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Data Article

Ocean currents and acoustic backscatter data from shipboard ADCP measurements at three North Atlantic seamounts between 2004 and 2015

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ABSTRACT

Seamounts are amongst the most common physiographic structures of the deep-ocean landscape, but remoteness and geographic complexity have limited the systematic collection of integrated and multidisciplinary data in the past. Consequently, important aspects of seamount ecology and dynamics remain poorly studied. We present a data collection of ocean currents and raw acoustic backscatter from shipboard Acoustic Doppler Current Profiler (ADCP) measurements during six cruises between 2004 and 2015 in the tropical and subtropical Northeast Atlantic to narrow this gap. Measurements were conducted at seamount locations between the island of Madeira and the Portuguese mainland

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(Ampère, Seine Seamount), as well as east of the Cape Verde archipelago (Senghor Seamount). The dataset includes two-minute ensemble averaged continuous velocity and backscatter profiles, supplemented by spatially gridded maps for each velocity component, error velocity and local bathymetry. The dataset is freely available from the digital data library PANGAEA at https://doi.pangaea.de/10.1594/PANGAEA.883193.

Specifications Table

Subject area	*Ocean Sciences*
More specific subject area	*Oceanography*
Type of data	*Tabular text files, NetCDF formatted spatial maps*
How data was acquired	*Field surveys, shipboard (system: Teledyne RDI Ocean Surveyor)*
Data format	*Processed, analyzed*
Experimental factors	*N/A*
Experimental features	*Processing of raw single ping data (CODAS toolbox, based on GO-SHIP guidelines for shipboard ADCP data).* *Spatial mapping of velocity profiles (DIVA software).*
Data source location	*Field surveys were conducted at three seamounts in the North Atlantic: Ampère Seamount (35° 05′ 0″ N, 12° 55′ 0″ W)* *Seine Seamount (33° 50′ 0″ N, 14° 20′ 0″ W)* *Senghor Seamount (17° 10′ 0″ N, 21° 55′ 0″ W)*
Data accessibility	*Data is in public repository at* https://doi.pangaea.de/10.1594/PANGAEA.883193

Value of the data

- Shipboard ADCP ocean currents and acoustic backscatter data at three different seamounts in the Northeast Atlantic are reported.
- We present fully processed time-averaged continuous velocity profiles and spatially re-gridded velocity fields for each sampling site and period.
- The dataset supports integrated and comparative seamount studies across different physical and biogeographic environments.
- The dataset could be useful for initializing and validating high-resolution hydrodynamic models and species distribution models at seamount relevant spatial scales.

1. Data

The dataset presented here was collected during individual field surveys motivated by the demand for integrated and multi-disciplinary data in complex deep-sea environments and the necessity to narrow data gaps in seamount ecosystem research. Tall seamounts ($>$ 1 km height above the seafloor) are amongst the most prominent features of the global deep-ocean bathymetric landscape. Projected numbers vary between 34.000 [1] and $>$ 100.000 [2]. The large number of tall seamounts in addition to other complex topographic systems including abyssal hills, canyons, ridges and fracture