**Deep water incursions slow offshore West Antarctic Ice Sheet expansion during its early formation**

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The stability of the West Antarctic Ice Sheet is threatened by the incursion of warm Circumpolar Deepwater which flows southwards via cross-shelf troughs towards the coast there melting ice shelves. However, the onset of this oceanic forcing on the development and evolution of the West Antarctic Ice Sheet remains poorly understood. Seismic reflection profiles image sediment bodies in troughs on the shelf of the Amundsen Sea Embayment, which possess the geometry and depositional pattern of plastered sediment drifts. Tentative dating of one drift via a seabed drill core suggests a formation age of this sediment body to be around the Eocene-Oligocene. We suggest this indicates a southward inflow of deep water which probably supplied heat and, thus, prevented West Antarctic Ice Sheet advance. We conclude that the West Antarctic Ice Sheet has likely experienced a strong oceanic influence on its dynamics since its initial formation.