

Coral recruitment processes on progressive autogenic ecological successions (marine lava flows from Piton de La Fournaise volcano, Reunion) and on allogenic regressive successions under anthropogenic stress in SWIO coral reefs (Reunion, Rodrigues)

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This on-going project aims to analyse coral recruitment through the prism of ecological successions in the South Western Indian Ocean (SWIO) biodiversity hotspot. Sampling is done on reef slopes of Reunion Island and Rodrigues, and on submarine lava flows of the Piton de la Fournaise volcano at Reunion Island. Abundance and taxonomic composition of coral recruits are evaluated using settlement tiles deployed in 14 stations around Reunion and Rodrigues Islands. Stations are located on the outer reef slope of reefs at Rodrigues and Reunion, and on 4 submarine lava flows of variable ages, from 10 to >100 years old. Initial results underline great variability in terms of recruits abundance as well as taxonomic composition between Reunion and Rodrigues. At Reunion reefs, recruitment rates ranged from 48 to 150 recruits/m² among stations in the 2015-2016 austral summer, with a dominance of Pocilloporidae. At Rodrigues, over the same period, less than 7 recruits/m² were observed, dominated by Poritidae. 2016 winter recruitment rates were even lower: less than 11 recruits/m² at Reunion reefs and zero at Rodrigues reefs. In the 2016-2017 summer, recruitment rates were higher than previously observed at Rodrigues reefs, reaching 11 to 40 recruits/m² dominated by Acroporidae. Meanwhile, we found similar recruitment rates and taxonomic composition at Reunion reefs (20 to 98 recruits/m²) and on Reunion lava flows (35 to 67 recruits/m²), both dominated by Pocilloporidae. These low recruitment rates are of immediate concern, especially in the recent context of the bleaching event that happened in 2016 in the Indian Ocean