Supporting Information

Belowground in situ redox dynamics and methanogenesis recovery in a degraded fen during dry-wet cycles and flooding

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Figure S1 Air and peat temperature, precipitation and water table dynamics during 2008 and 2009. Data show hourly records. Data from C2 and D2 plots is shown to illustrate the WT manipulation against natural conditions. Figure adapted from Estop-Aragonés, C., K.-H. Knorr, and C. Blodau, Controls on in situ oxygen and dissolved inorganic carbon dynamics in peats of a temperate fen, J. Geophys. Res., 117, G02002, doi:10.1029/2011JG001888. Copyright 2012 American Geophysical Union. Reproduced by permission of American Geophysical Union.

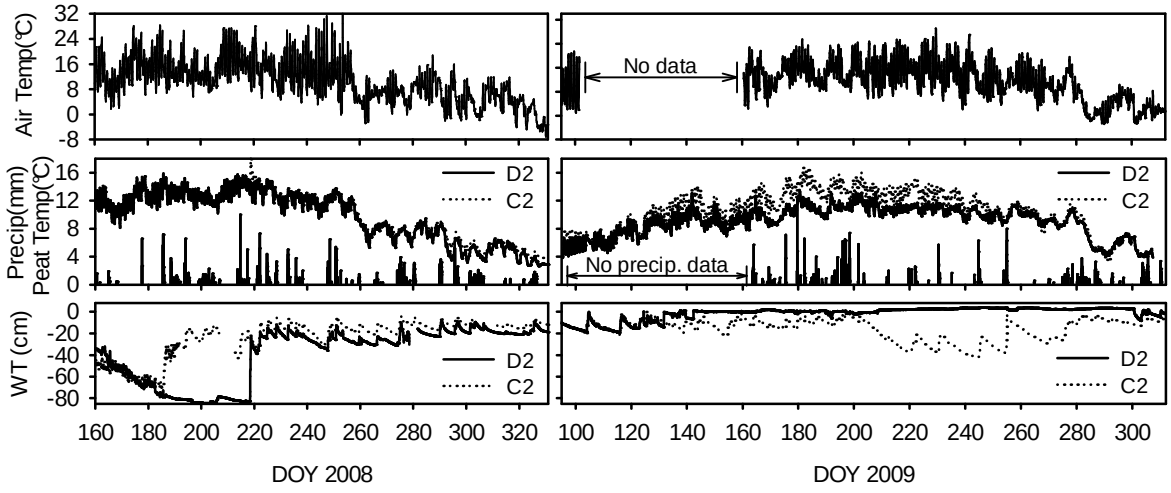

Figure S2 Air filled porosity (AFP) in fen peat profiles during changes in WT (solid black line). D plots were subjected to drying/rewetting (2008) and flooding (2009) and compared with natural WT changes (C plots). Note the variable AFP response among profiles, which is related to bulk density (refer to Table 1). Blank spaces are lack of data and DOY means day of year. Estop-Aragonés, C., K.-H. Knorr, and C. Blodau, Controls on in situ oxygen and dissolved inorganic carbon dynamics in peats of a temperate fen, J. Geophys. Res., 117, G02002, doi:10.1029/2011JG001888. Copyright 2012 American Geophysical Union. Reproduced by permission of American Geophysical Union.

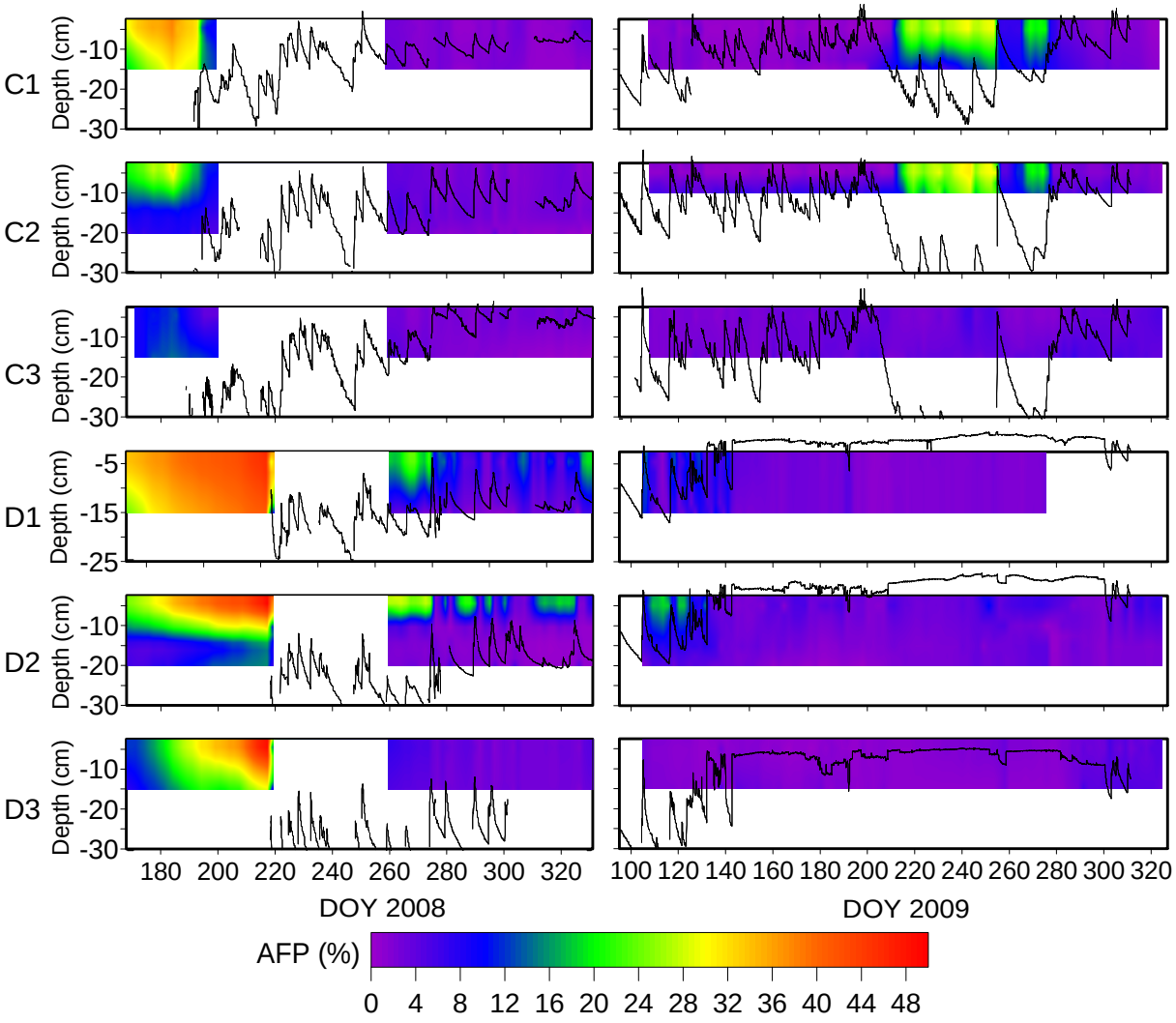

Figure S3 Illustration of the redox zonation and the co-occurrence of iron reduction, sulfate reduction and methanogenesis during flooding in D2 plot. All scales are expressed in μmol L^{-1} except for dissolved hydrogen in nmol L^{-1}. DOY means day of year.

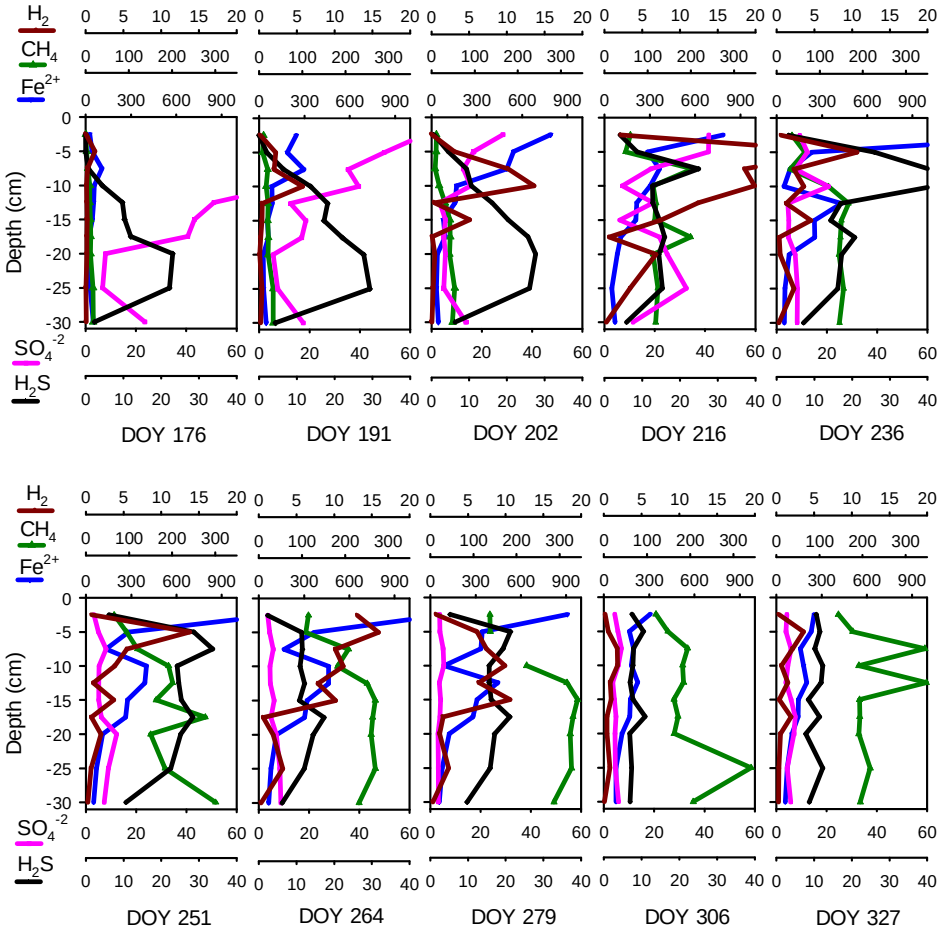

Figure S4 Relation between a) mean sulfate concentration at the end of drying and TRIS content, and b) mean profile postdrought CH_4 concentrations and OM content for different drying intensities. Lines are drawn to merely show the trends of sulfate release and of methane accumulation for the differing drying intensities (Reinforced drying > Seasonal 2008 > Seasonal 2009).