



## Magnetic fabric on recent lava flows of Deception Island, South Shetland islands, Antarctica

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We report Anisotropy of the Magnetic Susceptibility results (AMS) from Plio-Quaternary lava flows exposed on Deception Island. It is located in the Bransfield Strait marginal basin that separates the South Shetland Islands from the Antarctic Peninsula and was generated by the collapse of the central part of a stratovolcano. The magnetic fabric of two pre-caldera and two post-caldera units, including basaltic, andesitic and trachytic terms, has been compared. Pre-caldera samples correspond to the older units (Fumarole Bay and Basaltic Shield Formations). The two other studied lava flows, included within the Baily Head and Pendulum Cove Formations, postdate the principal caldera collapse stage. The bulk susceptibility ( $K_m$ ) and the anisotropy degree ( $P_j$ ) data suggest that the total AMS is related to both paramagnetic and ferromagnetic minerals. The magnetic fabric of all samples defines dominant foliated ellipsoids consistent with the primary magma flow surface. The directional analysis reveals that, excluding sites corresponding to the Pendulum Cove Formation (late post-caldera stage), a conspicuous NE-SW magnetic lineation has been preserved in both the pre- and post-caldera samples around the island. This orientation is parallel with one of the main fracture systems controlling the morphology of the island and to the faulting in the Bransfield Strait. Further low-field and high-field AMS measurements will be necessary to understand the coincidence between the magnetic and structural lineations.