

17. Soil-forming processes and soil types

Everything that affects formation, development, characteristics and geographic distribution of soils belongs to soil-forming factors. That's why the Earth's soil cover is very diverse.

Give some examples of these factors!

Impact of soil-forming factors results in soil-forming processes = scheme (group) of physical, chemical and biological effects taking place within soil.

These processes split up soil cover into **soil horizons**.

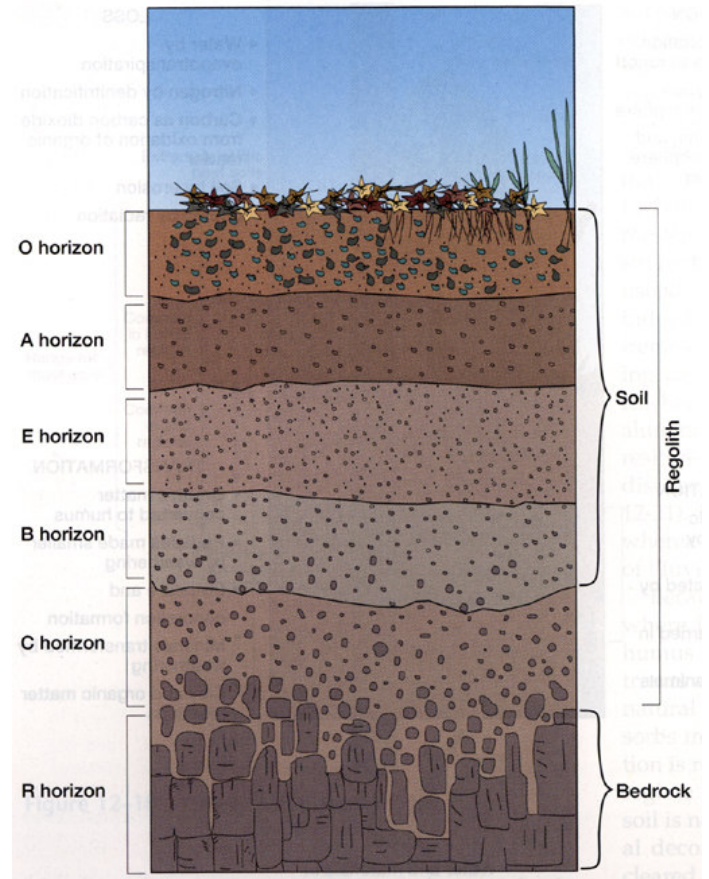
They are segmented by different colours and characteristics. Soil horizons are organized regularly => **soil profile** = vertical cross-section through a soil.

Soil type is affected by the sequence (order) of soil horizons. It is the most basic classification unit of soils.

Soil type = group of particular soils formed by the influence of similar combination of soil-forming factors.

Certain soil type has equally organized horizons and *soil fertility* is more or less the same.

- O = organic horizon, humus (leaves or needles)
- A = topsoil, humus mixed with minerals, grey-brown colour
- E = eluvial, depleted horizon
- B = illuvial, enriched horizon
- C = parent rock
- R = bedrock, seat rock



On global scale, pedosphere is affected mainly by climate. Main soil types change from equator polewards (according to *latitude*) and from foothills to peaks (according to *altitude*).

- Equatorial zone: *red-yellow soils*, i.e. *ferralitic soils* of rainforests in Amazon and Congo basin and in SE Asia
- Subequatorial zone: *red ferruginous soils* of savannas, leaching of Fe or Al
- Tropical zone: *desert soils*, salinisation
- Subtropical zone: *yellow soils* and *terra rosa soils* ⇔ ferric oxides, in SE USA, C + E China
- Temperate zone:
 - deciduous forests – chestnut-coloured soils (*brown earths*)
 - steppes (pampas, prairies) – chernozems (*black earths*) = the most fertile soils ⇔ plant remains which created up to 100 cm deep topsoil cover
 - taiga (coniferous forests) = *podzols*
- Polar zone: *permafrost*

Keywords

soil-forming factors/processes, soil horizon/profile, soil fertility, humus, topsoil, depleted/enriched horizon, parent/seat rock, foothill, ferralitic soils, rainforest, ferruginous, leaching, salinisation, terra rosa soil, brown/black earth, podzols, permafrost