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Permanent Address: <http://www.scientificamerican.com/article.cfm?id=as-icecaps-melt-more-volcanic-activ-2010-04>

As Icecaps Melt, More Volcanic Activity in Our Future, Say Scientists

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| Sunday, April 18, 2010 | 4

By: Susan Kraemer

Two volcanologists published a paper in 2008 suggesting that as climate change continues, the next decades could see more volcanic activity in regions such as Iceland that are now under ice.

Climate change could spark off more volcanic eruptions in the now frozen volcanic rim regions, Alaska, Patagonia and Antarctica and Iceland says Dr Carolina Pagli, at Leeds University; one of the authors of the research. As ice melts above volcanic rocks they are able to expand to turn into magma more readily as pressure from above is reduced.

Global warming melts ice and this can influence magmatic systems, says Dr Freysteinn Sigmundsson, the paper's other author, at the Nordic Volcanological Centre at the University of Iceland. "Our work suggests that eventually there will be either somewhat larger eruptions or more frequent eruptions in Iceland in coming decades."

While the potential is there for a decades-long barrage from volcanic regions, as the planet warms; the volcano currently erupting in Iceland is not an example of this, however. Because it lies under a relatively small icecap, that would not have exerted enough pressure preventing eruption, nor had the ice melting above it gone far enough to have made that much change yet, they caution.

The two published research in 2008 estimating that the melting of about a tenth of Iceland's biggest icecap, Vatnajokull, over the last century had caused the land to rise about an inch a year and led to the growth of a vast mass of magma, measuring about a third of a cubic mile, underground.

This effect of a warming climate on volcanic activity has a precedent. Volcanic activity in Iceland increased 10,000 years ago, coinciding with the warming climate.

"At the end of the last ice age, the rate of eruption in Iceland was some 30 times higher than historic rates" says Prof Andrew Hooper, an expert on Iceland's volcanoes at Delft University.

"This is because the reduction in the ice load reduced the pressure in the mantle, leading to decompression melting there. Since the late 19th Century the ice caps in Iceland have been shrinking yet further, due to changing climate. This will lead to additional magma generation, so we should expect more frequent and/or more voluminous eruptions in the future".

We didn't fly in jet airplanes 10,000 years ago. But one of the unexpected results of climate change could be that we can't fly as much in the future.

Image: Information is Beautiful

Source: UK Telegraph

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