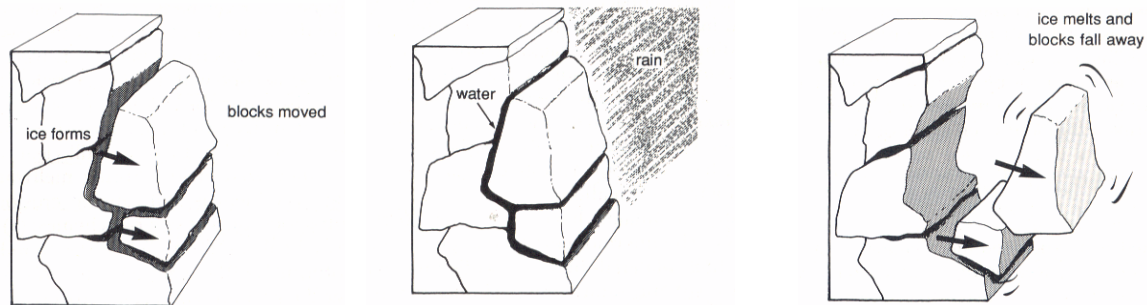


Processes of weathering and erosion

The process of weathering in glacial environments is dominated by:

Frost Action – the action of water freezing and expanding, by as much as 9%, leading to frost-splitting or congelifration. The resulting rock debris may fall away, forming scree or erratics or it may be removed by periglacial processes such as solifluction.



Dilatation – the action of **pressure release** within a mass of rock as a result of the removal of overlying layers. When ice sheets (or eroded rock) are removed, there is an outward expansion of the rock leading to the formation of **expansion joints** or **dilatation joints**. Sheet-like layers of rock peel off at right angles to the direction of pressure release. Once loosened, the outer layers are prone to further weathering and erosion. Other forms of physical, chemical and biological weathering may play a limited and localised role, but they are relatively unimportant due to low temperatures and the lack of liquid water.

The process of direct glacial erosion is dominated by:

Abrasion: ice acts as an abrading agent of erosion. Particles of rock debris are dragged across a rock surface in the bed or sides of the glacier. Abrasion often leads to scratch marks or striations as the rock is eroded.

Plucking: a process of block removal or “quarrying” carried out by a glacier. Well-jointed blocks are pulled from the rock when the basal ice freezes to them, usually on the downstream side of a rocky protuberance. Plucking usually involves the process of regelation. This is the refreezing of ice subsequent to melting caused by pressure. Ice that melts under pressure may flow within, or below the *glacier* to a place where pressure is lower and then refreeze.