

CORRESPONDENCE

The Editor,
Journal of Glaciology

SIR, *Reconnaissance of Variegated Glacier: thermal regime and surge behavior*

The distribution of surging glaciers in western North America led Meier and Post (1969) and Post (1969) to suggest that both temperate and non-temperate glaciers can surge. Field measurements by Classen and Clarke (1971) have indicated that Rusty Glacier falls into the second category, but field measurements have not yet identified a temperate surging glacier. If temperate glaciers can surge, the temperature instability considered by Robin ([1956]) is unlikely to be a necessary condition for surge behavior.

Variegated Glacier, located 55 km from Yakutat, Alaska, and reaching almost to tidewater near the junction of Russell Fiord and Disenchantment Bay, is an excellent candidate for a temperate surging glacier (Post, 1969). Its surge history is long and well known (Tarr and Martin, 1914; Post, 1969), the last surge being in 1965. My wife Anne and I carried out a reconnaissance of this glacier from 4 to 7 September 1971. We went to investigate the suitability of the glacier for more extensive field study, and to obtain some first-hand information about its thermal regime.

We carried snow-probing and thermistor equipment 25 km from tidewater to a point near the head of the accumulation area at about 1 550 m elevation. Prudence in the face of a crevasse field and 0.2 m of new snow prevented us from reaching the very highest point 300 m higher. The snow line was between 800 and 1 000 m. We made several measurements of firn temperature with the results shown in Table I.

TABLE I. TEMPERATURE MEASUREMENTS IN VARIEGATED GLACIER

<i>Approximate elevation</i> m	<i>Depth of thermistor</i> m	<i>Temperature</i> °C
900	5.3	+0.005
1 350	4.3	-0.007
1 500	5.5	-0.018
1 550	5.5	+0.003

The random error (standard deviation) is about 0.004 deg; the calibration error, about 0.006 deg. From the inspection of the wall of a crevasse, we concluded that at the highest two points the thermistor was about 1 m deeper than the 1970 ablation surface, but our identification of the 1970 horizon was not unambiguous, and the thermistor could have been about 1 m above it. At any rate, it appeared that previous winter's firn had been warmed to 0° C or very nearly so by early September.

This result suggests that there is nothing peculiar about the thermal regime of the glacier that might explain its surge behavior, although it should be noted that the result does not guarantee that the glacier is temperate everywhere (Miller, [1956]; Schytt, 1969, for example). The situation is consistent with what Meier and Post (1969) expected. Our field measurements lend some support to the idea that temperature instability is not a necessary condition for surge behavior.

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STR, "Fox Glacier" in Yukon Territory is now Rusty Glacier

Some of your readers will be delighted to learn that the glacier unofficially named "Fox Glacier" in Yukon Territory has now been officially named Rusty Glacier by the Canadian Permanent Committee on Geographical Names. The unofficially named "Jackal" and "Hyena Glaciers" are now officially Backe and Trapridge Glaciers respectively.

The designations "Fox", "Jackal" and "Hyena" had respectable if not venerable roots. In 1963 Austin Post (personal communication) assigned these names for reference purposes to three small surging glaciers in the St Elias Mountains, Canada. The following year he completed a map on which these names were used, and although the map was not published it was widely circulated. Post was inspired to use canine names by the proximity of these glaciers to the unofficially named "Wolf Creek Glacier", now Steele Glacier.

In 1968 Rusty Glacier was among a small number of Canadian glaciers selected for special study during the International Hydrological Decade; a substantial literature therefore exists in which the unofficial designation "Fox Glacier" was used. To prevent further confusion with other Fox Glaciers we have compiled a fairly complete list of these references, omitting annual reports on field work in the St Elias Mountain Ranges contained in the *Annual Report of the Arctic Institute of North America, Arctic*, the *Canadian Alpine Journal*, the *Canadian Geophysical Bulletin*, and *Ice* (Nielsen, 1968; Paterson, 1968; Meier and Post, 1969, p. 816-17; Nielsen, 1969; Post, 1969; Clarke and Classen, 1970; Crossley and Clarke, 1970; West and Krouse, 1970; Clarke, [1971]; Classen and Clarke, 1971; Collins, 1971; Krouse, [1971]; Paterson, 1971).

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