

POLAR OCEAN MAPPING: SIGNIFICANCE OF BATHYMETRY FOR OBSERVING SYSTEMS

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Depth soundings are more than a 'ping' and digital data provide information about digital elevation model derivatives and hence additional input parameters for ocean models. Significance of the sea floor topography is reflected by the full spectrum of applications in the fields of Geosciences, Physical Sciences, and Life Sciences. The Southern Ocean bathymetry is of great importance for the geotectonic modeling of ocean gateways with regards to thermohaline circulation and Antarctic bottom water formation. The sea floor topography controls ocean circulation and ocean mixing and has strong influence on global climate. Multi-scale terrain analysis for the description and conservation of unique Antarctic ecosystems is improved by accurate bathymetry. Therefore the SCAR Expert Group on the International Bathymetric Chart of the Southern Ocean (IBCSO) collects existing bathymetric data from hydrographic offices, data centers and scientific institutions. IBCSO will deliver services to the scientific community and Southern Ocean efforts. The range of services comprises maps, gridded data, metadata, and data inventories. The IBCSO may give impetus on planned observing systems like the Southern Ocean Observing System (SOOS) in consideration of important ocean model input parameters (depth, slope, orientation) and interactions of system domains defined by the lithosphere, hydrosphere, cryosphere, atmosphere and biosphere.