Site   Measurement 1   Measurement 2   Measurement 3   Measurement 4   Measurement 5

Figure S1: Zoom in for visibility. Oxygen measurements (black dots) and modelled aerobic remineralisation rates (red line, bars) for sites N, NNW, NE, NW, NC, EC and E after Berg et al. (1998) following the R script of van de Velde et al. (2022). Integrated aerobic remineralisation rates are presented in the respective plots (R.int). See Table 1 for site abbreviations.

Site   **Measurement 1**   **Measurement 2**   **Measurement 3**   **Measurement 4**
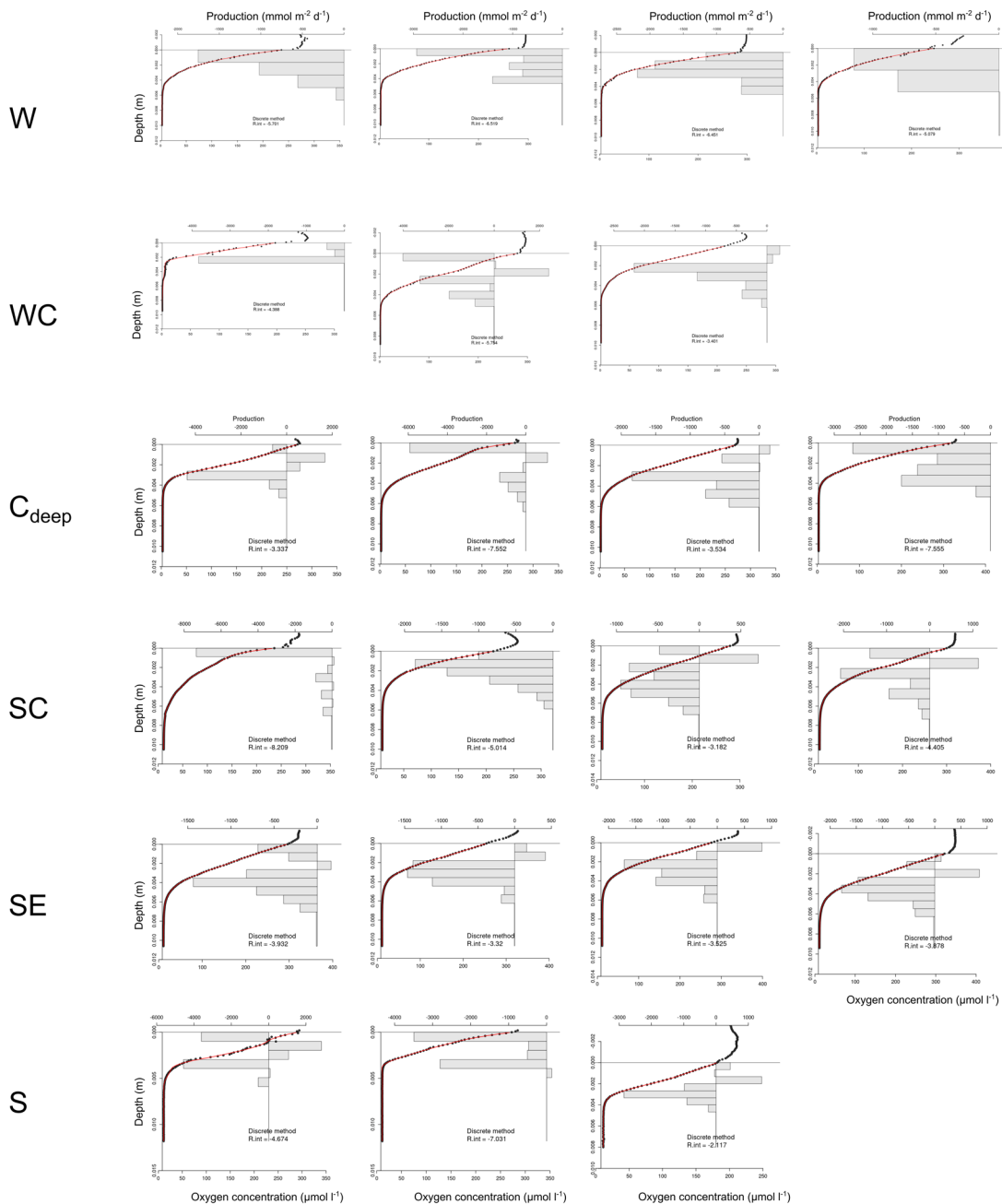
Figure S2: Zoom in for visibility. Oxygen measurements (black dots) and modelled aerobic remineralisation rates (red line, bars) for sites W, WC, C_{deep}, SC, SE and S after Berg et al. (1998) following the R script of van de Velde et al. (2022). Integrated aerobic remineralisation rates are presented in the respective plots (R.int). See Table 1 for site abbreviations.
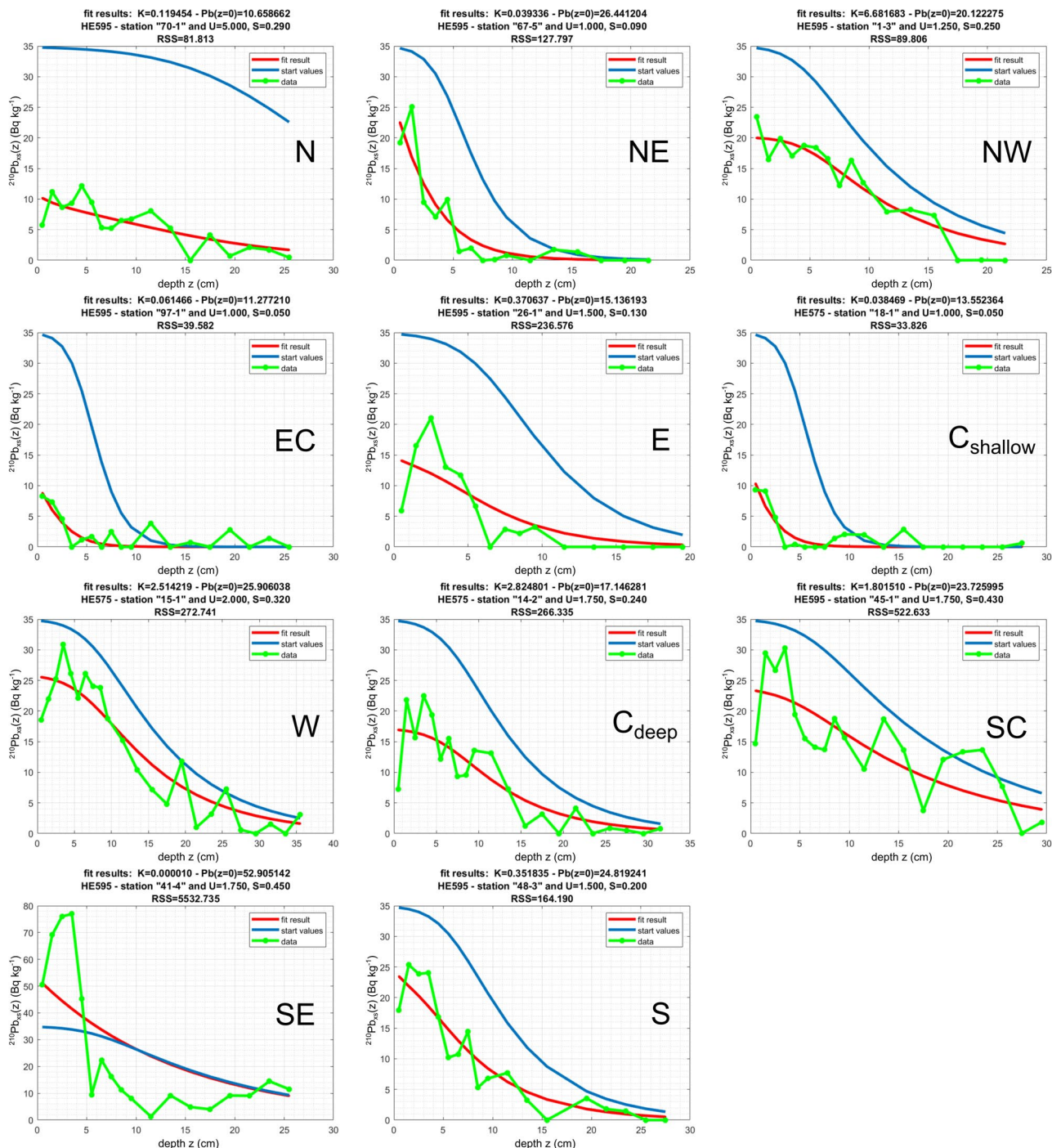
Figure S3: Zoom in for visibility. Model results (red lines) for the steady state sedimentation rates and sediment mixing rates after Gardner et al. (1987). The green dots and lines represent the measurements and start values for the model before optimisation are the blue lines. See Table 1 for site abbreviations.

15 Supplement references

Berg, P., Risgaard-Petersen, N., and Rysgaard, S.: Interpretation of measured concentration profiles in sediment pore water, Limnol. Oceanogr., 43, 1500–1510, https://doi.org/10.4319/lo.1998.43.7.1500, 1998.

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