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Contrasting records of sea-level change in the eastern and western North Atlantic during the last 300 years

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We detail a 300-year sea-level reconstruction from a salt marsh on the Isle of Wight, located in the central English Channel (UK) that is compared to other salt-marsh and long tide-gauge records to examine changes in sea-level change in the North Atlantic. We identify an overall rise in relative sea level (RSL) of c. 0.30 m since the start of the eighteenth century at a rate of 0.9 $\pm$ 0.3 mm yr-1. We find no statistically significant deviation from a constant rate within the reconstruction. The record broadly mirrors existing tide-gauge and salt-marsh records from the European Atlantic, showing coherence in sea level in this region over the last 300 years. In contrast, we identify significant differences in the rate and timing of RSL with records from the east coast of North America. The lack of a strong late 19th / early 20th century RSL acceleration contrasts with that reconstructed from salt marsh deposits along the eastern USA coastline, notably with a well-dated and precise record from North Carolina. This suggests that this part of the North Carolina sea level record records a regionally specific sea-level acceleration. This matters since the North Carolina record has been used within semi-empirical parameterisations of past and future global sea-level change. Our work highlights the value of using several, regionally representative RSL records when calibrating and testing semi-empirical models of sea level against palaeorecords. By using records that potentially over-estimate sea-level rise in the past such models risk over-estimating sea-level rise in the future.