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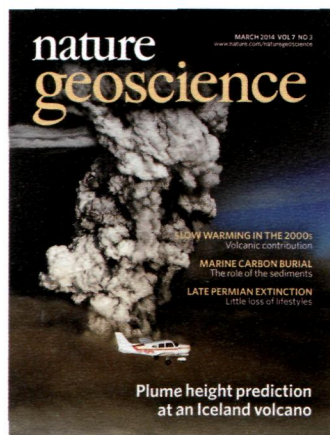
SLOW WARMING IN THE 2000s
Volcanic contribution

MARINE CARBON BURIAL
The role of the sediments

LATE PERMIAN EXTINCTION
Little loss of lifestyles



**Plume height prediction
at an Iceland volcano**

**COVER IMAGE**

The 2011 eruption of a 20-km-high volcanic plume from Grímsvötn Volcano, Iceland, led to the closure of northern European airspace.

Geodetic measurements from the volcano reveal a correlation between plume height, surface deformation and magma-chamber pressure, implying that volcanic-plume behaviour can be predicted before eruption onset. The image shows the Grímsvötn volcanic plume on 21 May 2011, at an altitude of about 10,000 feet and within an hour of the start of the eruption. The aircraft is a 4-seat Piper Cherokee Warrior.

Article p214; News & Views p168

IMAGE: OLAFUR SIGURJONSSON

COVER DESIGN: DAVID SHAND

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Volcanic contribution
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Little loss of lifestyles
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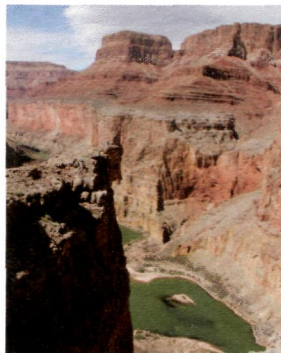
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Arctic sea ice is a key component of the modern climate system. Marine sediment analyses suggest that perennial sea ice in the Arctic Ocean first formed — transiently — about 44 million years ago.

Image: © Dennis Darby

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The age of the Grand Canyon is fervently debated. Thermochronological reconstructions of canyon incision show that although parts of the canyon were carved more than 50 million years ago, two key segments formed less than 6 million years ago, implying that the canyon is a young feature.

Image: © Laurie Crossey

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