



2011 ... final steps towards the first complete glacier inventory for Greenland

Philipp Rastner, Tobias Bolch, and Frank Paul

University of Zurich, Department of Geography, Switzerland (philipp.rastner@geo.uzh.ch)

Meltwater from glaciers and icecaps (GIC) provide a significant contribution to global sea-level rise, but estimates are uncertain due to the globally still incomplete information about glacier location and size, as well as large uncertainties in current Global Climate Models (GCMs). Recent studies that calculate global sea-level rise from GIC have developed simplified approaches using information from glacier inventories or gridded data sets and different GCMs. However, for several strongly glacierized regions very rough assumptions about the ice distribution have to be made and an urgent demand for glacier inventory data is expressed.

Greenland is one of these regions and the local GIC are a key region for two research projects. The ESA project GlobGlacier is mapping the western part of Greenland, while the EU funded project Ice2sea is focusing on the eastern part. Landsat imagery acquired around the year 2000 serve as the base for the mapping and the ASTER GDEM is used to derive topographic parameters and drainage divides. The problem in separating the local GIC from the outlet glaciers of the ice sheet is illustrated in a separate contribution.

We here present the actual mapping status as derived from 8 Landsat ETM+ scenes and the first obtained statistics of the new inventory of Eastern Greenland. Up to now, more than 1000 GIC have been mapped along the eastern coast of Greenland between 62° and 67° N. In particular the larger valley glaciers are often debris covered, while smaller mountain glaciers are often shaded due to the steep topography. Seasonal snow is a problem in some of the scenes that can only be solved when scenes with better snow conditions become available.