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APPEARANCE OF NEW ARCTIC ISLANDS DUE TO RECESSION OF GLACIERS

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Since the 1990s, ca. 10 peninsulas or headlands have been transformed into islands in different parts of Arctic, mainly due to a current global warming which has begun in the 1980s and rises a shrinkage of glaciers composing land isthmuses to the rest of bigger islands. Information on that is usually published in the Internet or popular press, being omitted in the main stream of scientific literature. In west Greenland, from 1999 to 2013, at least 6 small (up to several km²) new islands have appeared in areas abandoned by the Kong Oscar, Steenstrup, Kier and Rink tide-water glaciers between 71.5 and 76°N (M. Peltó: glacierchange.wordpress.com). Only one Warming Island have appeared in east Greenland at ca. 71.5°N in 2003-2004 (en.wikipedia.org/wiki/Uunartoq_Qeqertaq; www.worldclimaterreport.com). This is the biggest of the Greenland new islands – ca. 19 km². In west Spitsbergen, where climate conditions are similar like in west Greenland, terrain relief is rather unfavorable to appearance of new islands. Nevertheless, one island (Blomstrandøya, ca. 16 km²) has originated in Kongsfjorden at ca. 79°N in the 1990s. In Franz Josef Land, the new Island of Yuriy Kuchiev (ca. 20 km²) has been split out from the rest of Northbrook Island at ca. 80°N (e.ria.ru/russia/20120911/175901465.html). However, the most dramatic change develops in Svalbard (Ziaja, Ostafin 2014: doi 10.1007/s13280-014-0572-1, AMBIO). It is possible that Sørkapp Land (ca. 1300 km²) will be changed into an island due to a progressive declining of the ice isthmus (at ca. 77°N) which connects it with the rest of Spitsbergen. After finishing of this process in 2030-2035, this peninsula will probably become the biggest of new Arctic islands, separated from Spitsbergen by a sound (50–55 km long and 2–10 km wide) formed after connecting two fjords, due to their lengthening in the result of frontal retreat of the tide-water glaciers at their heads. Spatial distribution of new islands depends mainly on configuration of bedrock under glaciers being recessed. This configuration determines both the number and size of the islands. Hitherto, almost all the new islands have appeared in the western Greenland and Spitsbergen coasts influenced by the warm sea currents and more transformed by the 20th century warming, after the Little Ice Age. In future, more new islands should appear in the eastern coasts influenced by the cold sea currents, which have undergone more intensive warming only since the 1980s.