The central West Greenland margin is characterized by a broad continental shelf where a series of troughs extend from fjords to the shelf edge (Fig. 1), acting as focal points for trough-mouth fan (TMF) accumulations. These major depositional systems are prograded depocentres that were largely formed during glacial maxima when ice streams reached the shelf edge, rapidly delivering large amounts of sediments onto the continental slope (e.g. Vorren et al., 1988).

During my PhD, I used 2D- and 3D-seismic reflection data, seabed bathymetry and stratigraphic information from exploration wells Hellefisk-1 and Ikermiut-1 (Fig. 1) to unravel the seismic stratigraphic architecture of the Disko Bay TMF and establish its gross depositional development linked to ice-stream evolution. In this context, three evolutionary stages of the Disko Bay TMF system have been identified (Fig. 2; Hofmann et al., 2016).

* During the early stage (Fig. 2A), a progradational development was encouraged by fast-flowing and generally grounded ice streams.
* The middle stage of TMF development (Fig. 2B) represents a combination of progradation (south-central area) and shelf-margin build-up involving alongslope bottom-currents (northwest margin).
* During the late TMF stage (Fig. 2C), glacial erosion of the Disko Trough has ceased and deposition occurred probably mainly by melt-out of debris below an ice shelf extending from the Egedesminde Ridge (ER).

**References**

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**Figure captions**

Fig. 1: Overview of the continental margin offshore Disko Bay, West Greenland. Regional bathymetry of the Disko Bay TMF system, with seismic datasets and exploration wells Hellefisk-1 and Ikermiut-1. JI = Jakobshavn Isfjord, ED = Egedesminde Dyb, ER = Egedesminde Ridge, DT = Disko Trough, NT = Northern Trough, DI = Disko Island. Bathymetry is based on IBCAO v. 3.0 (Jakobsson et al., 2012) with 30 m contour intervals. Modified after Hofmann et al. (2016).

Fig. 2: Illustrative model depicting a three-step evolution of the Disko Bay TMF system across the shelf. SL = sea level, ED = Egedesminde Dyb, ER = Egedesminde Ridge, DT = Disko Trough. Modified after Hofmann et al. (2016).