

Moraine age

30 years

160 years

3000 years

10 000 years

Evolution of structural parameters and soil texture

Decrease in particle size and bulk density

Organic matter accumulation increase in porosity

Vegetation cover

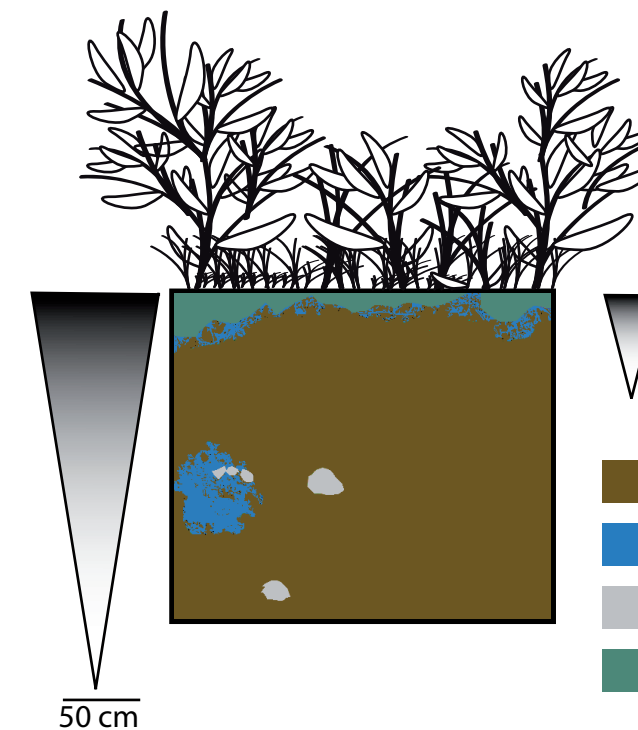
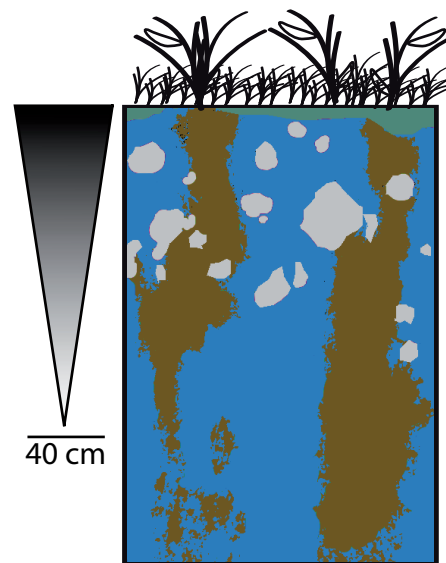
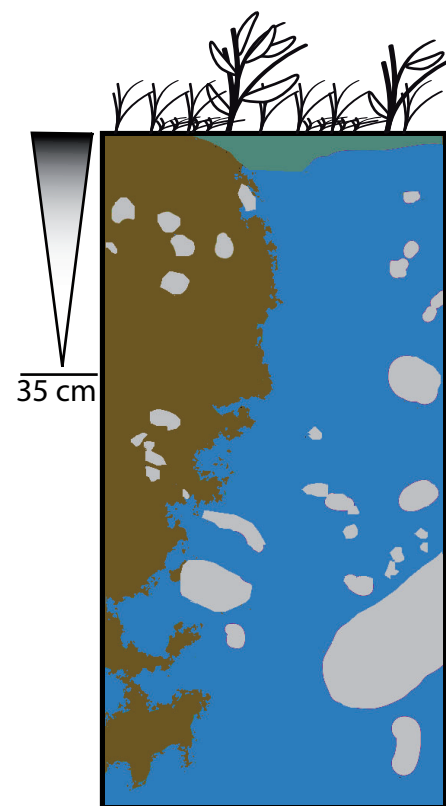
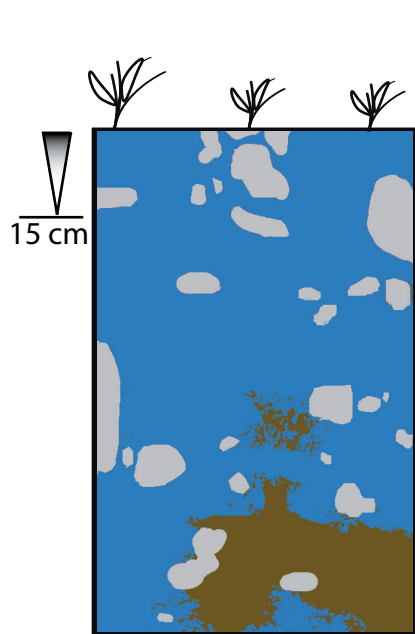
Sparse vegetation cover

Dense vegetation cover with loose root network, fine roots

Dense vegetation cover with dense root network, fine roots

Dense vegetation cover with dense root network, fine to thick roots, mainly located in organic layer

Characteristic dye pattern



Qualitative root mass distribution

Unstained soil

Dye

Stones

Vegetation cover

Major flow path controls

Homogeneous infiltration, water transport in large pores with small water holding capacity, high drainability

Heterogeneous infiltration due to vegetation coverage and microtopography

Heterogeneous infiltration due to vegetation shielding, microtopography, and hydrophobicity, finger flow due to subsurface water repellency

High water storage and holding capacity of organic surface layer, water transport in deeper soil by macropore flow in root burrows