

Figure 1: The study area is located in the southeastern North Sea (cell 1), in the southern part of the island of Sylt (cell 2). The cores were taken on a transect in three dominant vegetation zones, indicated by points (cell 3).

Source: Schuerch et al. [2012], Copyright: Springer.

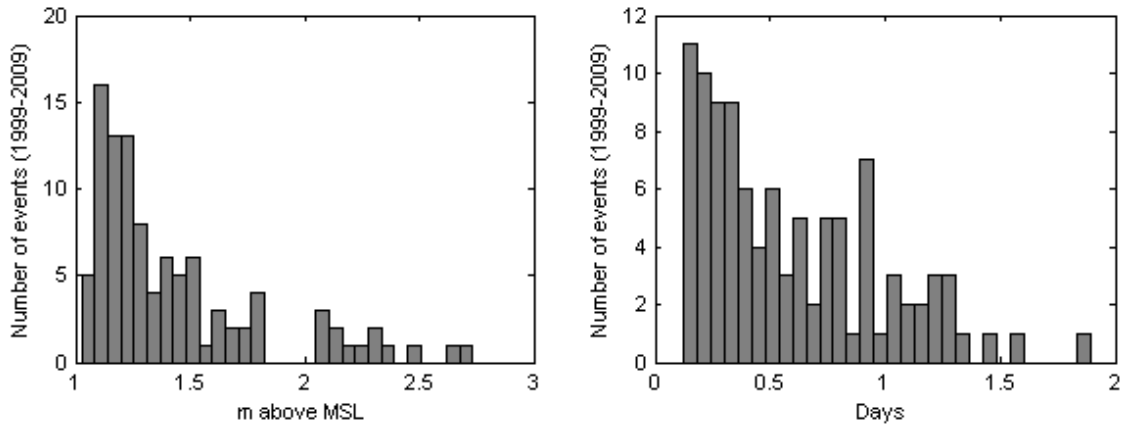


Figure 2: Histogram of peak residual water levels (left) and storm durations (right) during the baseline period.

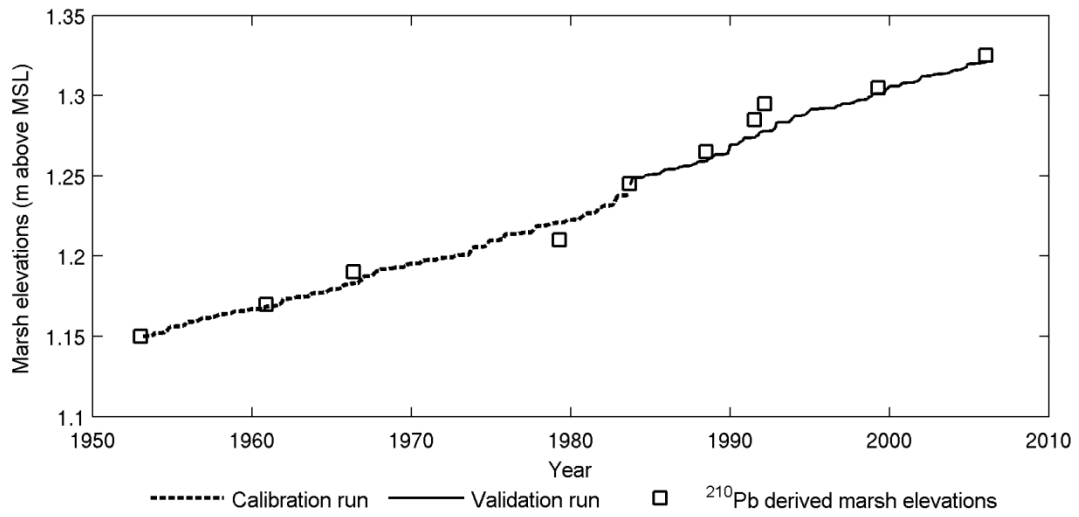


Figure 3: Performance of the model compared to measured historic marsh elevations during the calibration run (1953-1983) and the validation run (1983-2007)

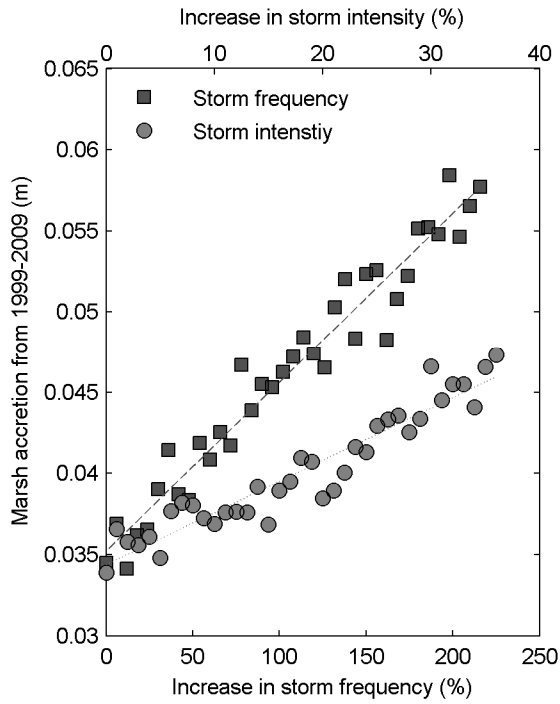


Figure 4: Marsh accretion rates for different increasing storm frequencies and storm intensities simulated for the baseline period 1999-2009.

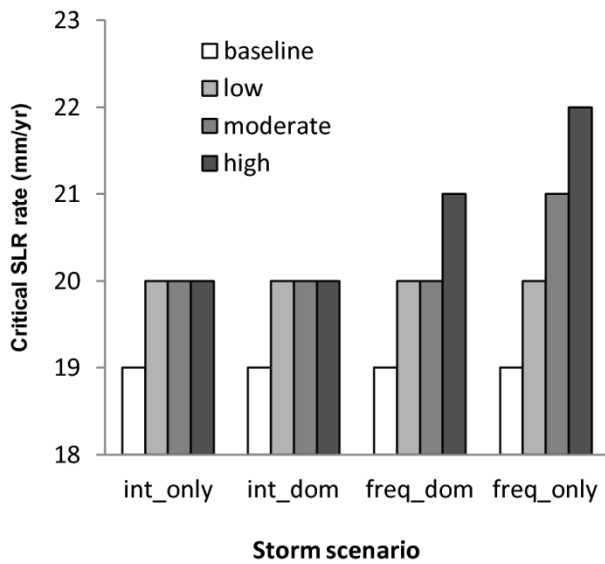


Figure 5: Effect of various storm patterns (int_only, int_dom, freq_dom, freq_only; as defined in table 2) on the critical SLR rate in the case of constant rate of SLR.

	int_only			int_dom			freq_dom			freq_only			Final marsh elevation (m above crit. veg. height)	
	baseline	low	moderate	high	low	moderate	high	low	moderate	high	low	moderate		high
A1F_hi	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	drowned
A2_hi	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	0-0.01
A1B_hi	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	0.01-0.02
A1T_hi	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	0.02-0.04
A1F_me	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	diagonal	0.04-0.06
														0.06-0.08
														>0.08

Figure 6: Final marsh elevations relative to the critical height for vegetation growth after a 90-year simulation period for all accelerating SLR scenarios (as described in table 3) that potentially endanger the survival of the investigated salt marsh and for all storm scenarios (as defined in table 2).

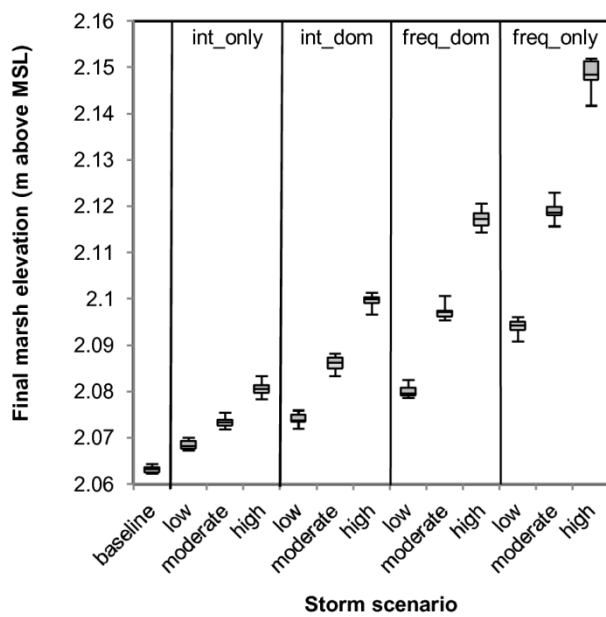


Figure 7: Boxplots of marsh elevations, resulting from ten model runs from 2010 to 2100 for each storm scenario (as defined in table 2) with the exponential SLR scenario A1FI (medium).

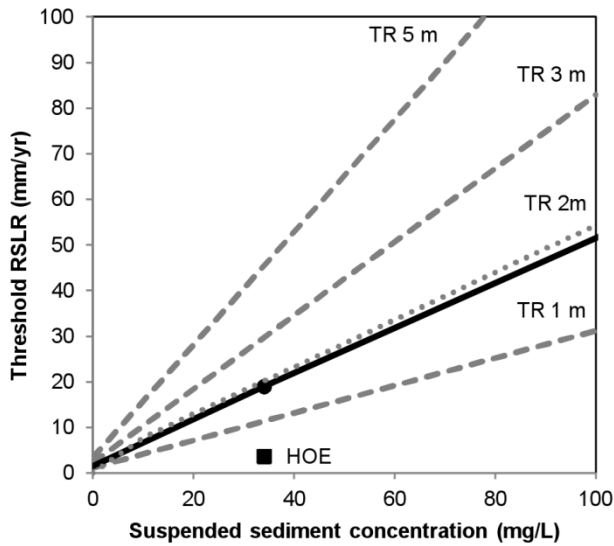


Figure 8: Comparison of the critical SLR rate for the baseline scenario with the threshold SLR rates reported by *Kirwan et al.* [2010] and *D'Alpaos et al.* [2011]: The dashed gray lines indicate the threshold SLR rate as a function of SSC and tidal range presented by *Kirwan et al.* [2010]. The dotted gray line indicates the threshold SLR rate as a function of SSC and tidal range presented by *D'Alpaos et al.* [2010] for a tidal range of 2m. The threshold SLR rate derived for the investigated study site (dot) is utilized to extrapolate the threshold SLR for SSC from zero to 100 mg/L. The current situation of the marsh is indicated as a square (HOE).