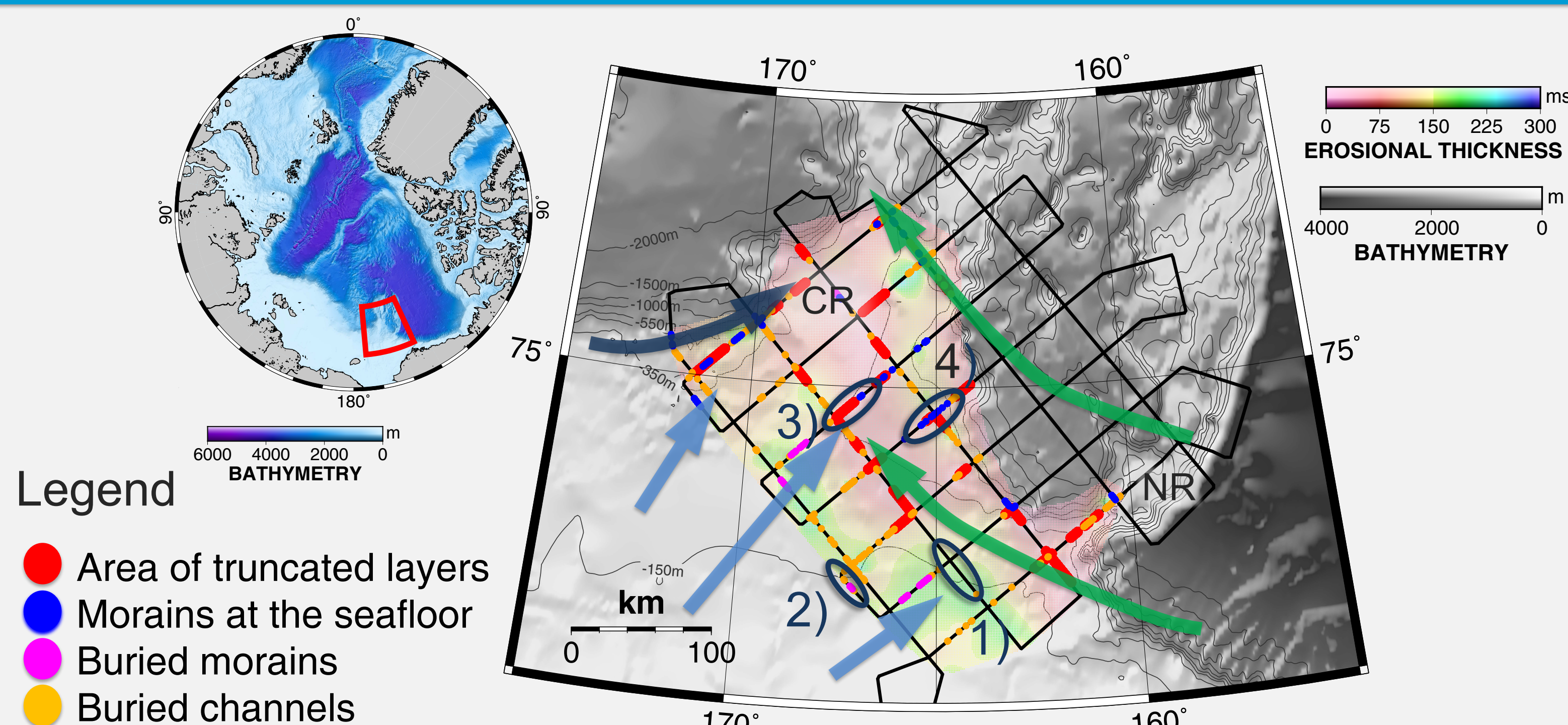


Plio-Pleistocene submarine glaciogenic morphology of the Chukchi Shelf, Arctic Ocean

1. Introduction

The Chukchi region with its broad and shallow shelf area is of special interest for mapping the ice extension during last glacial periods in the Arctic Ocean. Recent multibeam studies (Dove, 2014) showed the existence of grounded ice sheets/shelves in water depths deeper than 350 m along the Chukchi shelf margin.

Here, we present regional seismic reflection data from the the RV M. G. Lanseth in 2011 (Coakley, 2011) to constrain the thickness and distribution of the glacial sediments along the Chukchi shelf margin up to 150 m water depth.



2. Results

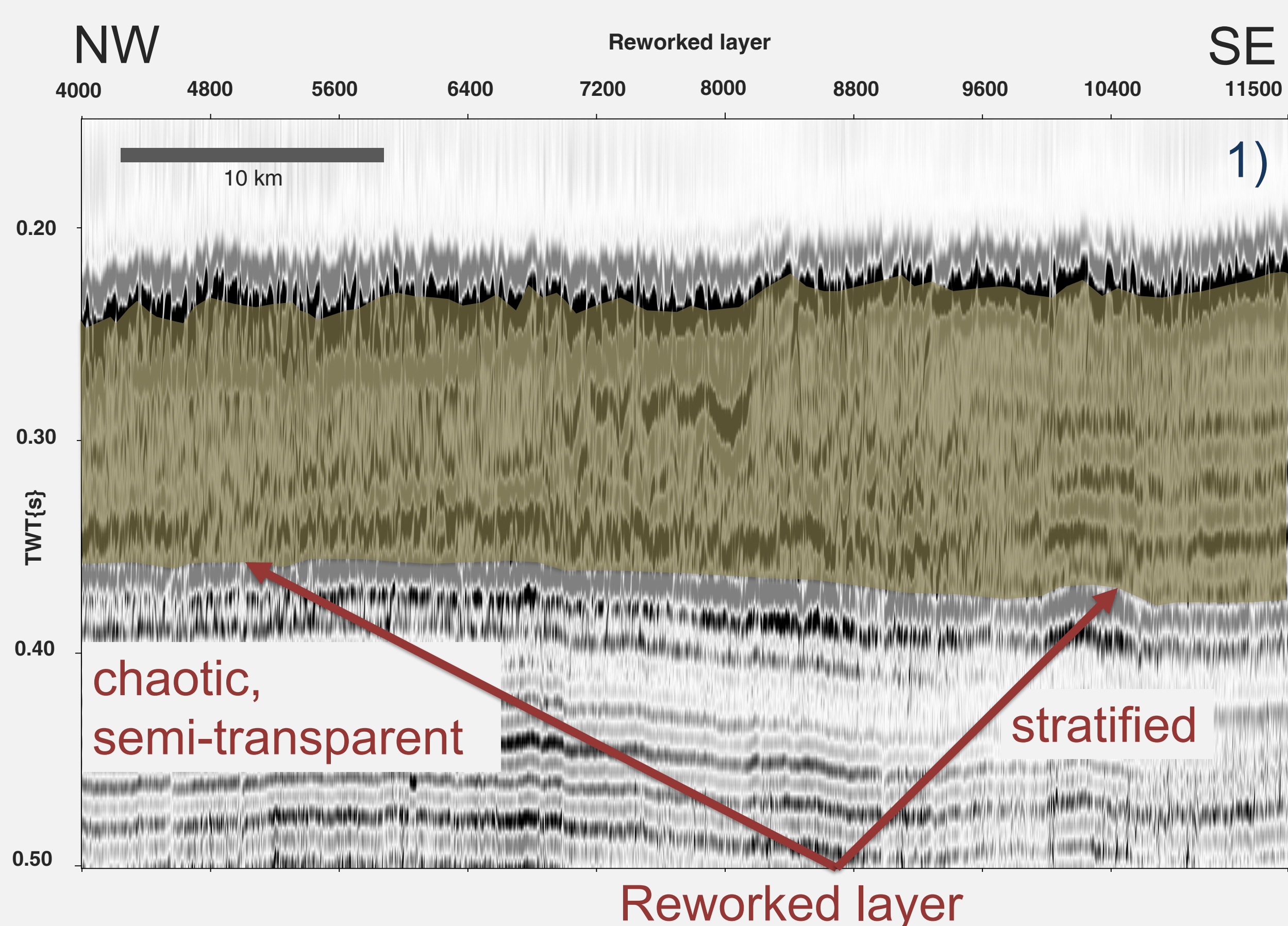
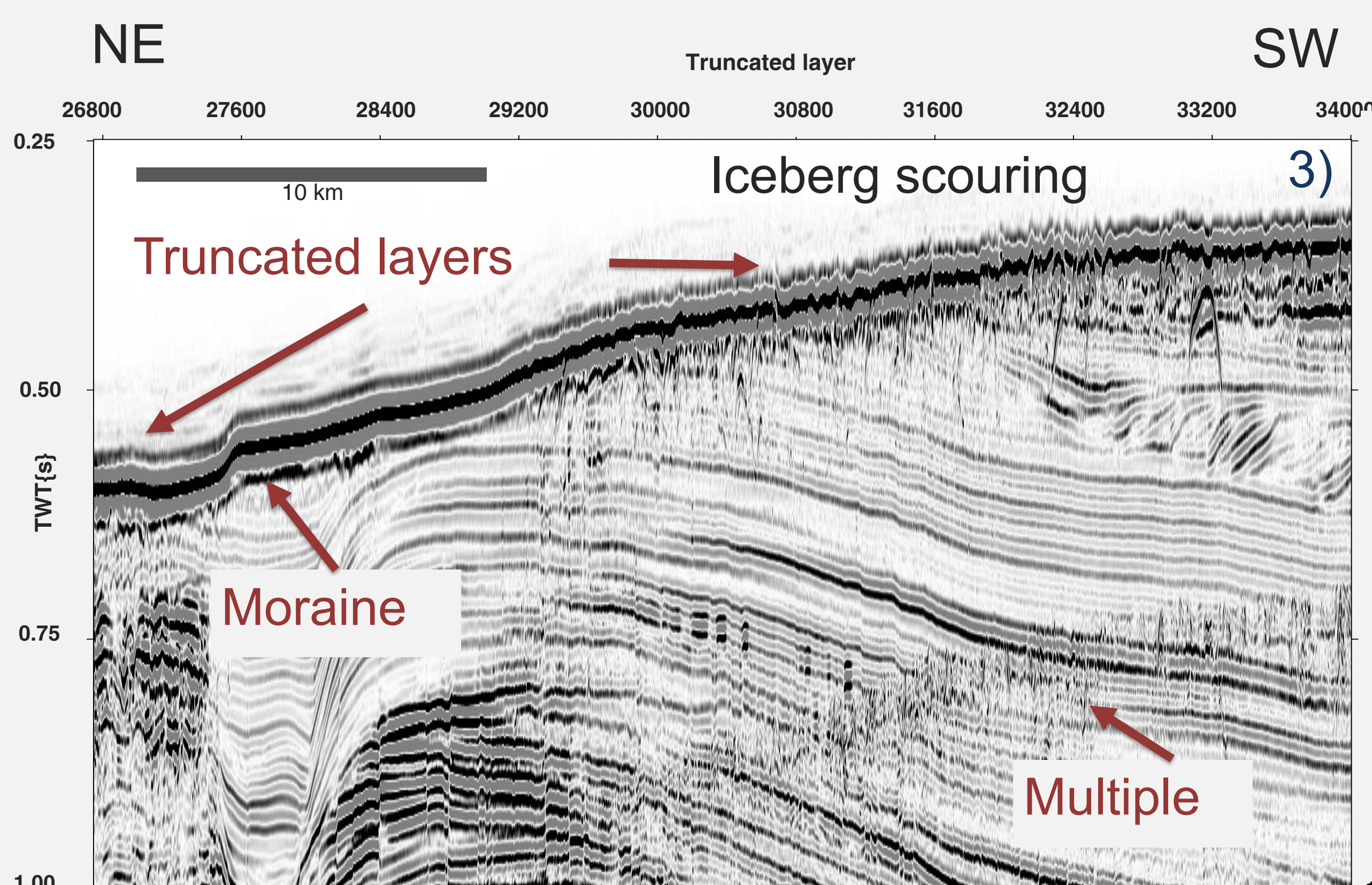


Figure 1) - Chaotic, semi-transparent layer, with low amplitude internal reflections
- Stratified stratigraphy in southwestern area
- underlying bright reflector on great parts of the shelf

Figure 2) - Large channels with widths of a few kilometres and depths of up to 200 ms TWT
- Many small scale channels cover shelf

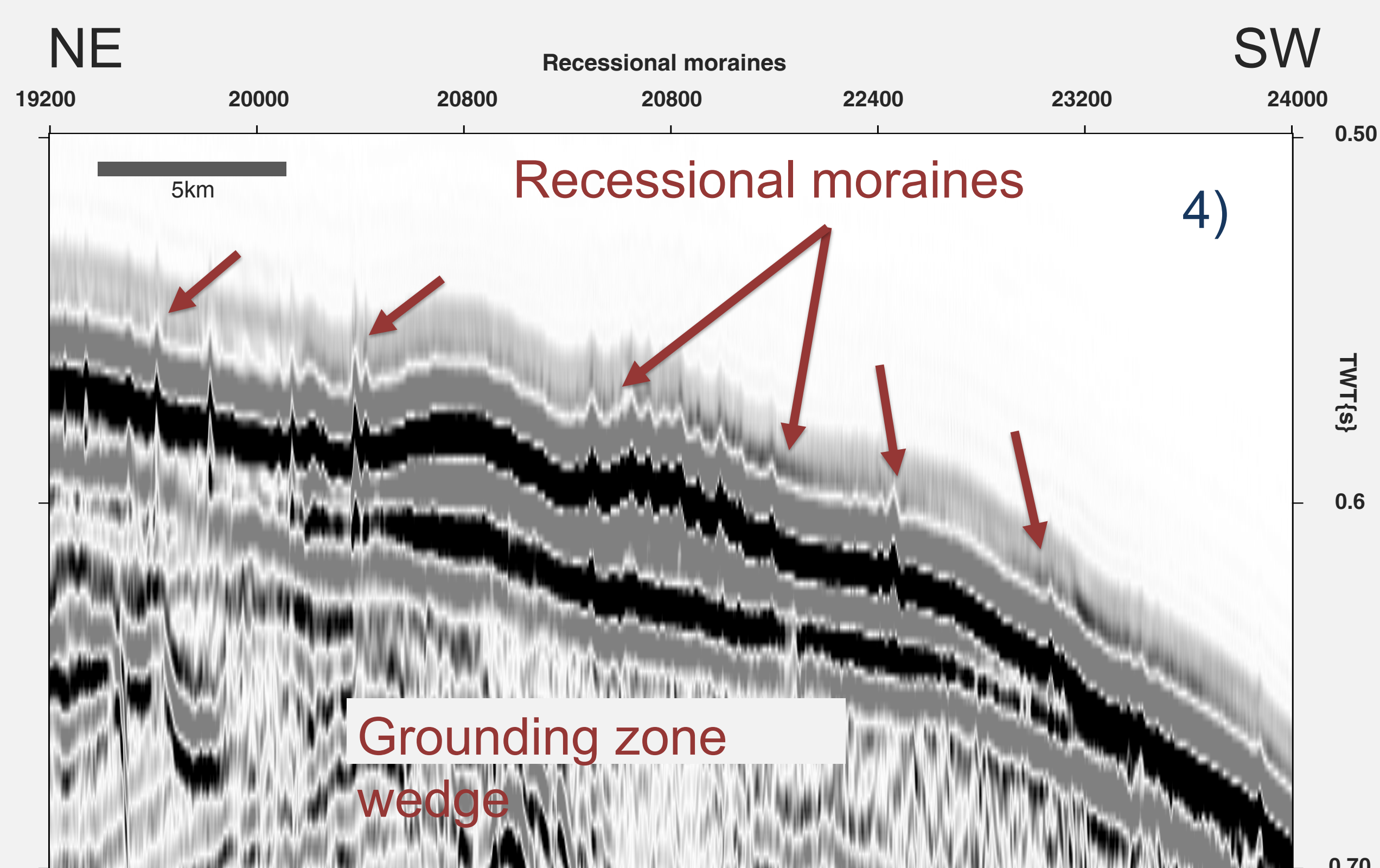
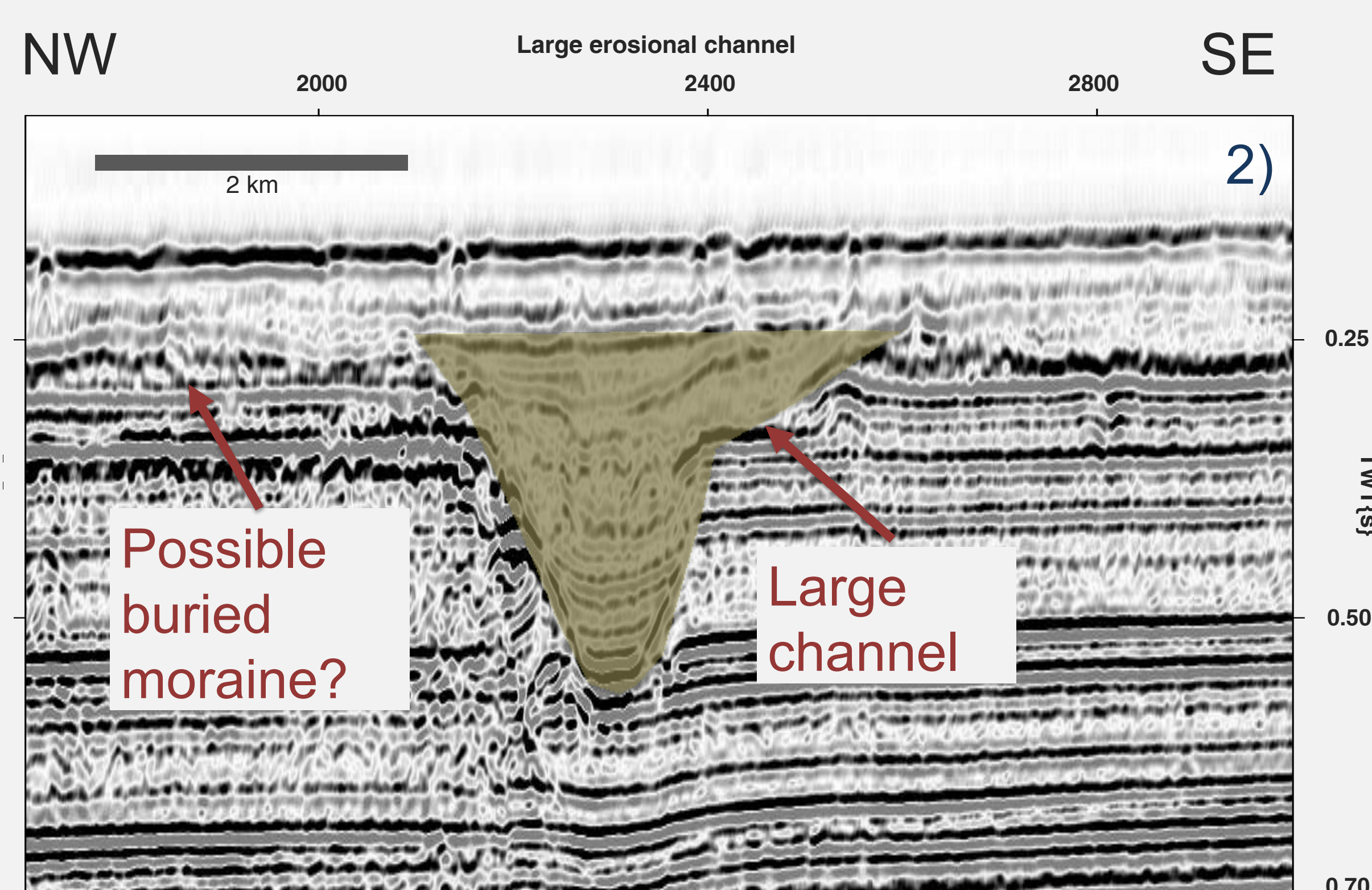
Figure 3) - Wide areas with truncated reflectors
- thin layer of less than 25 ms TWT of seismic transparent material on top of eroded area

Figure 4) - Small scale ridges between 400 m and 600 m water depth
- No internal reflections but a drape of 10 ms TWT



3. Preliminary Results

- recessional moraines evidence for ice stream/shelf retreating upslope in multibeam data
→ Ice sheet on the Chukchi shelf
- Stratification south of 73°N indication for less intense erosion
- Truncated older layers down to 400 m water depth on Northwind Ridge (NR) and east Chukchi Rise (CR) evidence for possible thinner ice shelf approaching from east
- Truncation on western Chukchi Rise indicates possible erosion of ice advance from west
- Widespread small scale channels indicate large subglacial drainage system with possible extension to the south



6. References
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