The Karakorum fault is a major active dextral strike-slip fault that extends along 900 km and separates the western Tibetan plateau from NW Himalaya. In addition to its strike-slip motion, the Karakorum fault locally presents a normal component of motion, especially south of the Bangong lake, in the Gar-Baer pull-apart basin, where it is attested by numerous impressive triangular facets facing NW. In this area, strike-slip motion is proposed to have started prior to 23 Ma [1,2] and normal motion is proposed to have been initiated 14 Ma ago [3]. Others propose that strike-slip motion did not start before 11-12 Ma [4,5].

Here, we use low-temperature thermochronometry to focus on the timing and potential variations of normal motion of the Karakorum fault through time, in the Gar-Baer area.

Granitic samples collected east of the Karakorum fault, on the Tibetan plateau, have mean zircon (U-Th)/He cooling ages ranging from 30 to 46 Ma and mean apatite (U-Th)/He ages ranging from 26 to 36 Ma. At first order, these ages are consistent with a slow exhumation of SW Tibet since the Eocene. In contrast, in the footwall of the fault, samples collected in the Himalayan Ayilari range have ZHe ages ranging from 8 to 16 Ma and AHe ages ranging from 1.9 to 14 Ma. This shows a rapid, continuous cooling since 16 Ma. We will use thermal modeling combining multiple thermochronometers from this dataset and published studies [1] (Ar-Ar, fission tracks) in order to reconstruct the exhumation history of the Ayilari range and constrain the initiation time of the Gar-Baer basin.