

Parameter name	Symbol	Description
Time index	$j$	A subscript which refers to discrete time points
Spatial index	$i$	A subscript which refers to discrete spatial points
All spatial points for a time index	$., j$	Refers to entire spatial field at time $j$
Ice viscosity	$B$	Key physical parameter driving the SIA
Basal sliding	$C_0\gamma$	Basal sliding field and key parameter driving the SIA
Max basal sliding	$\mu_{\max}$	Parameter for the basal sliding field of test case E in Bueler et al. (2005)
Physical parameters	$\theta$	Refers to physical parameters
Measurement error	$\sigma$	Measurement error of surface elevation measurements
Error-correcting covariance matrix	$\Sigma$	Covariance matrix used for the error-correcting process
Error-correcting parameters	$(\sigma_{\text{dome}}, \sigma_{\text{interior}}, \sigma_{\text{margin}}, \phi)$	Parameters corresponding to $\Sigma$
Mass balance field	$\dot{b}_{.,j}$	Mass balance field at time index $j$
Initial surface elevation	$S_0$	Initial surface height of the glacier