

Lecture 10: Surges

GES-441

Surge - anomalously fast glacier movement; involves transfer of a large amount of mass from the accumulation to the ablation area. Only 4% of the world's glaciers surge. They are common in Alaska, Yukon, Svalbard, Pamir

Build-up phase involves the accumulation of mass in the accumulation area and a steepening of the glacier profile. During the surge, the glacier advances rapidly and this extra mass is transferred downglacier. The surface drops well below the pre-surge level. Most surges are periodic.



Susitna Glacier, Austin Post photo.

Structures Within Glaciers

Foliation - due to intense compression, expressed by differences in grain size, crystal structure, dirt and bubble content - due to variations, in part, in recrystallization, emphasized by differential melt

Icefalls - fast moving ice goes over steep relief. Intense extension, intense compression at base

Ogives - curved, repetitious bands or terraces - curved because of increased velocity in center of glacier. Form below icefalls and are believed to be annual

Crevasses - form in brittle part of glacier near surface, 30 m depth in warm glaciers, more in cold glaciers



Ogives.