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Changes in ice-stream configuration of the Talutis and the Carlson Inlets inferred from satellite imagery and ground-penetrating radar

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We propose that the junction point between the stagnant Carlson Inlet and the Talutis Inlet Ice Streams, West Antarctic, has in the past been shifted by about 13 km towards the south-east. This was caused by thinning of the Talutis Inlet and eastward migration of its western margin, related to changes in the catchment area of Evans Ice Stream. The margins of Carlson Inlet upstream of the former junction point have, over the same time period, remained stable.

These findings are supported by a number of conspicuous features in satellite imagery that we propose reflect the position of the previous medial line separating Talutis and Carlson inlets at an earlier time, and its subsequent down-stream advection.

Results from recent ground-penetrating radar measurements in the area are discussed with regard to this hypothesis. We see no indication of a formerly active phase of Carlson Inlet. From the position of the former medial line it follows that Carlson Inlet was formerly considerably shorter and contributed proportionally less to the combined ice-flux of the Carlson-Talutis system than it does today.