retreating Experiments starting from an ice free glacier surface, with regularisation parameters  $\lambda_0 = 1$  and  $\lambda_1 = 10$ , and  $t^{spinup} = 100$  a widhts bed fg: first guess b difference  $\longrightarrow$  RMSE of b and  $b_t$ A: b difference after 10 Iterations --- RMSE of  $s_m^e$  and  $s_n^e$ DIFF b, DIFF s, fct,  $T_{cpu}$ linear constant fg: 34.26, 65.87 0 A: 20.37, 0.20, 16, 98s 25 50 100 DIFF\_b, DIFF\_s, fct,  $T_{cpu}$ fg: 45.16, 70.51 **=** 10 linear wide top 0 A: 4.17, 0.33, 15, 132s 50 100 101 DIFF\_b, DIFF\_s, fct,  $T_{cpu}$ fg: 38.72, 56.63 cliff constant ≡ 5 A: 27.88, 4.05, 13, 119s <sub>-39</sub> 50 100 DIFF\_b, DIFF\_s, fct,  $T_{cpu}$ fg: 40.23, 67.60 **=** 10 0 cliff wide top A: 20.46, 1.76, 12, 159s 50 100 150 DIFF\_b, DIFF\_s, fct,  $T_{cpu}$ = 10 h fg: 49.41, 70.16 random constant 0 A: 52.07, 2.06, 12, 79s -53 20 80 60 DIFF\_b, DIFF\_s, fct,  $T_{cpu} = 55$ 75.78 random wide top fg: 54.46, ≡ 10· 0 13, 122s ■ -55 1.24, A: 21.92, 50 100  $T_{cpu}$