

Small-scale Erosional Forms

GES-441

Striations

Straight, wedge-shaped, nailhead

Requirements - good contact pressure, basal sliding, basal debris, supply of new debris

Give orientation (i.e., E-W) of glacier flow; rarely give direction



Striated bedrock.

Micro Crag and Tails (Rat Tails)

Streamlined “shadow” of less-resistant rock downglacier of a more resistant mineral.

Yields flow direction



“Rat tail.” The more resistant mineral grain protected softer rock behind it from erosion. Ice flow is right to left. Photo from T. Lowell.

Friction Cracks

Crescentic gouges, lunate gouges, crescentic fractures, chattermarks

In many cases can tell flow direction - but need to use care.

Crescentic gouges are concave up glacier; lunate gouges are concave down glacier; important thing is that the steep side of the chipped plane is down glacier.

Require very high, intermittent contact pressure



Chattermarks on Mount Desert Island. Photo From T. Lowell.

P-forms

“Plastically” molded forms

sichelwannen, grooves, potholes

Many seem to be formed by subglacial water - but some have striations in them Also could have been formed by till slurry or ice.



Sichelwannen. Ice flow from top left to bottom right. From T. Lowell.