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Supplement of

Land inclination controls CO_2 and N_2O fluxes, but not CH_4 uptake, in a temperate upland forest soil

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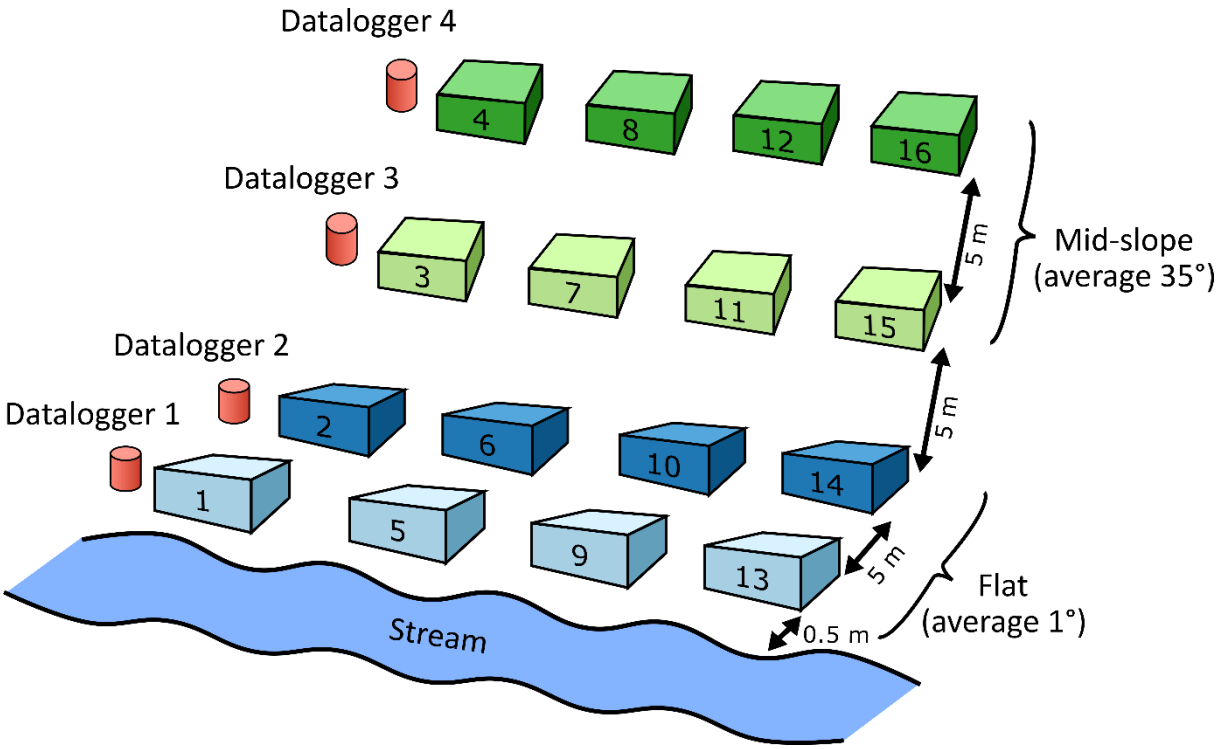

Figure S1: Schematic overview of the experimental setup at Rosalia, with 4x4 replicates at 0.5 m (chambers 1, 5, 9, and 13), termed Chamber Group 0.5 (CG0.5); 5 m (chambers 2, 6, 10, and 14), termed Chamber Group 5 (CG5); 10 m (chambers 3, 7, 11, and 15), termed Chamber Group 10 (CG10); and 15 m (chambers 4, 8, 12, and 16), termed Chamber Group 15 (CG15) away from the stream. Datalogger 1 was placed at the stream, followed by dataloggers 2, 3, and 4 at distances 5 m, 10 m, and 15 m from the stream, respectively. Chambers 3 and 4 the showed an inclination of 31°, chambers 7 and 8 of 34°, chambers 11 and 12 of 35°, and chambers 15 and 16 of 36°. For the flat chambers, the slope did not exceed 2°.

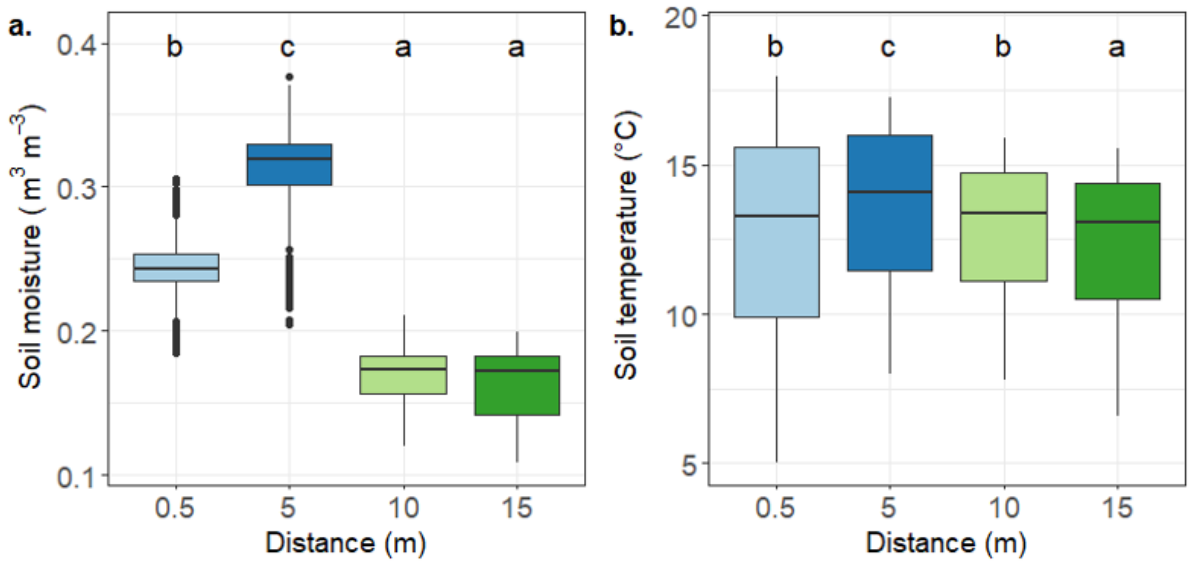

Figure S2: Boxplots of soil moisture (m^3 m^{-3}) and soil temperature (°C) at the different distances (m) from the stream, with flat locations 0.5 m and 5 m away from the stream indicated in light and dark blue, and sloped locations 10 m and 15 m away from the stream indicated in light and dark green. Letters indicate differences between distances (Dunn multiple comparison test after Kruskal–Wallis test, $p < 0.05$; Kruskal–Wallis results were significant, i.e., $p < 0.05$, for both soil moisture and soil temperature).

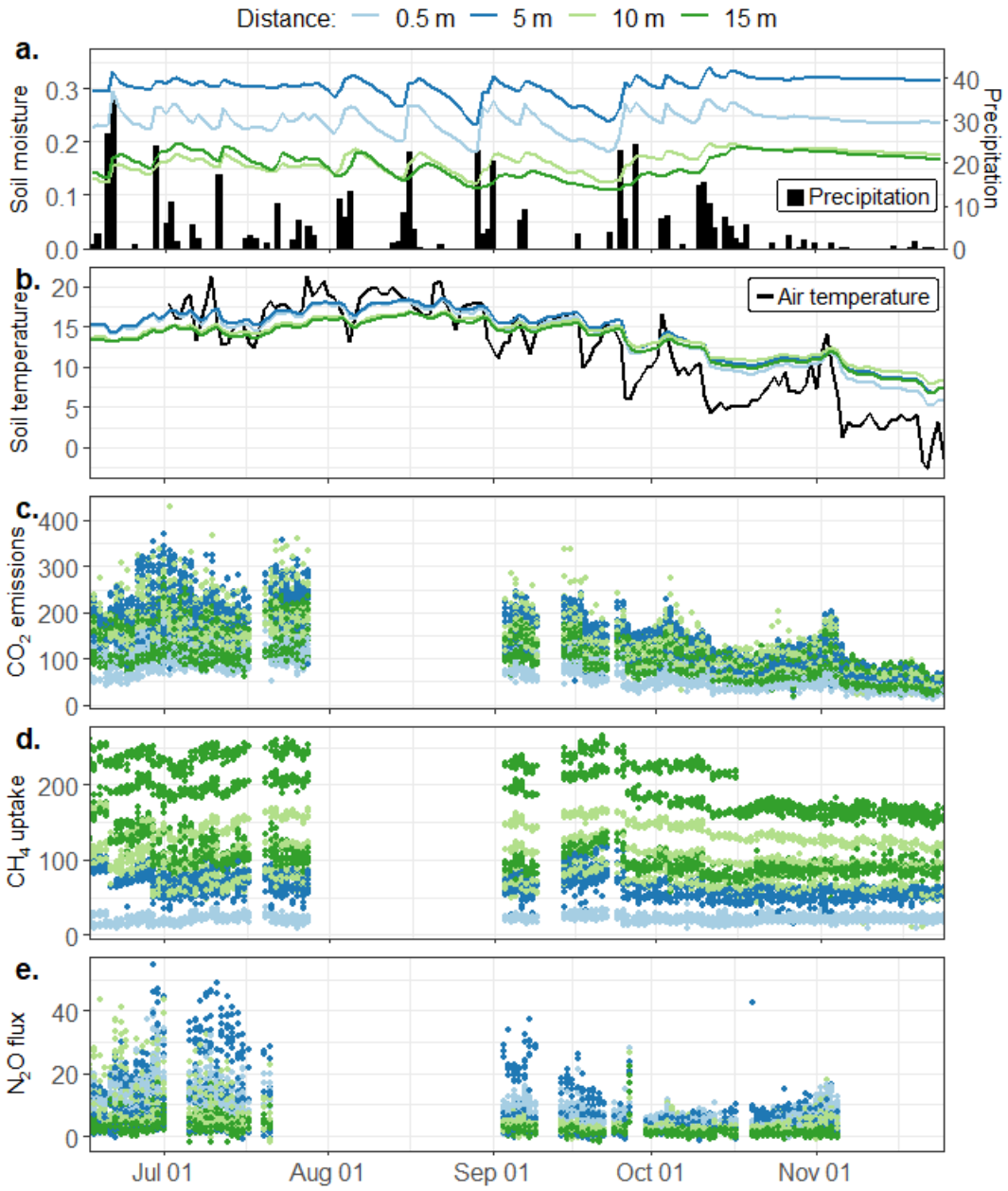

Figure S3: Temporal overview of **a.** soil moisture (m^3 m^{-3}; coloured lines) and total daily precipitation (mm; black bars), **b.** soil temperature (°C; coloured lines) and daily average air temperature (°C; black line), **c.** CO_2 emissions (mg CO_2-C m^{-2} h^{-1}), **d.** CH_4 uptake (µg CH_4-C m^{-2} h^{-1}), and **e**. N_2O fluxes (µg N_2O-N m^{-2} h^{-1}) measured in 2020. The colours represent the four distances from the stream: light blue = 0.5 m, dark blue = 5 m, light green = 10 m, and dark green = 15 m. Blue and green colours also represent the flat locations and sloped locations, respectively.

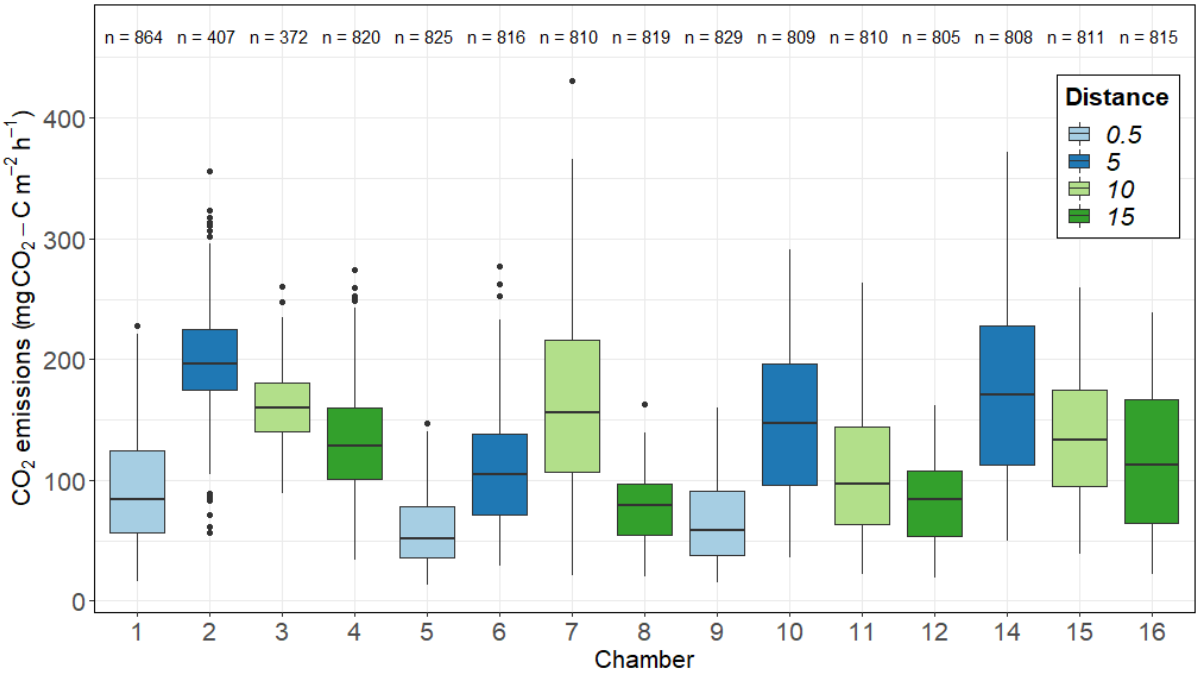

Figure S4: Average CO_2 emission rate (n=11,420) by chamber. Light and dark blue represent flat locations (0.5 m and 5 m from the stream), and light and dark green represent mid-slope locations (10 m and 15 m from the stream). Numbers above the boxplots indicate the number of observations (n).

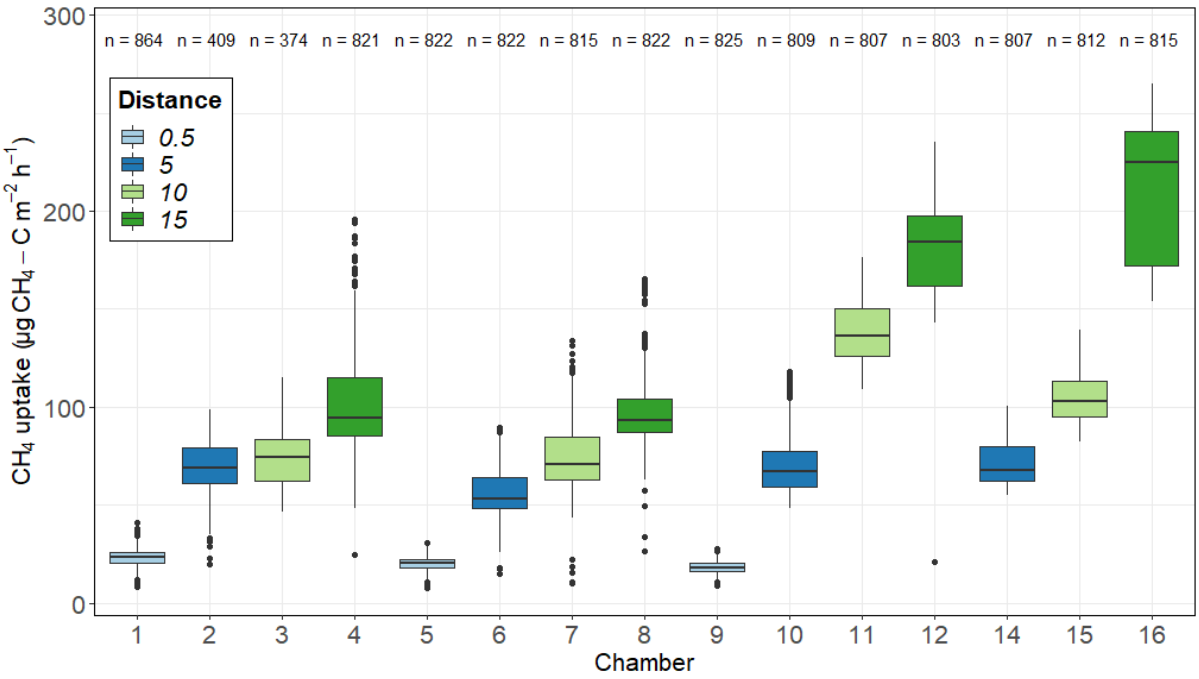

Figure S5: Average CH_4 uptake rates (n=11,427) by chamber. Light and dark blue represent flat locations (0.5 m and 5 m from the stream), and light and dark green represent mid-slope locations (10 m and 15 m from the stream). Numbers above the boxplots indicate the number of observations (n).

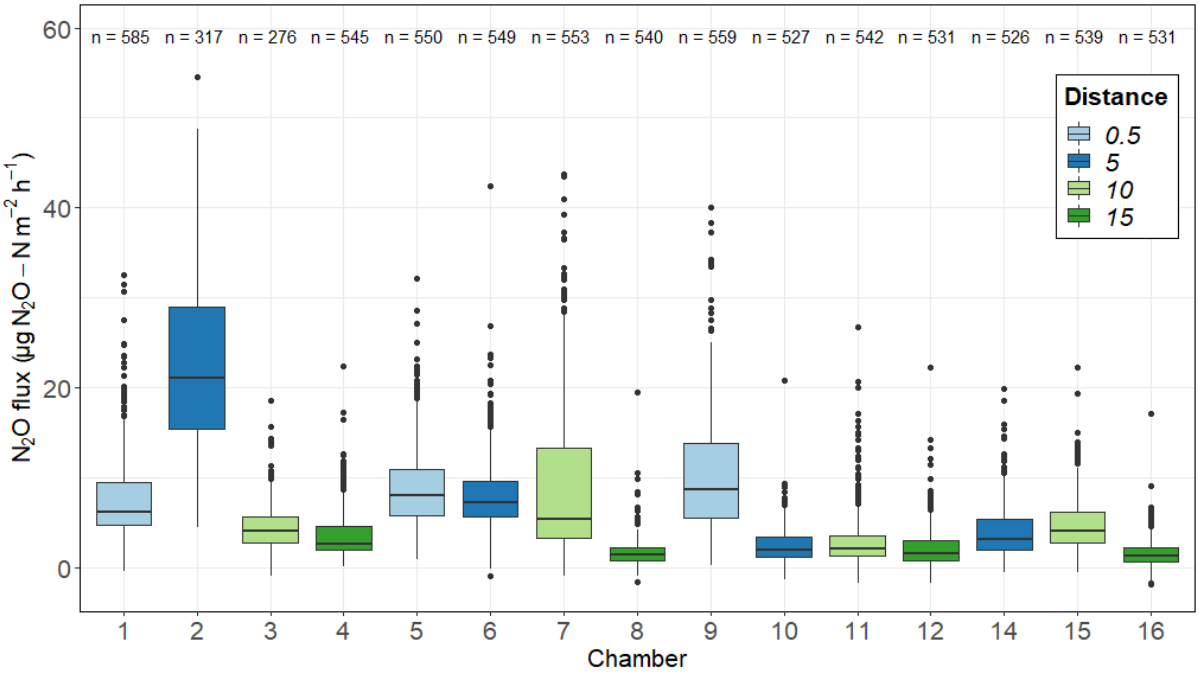

Figure S6: Average N_2O flux rates (n=7,670) by chamber. Light and dark blue represent flat locations (0.5 m and 5 m from the stream), and light and dark green represent mid-slope locations (10 m and 15 m from the stream). Numbers above the boxplots indicate the number of observations (n).