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Climate versus ice dynamics: exploring the drivers of glacier change through field-based studies in the St. Elias Mountains

Abstract: On sufficiently long time scales the world's glaciers and ice caps present a broadly coherent response to climate. On the timescales relevant to societally useful projections of freshwater availability and sea-level change, the internal dynamics of these ice masses can complicate their climate responses. Here we examine the influence of climate on glacier dynamics, including glacier thermal structures and flow regimes, to identify how internal and external controls merge to produce the responses we are observing in the subarctic setting of Yukon's St. Elias Mountains. Disentangling these effects is especially important in improving projections of glacier change in regions of the world characterized by an abundance of surge-type and tidewater glaciers. This talk will draw upon field-based research that has been conducted on mountain glaciers in southwest Yukon, aimed at better understanding the regional variability of glacier response to climate.