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Where is the boundary of the Greenland Icesheet?

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The calculation of the contribution from all glaciers and icecaps to global sea-level rise has still high uncertainties as a complete and detailed inventory of these ice masses does not exist. This is in particular the case for the local glaciers and icecaps (GIC) on Greenland. For this reason, we compile in the framework of the EU FP7 project ice2sea a new inventory using Landsat satellite data and automated mapping techniques.

A major methodical difficulty is to clearly separate the local GIC from the ice sheet. Whereas the drainage divides derived from the meanwhile available high-resolution (30 m) digital elevation models (e.g. ASTER GDEM) help to make such a separation in the accumulation region, the more problematic issues are found in the ablation region where local GIC tend to join with the outlet glaciers from the icesheet to a varying degree. Furthermore, local GIC are also enclosed by icesheet outlet glaciers which results in a topologically complex boundary. Considering the coarse resolution of current icesheet models, the currently used icesheet boundary does also include GIC. This can result in a double counting of these areas in the related sea-level rise calculations.

To confront the icesheet and GIC modelling community with this problem and think about potential solutions for the compilation of an inventory, we have prepared for this poster a set of example regions from different sections of the icesheet boundary. We invite all interested scientists to show us where they would draw the boundary (on overhead projector transparencies) and explain the reasons for their suggestion. We will compile the feedback and present the results of the survey online (www.ice2sea.eu).