6.31 Soil temperature

Project Name: OPERANDUM (Grant Agreement no. 776848)

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Soil temperature	**Climate Resilience** **Natural and Climate Hazards** **Green Space Management**
Description and justification	Soil temperature is intrinsically related to soil microbial activity and to biogeochemical and hydrological fluxes in the soil. Different soil temperatures would be preferred by different vegetation whose roots would provide strengths and resistance against erosion or sliding.
Definition	The degree or intensity of heat present in soil, especially as expressed according to a comparative scale and shown by a thermometer or perceived by touch.
Strengths and weaknesses	Strengths: standard measurement methods exist; closely linked to air temperature; linked to complex soil biogeochemical processes; Weaknesses: high resolution intrusive investigation is needed; site-specific investigation needed to establish connections with other environmental variables and processes.
Measurement procedure and tool	Trial pits or boreholes excavated and samples taken or thermometer and/or thermocouples inserted and measurement taken in situ
Scale of measurement	Micro / point measurement
Data source	
Required data	Temperature
Data input type	Value (units of temperature)
Data collection frequency	continuous
Level of expertise required	Low
Synergies with other indicators	Soil strength, soil type, aggregate stability, soil matric suction, plant evapotranspiration, soil water flux, soil carbon flux
Connection with SDGs	11, 13, 15, 17

Opportunities for participatory data collection	Yes.
Additional information	
References	Gonzalez-Ollauri. A., Stokes, A., Mickovski, S.B., 2020. A novel framework to study the effect of tree architectural traits on stemflow yield and its consequences for soil-water dynamics. Journal of Hydrology, 582 (124448)

6.32 Level of Groundwater Table

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Ground water table level	**Natural and Climate Hazards**
Description and justification	Depth below ground surface at which the ground water exists. Higher levels cause more instability, lower levels increase strength and resistance to erosion and landslides.
Definition	The amount of water in storage in the monitored aquifer. When recharge exceeds natural discharge plus abstraction, groundwater levels rise. When recharge is less than natural discharge plus abstraction, groundwater levels fall.
Strengths and weaknesses	+: standard measurement methods exist; cartographic indices exist to spatially predict depth of water table -: high resolution intrusive investigation is needed
Measurement procedure and tool	Trial pits or boreholes excavated and measurement/monitoring carried out in situ using a dipmeter / piezometer
Scale of measurement	Micro / point measurement
Data source	
Required data	Levels [m] below ground surface
Data input type	Height [m] above datum
Data collection frequency	Periodic, continuous
Level of expertise required	Low