Impact of freeze-thaw cycles on soil structure and soil hydraulic properties – Supplementary Information

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5   **S1 and S2: Soil temperature profiles from both study sites in Germany**
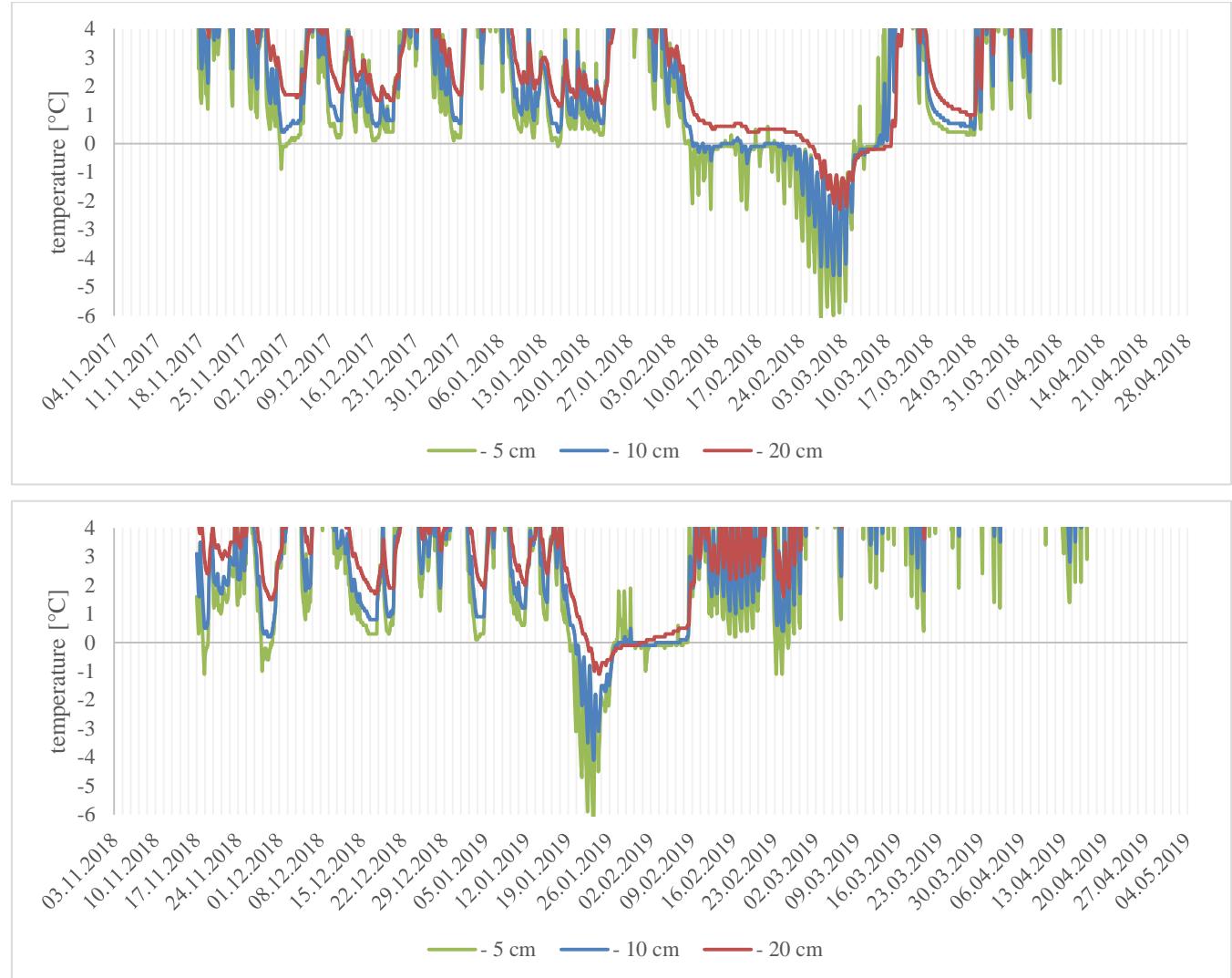
Figure S1: Hourly temperature profile from three different depths below the soil surface, Bad Lauchstaedt/Germany, winter 2017/2018 (top) and winter 2018/2019 (bottom), silty loam

10 Temperature in Giessen, Germany
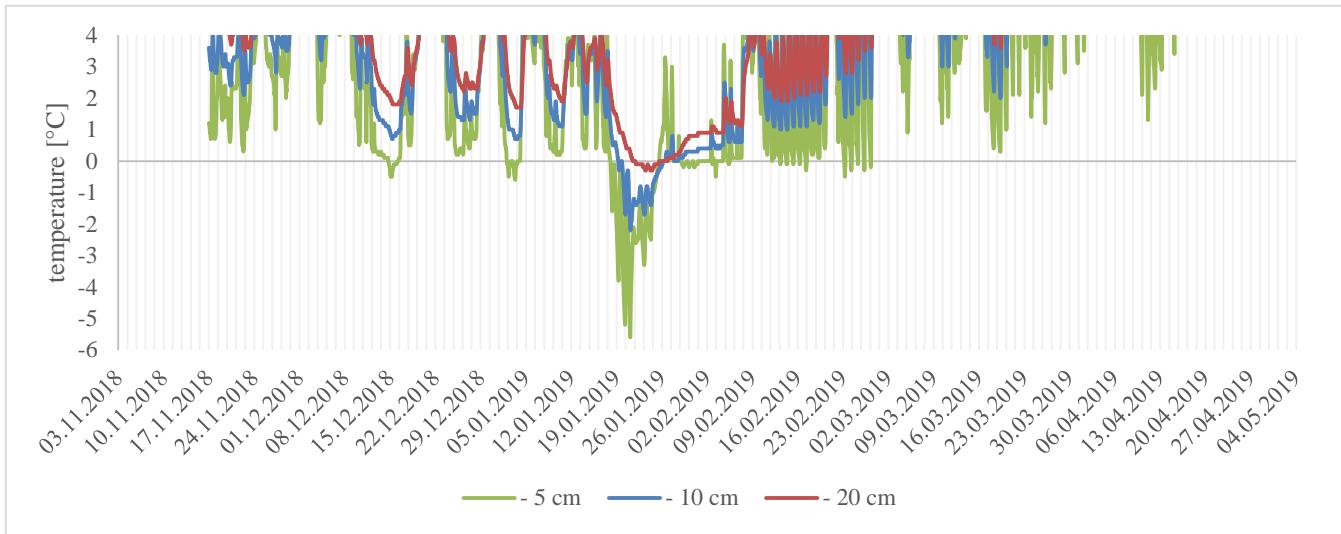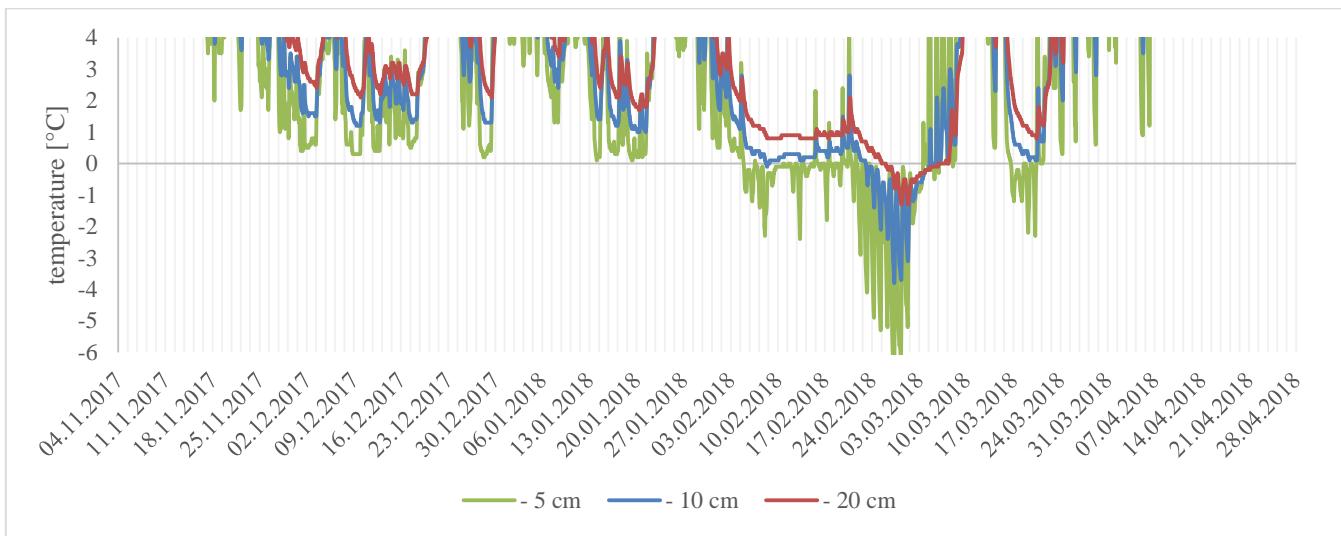
Figure S2: Hourly temperature profile from three different depths below the soil surface, Giessen/Germany, winter 2017/2018 (top) and winter 2018/2019 (bottom), silty clay

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Hourly temperature information in soils at -5 cm, -10 cm and – 20 cm depth from both study sites were provided as open source data from the Deutscher Wetterdienst, a higher federal authority under the Federal Ministry of Transport and Digital Infrastructure (webpage: https://www.dwd.de/EN/climate_environment/cdc/cdc.html, last access January 21, 2021).

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S3: X-ray µCT section of an undisturbed loamy sand soil sample taken under grassland
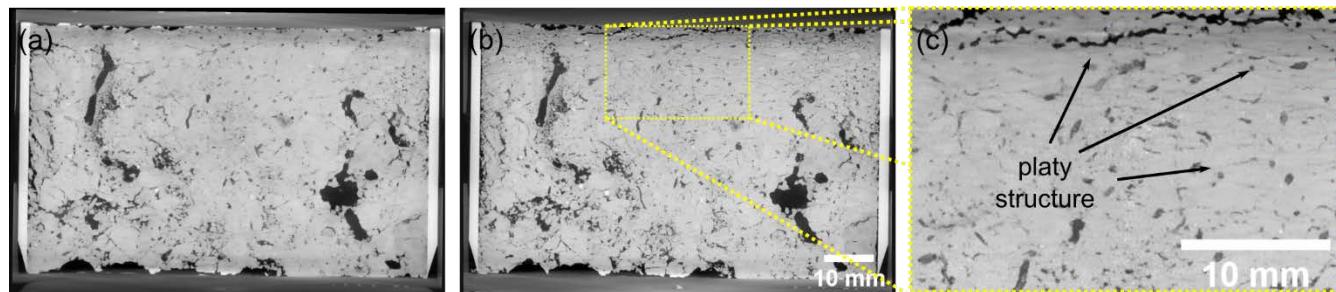
Figure S3: Vertical section of an undisturbed loamy sand sample after 0 (a) and 19 FTCs (b). The enlarged detail (c) shows the section close to the soil surface where a platy soil structure has been created by multiple FTC.