

Organic matter cycling along geochemical, geomorphic and disturbance gradients in vegetation and soils of African tropical forests and cropland - Project TropSOC DATABASE_v1.0

2.7. Forest – Soil Profile Descriptions

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Introduction

The dataset comprises a unique plot identifier and 64 variables resulting from the standardized soil profile description following the methods of the FAO (2006). Abbreviations are given in FAO (2006), which is freely available under

<http://www.fao.org/publications/card/en/c/903943c7-f56a-521a-8d32-459e7e0cdae9/>

With updated soil classifications following the WRB classification in FAO (2015) available at:

<http://www.fao.org/3/i3794en/i3794en.pdf>

Missing values are indicated by -9999.

Data structure

No.	Variable	Explanation	Unit
1	plotID	unique identifier of each plot and point where data were collected	-
2	horizonID	numbering of horizons; 1 is topsoil horizon	-
3	date	date when description was made	dd.mm.yyyy
4	authors	names of researchers that conducted the field survey	-
5	weather	weather condition during the soil profile description	-
6	landform	major landform on which the soil profile is located	-
7	position	position of the soil profile on the major landform	-
8	slope	form of the slope on which the soil profile is located	-
9	landuse	land use at soil profile	-
10	vegetation	vegetation around the soil profile	-
11	human_influence	human influence around the soil profile	-
12	parent_material	parent material in which pedogenesis took place	-
13	rock_cover	surface covered by rock outcrops around the soil profile	-
14	rock_frag_cover	surface covered by rock fragments around the soil profile	-
15	surface_sealing	thickness of surface sealing around the soil profile	-
16	cracks	width of cracks around the soil profile	-
17	surface_characteristics	other surface characteristics around the soil profile	-
18	erosion_category	main categories of soil erosion around the soil profile	-
19	erosion_area	area affected by soil erosion around the soil profile	-

20	erosion_degree	severity of soil erosion around the soil profile	-
21	erosion_activity	period of activity of soil erosion around the soil profile	-
22	horizon_cap	pedogenetic horizons (capital letter) which are defined by physical features like colour and texture	-
23	horizon_suffix	specific kinds of master horizons (suffix of capital letter)	-
24	horizon_top	upper depth of the sampled horizon	cm
25	horizon_bot	lower depth of the sampled horizon	cm
26	full_profile_depth	total depths of the described profile mineral soil horizons	cm
27	comments_notes	any further comments about the described horizon	-
28	distinctness	distinctness of the zone in which the horizon boundary can be located without being in one of the adjacent horizons	-
29	horizon_topography	smoothness of the depth variation of the boundary	-
30	cabonates	abundance of carbonates in a given horizon	-
31	class_rock_fragments	rock fragment classification by its diameter	-
32	abun_rock_fragments	abundance of rock fragments	-
33	shape_rock_fragments	shape of rock fragments	-
34	weathering_rock_fragments	weathering degree of rock fragments	-
35	nature_rock_fragments	primary mineral content of rock fragments	-
36	class_artefacts	artefact classification by its diameter	-
37	abundance_artefacts	abundance of artefacts	-
38	shape_artefacts	shape of artefacts	-
39	weathering_artefacts	weathering degree of artefacts	-
40	nature_artefacts	nature of the artefacts (for example charcoal, potshers etc.)	-
41	soil_colour_matrix	colour of the soil matrix	-
42	munsell_colour_wet	munsell colour chart on homogenized field wet samples under stable light conditions in the lab	-
43	abundance_mottling	abundance of mottles	-
44	grade_aggregates	development of the soil particles into discrete soil units / aggregates resulting from pedogenic processes	-
45	type_aggregates	shape and formation of soil aggregates	-
46	size_aggregates	size of soil aggregates based on their diameter	-
47	cons_wet_aggregates	degree of cohesion or adhesion of the soil mass when wet	-
48	stickiness_aggregates	quality of adhesion of the soil material to other objects	-
49	plasticity_aggregates	plasticity of the soil, i.e. the ability of the soil material to change shape continuously	-
50	type_voids	shape and origin of the voids (empty spaces) in the soil matrix	-
51	size_voids	size of the voids based on their diameter	-
52	abundance_voids	abundance of voids	-
53	abundance_coatings	abundance of illuviation features, coatings of other composition and reorientations and concentrations associated with surfaces occurring as stains in the soil matrix	-
54	abundance_concretion	abundance of mineral concretions	-

55	size_diameter_roots	size class of the roots by their diameter	-
56	abundance_roots	abundance of roots	-
57	abundance_biol_act	abundance of biological activities	-
58	biol_act	nature of biological activities	-
59	diagnostic_horizon	pedogenic horizon characterized by a combination of attributes that reflect widespread common results of pedogenic processes	-
60	diagnostic_properties	properties within the soil profile which is characterized by a combination of attributes that reflect widespread common result of pedogenic processes	-
61	diagnostic_materials	diagnostic material like a specific parent material or the alteration of materials that is characteristic for specific soil types	-
62	reference_soil_group	soil types which can be differentiated by characteristic soil features produced by primary pedogenetic processes	-
63	principal_qualifiers	Main and 1 st ranked qualifiers	-
64	editor	name of the person who conducted the analysis	-
65	institute	name of the institute where the analysis was conducted out	-

Methods

Soil profile descriptions follow methods and WRB soil classification as presented in FAO (2006) and FAO (2015).

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References

- FAO: Guidelines for soil description, 4th ed., Food and Agriculture Organization of the United Nations, Rome, Italy, 97 pp., 2006.
- FAO. World reference base for soil resources 2014. Update 2015. Food and Agriculture Organization of the United Nations, Rome, Italy, 203 pp., 2015.