic magmatic province (CAMP) emplaced close to the Triassic-Jurassic boundary. The mass extinction event of the end-Triassic is one of the most severe ones of the Phanerozoic and is clearly associated with abrupt changes in atmospheric CO₂ and SO₂ contents. The origin of these greenhouse or toxic gases may be directly related to the CAMP magmatism. Or it may be of crustal origin, i.e. derived from crustal rocks crossed by CAMP magmas en route to the surface. In particular, it is known from the study of other LIPs (e.g. Karoo or Siberian Traps) that shallow level intrusions, e.g. sills, can heat and thus degas CO₂- or SO₂-bearing sediments. For this project we propose to investigate the contact metamorphic effects and degassing of CAMP sills. Furthermore, we aim to investigate and date by the Ar/Ar method a presently poorly studied part of the CAMP from South America. We therefore propose to work on following aspects:

- Sampling of basaltic sills and wall-rocks in Amazonia (Brazil, Anti Atlas of Morocco, eastern U.S.A.
- Geochemistry of the sills, including Sr-Nd-Pb-Os and Ar/Ar geochronology.
- Study of contact metamorphism and degassing of wall-rocks and its influence on global climate change at the Triassic-Jurassic boundary.

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