Evolution of prodeltas: a print of glacier melting processes

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Evolution of prodeltas: a print of glacier melting processes

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Introduction
- Arctic coastal areas:
  - faster and greater modifications than other
    coastlines (Overton et al. 2014).
  - little known about the physical processes that
    control coastal high-latitudes and how they will
    evolve (Zagorski et al. 2013).
- Purpose: to understand the post-Little Ice Age
  sedimentary transfer in Kongsfjorden.
- Quantification of the coastal evolution from

Materials and methods
- Shoreline evolution:
  - 2011-2014: dCPG data
- Reference line parallel to the coast with reference points every 50 m.
  Shoreline evolution measured by calculation between reference points

Results & Questions

Question 1: What are the effects of the glacier retreat on the hydrographic network?
First results show a decrease of the drainage density and the width of the active band which conducts to a clear concentration of the hydrographic network.

Question 2: What is the Kongsfjorden line evolution?
Coastal areas supplied by the hydrographic network become smaller
Global progradation of the coast observed from 1966 to 2016 is focused on specific areas (linked to the prodeltas localisation)

Question 3: What does happen to the sediments exported into the Kibrgsfjorden?
A part of these sedimentary supply is stored into the prodeltas with an extension
of 40 000 m$^2$ from 2009 to 2012 (will be calculated for 2017). It should be important to estimate the volume displacement by the currents (drift)

Photo from Alain Fobert (2013)