



Terminus lagoons on the south side of Vatnajökull ice cap, SE-Iceland

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Many ice-marginal lakes have been formed in front of glacier termini in Iceland in recent decades due to warming climate, particularly at the southern margin of Vatnajökull ice cap where several such lakes grow year-by-year at present. At the same time, most glacier-dammed lakes at the lateral ice margins have been reduced in size or disappeared because of the thinning of the glaciers, and jökulhlaups released from them have become smaller. We present changes in glacial lakes in SE-Iceland, from Skeiðarárjökull west of Öräfi to Hoffellsjökull in Hornafjörður. Lagoons started to form in front of several glaciers in this area already in the 1930s but most did not grow much until the 1990s, except for Jökulsárlón by Breiðamerkurjökull which has grown steadily since before the middle of the last century. Currently, there are growing terminus lakes by all the main south-flowing outlet glaciers of Vatnajökull, with a combined area of 60 km². The subglacial landscape upstream of the termini indicates that the lakes will continue to grow in the coming decades as a consequence of glacier downwasting if the climate warms as projected. These lakes affect the ice flow and the mass and energy balance of the respective glaciers because of their effect on the force balance of the terminus region, the calving of ice into the lakes, and the absorption of heat that becomes available for the melting of calved ice fragments and the terminus ice front. The lakes are associated with hazard to settlements and travellers in the adjacent area, as landslides on the glaciers that propagate into the lakes can create tsunami waves with a high run-up and sudden, very dangerous flash floods in the glacier forelands.