

Ontologies for Modeling Variables [Peckham & Stoica 2019]

Object: Soil

Processes (related to verbs):

Aeration, Bioturbation, Creep, Drainage, Erosion, Fertilization, Formation, Gelifluction, Movement, Slumping, Solifluction, Tilling, Weathering

Process Quantities:

creep_speed
erosion_rate
fertilization_time
tilling_depth

State Quantities:

age
alkalinity
brooks-corey_c_parameter
clay_volume_fraction
depth (to bedrock)
hydraulic_conductivity
organic_matter_volume_fraction
porosity
pressure_head
sand_volume_fraction
saturated_hydraulic_conductivity
water_volume_fraction

Properties:

color
fertility

- **Property** names are nominalizations of **adjectives**.
- **Quantity** is a subclass of **Property**. (Numerical, often has units.)
- A pairing of an **object** with a **quantity** is a **variable**.

- An **index** or **scale** numerically quantifies a property (eg, drought index, flood index)
- **Index** is a subclass of **Quantity**