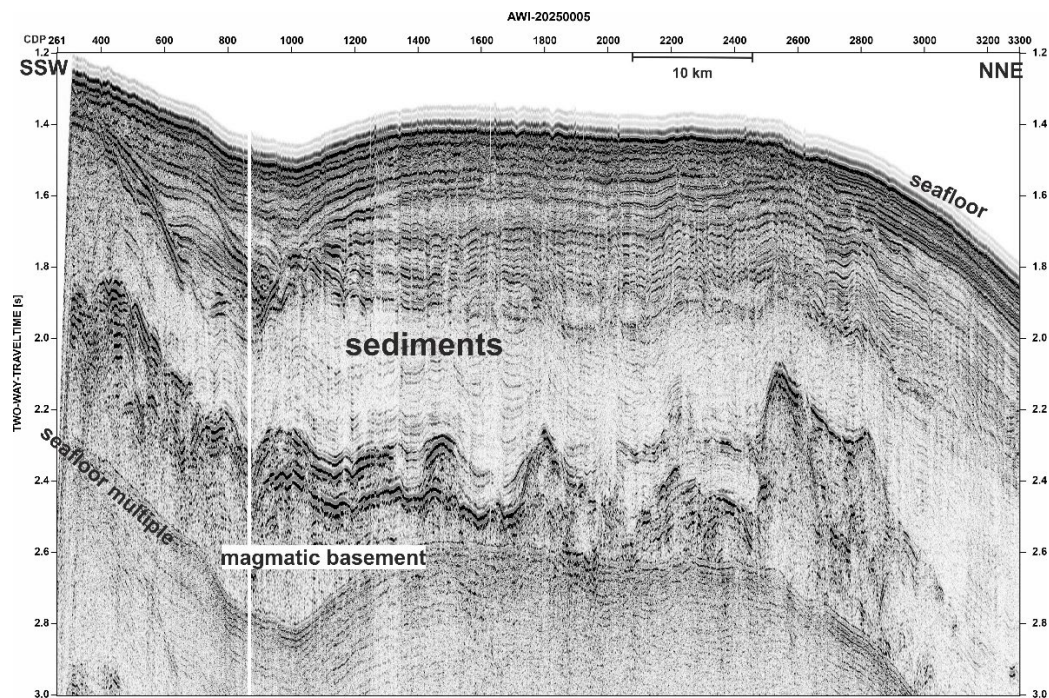


**Expedition MSM 138
Reykjavik - Reykjavik**

**Weekly report No 4
July 7–July 13 2025**

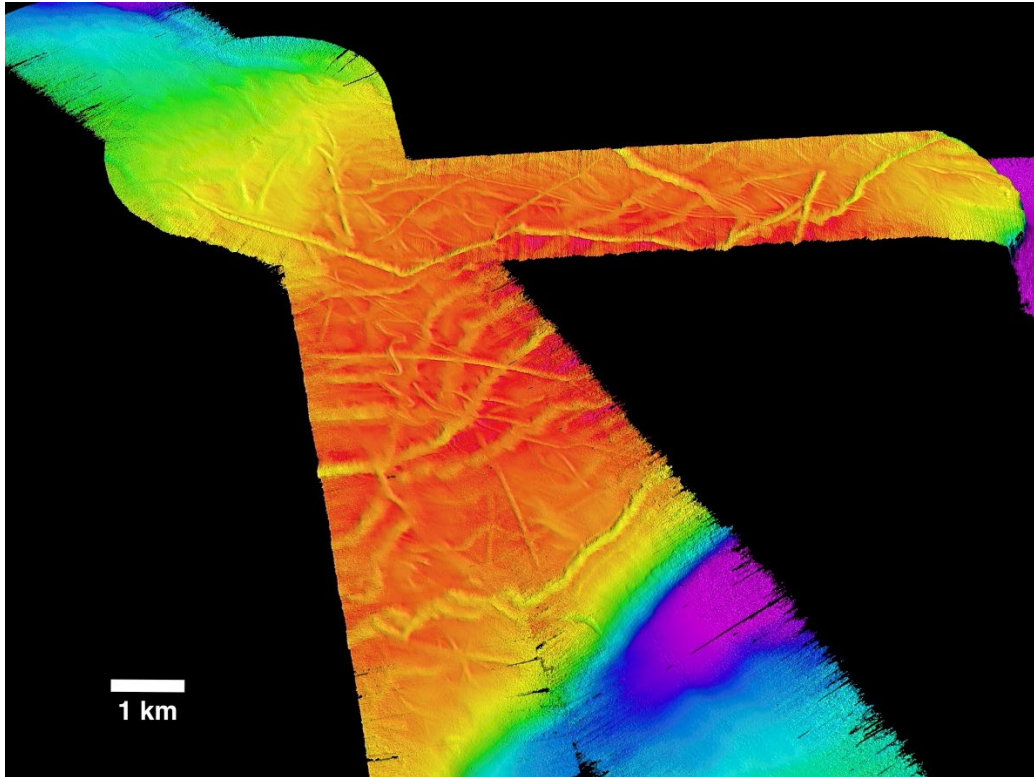


The fourth week of our expedition has passed. We finished our studies on the southern part of the Iceland Faroe Ridge and have moved North, zigzagging across the ridge. It becomes apparent that the structures in the South and North are quite different. In the South, the sequences appear thinned and eroded due to oceanic current activity. The sedimentary packages in the North are much thicker.



Part of seismic profile AWI-20250005 from the northwestern area of investigation

During the ongoing seismic profiling, part of the scientific work is focussed on hydroacoustic mapping of the seabed using a multibeam echo sounder system installed in the ship's hull. This device emits fan-shaped sound pulses. These are reflected by the seabed and the echo is then registered by the system. From the time it takes for the echo to return, the depth can be determined at many points simultaneously. This creates an accurate, three-dimensional map of the seabed along the routes travelled.



Three-dimensional representation of the seabed north-east of Iceland. At a water depth of approximately 750 metres, the traces of the icebergs are clearly visible in the form of grooves and scratches.

One of the most striking structures on the Iceland-Faroe Ridge are the distinctive, elongated grooves in the seabed. These grooves are traces of past ice ages. They are formed when large, drifting icebergs touch the seabed with their underwater part. The icebergs scratch the top layer of sediment with their keel. These tracks can be several kilometres long and several hundred metres wide. Such structures provide important clues to earlier expansions of sea ice and help to better understand the climatic development of the region. Their orientation and their occurrence at different water depths provide valuable information on earlier, current-induced ice movements in the region.

All participants say hello.

North Atlantic, July 13 2025, 65° 6.063 N / 11° 15.130' W

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