https://doi.org/10.17221/105/2022-SWR

The effects of slope and altitude on soil organic carbon and clay content in different land-uses: A case study in the Czech Republic

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Electronic Supplementary Material (ESM)

The authors are fully responsible for both the content and the formal aspects of the electronic supplementary material. No editorial adjustments were made.

https://doi.org/10.17221/105/2022-SWR

Table S1. Correlation matrix (Pearson) for Liberec district

Variables	SOC	Clay	Altitude	Slope	Aspect	Sin (aspect)	Cos (aspect)	CSC	LC	CI	Catch-ment area	TWI	LSF	CNBL	VDCN	RSP
SOC	1															
Clay	–0.019	1														
Altitude	0.380**	0.042	1													
Slope	0.525**	–0.025	0.667**	1												
Aspect	–0.115	–0.083	–0.127	–0.140	1											
Sin (aspect)	0.129	0.039	0.213	0.185	–0.836	1										
Cos (aspect)	–0.085	–0.063	0.139	0.158	–0.137	0.199	1									
CSC	0.049	–0.180	0.491**	0.352	–0.049	0.061	0.116	1								
LC	–0.179	–0.161	0.322	0.050	–0.037	0.013	–0.048	0.746**	1							
CI	0.079	–0.272	0.314	0.156	–0.077	0.141	0.103	0.708**	0.591	1						
Catchment area	0.046	–0.091	–0.254	0.104	0.071	–0.146	–0.185	0.031	–0.047	–0.018	1					
TWI	–0.145	0.135	–0.598	–0.530	0.134	–0.239	–0.228	–0.521	–0.402	–0.490	0.421	1				
LSF	0.508**	–0.005	0.440	0.917**	–0.053	0.069	0.065	0.242	–0.056	0.085	0.310	–0.299	1			
CNBL	0.100	0.304	0.568**	0.249	0.021	–0.017	0.100	0.014	–0.109	–0.070	–0.248	–0.118	0.190	1		
VDCN	–0.206	0.174	–0.487	–0.307	–0.124	–0.012	–0.020	–0.498	–0.526	–0.351	0.171	0.513**	–0.129	0.125	1	
RSP	0.387**	–0.136	0.842**	0.574**	–0.077	0.180	0.077	0.568**	0.490**	0.394	–0.203	–0.667	0.341	0.121	–0.806	1

SOC – soil organic carbon; CSC – cross-sectional curvature; LC – longitudinal curvature; CI – convergence index; TWI – topographic wetness index; LSF – slope length factor; CNBL – channel network base level; VDCN – vertical distance to channel network; RSP – relative slope position; *,**,***correlation is significant at $P < 0.05, 0.01, 0.001$, respectively

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Table S2. Correlation matrix (Pearson) for Domažlice district

Variables	SOC	Clay	Altitude	Slope	Aspect	Sin (aspect)	Cos (aspect)	CSC	LC	CI	Catchment area	TWI	LSF	CNBL	VDCN	RSP
SOC	1															
Clay	–0.042	1														
Altitude	0.658**	–0.197	1													
Slope	0.444**	–0.276	0.721	1												
Aspect	0.030	0.007	–0.087	–0.156	1											
Sin (aspect)	–0.092	–0.014	0.034	0.055	–0.833	1										
Cos (aspect)	–0.096	–0.057	–0.012	0.097	0.002	–0.057	1									
CSC	0.253	–0.083	0.449	0.235	–0.339	0.377	–0.063	1								
LC	–0.064	0.107	0.094	0.016	–0.194	0.184	0.003	0.547	1							
CI	0.167	0.023	0.333	0.153	–0.241	0.238	–0.160	0.709	0.374	1						
Catchment area	–0.134	–0.022	–0.265	–0.156	–0.094	0.060	0.001	–0.075	–0.055	–0.170	1					
TWI	–0.347	0.126	–0.596	–0.685	0.103	–0.124	–0.007	–0.457	–0.240	–0.508	0.569	1				
LSF	0.398**	–0.257	0.644	0.962	–0.109	–0.014	0.047	0.079	–0.097	0.040	–0.091	–0.532	1			
CNBL	0.449**	–0.206	0.718	0.416	0.076	–0.112	0.073	0.031	–0.183	0.053	–0.309	–0.324	0.410	1		
VDCN	–0.060	–0.048	–0.099	–0.103	0.082	–0.047	0.037	–0.239	–0.397	–0.114	0.031	0.093	–0.072	0.181	1	
RSP	0.556**	–0.114	0.805**	0.652**	–0.199	0.121	–0.003	0.521	0.323	0.398	–0.238	–0.588**	0.549**	0.301	–0.528	1

SOC – soil organic carbon; CSC – cross-sectional curvature; LC – longitudinal curvature; CI – convergence index; TWI – topographic wetness index; LSF – slope length factor; CNBL – channel network base level; VDCN – vertical distance to channel network; RSP – relative slope position; *,**,***correlation is significant at $P < 0.05, 0.01, 0.001$, respectively

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Table S3. Multiple correlation matrix of variables of arable land in the Liberec

	Altitude	Slope	Aspect	CA	TWI	LSF	CNBL	VDCN	RSP	Clay	SOC
Altitude	1										
Slope	0.623	1									
Aspect	0.042	–0.010	1								
CA	–0.365	–0.133	0.044	1							
TWI	–0.417	–0.471	0.008	0.562	1						
LSF	0.525	0.940	–0.015	–0.026	–0.253	1					
CNBL	0.849	0.459	–0.080	–0.360	–0.186	0.426	1				
VDCN	–0.289	–0.323	–0.531	0.130	0.342	–0.241	–0.131	1			
RSP	0.772	0.608	0.294	–0.228	–0.538	0.466	0.407	–0.676	1		
Clay	–0.019	0.056	–0.354	–0.201	0.057	0.042	0.220	0.117	–0.207	1	
SOC	0.421	0.595	–0.047	0.009	–0.034	0.730	0.338	–0.204	0.357	–0.055	1

CA – catchment area; TWI – topographic wetness index; LSF – slope length factor; CNBL – channel network base level; VDCN – vertical distance to channel network; RSP – relative slope position; SOC – soil organic carbon