

Param.	value	meaning	reference
$\nu$	10	Eq. (3) – relation between ice thickness and slope	Oerlemans (2001)
$\alpha$	$1.70 \text{ m}^{1/2}$	Eq. (3) – calibrated to give observed surface height	Map, Norsk Polarinstitut
$\beta$	$0.0045 \text{ m w.e. a}^{-1} \text{ m}^{-1}$	balance gradient, observed on nearby glaciers	Oerlemans and Van Pelt (2015)
$b_a$	$-175 \text{ m}$	“asymptotic” depth of fjord	Based on map Hansen (2014)
$b_h$	$1100 \text{ m}$	note: $b_a + b_h$ is highest point of bed	Map, Norsk Polarinstitut
$\lambda$	$15\,000 \text{ m}$	calibrated to give observed water depth at front	Based on map Hansen (2014)
$\kappa$	0.4	ice thickness at front (fraction of $H_m$ )	Oerlemans et al. (2011)
$c$	$1.15 \text{ a}^{-1}$	calving parameter, as observed for Hansbreen	Oerlemans et al. (2011)
$S_0$	$0.027 \text{ a}^{-1}$	calibrated with amplitude of 1991–1997 surge	Mansell et al. (2012)
$t_s$	8 a	calibrated with observed duration of 1991–1997 surge	Mansell et al. (2012)
$\partial E/dT$	$35 \text{ m K}^{-1}$	based on energy-balance modelling	Van Pelt et al. (2012)
$\partial E/dP$	$-2.25 \text{ m } \%^{-1}$	based on energy-balance modelling	Van Pelt et al. (2012)
$E_0$	584 m	reference ELA for time < 1899, tuning parameter	tuning to length record
$E_1$	627 m	reference ELA for time > 1899, tuning parameter	tuning to length record