

Supplementary Material

- **1** Supplementary Figures and Tables
- **1.1 Supplementary Figures**



Supplementary Figure 1. Comparison of 1128 RTK GPS elevation measurements taken in mangrove and saltmarsh wetlands with respective elevation values of the seamless topo-bathymetric DEM.



Supplementary Figure 2. Sea level rise scenarios used in this study. Derived from IPCC data presented in Church et al. (2013).

Results of SET measurements used for WEM parameterisation

Monitoring of three mangrove surface elevation tables at the central floodplain form the past 20 years (Supplementary Figure 3 – green symbols) suggest that surface elevation in mangroves has increased at a rate of 1.1 ± 1.17 mm yr⁻¹, which accounts to ~ 22 mm in 20 years.



Year

Supplementary Figure 3. Empirical observations of relative surface elevation (mm) from three mangrove surface elevation tables (green symbols) at Minnamurra River estuary between 2001 and 2021. Linear trend line and equation are based on mean values (red symbols) calculated from the three surface elevation tables.

An R² of 0.91 for mean values (red symbols) indicates a comparatively strong relationship of surface elevation gain in mangrove vegetation over the past 20 years. Relatively low surface elevation change was observed in the saltmarsh for the same period (0.14 ± 0.14 mm yr⁻¹) which equates to ~ 2.7 mm in 20 years (see Supplementary Figure 4)



Supplementary Figure 4. Empirical observations of relative surface elevation (mm) from three saltmarsh surface elevation tables (blue symbols) at Minnamurra River estuary between 2001 and 2021. Linear trend line and equation are based on mean values (red symbols) calculated from the three surface elevation tables.



Supplementary Figure 5. Topographic changes in response to SLR for an intertidal wetland transect in vicinity of location G-03 (see Figure 3 for location) as of today (black), for the simulation of the low SLR (blue) and high SLR (red), as well as WEM Linear 1 (panel A) and Linear 2 (panel B). Blue, green and orange bars at the bottom of each panel indicate wetland vegetation configurations resulting from changing wetland inundation regimes under the different scenarios. Dashed lines represent the simulated average inundation duration (per event) corresponding to each scenario.