Dear Prof. Sakellariou,

Thank you for giving us the opportunity to submit a revised version of our work, together with the improved figures. We appreciate the time and effort that you have dedicated to providing your valuable feedback on our manuscript. We have been able to incorporate the changes suggested, and we are writing you to explain all these changes in detail. We have also taken into account the additional comments from the PDF file. You will find your comments reported here, for your convenience, followed by our replies detailing how we addressed the issues.

We hope that you will find the improved interpretation of our data to be suitable for publication through our revised work, and we trust that you will find this contribution to be of interest to the readers of this journal.

The original comments are reported in italic and blue.

RC-2 (Prof. Sakellariou):

"This manuscript is a valuable contribution towards a better understanding of the tsunamigenic potential of landslides in the higher latitudes of the northern hemisphere, especially under the light of the global ocean warming and its potential role in the occurrence of future slope failures. The ms is well written and structured in a way that helps the author to navigate easily from the introduction to the slope failures of European high latitudes margin to the description and analyses of the Storfjorden landslide, the modeling of the landslide evolution and the triggering and propagation of the hypothetical tsunami, and finally to the results of the modeling and the discussion on the possibility of future landslides and associated tsunamis under the light of the ocean warming."

Issues:

"RC-2 (Prof. Sakellariou), comment 1: I believe that one or two seismic profiles running along and across the modeled landslidewill help the reader to better understand its shape, characteristics and the slide surface. I strongly encourage the authors to add there profiles, if possible."

AC: we have added a seismic profile and its trace in Fig. 3c. The seismic profile was modified from Fig. 7, Rebesco et al. (2014). The interpretation of seismic units has been modified from Fig. 4, Llopart et al. (2015). In Fig. 3d we have added a table to detail seismic units, ages and their lithologies; this information comes from Rebesco et al. (2014), Pedrosa et al. (2011) and Llopart et al. (2015).

"RC-2 (Prof. Sakellariou), comment 2: The authors have modeled the landslide as a single failure event. It is not clear to me whether this is a simplification that has been chosen for the modeling or whether there are field data supporting this assumption.

AC: The scarcity of seismic profiles crossing the location of the landslide makes it difficult to find clear evidence that slope failure might have occurred in multiple phases. In fact, previous literature (e.g. Pedrosa et al., 2011; Rebesco et al., 2012; Lucchi et al., 2012; Rebesco et al., 2014;

Llopart et al., 2015) considers the Storfjorden LS-1 to be a single event. However, looking at the multibeam bathymetry in detail, we observe that the southeastern flank shows seafloor downslope irregularities at mid-slope (~1600 m deep) that, tentatively, could point at the occurrence of local and small-scale slope failures. These irregularities could suggest secondary slope failures after the main landslide event. In any case, since they are local and small in scale, we did not consider them to be significant for the modelling of the main landslide event, given their low potential to transfer deformation to the water column. Nevertheless, their occurrence is mentioned in the text, in the line 343: "A few local and small scale slope failures seem to occur on the southeastern flank in the mid slope (~1600 m deep), but they wouldn't be significant in the modelling of the main landslide event, whereby its low potential to transfer deformation to the water column".

Figure:
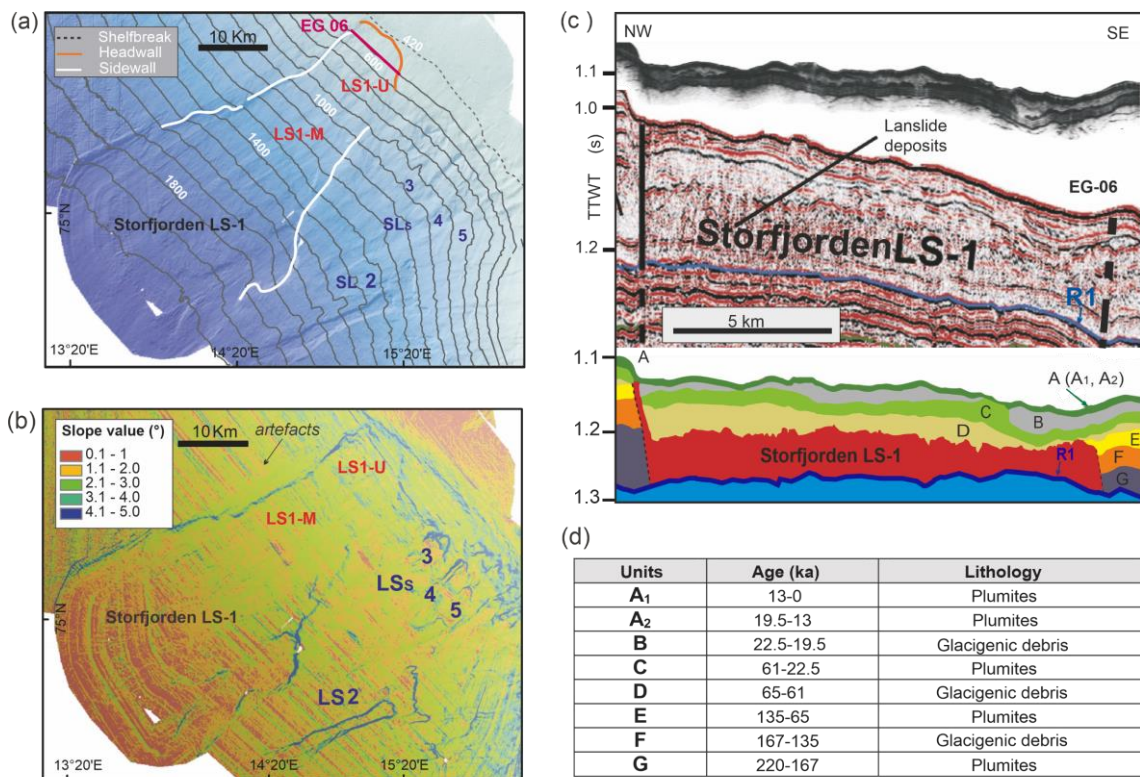
Figure 3. Storfjorden and Kveithola interfan TMFs. (a) The shade relief colour map of the southwestern continental slope of the Storfjorden and Kveithola TMFs and others minor and secondary landslide (Sls 2, 3, 4, 5) (modified from Pedrosa et al., 2011). The orange line marks the headwall and the white lines indicate its sidewalls. The red line corresponds with multichannel seismic profile (EG-06) acquired during EGLACOM cruise. (b) Slope gradient values, artefacts are induced by slope parallel the ship tracks. (c) The top corresponds with the subbottom profile (modified from Llopart et al., 2015) and multichannel seismic profile (EG-06, modified from Rebesco et al., 2014), acquired during SVAIS cruise. The sub-bottom profile is displayed at the same horizontal and vertical scale to show matching of acoustic facies between Airgun MCS and TOPAS parametric 3.5 kHz profiles. At the bottom, interpretation of this cross section where R1 reflector (in blue) is the base of Storfjorden LS-1 and its top is the unit D

(Pedrosa et al., 2011; Rebesco et al., 2014; Llopart et al., 2015). (d) Table with the seismic units, ages and their lithologies (modified from Llopart et al., 2015).