



How glaciovolcanic studies 300 km from South Pole provide evidence for a highly dynamic Early Miocene East Antarctic Ice Sheet

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Volcanic studies are a major potential source of palaeoenvironmental information yet they have only rarely been applied to environmental issues, especially the characterisation of past ice sheets. In this talk, the background to how volcanism can contribute to reconstructing past environments will be introduced. The bulk of the talk will then focus on a palaeoenvironmental investigation of the two southernmost exposed volcanoes in the world, situated far inland and just 300 km from South Pole. Evidence gleaned from the volcanic outcrops suggests that the early Miocene (c. 20 Ma) East Antarctic Ice Sheet was extremely dynamic. In particular, it fluctuated from a thicker-than-modern glacial cover capable of overtopping the Transantarctic Mountains, to being completely absent, despite the ages of the two volcanoes being very similar. The results are a powerful illustration of how important investigations of volcanic rocks can be in determining palaeoenvironmental conditions in Antarctica (and elsewhere).