

# Periglacial Features

Periglacial features occur in ice-marginal zones, or in any sufficiently cold area where there is at least discontinuous permafrost.

Dominant process - freeze-thaw - volume expansion (9%) of water as it freezes and contraction of ground as it cools

Permafrost is ground that remains frozen for more than a year. It is usually overlain by an active layer - a zone that freezes and thaws each year

Fine-grained sediments expand most - clay because it has high pore volume of water, silt because of capillary action that holds onto water, coarser sediments generally are well-drained - unless ice below prevents drainage

Frost heave of boulders - pulled (ice adheres to sides and pulls up) or pushed (ice lens forms below boulder and expands) by ice - get long axes vertical

Frost heave occurs normal to the freezing front, which tends to descend faster in stones rather than fine sediments, due to better drainage.

Felsenmeer - bedrock breaks up due to freeze thaw of water in cracks

Solifluction - downslope movement, results in terraces

## Patterned Ground

Ice-wedge polygons, thermal contraction cracks- continued contraction results in wedge, fills with sand or snow

Sorted polygons - large rocks generally fall in cracks, raised in center

Stone stripes, nets

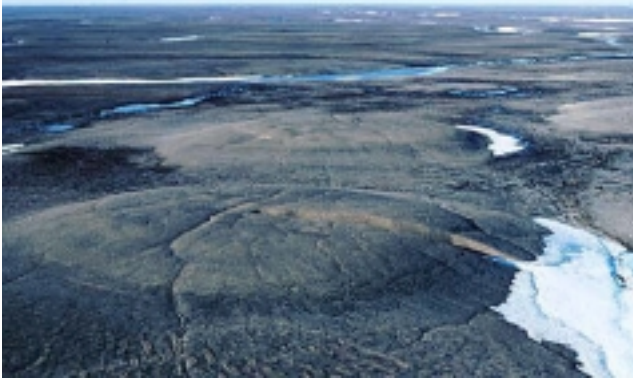


*Sorted polygon.*

## Other features

Palsas - terraces a few meters high, commonly in peat (not pure peat), sometimes form in areas of discontinuous permafrost where thin snow cover allows greater freezing

Pingos- large terraces, often with core of ice. Either from artesian spring or from water that has no place to go because of encroaching permafrost (such as from infilled pond).



*Pingo (left) and palsa (right).*