

Supplement

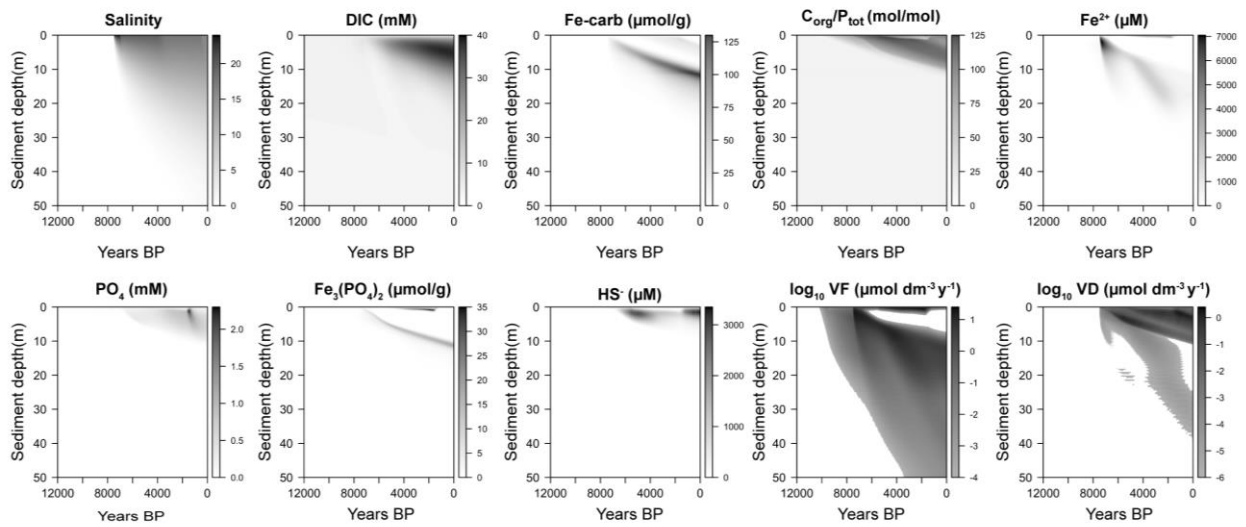


Figure 11: Modeled evolution of salinity, dissolved inorganic carbon (DIC), Fe-carbonates (Fe-carb), $C_{\text{org}}/P_{\text{tot}}$, dissolved Fe (Fe^{2+}), phosphate (PO_4), vivianite ($\text{Fe}_3(\text{PO}_4)_2$), dissolved sulfide (HS^-) and rates of vivianite formation (VF) and vivianite dissolution (VD) in the Bornholm basin sediments from 12000 BP to present. A white color in the plots of VF and VD indicates values below the scale bar minimum. The increase in salinity at 7500 BP marks the onset of the lake-marine transition. The subsequent deposition of sediment in a brackish-marine environment and the related changes in the porewater chemistry led to major changes in solid phase chemistry as a function of sediment depth and time. The distinct bands of Fe-carbonate and vivianite ($\text{Fe}_3(\text{PO}_4)_2$) minerals formed in the sediments are particularly striking.