Supplement of

Organic matter dynamics along a salinity gradient in Siberian steppe soils

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Tables

Table S 1: Assignment of soil types according to IUSS Working Group WRB (2014) to groups and soil types, respectively, used in the present study.

Group / Soil type	Plot	Soil type according to IUSS Working Group WRB (2014)
Kastanozem	I	Calcic Kastanozem (Loamic)
	II	Haplic Kastanozem (Arenic, Loamic)
	III	Haplic Kastanozem (Arenic, Loamic)
Non-sodic Solonchak	IV	Mollic Solonchak (Loamic)
	V	Mollic Solonchak (Loamic)
	VI	Mollic Solonchak (Alcalic, Loamic)
	VII	Haplic Solonchak (Alcalic, Loamic)
Sodic Solonchak	VIII	Gleyic Sodic Solonchak (Alcalic, Loamic)
	IX	Sodic Solonchak (Alcalic, Loamic, Humic)
	X	Sodic Solonchak (Alcalic, Loamic, Humic)

Table S 2: Organic carbon (OC), total nitrogen (TN), and C : N ratio of OM as function of soil type and horizon. Given are arithmetic means and the standard error of the mean in parentheses. Abbreviation: n = sample size.

Soil type	Horizon	n	OC		TN		C : N	
			mg g^{-1}		mg g^{-1}		-	
Kastanozem	Ah	3	9.28	(0.34)	0.96	(0.03)	9.8	(0.1)
	AC	3	5.33	(0.27)	0.63	(0.03)	8.2	(0.3)
	Ck	3	2.05	(0.28)	0.30	(0.06)	8.2	(0.7)
	C	2	1.27	(0.28)	0.25	(0.05)	5.7	(1.0)
Non-sodic Solonchak	Az	4	17.38	(2.90)	1.78	(0.31)	9.8	(0.1)
	B	4	4.04	(0.62)	0.52	(0.07)	7.7	(0.2)
	C	4	1.74	(0.13)	0.29	(0.01)	6.1	(0.4)
	Cl	4	1.10	(0.18)	0.24	(0.02)	4.8	(0.6)
Sodic Solonchak	Az	3	24.53	(2.34)	2.53	(0.24)	9.7	(0.2)
	ACz	3	11.07	(2.77)	1.10	(0.29)	10.0	(0.1)
	C	2	3.46	(1.04)	0.40	(0.10)	8.8	(0.4)
	Cl	3	1.34	(0.36)	0.24	(0.03)	6.0	(1.0)

Figures

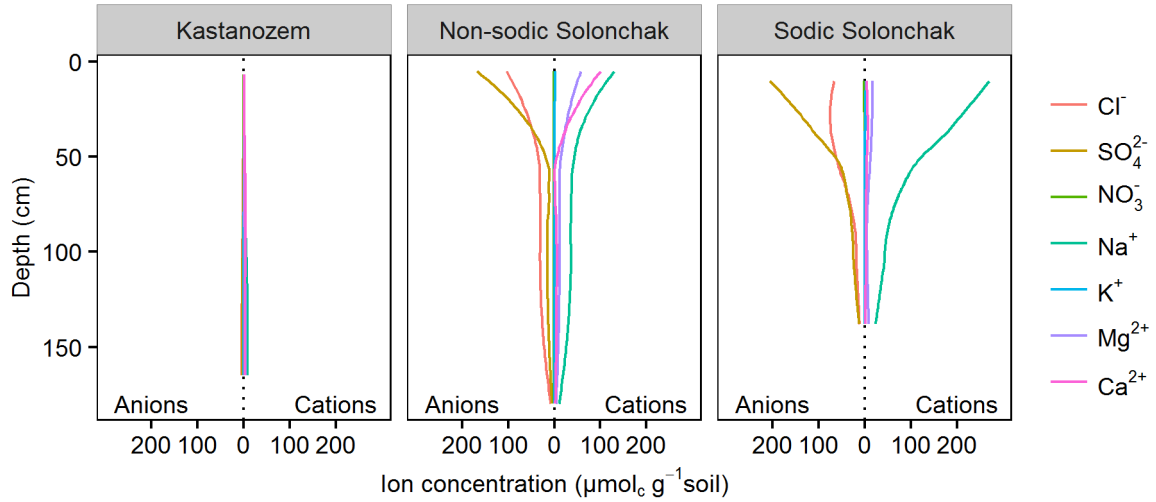

Figure S 1: Concentration of water-soluble anions and cations (µmol$_c$ g^{-1} soil) for three soil types as a function of soil depth. For better visualization measured data are omitted and only the local polynomial regression fits (LOESS) are shown.

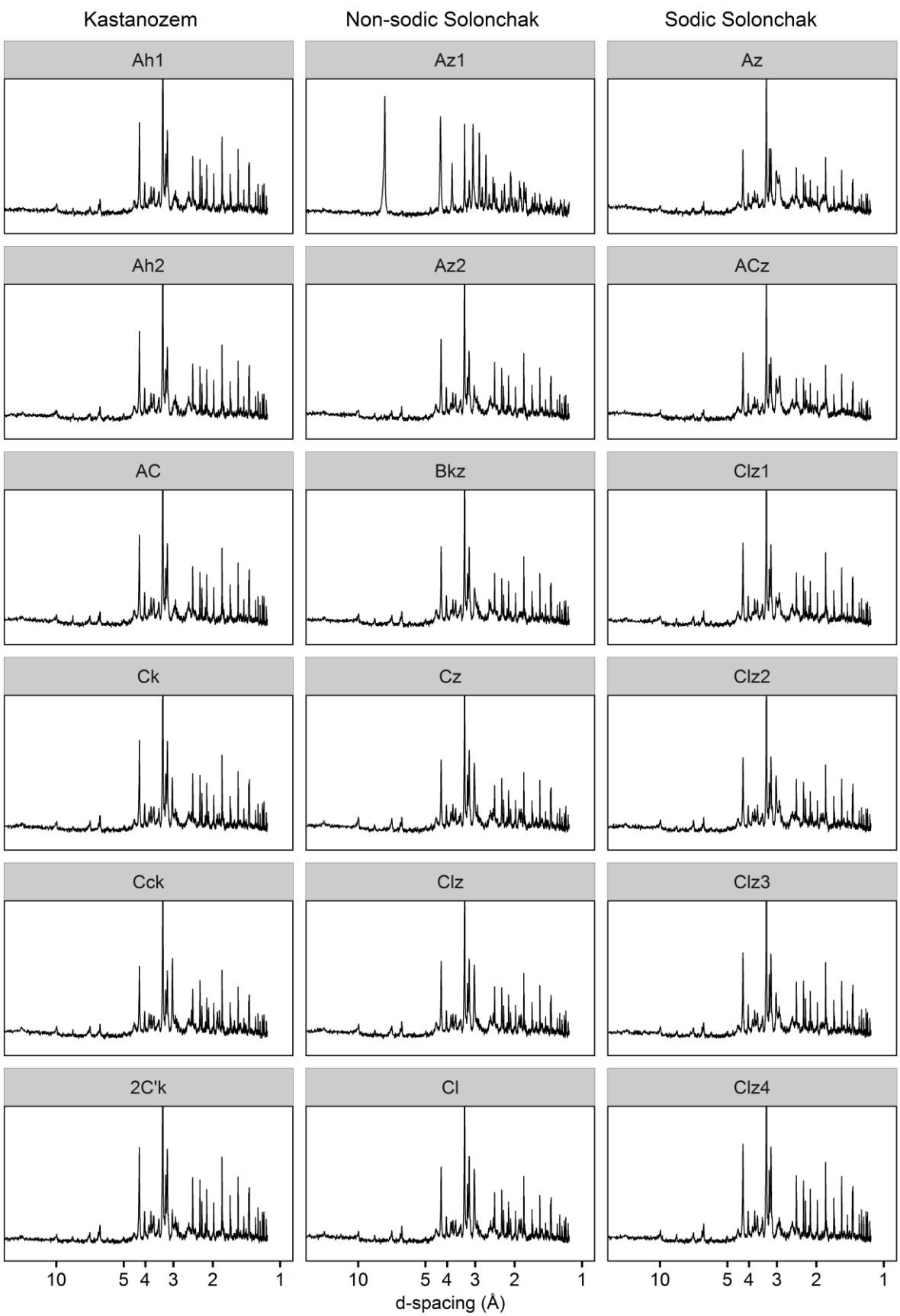

Figure S 2: X-ray powder diffractograms of bulk soil from three profiles and respective horizons. Intensities are square root transformed for better visualization of trace mineral phases.

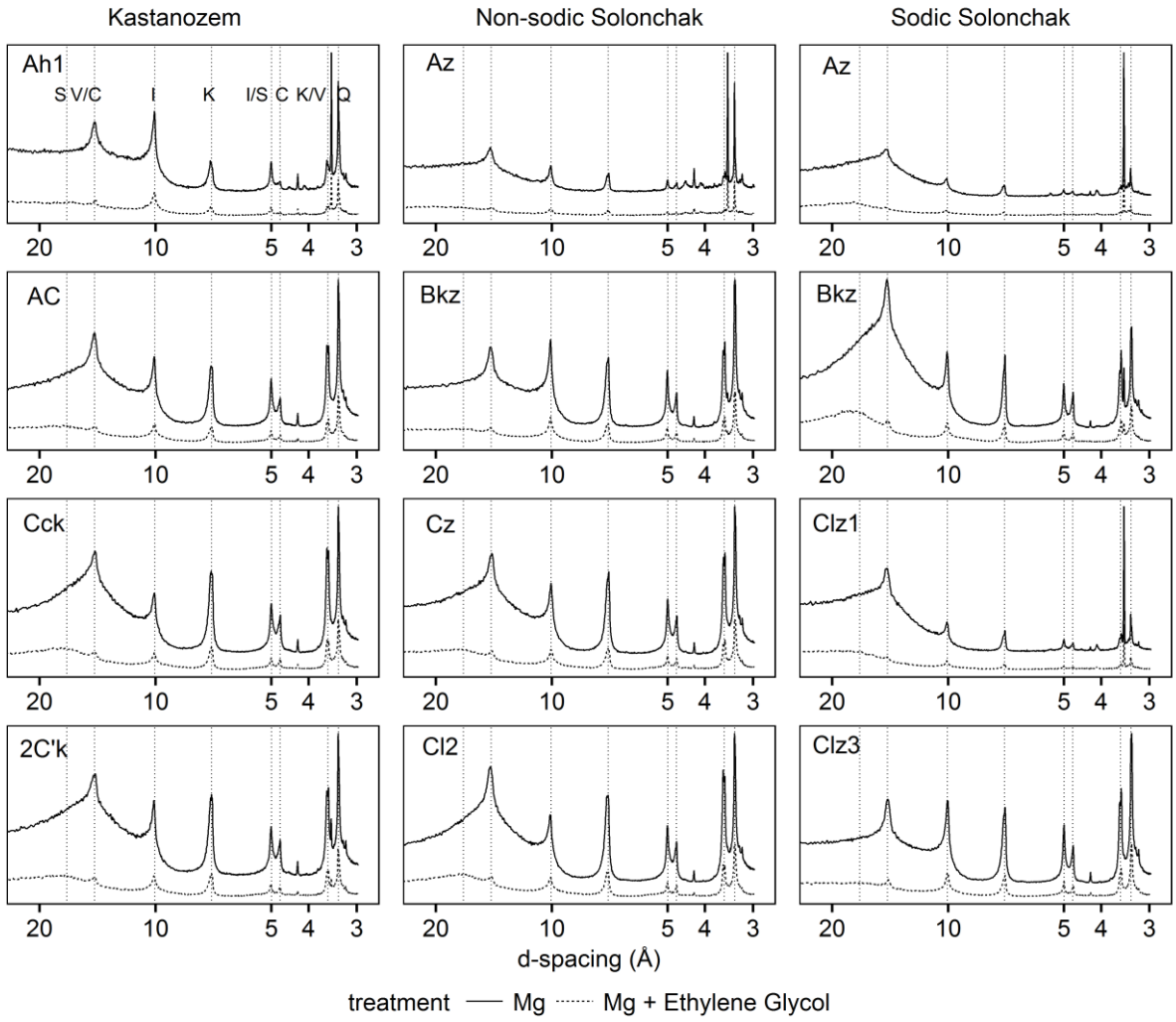

Figure S 3: -ray diffractograms of clay fractions from two treatments of three soil types and four different horizons. Abbreviations: S = smectite, V = vermiculite, C = chlorite, I = illite, K = kaolinite, and Q = quartz.

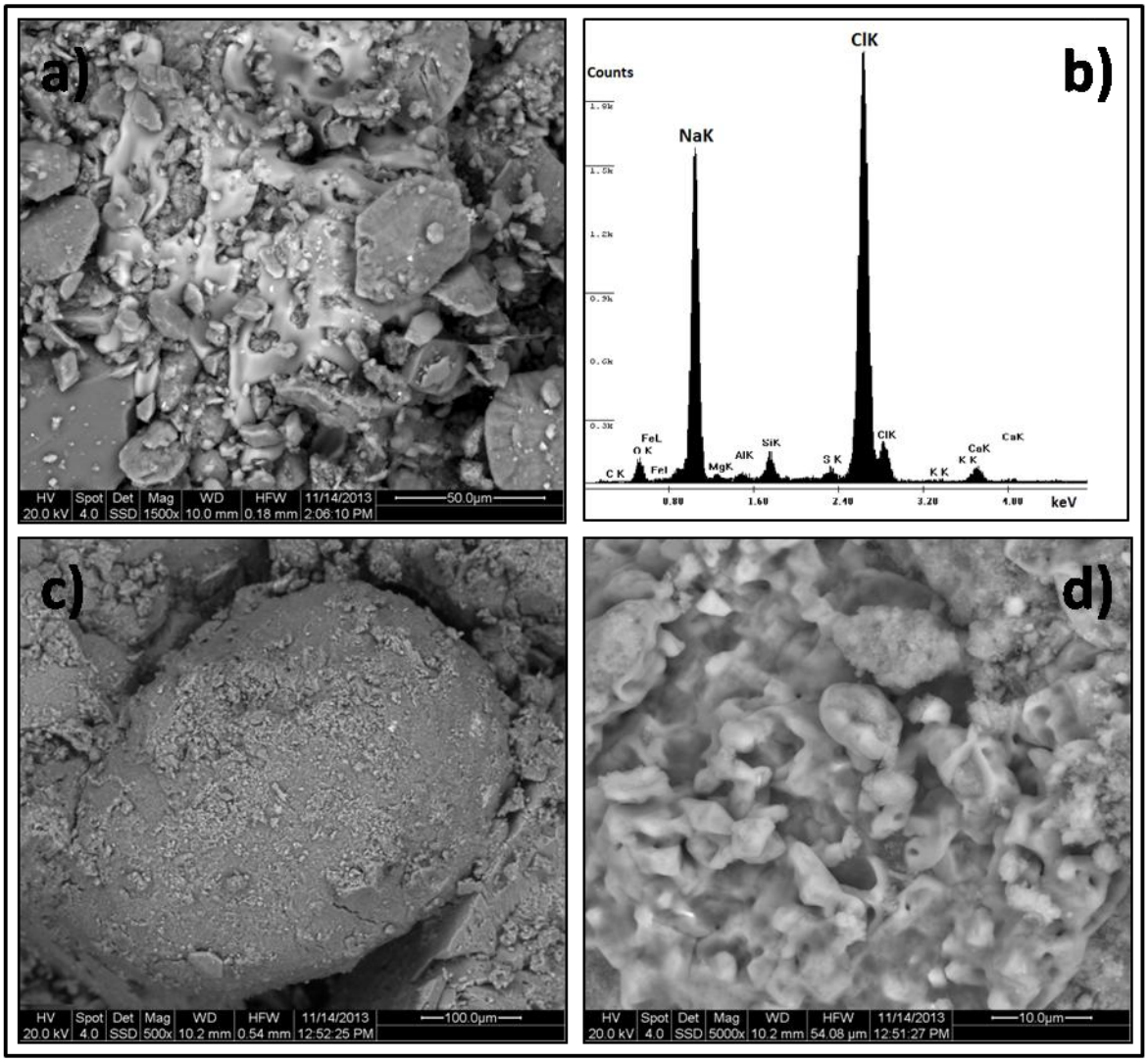

Figure S 4: Scanning electron micrographs (a, c, d) and EDX spectra (b) of the fine earth fraction of Solonchaks. The two common salt minerals halite (a, b) and thenardite (c, d) are shown. In a), halite is represented by the white region embedded in gypsum crystals. In c), thenardite is the finely textured coating on the larger mineral, d) is the enlargement of c).

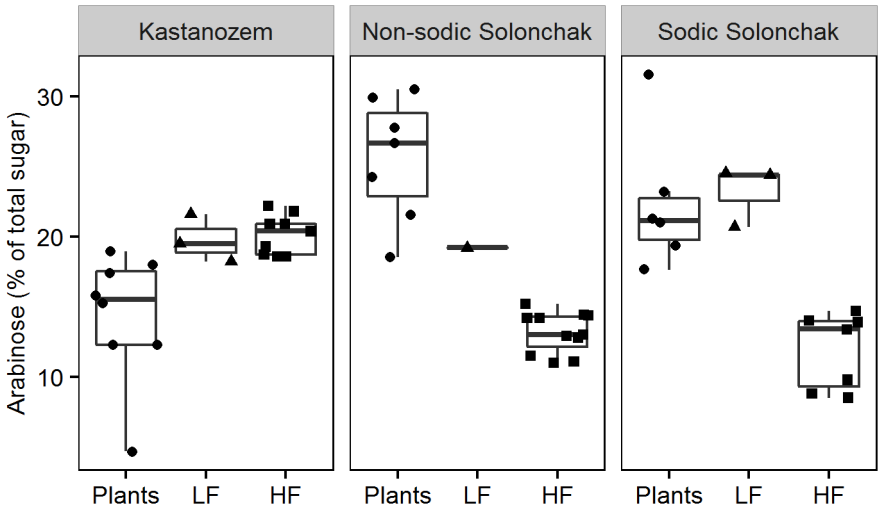

Figure S 5: Percentage contribution of arabinose to the total non-cellulosic neutral sugars of three soil types, separated for plants, light fraction (LF) and heavy fraction (HF).

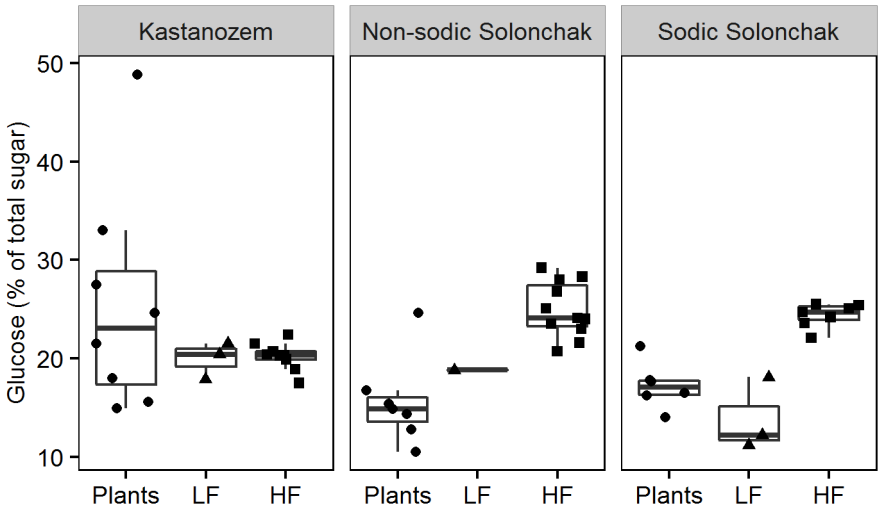

Figure S 6: Percentage contribution of glucose to the total non-cellulosic neutral sugars of three soil types, separated for plants, light fraction (LF) and heavy fraction (HF).

References

IUSS Working Group WRB: World reference base for soil resources 2014. International soil classification system for naming soils and creating legends for soil maps, World Soil Resour. Reports No. 106, 1–191, doi:10.1017/S0014479706394902, 2014.