

ANTARCTIC TECTONICS AND CLIMATE

Uplift of the Transantarctic Mountains and global climate change 34 million years ago: A chicken or egg problem?

The Transant- arctic Mountains are the largest

non-compressional mountain chain on Earth, located in the climatically most sensitive region of the planet. Crossing Antarctica for ~3500 km and reaching elevations of more than 4500 m.a.s.l., these high-standing tablelands form the main structural and morphological feature of the continent and divide Antarctica into two fundamentally different geological provinces.

Formation and uplift of the Transantarctic Mountains were poorly constrained until the introduction of radiometric dating methods. Three decades of studies using these radiometric techniques have yielded insight into the complex uplift history of the continent, suggesting a potential link with global climate. These data suggest the presence of a long-lasting sedimentary basin in the area of the former supercontinent Gondwana, which later broke off to become Antarctica.

Then, at 34 Ma, immediately following the breakup of Antarctica and Australia, the Transantarctic basin was inverted and uplifted as a mountain chain (the present-day Transantarctic Mountains), and Antarctica experienced a sudden cooling. At this time, the Antarctic Circumpolar Current was likewise established and glaciation commenced in the Antarctic interior. Therefore, several key questions of interest to us are: Did rifting of the East Antarctic continental margin cause mountain uplift and contribute to initial ice sheet formation, with major consequences for global climate evolution?

Or is climate deterioration responsible for the permanent glaciation of Antarctica and increased erosion which was eventually compensated by isostatic uplift of the Transantarctic Mountains?

Bitte
melden Sie
sich per Email

an polarstunde@polarforschung.de bis
spätestens 12. April an. An
alle Teilnehmenden wird der
entsprechende (kostenlose)
Zoom-Link rechtzeitig am Tag
der Veranstaltung verschickt.

Frank
Lisker



13. APRIL 2022

17:00 - 18:00 Uhr (Vortrag + Q&A)

Daniela
Röhnert



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der **Deutsche Gesellschaft für Polarforschung** + dem **Deutschen Nationalkomitee** der **Association for Polar Early Career Scientists**