

## The Andøya canyon offshore Norway – processes of canyon growth

J.S. Laberg (1), S. Guidard (1), J. Mienert (1), T.O. Vorren (1), H. Haflidason (2), A. Nygård (2)

 (1) Department of Geology, University of Tromsø, N-9037 Tromsø, Norway
(jan.laberg@ig.uit.no / Fax: +47 776 45600), (2) Department of Earth Science, University of Bergen, Allégt. 41, N-5007 Bergen, Norway

Located on the steepest part of the Norwegian continental slope the Andøya Canyon represents a 30 km long, up to 20 km wide and 1100 m deep V-formed incision. The canyon has been studied using high-resolution seismic data, deep-towed sidescan records, short cores and multi-beam echo-sounder data. The headwall is about 7 km long and has an up to 20° gradient. It forms the present shelf break at about 200 m water depth and is located only 10 km from the coastline. The thalweg is up to 1 km wide and its gradient is  $5^{\circ}$  or less. A tributary valley joins the canyon where the thalweg reaches 1100 m water depth. The uppermost part of the canyon has an incised axial channel formed by turbidity currents originating close to the shelf break. The eastern sidewall is the steepest and has a gradient of up to  $20^{\circ}$ . It is dominated by a number of straight and shallow, parallel to subparallel gullies up to 100 m in width. The gullies are erosional features probably formed by turbidity currents that originate at or near the shelf break. The gullies can be followed to the base of the canyon where some of the gullies have adjusted to thalweg base level, others terminate on top of an up to 150 m high escarpment defining the eastern boundary of the thalweg. A number of deeper and wider incisions displaying a spectrum of forms characterise the western sidewall. The largest is a 2.5 km wide, amphitheatre formed slide scar. Within the slide scar small, elongated highs probably represents sediment ridges that moved for some distance and then stopped. On the lower part of the continental slope the western sidewall is dominated by a large slide scar, up to 8 km wide and 400 m deep that feed into the canyon. In this area the eastern sidewall is characterised by a 10 km wide incision also indicating a large sediment failure. In summary, the canyon shows a very complex morphology probably related to a variety of gravity driven processes responsible for the canyon growth. The timing, frequency and origin of events within this canyon are presently not known.