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Dimensions and configuration of the Antarctic Peninsula Ice Sheet since the LGM

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We compile and review marine and terrestrial data constraining the dimensions and configuration of the Antarctic Peninsula Ice Sheet (APIS) from the Last Glacial Maximum (LGM) through deglaciation to the present day. These data are used to reconstruct grounding-line recession in 5 kyr time-steps from 25 kyr BP to present. The APIS was grounded to the outer shelf/shelf edge at the LGM until $\sim$ 20 kyr BP, and contained a series of fast-flowing ice streams that drained along cross-shelf bathymetric troughs. Chronological control on retreat is provided by radiocarbon dates on glacimarine sediments from the shelf troughs and on lacustrine and terrestrial organic remains, as well as cosmogenic nuclide dates on erratics and ice moulded bedrock. Recession in the east was underway by about 18 cal kyr BP. The earliest dates on recession in the west are from Bransfield Basin where recession was underway by 17.5 cal kyr BP. Ice streams were active during deglaciation at least until the ice sheet had pulled back to the mid-shelf. The timing of initial retreat decreased progressively southwards along the western AP shelf; Marguerite Trough Ice Stream remained grounded at the shelf edge until $\sim$14 cal kyr BP, although thinning commenced by 18 kyr BP. Between 15-10 cal kyr BP the APIS underwent significant recession along the western AP margin, although recession between individual troughs was asynchronous. Ice in Marguerite Trough was still grounded on the mid-shelf at 10 cal kyr BP. In the Larsen-A region the transition from grounded to floating ice was established by 10.7 cal. kyr BP. The APIS had receded towards its present configuration in the western AP by the mid-Holocene but on the eastern Peninsula may have approached its present configuration several thousand years earlier, by the start of the Holocene. Mid to late-Holocene retreat was diachronous with stillstands, re-advances and changes in ice-shelf configuration being recorded in most places. Subglacial topography exerted a major control on grounding-line retreat with grounding-zone wedges, and thus by inference slow-downs or stillstands in the retreat of the grounding line, occurring, in some cases on reverse bed slopes.