

## Winter jackets today for a tomorrow underwater

*Snow in Europe during winter may be seen as a normal occurrence, but this last cold snap coming from the Arctic may have a closer relationship with increasing global warming. Global warming produces ice melt, which will yield continued sea-level rise for the next 10,000 years, scientist say.*

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Credit: Shutterstock

The heatwave registered in the Arctic in parallel to the decrease in temperatures in Europe worries the scientific community, as global warming could be destabilizing the polar vortex<sup>1</sup>, the circle of strong winds high in the atmosphere that helps to keep frigid air locked up in the Arctic. This insulating body lives from the difference between the cold temperatures within the high latitudes and the warmer temperatures in lower ones. With increased global temperatures produced by carbon dioxide (CO<sub>2</sub>) emissions from

human activity, the difference in temperature at both sides of the vortex reduces, as the north pole is warming much faster than the global average.

This instability in such an important climate regulator as the polar vortex may produce increased ice-melting in the Arctic, resulting in unavoidable long-term impacts 10,000 years into the future. In a Science Commentary entitled '[The ticking time bomb of climate change and sea-level rise](#)' published by European Marine Board, the authors argue that the CO<sub>2</sub> being emitted currently will remain in the atmosphere and continue to affect the Earth's climate for tens to hundreds of thousands of years. As sea level rise exhibits a much slower response time than the rise in air temperature, even in a modest emissions scenario, this will result in a global mean sea-level of rise of 28 m, causing inundation of many of the world's most densely populated coastal cities and regions and displacing billions of people.



Map demonstrating what the continental coastlines in Europe would look like if all the ice on land melted and drained into the sea, raising the sea level by 68.8 meters. Credit: National Geographic

The short policy paper 'The ticking time bomb of climate change and sea-level rise' is based largely on an article published in Nature Climate Change in February 2016 by a group of scientists led by Peter U. Clark of Oregon State University, USA. Advances in ocean and climate modelling make it possible to

<sup>1</sup> The Guardian, 27 February 2018: <https://www.theguardian.com/environment/2018/feb/27/arctic-warming-scientists-alarmed-by-crazy-temperature-rises>

look much further into the future. This longer-term perspective tells us that we urgently need to move towards complete decarbonisation of the world's energy systems. It places a much greater responsibility on policy makers to react to the threat of climate change, starting with meeting the ambitious targets set out in the Paris Climate Agreement. Put another way, the decisions we make in the next 10 years could profoundly affect the next 10,000.

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### Notes to editors

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The European Marine Board (EMB) is a leading European think tank in marine science policy. EMB is a network with a membership comprising major national marine/oceanographic institutes, research funding agencies and national networks of universities from countries across Europe. The Board provides a platform for its member organizations to develop common priorities, to advance marine research, and to bridge the gap between science and policy to meet future marine science challenges and opportunities.

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