Bathymetry and Geological Setting of the Drake Passage

Projection: Mercator; Spheroid: WGS84; Central meridian: 60ºW; True scale latitude: 57.5ºS.

Bathymetric map has been compiled from a variety of data sources. The primary data is multibeam swath bathymetry collected from scientific cruises undertaken by British Antarctic Survey (BAS), Spanish Antarctic Program, Korean Polar Research, and others. This map represents the current bathymetric and geological setting of the Drake Passage area, including important features such as the Shackleton Fracture Zone (SFZ), West Scotia Ridge, and South Shetland Trench.

Recent studies of the Drake Passage geodynamics suggest opening of oceanic basins during the C3A (6.4 Ma) period, following a period of regional Scotia Sea compression after 17 Ma due to the migration of the pole of rotation. The West Scotia Ridge is characterized by strike-slip motion along most of its length and then formed a transpressive transcurrent fault zone as at present day. Uplift of the ridge-to-ridge transform fault when both spreading centres were active. The geodynamic evolution of the region, seismic activity, and fracture zones are clearly recognisable.

FRACTURE ZONE: no barrier to early circumpolar ocean circulation. Geology, 32 (9), 797-800.


Shackleton Fracture Zone (SFZ) is an oceanic gateway of about 850 km width located between South America and the Antarctic Peninsula, facilitating the early circumpolar ocean circulation.

This bathymetric map provides a comprehensive view of the bathymetric and geological features in the Drake Passage region, including the Shackleton Fracture Zone, West Scotia Ridge, and South Shetland Trench, among others. The map is useful for understanding the geodynamic processes and the historical evolution of the region.