



Sediment records of past ice sheet dynamics and ice-sea interactions in the Ross Sea

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The stratigraphic data provide direct evidences and opportunities to address questions concerning advances and retreats of the Ross Ice Sheet and Ice Shelf, but there are significant uncertainties in the chronologies and interpretation. Here, we present and compare stratigraphic records of several sediment cores dredged from the continental shelf and slope of the Ross Sea. The sedimentological and geochemical records reveal the Circumpolar Deep Water (CDW) upwelled, mixed with more surface waters and contained higher oxygen during interglacial periods, while sedimentary facies and paleoenvironmental proxies indicate synchronous and rapid retreats of (ice sheet) grounding-line and (ice shelf front) calving line occurred on the continental shelf especially during Holocene. The stability of marine-based margins of the Antarctic Ice Sheet was evidently controlled by postglacial warm deep-water incursions onto the shelf in the past.