

Supplementary material

The integrated ice sheet response to stochastic iceberg calving

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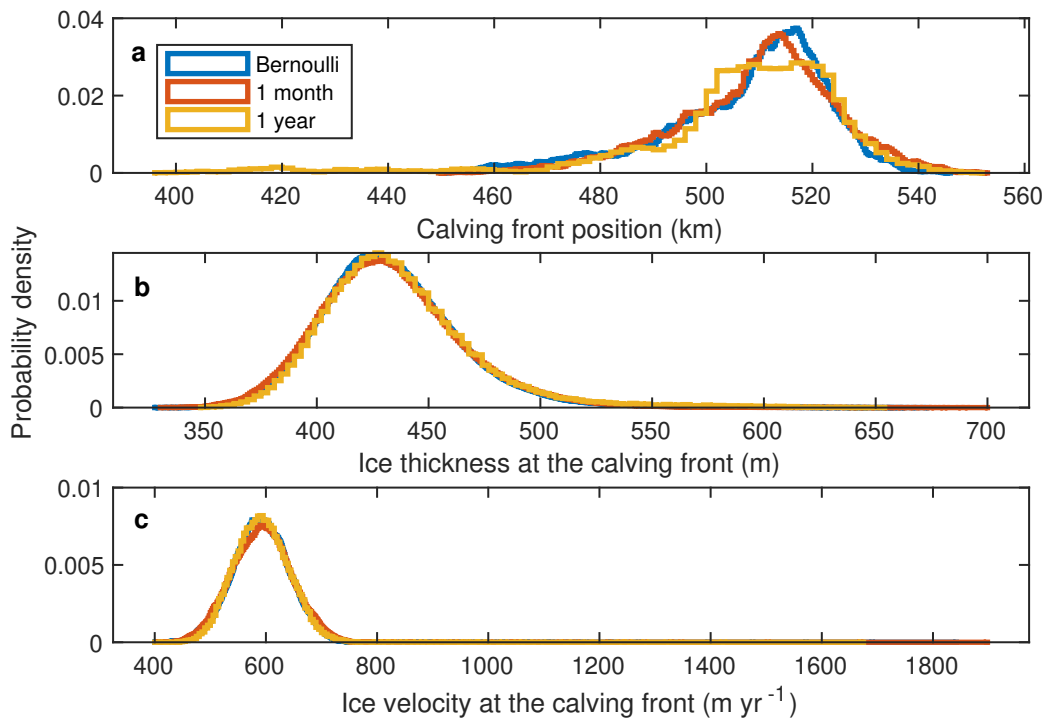


Fig. S1. Distributions of (a) calving front positions, (b) ice thickness at the calving front, and (c) ice velocity at the calving front from Bernoulli and binomial stochastic calving simulations for the same calving frequency (i.e., 1 event every 2 years with a size of 1.2 km). Blue histogram bars are Bernoulli transient runs with a time step of one week, while red and yellow histogram bars are binomial transient runs with time steps of one month and one year, respectively. These results are from 4000-year ice shelf simulations across 20 ensemble members.

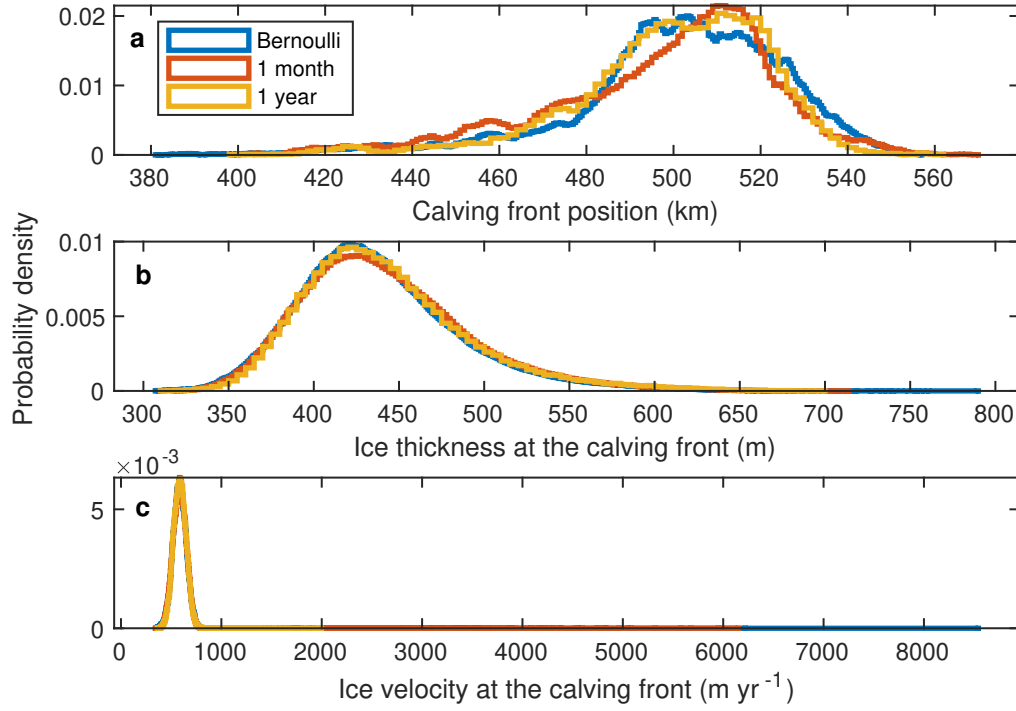


Fig. S2. Distributions of (a) calving front positions, (b) ice thickness at the calving front, and (c) ice velocity at the calving front from Bernoulli and binomial stochastic calving simulations for the same calving frequency (i.e., 1 event every 4 years with a size of 2.4 km). Blue histogram bars are Bernoulli transient runs with a time step of one week, while red and yellow histogram bars are binomial transient runs with time steps of one month and one year, respectively. These results are from 4000-year ice shelf simulations across 20 ensemble members.

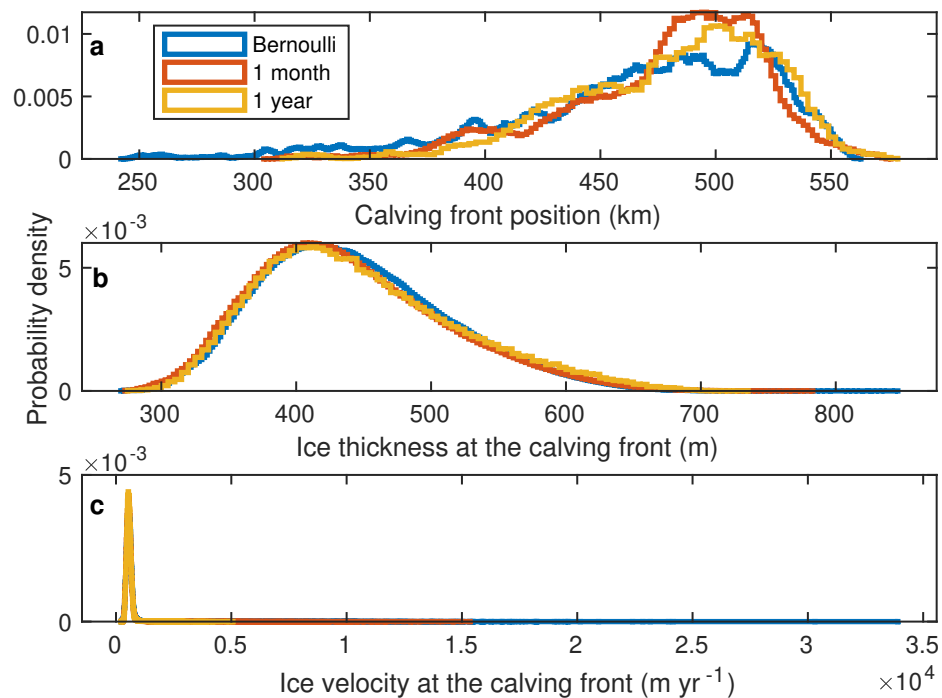


Fig. S3. Distributions of (a) calving front positions, (b) ice thickness at the calving front, and (c) ice velocity at the calving front from Bernoulli and binomial stochastic calving simulations for the same calving frequency (i.e., 1 event every 10 years with a size of 6 km). Blue histogram bars are Bernoulli transient runs with a time step of one week, while red and yellow histogram bars are binomial transient runs with time steps of one month and one year, respectively. These results are from 4000-year ice shelf simulations across 20 ensemble members.

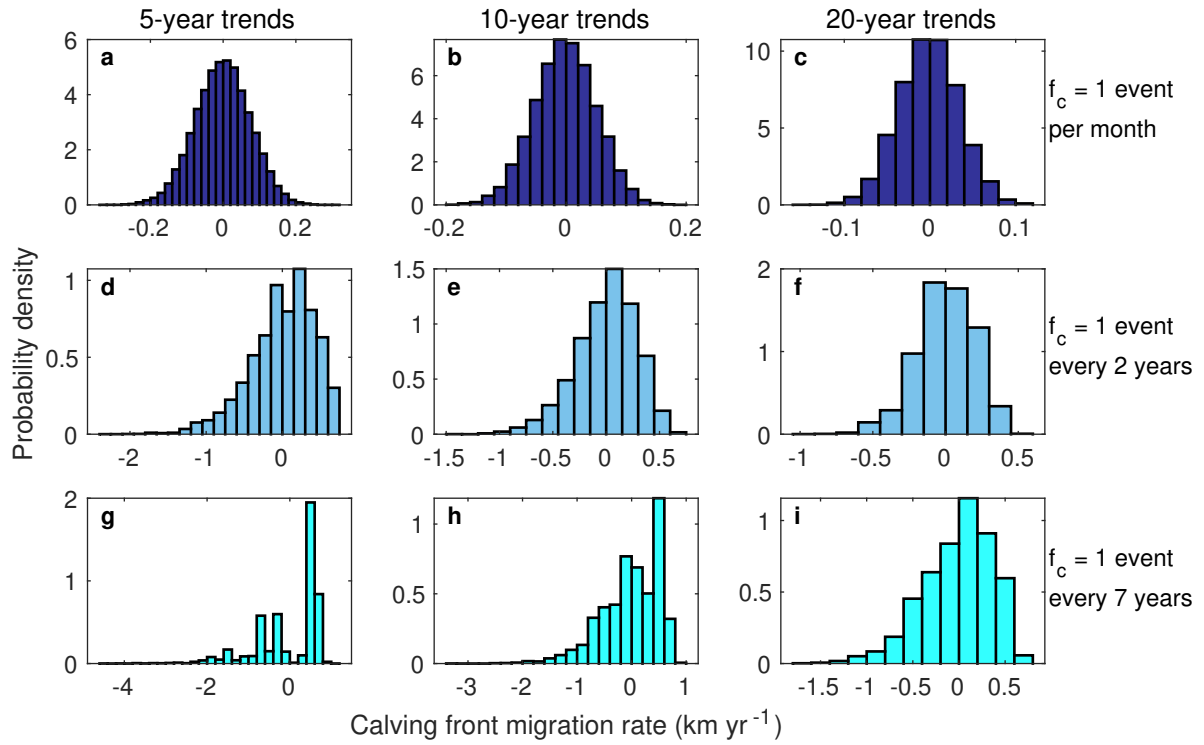


Fig. S4. Histograms of ensemble trends over 5-year (left column), 10-year (middle column), and 20-year (right column) intervals for ice shelf simulations with different calving frequencies. Each row represents a different calving frequency: dark blue bars for 1 event per month (a-c), light blue bars for 1 event every 2 years (e-f), and cyan bars for 1 event every 7 years (g-i). Results are from subsampling at yearly interval.