Supplements: A comparison of metrics for CO_2 uptake efficiency of regional ocean alkalinity enhancement simulated in an Earth system model

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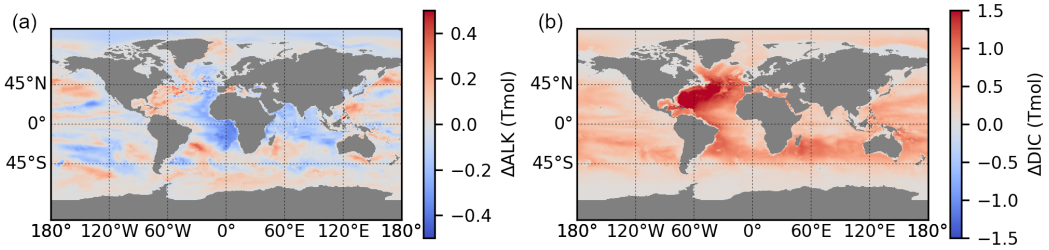

Figure S1. (a) Change in alkalinity in the water column between 2025 and 2049. (b) Same as (a) but for DIC.

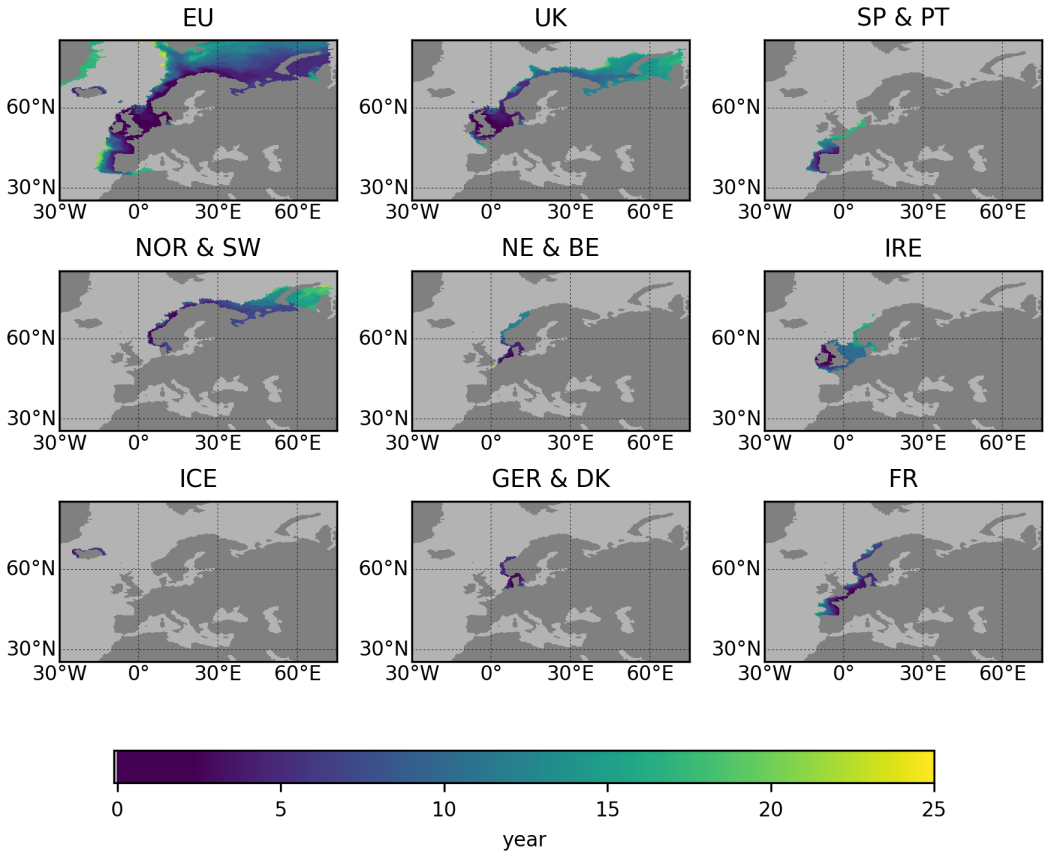

Figure S2. Time of emergence (TOE) based on yearly mean surface alkalinity concentration for a threshold criterion of 50 μmol/kg.

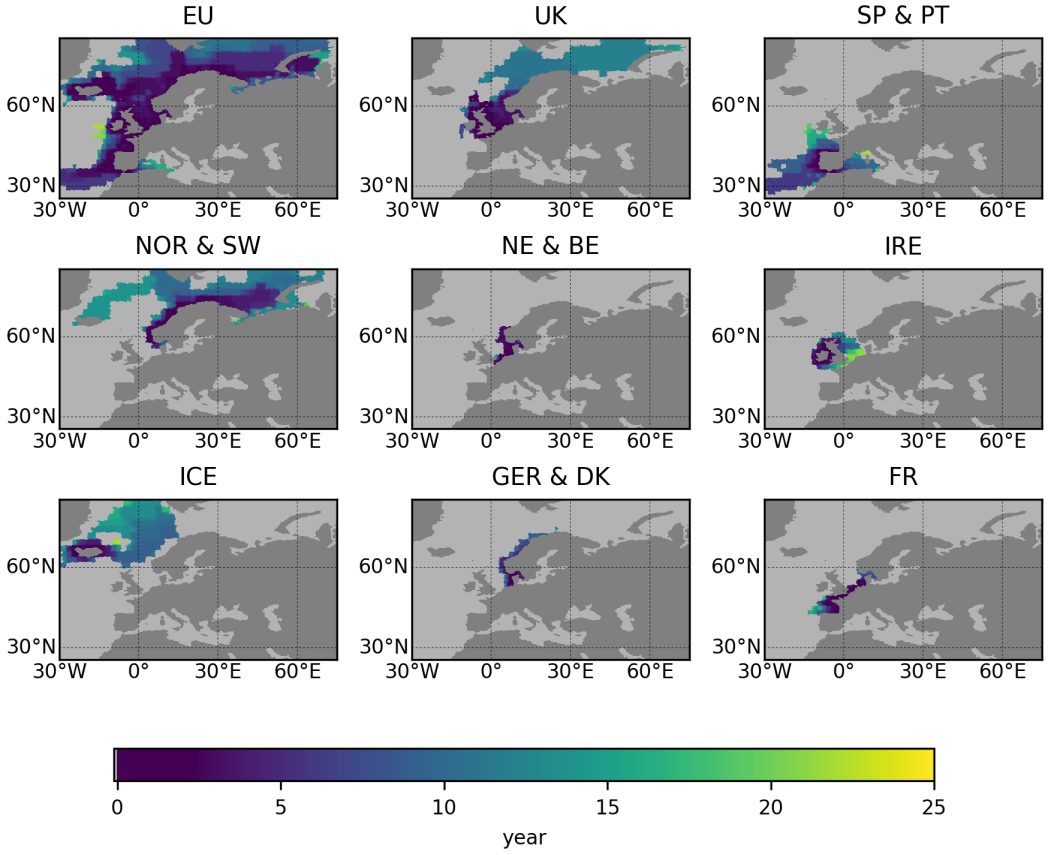

Figure S3. Time of emergence (TOE) based on statistically significant increase in downward air-sea CO_2 flux.

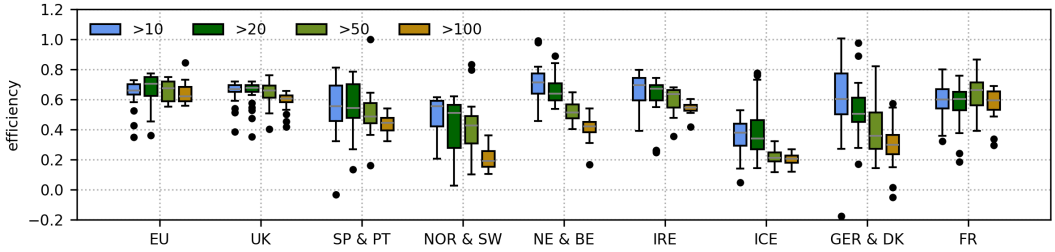

Figure S4. Boxplot of the uptake efficiencies based on yearly mean values for different thresholds applied to the differences in surface alkalinity concentration (10 μmol/kg, 20 μmol/kg, 50 μmol/kg, 100 μmol/kg) for simulations with alkalinity additions at the coasts of Europe (EU), the United Kingdom (UK), Spain and Portugal (SP & PT), Norway and Sweden (NOR & SW), the Netherlands and Belgium (NE & BE), Ireland (IRE), Iceland (ICE), Germany and Denmark (GER & DK), and France (FR)..

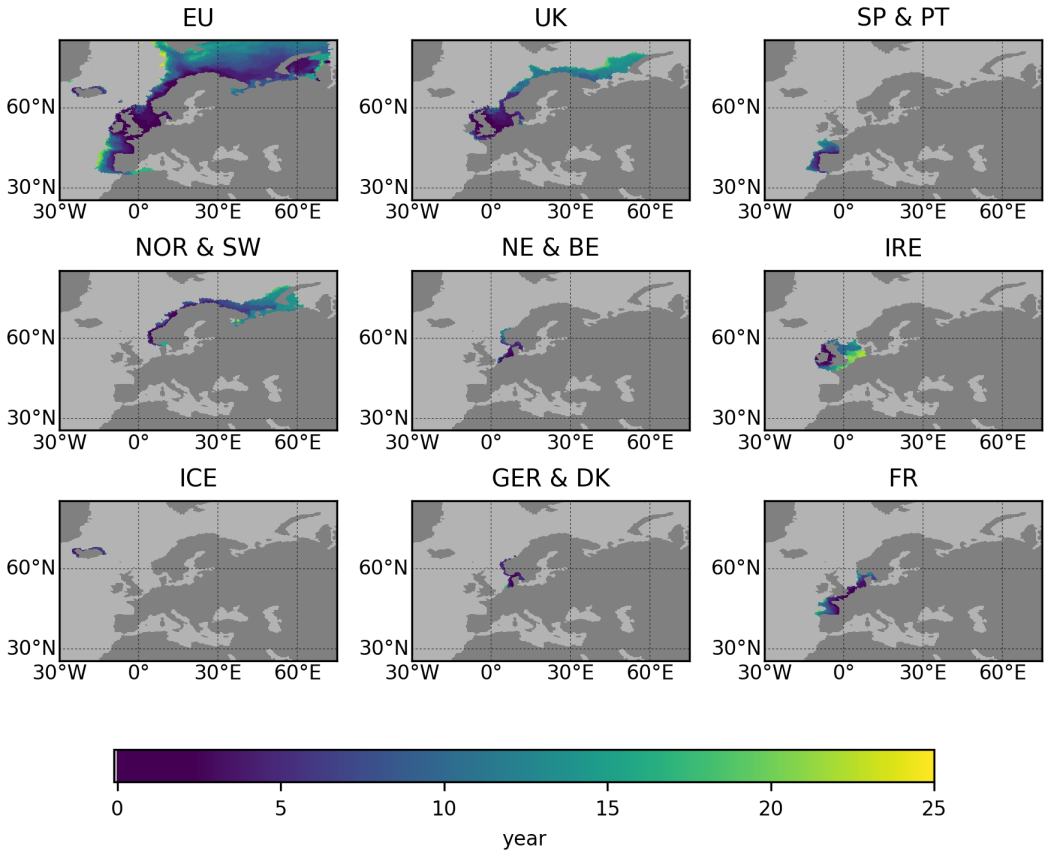

Figure S5. Time of emergence (TOE) based on yearly mean surface alkalinity concentration for a threshold criterion of 50 μmol/kg and statistically significant increase in the downward air-sea CO_2 flux.

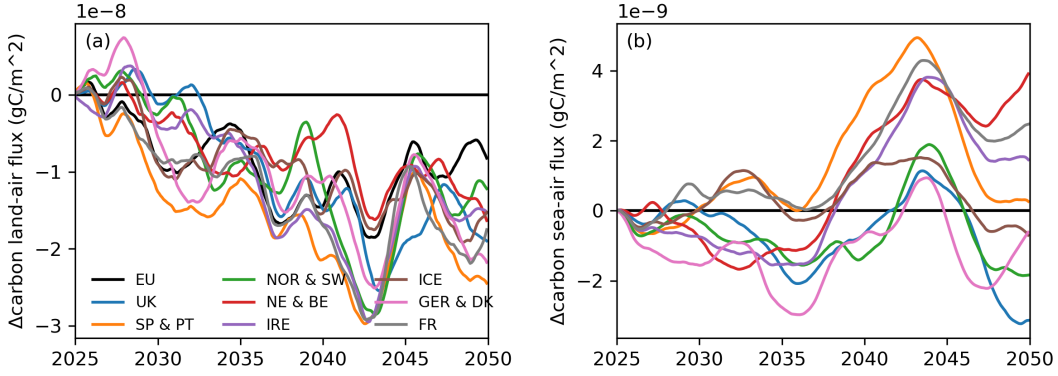

Figure S6. Cumulative change in global land-air flux (upwards positive) and (b) cumulative change in global sea-air flux (upwards positive) of OAE simulations relative to BASE.