



THE UNIVERSITY *of* EDINBURGH

News Release

Issued: Sunday 13 August 2017

World's largest volcanic range may lurk beneath Antarctic ice

West Antarctica's vast ice sheet conceals what may be the largest volcanic region on earth, research has revealed.

The continent's ice covers almost 100 newly discovered volcanoes, the largest of which is as tall as the Eiger in Switzerland, a study has found.

Geologists and ice experts say the range has many similarities to East Africa's volcanic ridge, which is currently acknowledged to be the densest concentration of volcanoes in the world.

Researchers from the University of Edinburgh remotely surveyed the underside of the ice sheet for hidden peaks of basalt rock, like those of other volcanoes in the region whose tips push above the ice.

They analysed the shape of the land beneath the ice using measurements from ice-penetrating radar, and compared the findings with satellite and database records, as well as geological information from aerial surveys.

Scientists found 91 previously unknown volcanoes, ranging in height from 100 to 3850 metres. The peaks are concentrated in a region known as the West Antarctic Rift System, spanning 3,500 kilometres from Antarctica's Ross Ice Shelf to the Antarctic Peninsula.

Results from the study, which is the first of its kind, will help scientists understand how volcanoes can influence long-term fluctuations in the ice sheet. They could also help improve understanding of how the continent has changed during past climates.

Their results do not indicate whether the volcanoes are active, but should inform ongoing research into seismic monitoring in the area. Volcanic activity may increase if Antarctica's ice thins, which is likely in a warming climate, scientists say.

Previous studies and the concentration of volcanoes found in the region together suggest that activity may have occurred in previous warmer periods.

The study, published in the *Geological Society Special Publications* series, was proposed by a third-year undergraduate student at the University of Edinburgh.

Dr Robert Bingham, of the University of Edinburgh's School of GeoSciences, said: "It is fascinating to uncover an extensive range of volcanoes in this relatively unexplored continent."

Ranked among the top universities in the world

Better understanding of volcanic activity could shed light on their impact on Antarctica's ice in the past, present and future, and on other rift systems around the world.”

Max Van Wyk de Vries, a student at the University of Edinburgh's School of GeoSciences, who conceived the study, said: “Antarctica remains among the least studied areas of the globe, and as a young scientist I was excited to learn about something new and not well understood. After examining existing data on West Antarctica, I began discovering traces of volcanism. Naturally I looked into it further, which led to this discovery of almost 100 volcanoes under the ice sheet.”

For more information please contact:

Press & PR Office, University of Edinburgh, 07979 446209; Press.Office@ed.ac.uk

Ranked among the top universities in the world