

Figure 1: Forward simulation of the model to data of  $\text{NH}_4^+$ , alkalinity, sulfate,  $\text{H}_2\text{S}$ , dTFe, dTMn and, for 4 months, Mn oxides and Mn carbonates from the sampling events between March and October in 2021.

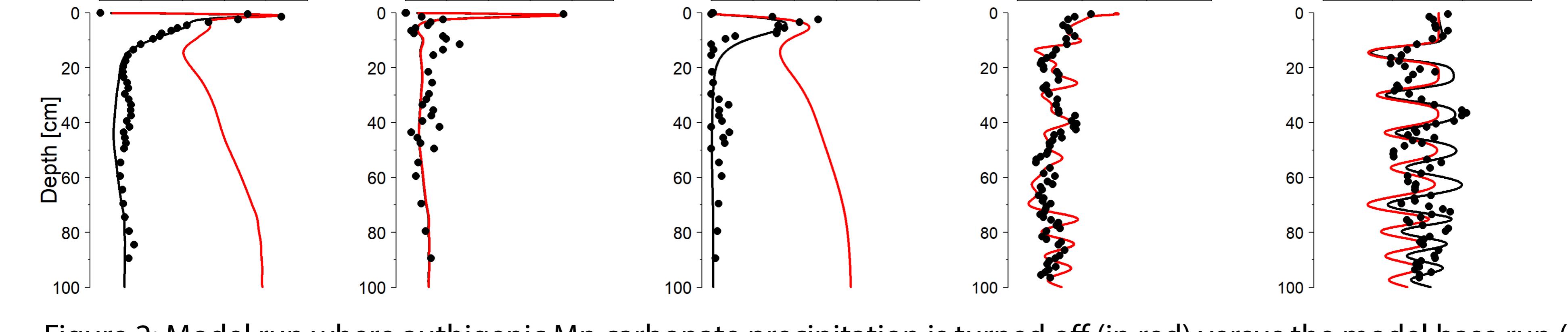


Figure 2: Model run where authigenic Mn carbonate precipitation is turned off (in red) versus the model base run (in black). The difference in Mn carbonate concentrations between the model without Mn carbonate precipitation and the base run indicate the amount of Mn carbonate that has formed within the sediment.