

Fig. S1. Box-plot diagrams of  $\text{brGDGT/iGDGT}$  ratio in soil. Note different symbols (circles or asterisk) for outliers that are more than 1.5 (or 3) box lengths from one hinge of the box. Abbreviations refers to different sampling locations: Italy (IT), China (C), Philippines (PH), Vietnam (VN), Sumatra (SUM) and Java (JAV). The vertical line separates subtropical from tropical locations. Numbers in all plots indicate samples listed in Table S1.

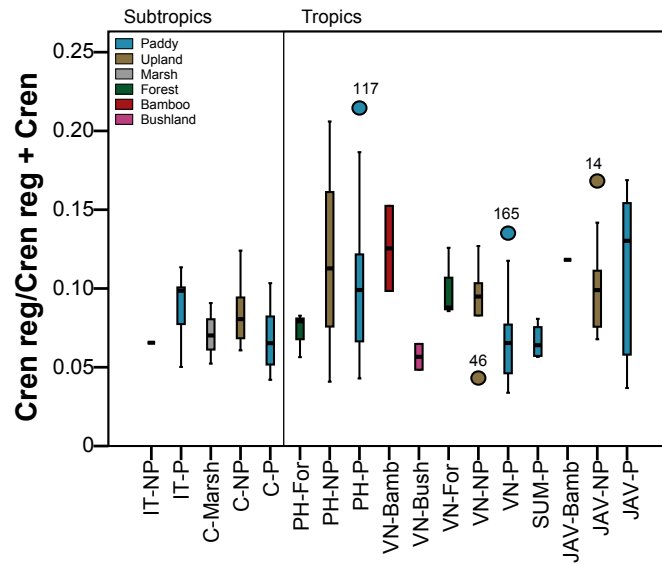


Fig. S2. Box-plot diagrams of cren reg/cren reg + cren ratio in soils. Note different symbols (circles or asterisk) for outliers that are more than 1.5 (or 3) box lengths from one hinge of the box. Abbreviations refers to different sampling locations: Italy (IT), China (C), Philippines (PH), Vietnam (VN), Sumatra (SUM) and Java (JAV). The vertical line separates subtropical from tropical locations. Numbers in all plots indicate samples listed in Table S1.

Fig. S3. Principal component analysis (PCA) based on standardized relative abundances of six iGDGTs in 170 investigated soils. The first principal component (PC1) accounted for 53.9% of the total variance and the second (P2) for 29.9%. (a) The sample site symbols are indicative of the mean annual air temperature (MAT). (b) The sample site symbols are indicative of the mean annual precipitation (MAP).

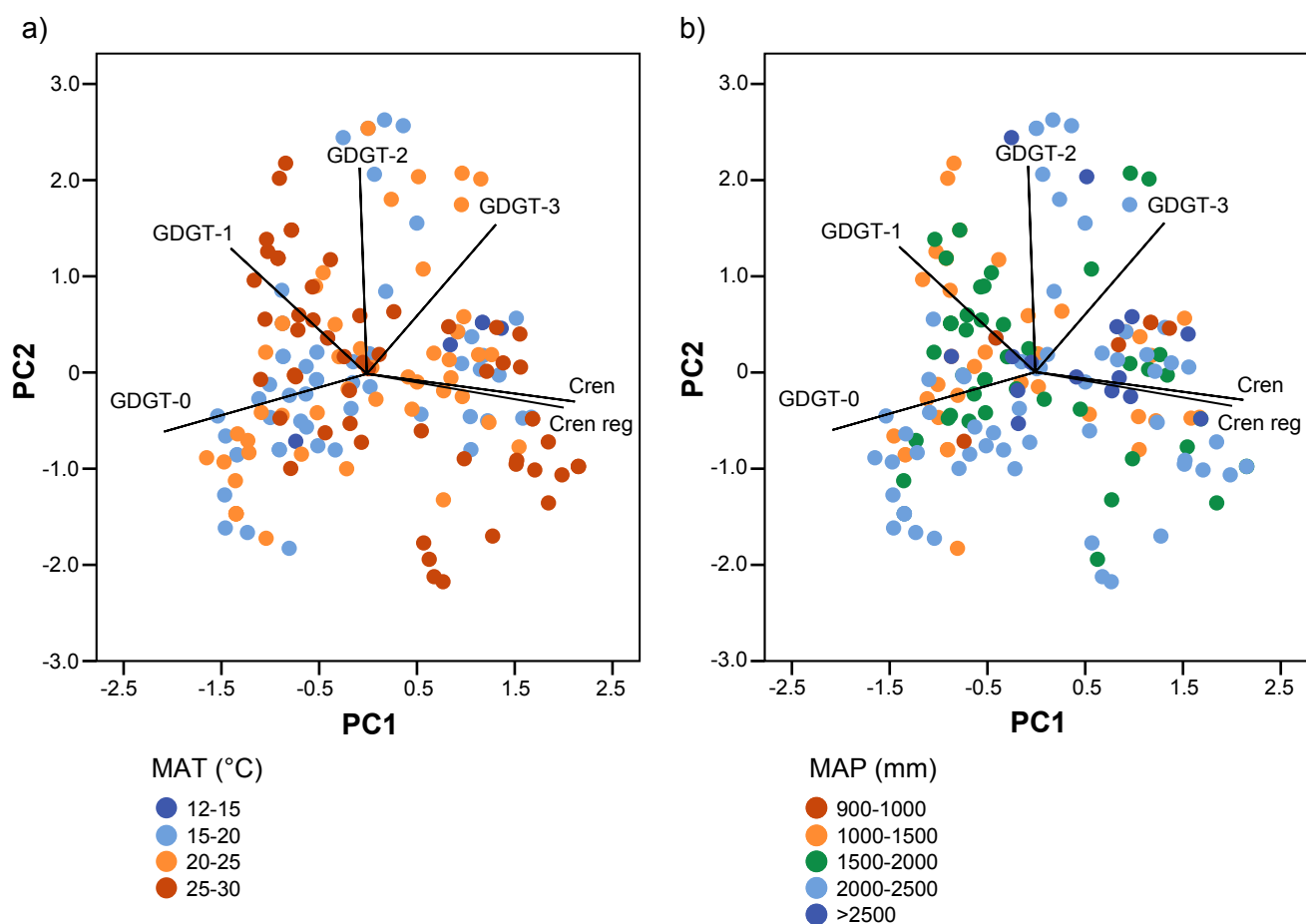
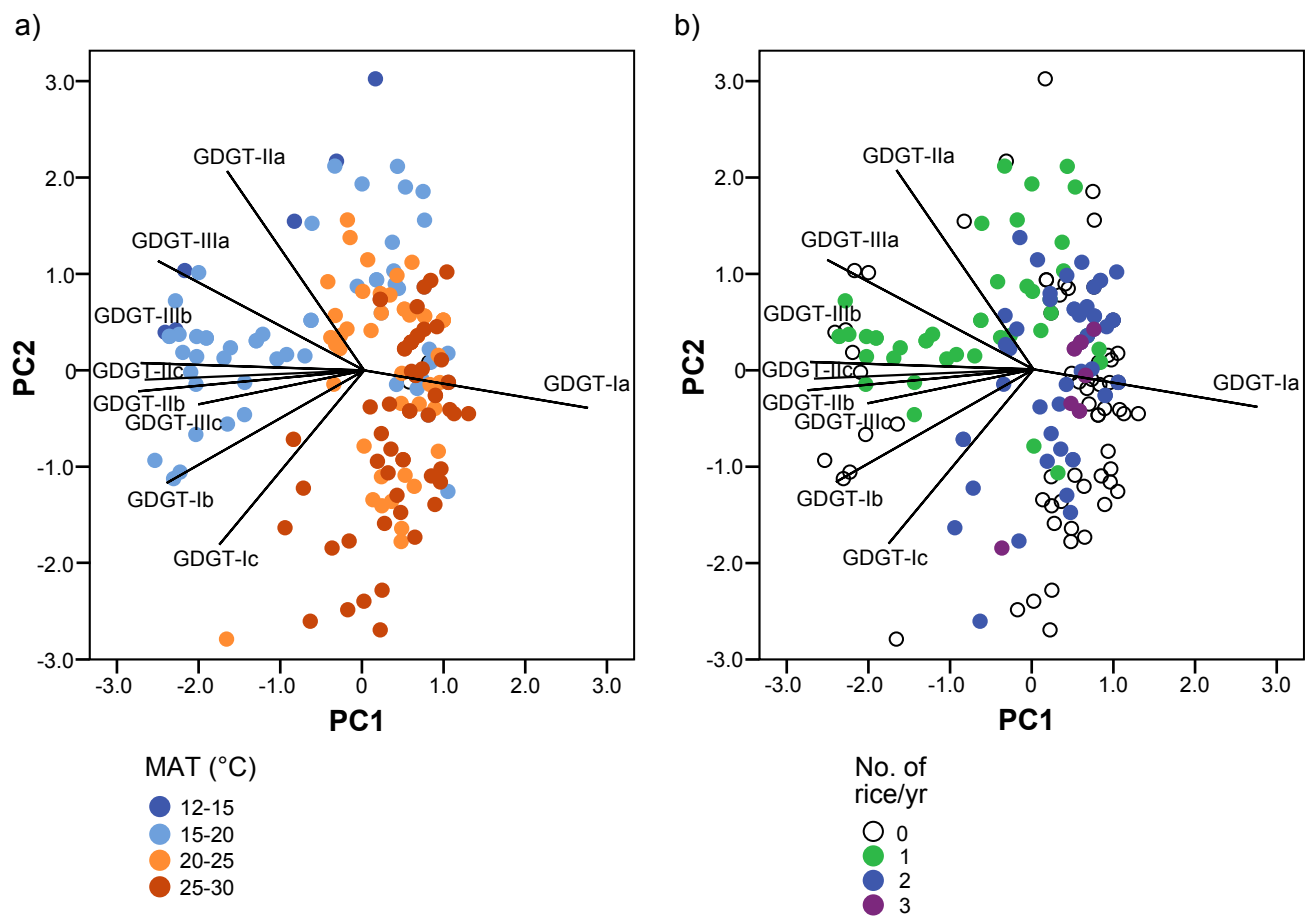


Fig. S4. Principal component analysis (PCA) based on standardized relative abundances of nine brGDGTs in 170 investigated soils. The first principal component (PC1) accounts for 69.1% of the variance and the second (PC2) for 14.3%. (a) The sample site symbols are indicative of the mean annual air temperature (MAT) (b) The sample site symbols are indicative of the number of rice cultivation cycles per year.



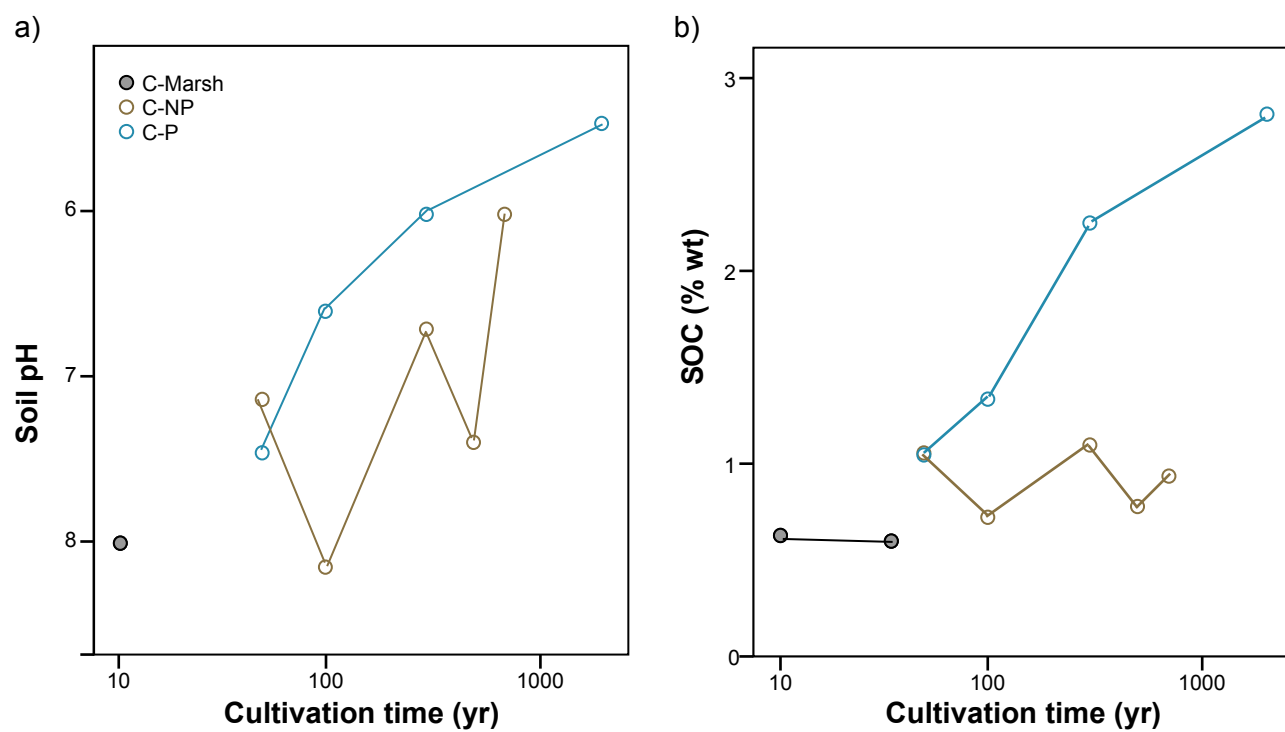


Fig. S5. Time plots of (a) soil pH and (b) soil organic carbon (SOC) content in Chinese soils of Cixi region.