

Ancient story of Dartmoor tors has an icecold twist

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Dartmoor's tors are the survivors of an ice cap and valley glaciers.

Ice extended further across the UK than previously thought and played a part in sculpting the rocky landscape of Dartmoor in South West England during the last Ice Age, according to new research which challenges previously held theories.

A study of the National Park area of Dartmoor, UK, shows for the first time that an ice cap and valley glaciers were present in its centre and that the naturally castellated stone outcrops, known as tors, were survivors.

The new research by the Universities of Durham and Exeter, and Stockton Riverside College, is published in the journal *Quaternary Science Reviews*.

Researchers, who carried out detailed observations on the ground and



using aerial photography, say the evidence includes glacial features such as elongated rounded mounds or drumlins and hummocky landforms or moraines. Similar features may also exist in other upland areas of southwest England, indicating that small upland glaciers were regularly hosted in the region during periods of glaciation.

Dartmoor represents one of the largest areas of exposed granite in Britain, some of which was used to construct parts of the British Museum, National Gallery and Covent Garden in London, and London Bridge in Arizona. It is also the location for the world-famous annual Ten Tors hike.

Tors are produced by deep <u>weathering</u> and the removal of weathered rock. A number of theories exist to explain their formation including the effects of repeated freezing and thawing.

The researchers believe the <u>glacier ice</u> – previously believed not to have developed on Dartmoor - helped to shape its distinctive landscape. On the highest summits in the middle of Dartmoor, the ice cap, which was an estimated 80km2 in area and up to 100m thick, either destroyed and carried away tors or prevented their formation over thousands of years.

However, distinctive outer tors probably survived because they were untouched by the ice or because the ice layer on them was not substantial enough to destroy and move them.

Professor David Evans, Department of Geography, Durham University said: "The Dartmoor tors tell a story of ancient landscape development but that story has a surprising ice-cold twist. The story is more complicated than we have traditionally believed.

"A landscape that has been regarded as a classic example of cold, nonglacial processes was in fact covered by a glacial ice cap. Dartmoor was



the location of the southernmost independent ice cap in the British Isles, the evidence for which is so subtle that researchers had missed it for almost 100 years."

University of Exeter scientist Dr Stephan Harrison said: "Dartmoor was high enough and big enough to develop its own ice cap.

"The evidence of an <u>ice cap</u> over Dartmoor is compelling when you look closely at the landscape and our research techniques may help us to see if other southern upland areas of the UK were also glaciated and shaped by ice."

Dartmoor is one of 15 National Parks in Britain and the Ten Tors event has become so popular that there is now a restriction on entries of 2,400 individuals a year.

More information: The glaciation of Dartmoor: the southernmost independent Pleistocene ice cap in the British Isles, by David J.A. Evansa et al., *Quaternary Science Reviews*.

Provided by Durham University

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