

Coastal changes on a pan-Arctic scale – update of the Arctic Coastal Dynamics database

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One third of all coastlines worldwide consist of permafrost. Many of these permafrost coasts are presently exposed to greater environmental forcing as a consequence of climate change, such as a lengthening of the open water season, intensified storms, and higher water and air temperatures. As a result, increasing erosion rates are currently reported from various sites across the Arctic. It is crucial to synthesize these data on Arctic shoreline dynamics in order to improve our understanding on present coastal dynamics on the pan-Arctic scale. A first synthesis product was released in form of the Arctic Coastal Dynamics database in 2012, which included data published until 2009 (Lantuit et al., 2012). Since then, numerous publications and data products were published on short and long term changes of Arctic coasts across a wide range of study sites. We made an extensive literature review of publications released within the last 10 years and updated the shoreline change data section in the Arctic Coastal Dynamics database. While in 2009 for one percent of the Arctic shoreline data on coastal dynamics was available, the addition of new data leads to a broader data coverage, which is mainly the effect of the greater availability of remotely sensed products for analyses conducted in these remote regions. Further, the additional data allow us to update the current mean rate of Arctic shoreline change.

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