

Supplementary Table Captions:

Table S1: Sample information, results of bulk OC and long-chain fatty acid analysis from the Godavari River basin presented in this study.

Table S2: Sample information, results of bulk OC and long-chain fatty acid analysis from the marine sediment core 16A presented in this study.

Supplementary Figure Captions:

Figure S1: $\delta^{13}\text{C}_{\text{LCFA}}$ values of selected soil samples spanning the upper to lower basin. MWA = mean-weighted average $\delta^{13}\text{C}$ of C_{26-32} fatty acids.

Figure S2: variations in geochemical properties with soil depth.