

THE ACTIVE EDGE OF THE CONTINENT – NEW DATA FROM ARCHIVAL IGF PAS MULTICHANNEL SEISMIC PROFILES – WEST ANTARCTICA 1979/1980 EXPEDITION

Authors: Jan Okoń, Jerzy Gizejewski, Tomasz Janik – Institute of Geophysics, Polish Academy of Science, Warsaw, Poland.

Extensive seismic crustal studies in West Antarctica were made by the Polish Geophysical Expedition in the summer of 1979-1980. The expedition was organized by the Institute of Geophysics of the Polish Academy of Sciences. Whole experiment consisted of both deep seismic soundings and multi-channel seismic profiles conducted around South Shetland Islands and Bransfield Strait. The area of investigations was placed on the active edge of the south-south east part of Pacific: subduction zone of South Shetland Trench, island arch (South Shetlands) and back-arc basin (Bransfield Strait) including young rift. Deep soundings results were published and mentioned numerous times during past 30 years, however MCS data were never fully processed and collectively interpreted nor published.

Collected data were 10 seismic profiles shot using regular 2D geometry with 50m shot interval. Streamer was 1150m long with 24 channels, giving nominal fold of 12 traces/CDP. 2 profiles went through South Shetland Trench(SST) while rest of them were focused around South Shetland Islands and Bransfield Strait.

Data were processed with modern processing flow including various demultiple attempt and time migration although outdated acquisition scheme couldn't be overcome. Presentation will discuss which processing step was or wasn't successful due to technical limitation of this survey. Thanks to modern processing overall quality of profiles is comparable to other profiles from the SST published even in the 90's.

Geological structure visible on our data collaborate well with other profiles going through SST and could help understand structure of the area. Sections will be compared to the results of similar expeditions (British, Spanish and Italian) to the SST area.