## U-Th dating of Eparses Islands Corals (Mozambique Channel)

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Late Pleistocene fossil coral reefs represent outstanding geological archives for past environmental, climatic and eustatic conditions. To complement numerous publications during the last decades, new case studies appear crucial to better understand reefal sedimentary systems and better constrain associated environmental reconstructions. The Eparses Islands, located in the Mozambique Channel (SW Indian Ocean), are characterized by coral reef outcrops exposed a few meters above modern sea level. In the frame of the 2011 REEFCORES expedition, sedimentary descriptions, GPS measurements and rock sampling were carried out on outcrops from Europa and Glorieuses islands. These sedimentary formations correspond to fossil coral reefs typified by both massive (e.g. faviids) and branching (e.g. acroporids) coral colonies, which occur mostly in growth position. The buildups are locally surrounded by stratified perireef deposits that are characterized by large coral and bivalve fragments.

<sup>238</sup>U-<sup>234</sup>U-<sup>230</sup>Th dating can yield absolute chronological records of marine carbonates over the time period of about 0.1 to 600 kyr before present, with uncertainties ranging from a few years for hundred-yr old samples to 1 kr for 100 kyr old samples [1]. However, sampling bias and complex correction schemes limit U-Th isotope precision and require thorough inspection prior to validating U-Th ages (i) pristinity and purity of coralline aragonite (ii) initial detrital and/or hydrogenous <sup>230</sup>Th contamination (iii) limited counting statistics and ion counting-to-Faraday cup detector calibration (iv) peaktailing and hydride interference corrections (v) choice of well-constrained carbonate references (vi) opening of the chronological system due to nuclear recoil effect [2][3].

Here, we report a methodological development that aims at simplifying instrumental mass bias correction schemes and to shorten up analysis time so as to diminish sample consumption and, in fine, enhance analytical precision without sacrificing to accuracy. Using this protocol, we dated five Eparses Islands corals to between  $125.5 \pm 0.6$  and  $128.9 \pm 0.86$  ky, which grew during the last interglacial period (MIS 5e). We will discuss these ages within the frame of the Eparses Islands paleoenvironmental setting.

[1] Edwards et al. (2003) *Rev. Mineral. Geochem.* 52, 363-405. [2] Thompson et al. (2003) *EPSL* 210, 365–381. [3] Villemant and Feuillet (2003) *EPSL* 210, 105–118.