

EGU21-10739

<https://doi.org/10.5194/egusphere-egu21-10739>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## Footprints of palaeocurrents in sedimentary sequences of the Cenozoic across the Maurice Ewing Bank

**Banafsheh Najjarifarizhendi** and Gabriele Uenzelmann-Neben

Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany (gabriele.uenzelmann-neben@awi.de)

High-resolution 2D multichannel seismic data collected by the Alfred Wegener Institute in 2019 across the Maurice Ewing Bank, the high-altitude easternmost section of the Falkland Plateau in the SW South Atlantic, are integrated with information from DSDP Leg 36, Sites 327, 329, and 330 and Leg 71 Site 511. A seismostratigraphic model is defined, including five units ranging in age from the Middle Jurassic to Quaternary and are interpreted with respect to the evolutionary history of the oceanic circulations in the South Atlantic sector of the Southern Ocean. Sedimentary sequences of late Cretaceous and early Paleogene include little and restricted evidence of current activity, attributable to shallow-intermediate depth connections between the developing South Atlantic and Southern Ocean. In contrast, sedimentary sequences of the late Eocene/Oligocene and Neogene reveal a strong history of current-related erosion and deposition. These features exhibit specific water-depth expressions attesting to the long-term activity of different water masses, in stable circulation patterns as those of the present day. We thus suggest that proto-Upper and -Lower Circumpolar Deep Waters have been shaping the bank since the Oligocene. This implies that this bathymetric high has been acting as a barrier for the deep and bottom water masses flowing within the Antarctic Circumpolar Current since its establishment about the Eocene-Oligocene boundary.