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Factors controlling spatiotemporal variability of soil carbon accumulation and stock estimates in a tidal salt marsh

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Table S1 The indices and peaks for UV-VIS/ EMMs analysis used in this study to determine molecular properties and source of DOC

Indices	Calculation	Characterization Information	Original Source
Abs_{254}	Absorption at 254 nm	Related to total CDOM concentration	
$SUVA_{254}$	Absorption at 254 nm divide by DOC concentration	Higher number is associated with greater aromaticity	Weishaar et al. 2003
S_r	Slope from $S_{275-295}$ divided by slope from $S_{350-400}$	Higher values indicate marine influence	Helms et al. (2008)
E_2:E_3	Slope from $S_{250-365}$	Inversely related to DOM molecular weight	Helms et al. (2008)
Coble A	Ex260/ Em450	Terrestrial-like source, soil-humics	Cory et al 2010
Coble C	Ex340/ em450	Terrestrial-like source, soil-humics	Baker et al 2008
HIX	Area under em spectra from 435-480 m, divided by peak area 300-345 nm & 435-480 nm, at ex 254 nm	Higher values correspond with increased humic substances or degree of humification	Ohno (2002)
BIX	Ratio of em intensity at 380 nm divided by 430 nm at excitation 310 nm	Higher values correspond with microbially-derived CDOM	Huguet et al 2009

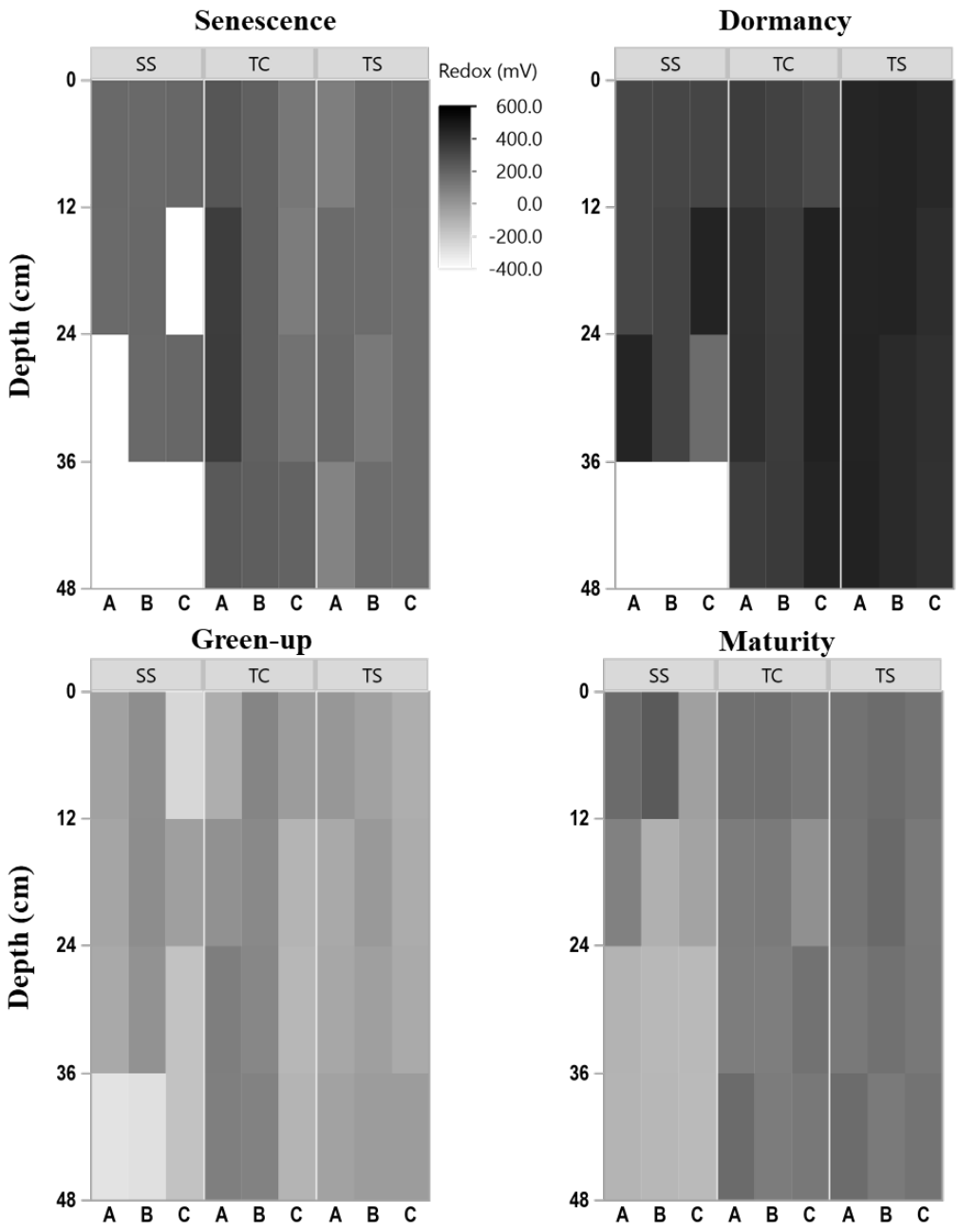

Figure S1 Heat maps of porewater redox with depth at the three subsites (SS, TC, and TS), four phenology phases, and for each replicate core (A (closest to channel), B, and C (farthest from channel)). No measurement was able to be obtained for some 12-cm sections as shown by white rectangles.

Table S2. ANOVA and post-hoc Tukey results for all assessed soil and porewater biogeochemical variables. Mean values represent average values for each depth for subsamples from all subsites and phenophases. The mean is reported (± SD) along with a connecting letter report. Means with letters that do not connect are differ are significantly ($p<0.05$) different.

Variable	0-12 cm	12-24 cm	24-36 cm	36-48 cm
Soil C (%)	6.0 (±1.6)^{A}	6.0 (±1.7)^{A}	5.9 (±1.7)^{A}	5.9 (±1.9)^{A}
Soil S (%)	1.0 (±0.6)^{A}	1.4 (±0.9)^{AB}	1.5 (±0.6)^{AB}	1.7 (±0.6)^{B}
DOC (mM)	18.9 (±32.7)^{A}	6.1 (4.4)^{AB}	5.2 (4.4)^{B}	14.2 (31.9)^{AB}
Redox (mV)	188(±191)^{A}	180 (±197)^{A}	160 (±203)^{A}	123 (±222)^{A}
pH	8.0 (±0.7)^{A}	8.1 (±0.7)^{A}	8.1 (±0.7)^{A}	8.2 (±0.7)^{A}
Fe^{2+} (mM)	0.3 (±0.3)^{A}	0.3 (±0.3)^{A}	0.2 (±0.3)^{A}	0.2 (±0.2)^{A}
Sulfide (mM)	0.2 (±0.2)^{A}	0.3 (±0.3)^{A}	0.3 (±0.4)^{A}	0.4 (±0.4)^{A}
Salinity (ppt)	10 (± 4.1)^{A}	10 (±2.4)^{A}	10 (±2.4)^{A}	10 (±2.0)^{A}
Total Fe (mM)	0.2 (±0.2)^{A}	0.3 (±0.3) ^{AB}	0.2 (0.2)^{AB}	0.1 (0.1)^{B}
Total Ca (mM)	5.2 (±1.6)^{A}	5.2 (±1.2)^{A}	5.2 (±1.1)^{A}	5.4 (±0.7)^{A}