

Supplementary Information

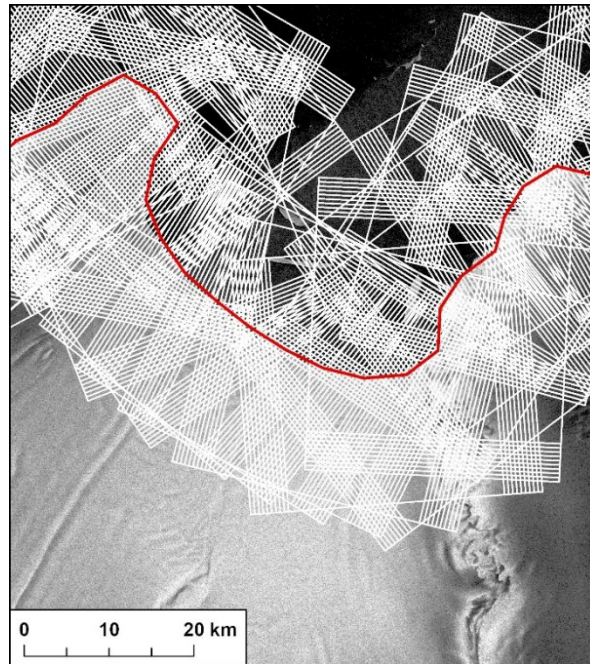


Figure S1: Example of the overlapping segments used for Getz A. The red line is the 2023 ice front. Each white box was used to determine the ice shelf boundary over each time slice.

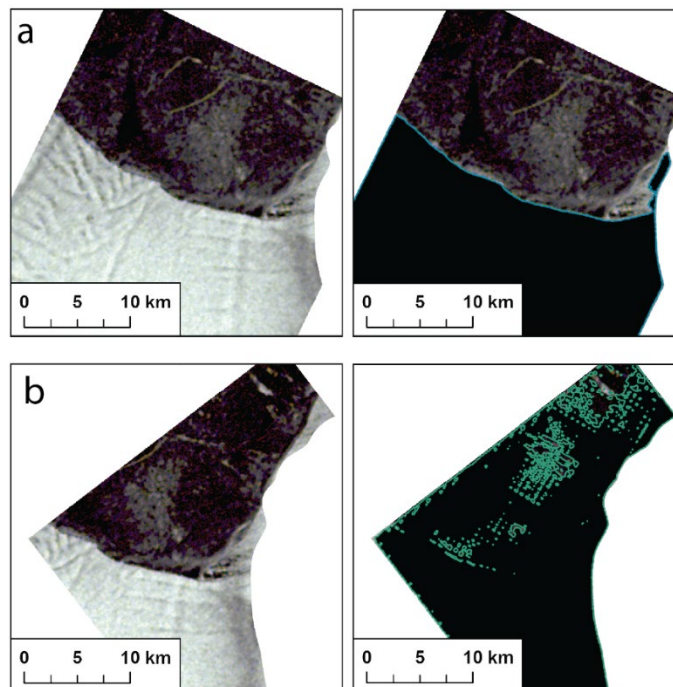


Figure S2: **a)** Example of a successful segmentation of an overlapping segment using the segment anything model. **b)** Example where this failed and the segment anything model did not recognise the ice shelf.

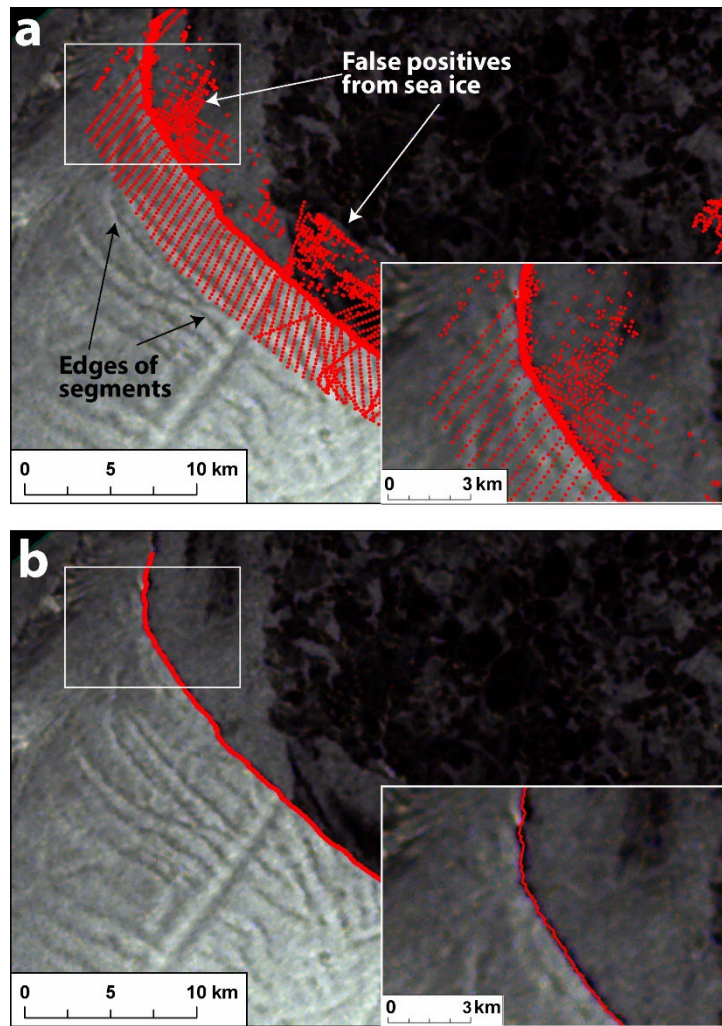


Figure S3: **a)** Example of automatically derived point from the overlapping segments, note the false positives from sea ice **b)** The relative density of points is used to determine the true ice front.

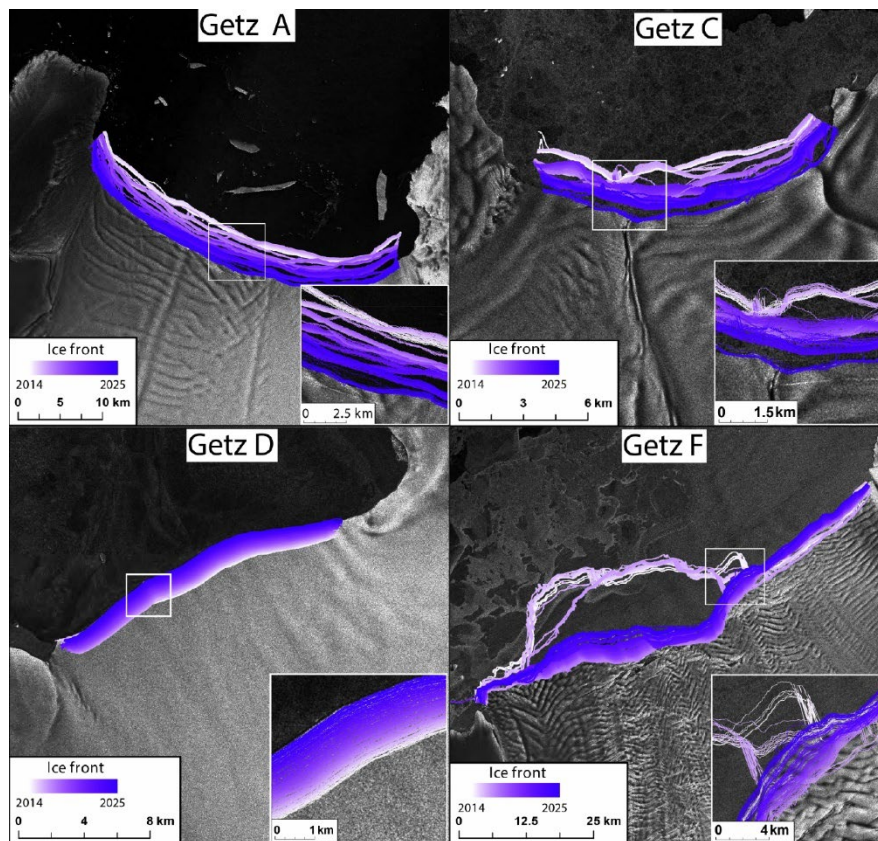


Figure S4: Examples of all automatically digitised ice fronts from Sentinel-1 scenes spanning November 2014 to June 2025 for Getz A, C, D and F.