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A new Holocene record from a far-field site in the Indian Ocean to constrain Holocene sea level.

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Reconstructions of relative sea level (RSL) during the Holocene provide important constraints for Glacial Isostatic Adjustment (GIA) models, determining Earth rheology, estimating ice-equivalent meltwater input, and fingerprinting sources of ice mass loss. In far-field regions such as the Indian Ocean, RSL is characterized by rapid rise during the early Holocene driven primarily by deglaciation of northern hemisphere ice sheets. This cumulated to a characteristic mid-Holocene highstand before falling towards present driven by hydro-isostatic processes. Reconstructions of RSL utilize proxy sea-level indicators to produce sea-level index points (SLIPs) that position RSL in time and space with an associated temporal and vertical uncertainty.

Here we present a standardized RSL database with a full consideration of uncertainty from the Maldives to investigate regional variations in the characteristics of the mid Holocene highstand, and to constrain the eustatic contribution to RSL change during the mid and late Holocene.

We produce new SLIPs from a mangrove forest in Kelaa, part of the Haa Alif Atoll in the northern area of the Maldives. We subsampled for mangrove macro fossils suitable for radiocarbon dating and obtained 5 dates with calibrated ages ranging between 630 – 1340 years BP. These new SLIPs show RSL was between 0.07m – -0.14m during this period.