Supplementary information for:

Tracing the contribution of dust sources on deposition and phytoplankton carbon uptake in global oceans

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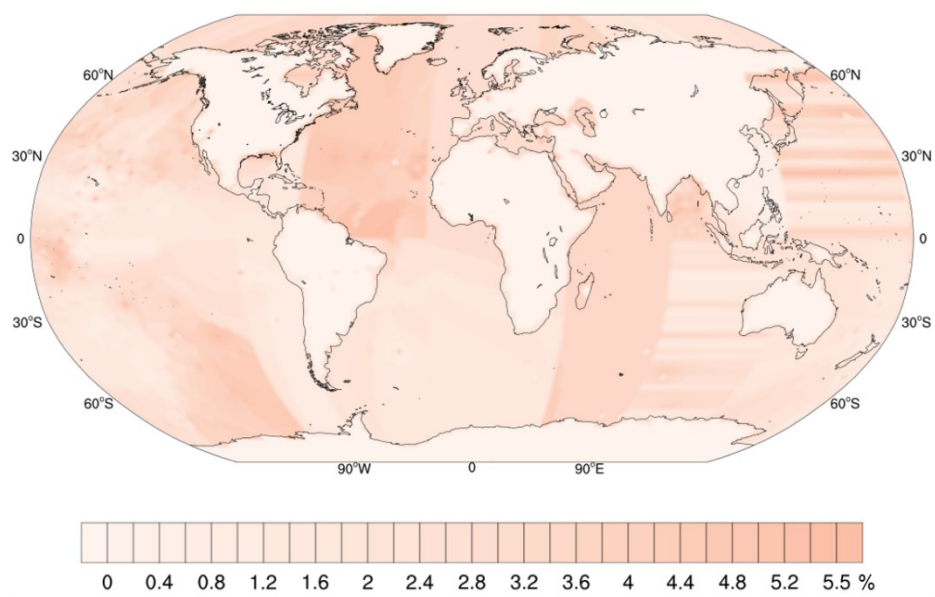
Fig. S1 The interpolated iron solubility data.
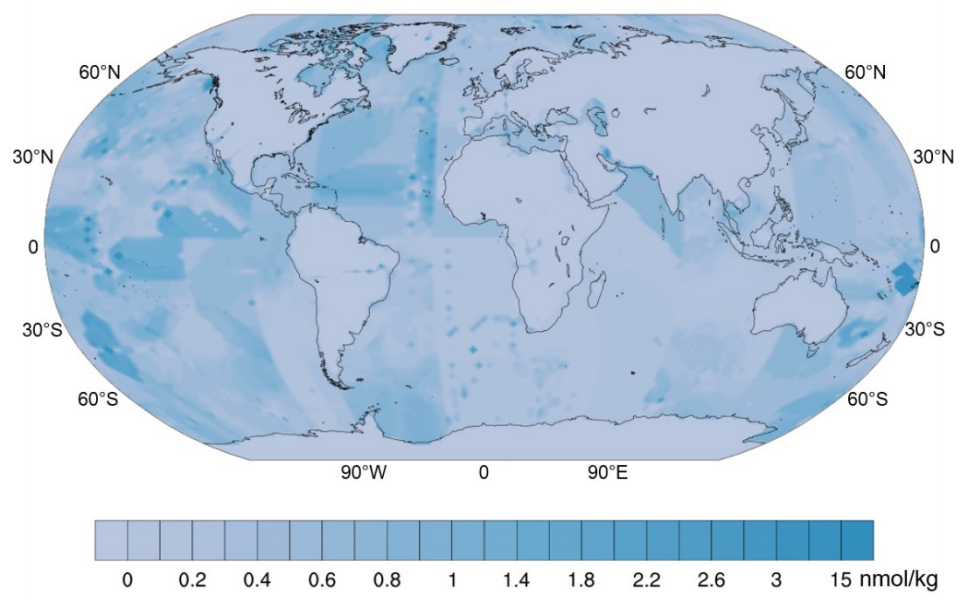
Fig. S2 The interpolated dissolved iron data.
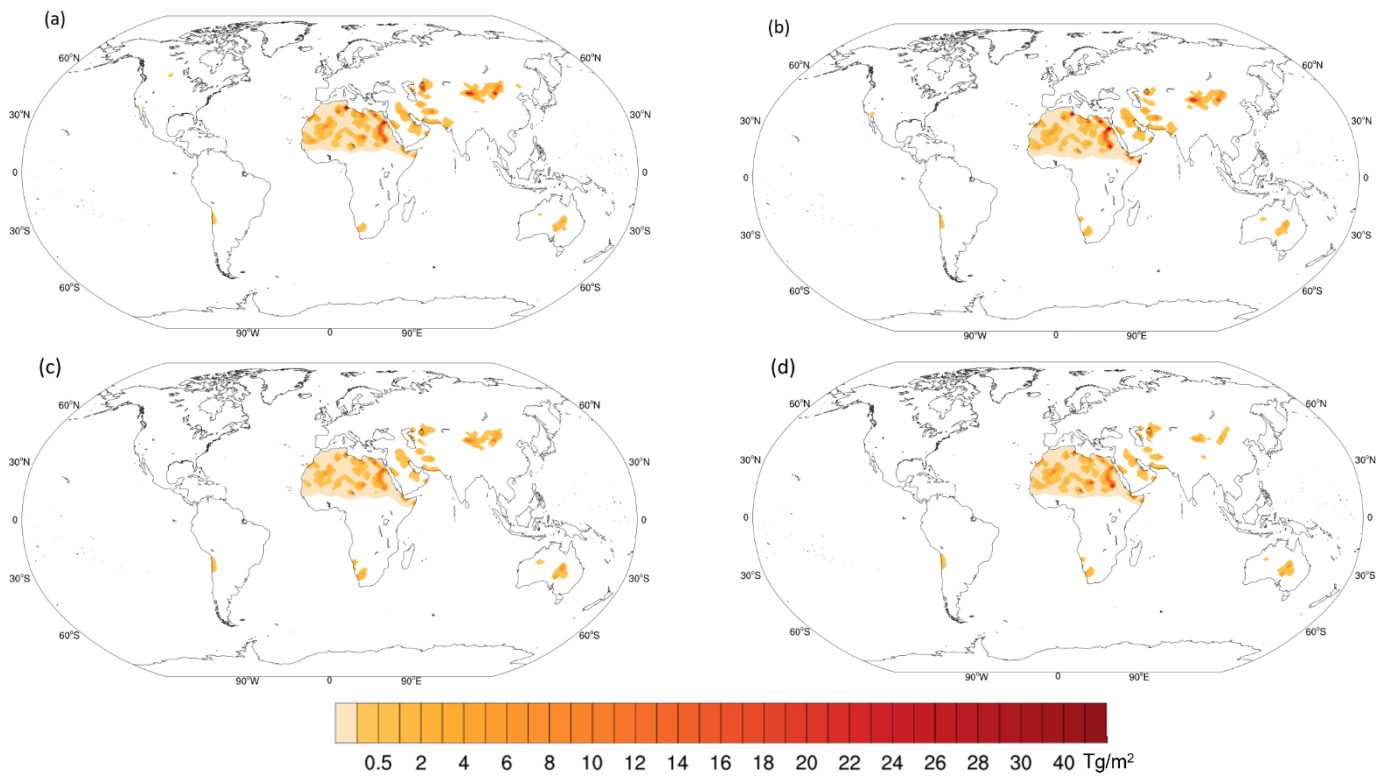
Fig.S3 Seasonal distribution of dust emission from global main dust source regions
(a) spring; (b) summer; (c)autumn; (d) winter
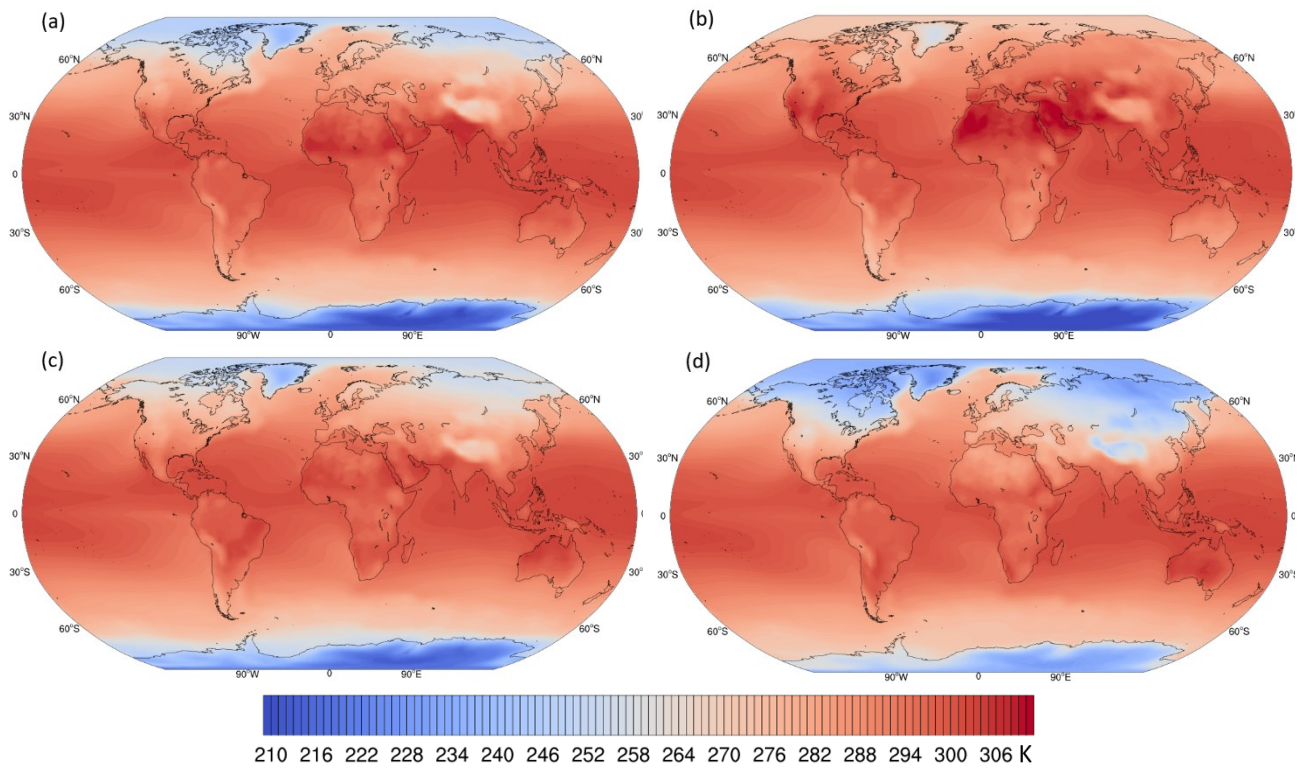
Fig.S4 Seasonal characteristics of global surface temperature
(a) spring; (b) summer; (c)autumn; (d) winter
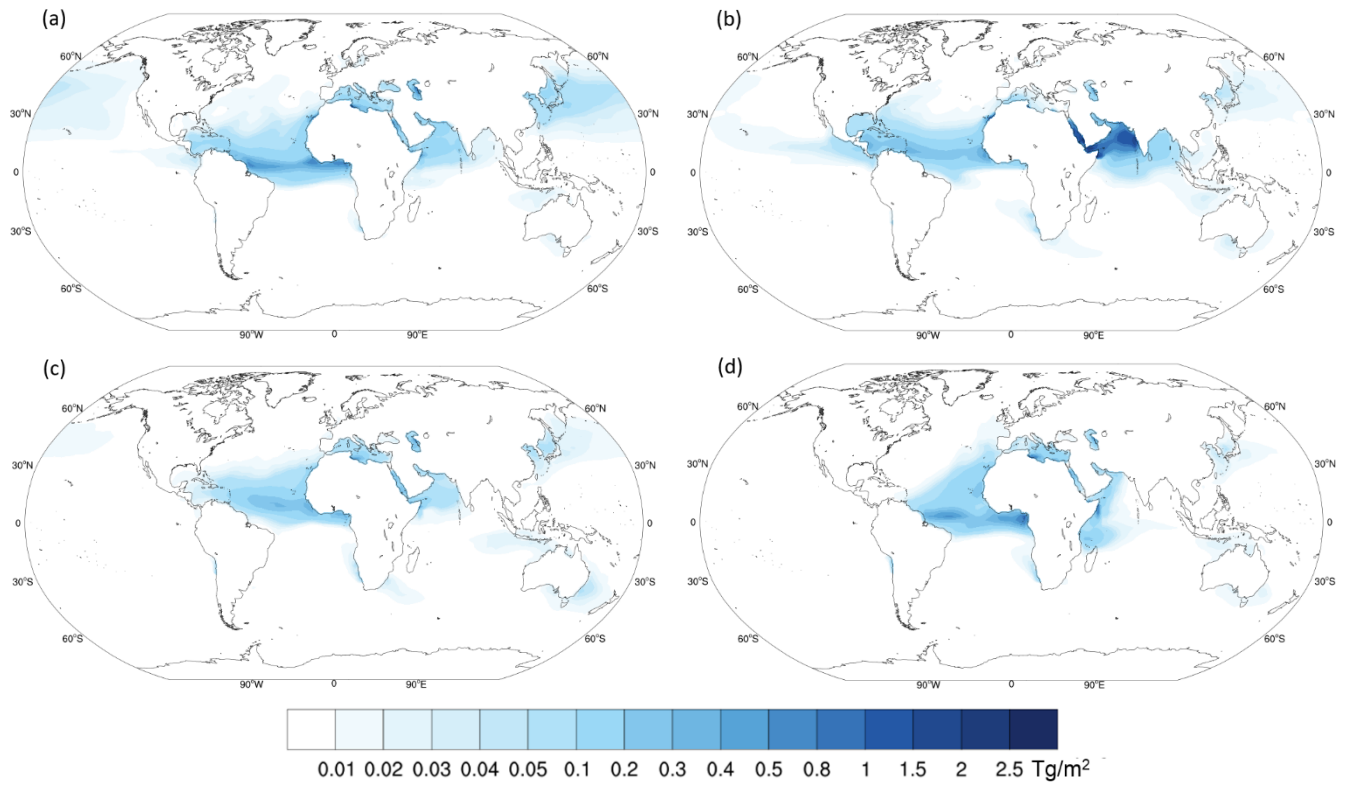
Fig.S5 Seasonal distribution of global marine dust deposition
(a) spring; (b) summer; (c)autumn; (d) winter

0.01 0.04 0.07 0.1 0.25 0.4 0.55 0.7 0.85 1 1.3 1.6 1.9 Tg/m²
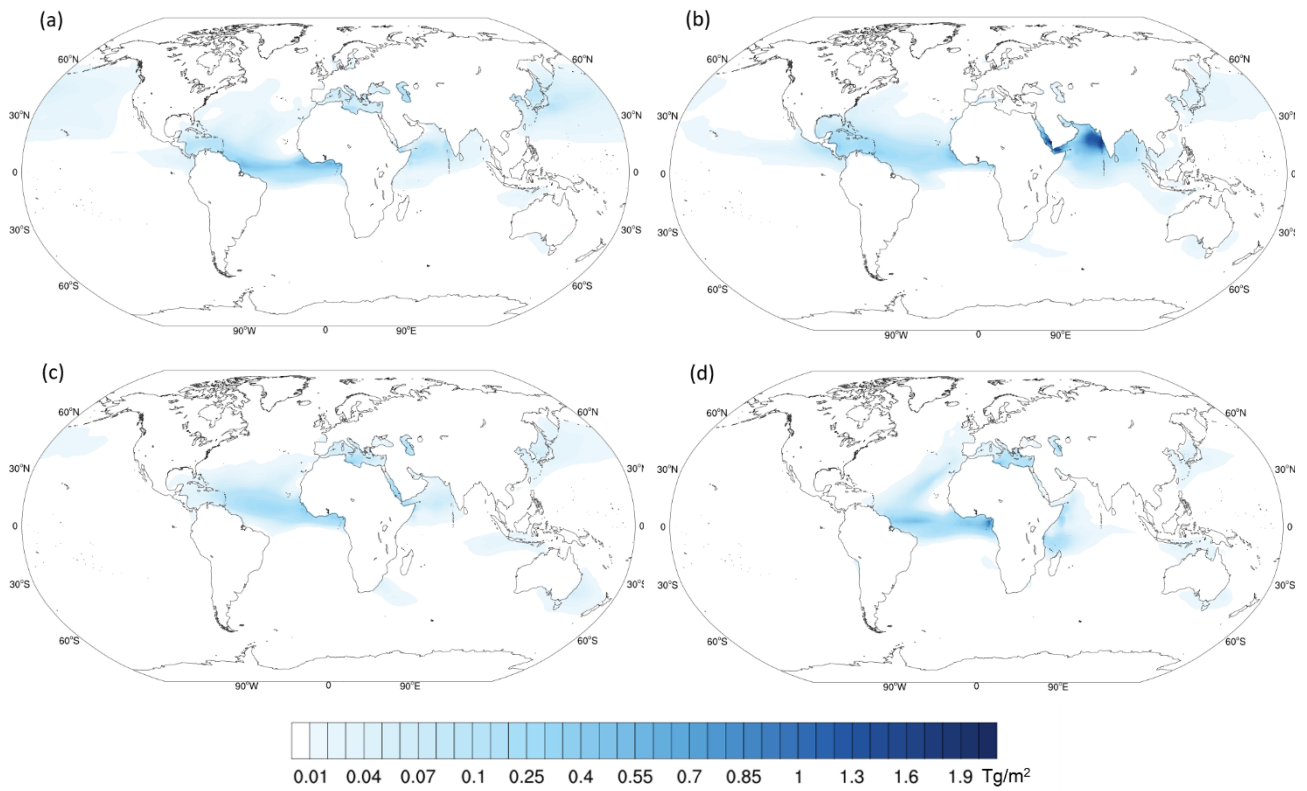
Fig.S6 Seasonal distribution of global marine dust wet deposition
(a) spring; (b) summer; (c)autumn; (d) winter
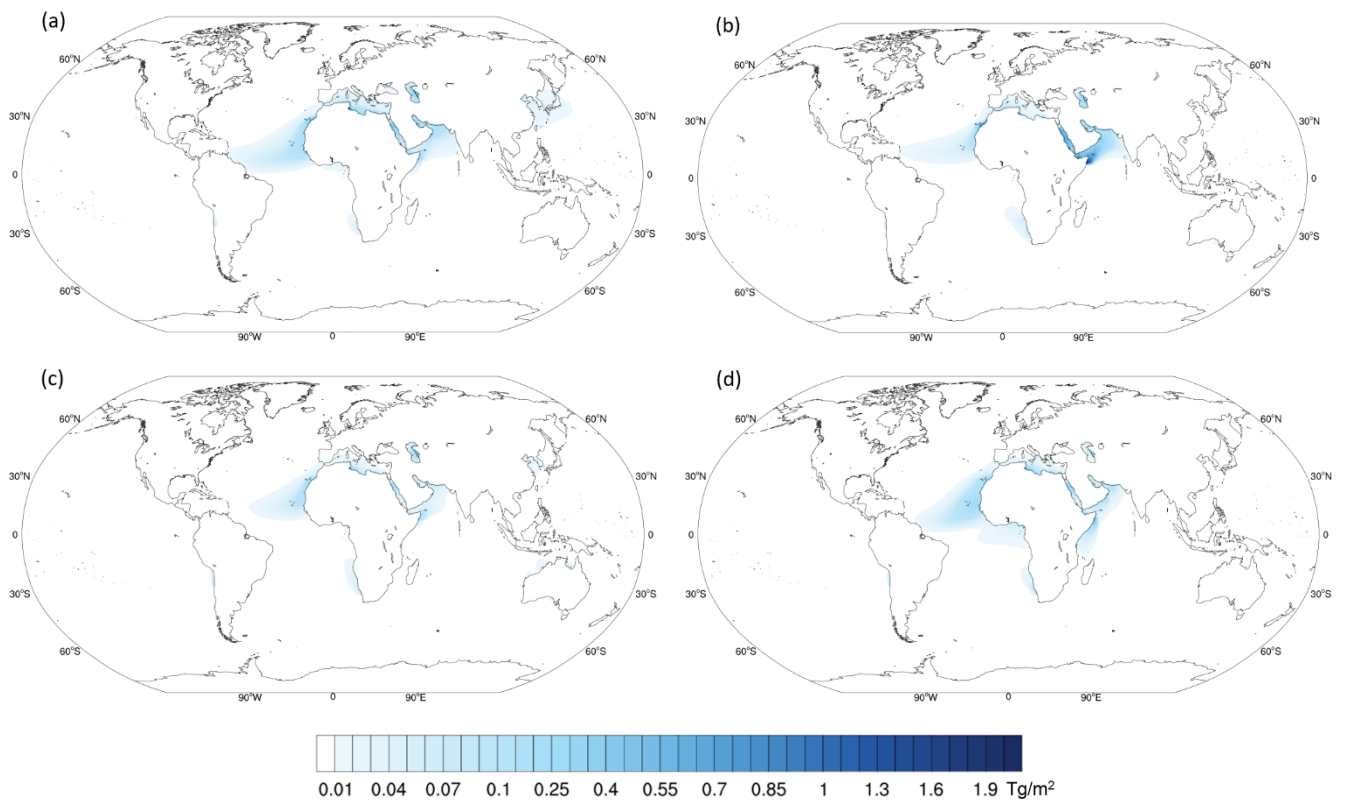
Fig.S7 Seasonal distribution of global marine dust dry deposition
(a) spring; (b) summer; (c)autumn; (d) winter
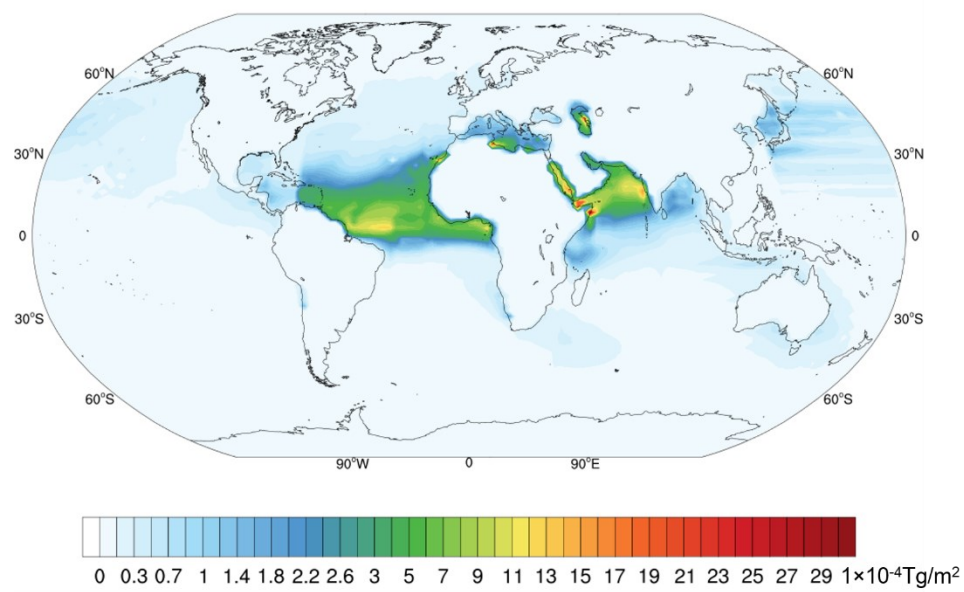
Fig. S8 The spatial distribution of dissolved iron supplied by dust deposition over global oceans
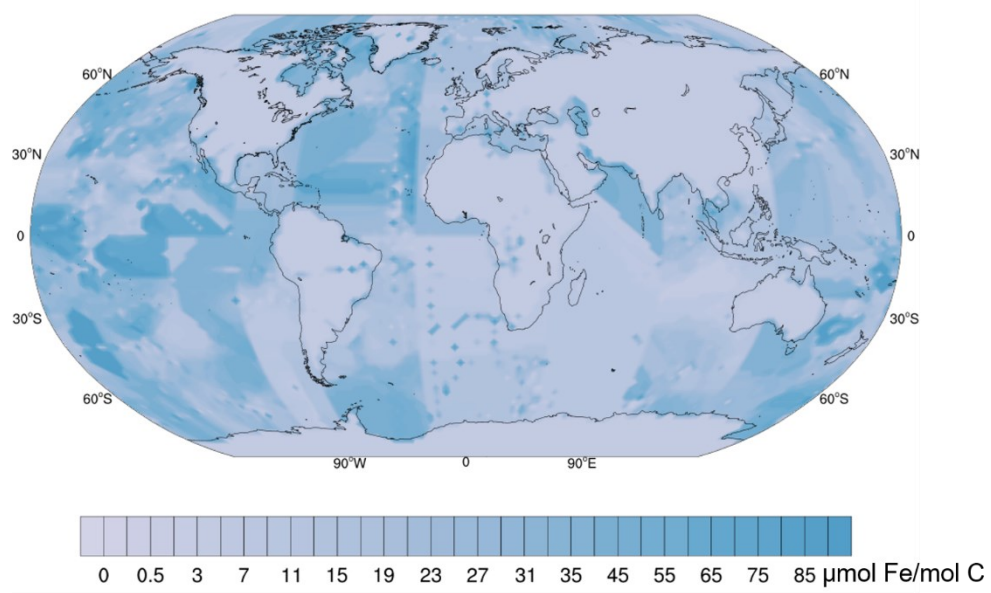
Fig. S9 The Fe: C ratio in global oceans

(a)

(b)
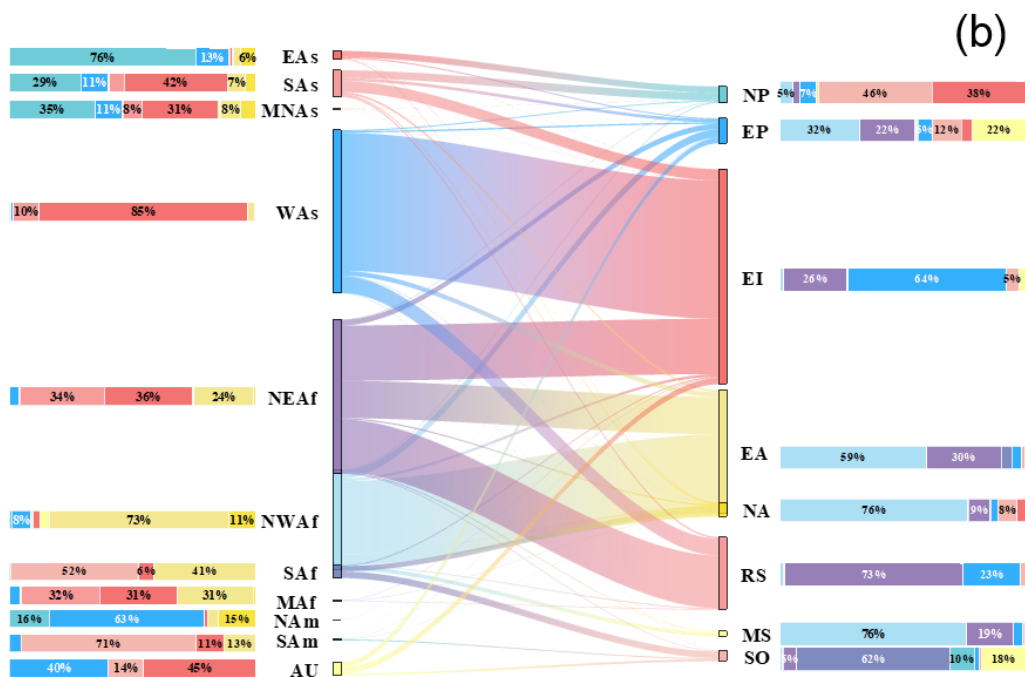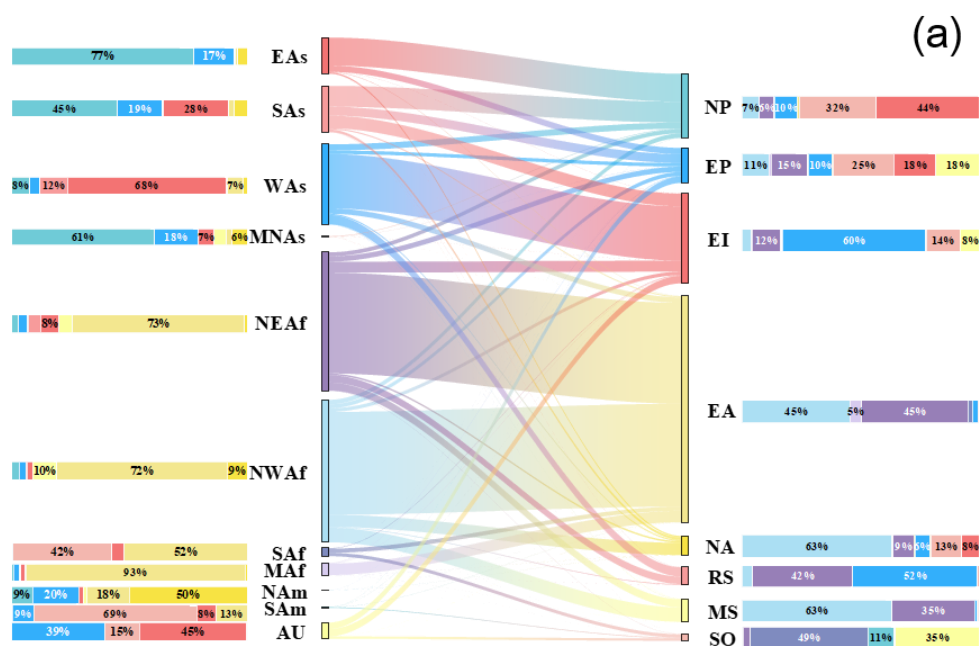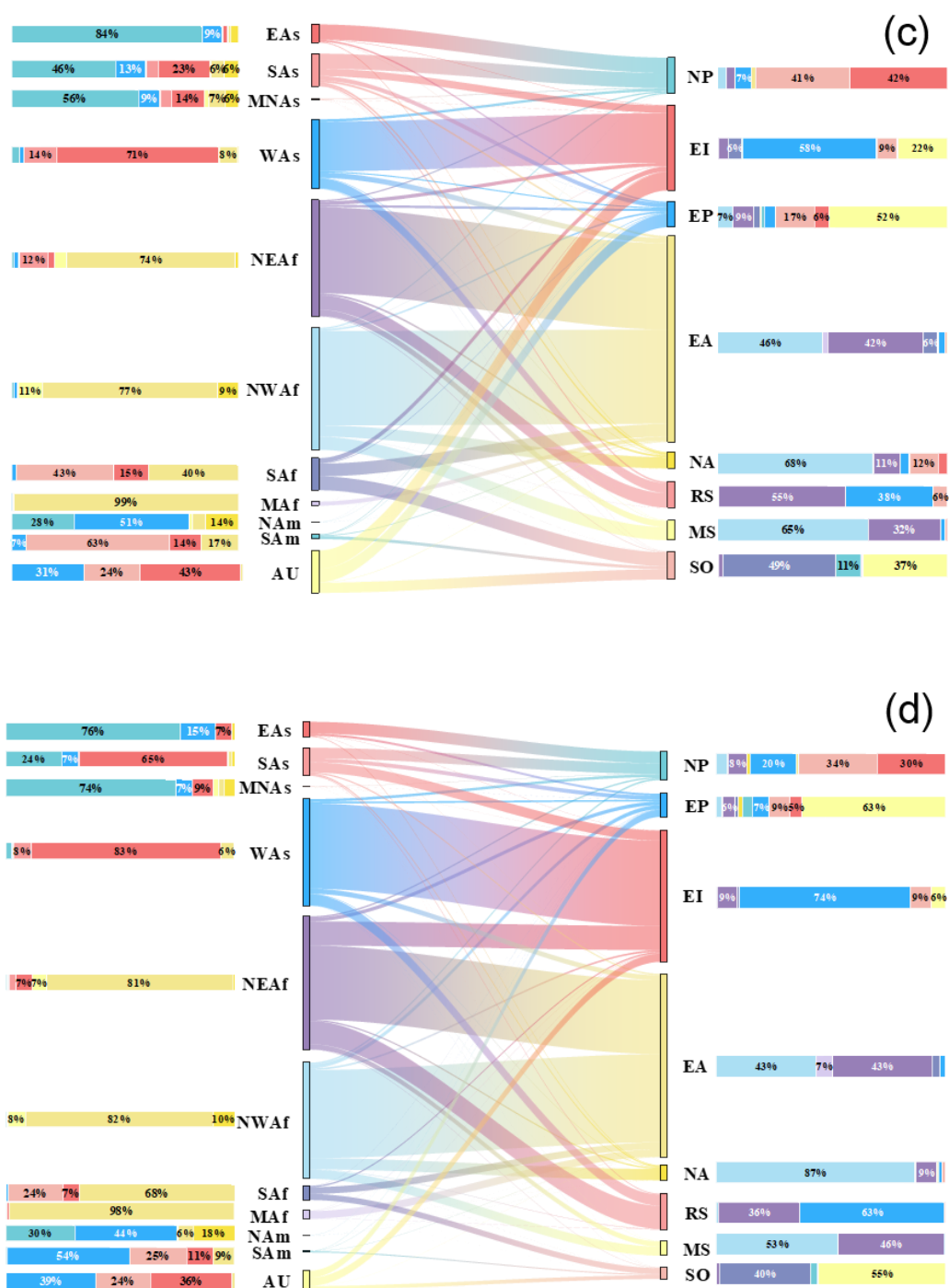
Fig. S10 The seasonal contribution of various dust source regions to the carbon uptake of oceans
(a) spring; (b) summer; (c) autumn; (d) winter

The left lateral columns are the proportions of dust from each dust source to induce marine carbon uptake over each ocean, with different colors representing different oceans. The right lateral columns illustrate the contributions from various dust sources to marine carbon uptake over each ocean, different color corresponding to different dust sources. The longitudinal columns display the contribution ratios of dust sources or oceans to the total marine carbon uptake driven by dust deposition. The lines in the middle illustrate the transport direction and intensity.
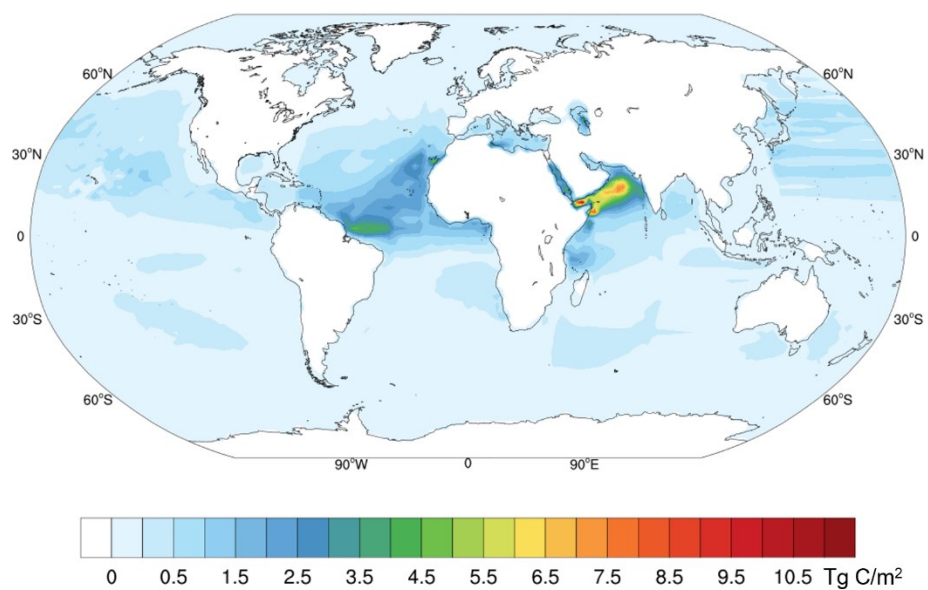
Fig. S11 The annual marine carbon uptake for new growth induced by dust deposition calculated by CMIP6 dissolved iron data.