



## **Holocene relative sea levels of Bonaire (Leeward Antilles) – Evidence from circumlittoral sediment traps**

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Relative sea-level (RSL) rise in the near future represents one of the most serious coastal hazards worldwide, in particular in the Caribbean region where it may enhance negative effects from hurricane-induced flooding. RSL is a function of global (glacioeustasy, steric effect), regional (e.g. glacio-isostatic adjustment [GIA], gravitational effects inducing deformation of the earth, upper/lower mantle viscosity, etc.) and local (sediment compaction, tectonic uplift/subsidence) factors. Information on past RSL supports inferences on upper limits of ice shield ablation, estimates of anthropogenic contribution to historical and future RSL rise and calibration of rheological Earth models. We present the first Holocene RSL curve for the island of Bonaire in the southern Caribbean based on 42  $^{14}\text{C}$  datings from 20 sediment cores taken from nine different sedimentary archives along the coast. The sedimentary environment of each index point was linked to a palaeo-water depth based on literature and field observations. The index points trace a local RSL history of decelerating rise since 7000–6000 years ago and subsequent asymptotical approximation, similar to RSL curves from adjacent coasts of Curaçao and Venezuela. The results were compared to an existing reference model which considers global effects and regional GIA (including implications for geopotential). Even though the central and northwestern parts of Bonaire experienced slow tectonic uplift of up to 50 cm since the mid-Holocene and correction for compaction was applied, the new RSL curve for Bonaire runs slightly below the reference model which is probably due to sediment compaction in the investigated archives, collapse of cavities in the underlying limestone, or, at Boka Bartol, local-scale normal faulting (c. 1.5 mm/yr).