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Interactive comment on "Rapid marine deglaciation: asynchronous retreat dynamics between the Irish Sea Ice Stream and terrestrial outlet glaciers" *by* H. Patton et al.

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General comments

This is a very useful contribution that will aid researchers in understanding the interactions between terrestrial and marine sectors of ice sheets in general, and the Welsh ice cap – Irish Sea ice stream more specifically. Much of the fundamental knowledge in the paper is from published onshore and offshore work. However, here this information is synthetized in a nice way using new multibeam data from Cardigan Bay and numerical ice sheet modeling experiments.

I do not rate the paper′s scientific significance as excellent because some of the con-

clusions are already fairly well known. I also feel that some of the morphological- and ice sheet dynamics inferences are slightly speculative, and therefor rate scientific quality as 2. Language, structure and figures are excellent (1).

Specific comments and technical corrections

Page 283, lines 23 & 26: I think the use of "latero-frontal moraines" is a controversial term. I suggest using the more generic and well-established word "ice marginal moraine" instead

Page 284, line 10: Not sure what "controlled hummocky moraine" implies in this setting.

Page 286, lines 5 to 12: It is speculated that Sarn Badrig′s is an enduring, cumulative landform based on it′s sheer volume. If so there would different facies from different glacial stages embedded in the Sarn. Towards the end of the section, published borehole data are mentioned – is there evidence of different facies, overprinting of old sediments or similar in these boreholes?

Page 286 , the whole section 2.3: Dimensions and morphology of the ridges does not fit well with neither Rogen nor De Geer moraines. Could it just be ice recessional marginal moraines commonly found for example in Svalbard fjords?

When for example a model run "optimal reconstruction E397" on page 288 is used as a reconstruction. Would it be possible to mention the key characteristics of this model run so that the reader can judge the validity of the inference?

Page 304, Figure 3. I think it would be useful if the profiles had the same scale so that relative size of landforms could be compared. I see that the horizontal distance varies between profiles but at least vertical scale could be the same. Perhaps it is also possible to merge all profiles into one graph. Albeit a busier figure, it would make it easier to compare landforms and save space.

Ola Fredin Trondheim 29.09.2013

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