



## **Near-future projected behaviour of Smith, Pope and Kohler Glaciers**

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An inversion procedure is applied to time-dependent velocity and surface elevation data from several West Antarctic glaciers (Smith, Pope and Kohler) in order to reproduce recent behaviour, using basal and horizontal boundary conditions as controls. The inversion provides a good fit to the data, additionally agreeing well with recent observations of grounding line retreat in the region. It cannot be determined from the data, however, whether the control parameters varied meaningfully in time over the period sampled. Having successfully calibrated the model to a decade of observations, the model is then run forward in time several decades, and adjoint sensitivities of grounded mass loss to the unknown parameters are calculated. Continued mass loss from the region is observed in the model: calculated parameters suggest that this loss might not be "within the noise"; however, more sophisticated techniques (e.g. Hessian-based methods) are necessary to quantify its uncertainty.