**Acoustic Doppler Current Profiler (ADCP) data**

***Nansen and Amundsen Basins Observational System (NABOS) program***

***August 2015 – September 2018***

Russian authorities imposed restrictions on observations deeper than 25m within their Exclusive Economic Zone (EEZ). We had three moorings, M11, M12, and M13 (see their position in 2018 Cruise Report), within the Russian EEZ and the records provided by ADCPs from these three moorings from depths >25m were not released to us. The remaining available records were provided to us as Excel spreadsheets (their formats are self-explanatory); records for negative depths should be avoided. Note that the magnetic inclination is *not* added to these three mooring records. The entire (full available depth range) records from these moorings are shown in 2018 Cruise Report as figures produced by our Russian colleagues.

*1. Variables included in this data set for moorings outside of the Russian EEZ*

Separate files are used for output of each ADCP instrument. The ADCP data files contain the following observations:

- Depth of the first ADCP bin (m),

- Vertical bin resolution (m),

- Eastward velocity (mm/s; magnetic declination has been introduced),

- Northward velocities (mm/s; magnetic declination has been introduced)

*2. Equipment*

Workhorse Sentinel ADCP (300 kHz)

Workhorse Long Ranger ADCP (75 kHz)

Long Ranger ADCP specification:

Frequency: 75 kHz

Max Range: up to 600m

Configuration: Self-contained

Velocity accuracy: ± 1% ± 5mm/s

Velocity resolution: 1mm/s

Velocity range: ± 5m/s default, ± 10m/s max

Depth cell size: 4–32m

Number of depth cells: 1–128

Ping rate: 1Hz (typical)

Workhorse Sentinel ADCP specification:

Frequency: 300 kHz

Max Range: 110 meters

Configuration: Self-contained

Velocity accuracy: 0.5% of the water velocity relative to ADCP ±0.5cm/s

Velocity resolution: 0.1cm/s

Velocity range: ±5m/s (default) ±20m/s (max)

Number of depth cells: 1–255

Ping rate: Up to 10Hz

ADCP calibration:

- ADCP compasses were calibrated as per manufacturer’s instructions in Kirkenes, Norway (Lat 69.7N, Lon 30E) prior to embarkation;

- Data requiring speed of sound in water is corrected by the ADCP using the water temperature measured by the ADCP (if available);

- Intensity of returned signals is not specially calibrated.

*3. Data format for moorings from outside of the Russian EEZ*

ADCP data file includes a short header with information about vertical bin resolution, bin

number, and titles for data columns. Each data row starts with date/time stamp, which has the following format: DDMMYYYYhhmm, where DD, MM, YYYY, hh, and mm are day, month, year, hour, and minutes of ADCP measurements, respectively. All ADCP instruments used GMT for this time stamp. The second column contains real depth of the first (nearest to the instrument) ADCP bin – the center of this bin was calculated taking into account instrumental blank space and bin resolution. Depths of other bins can be calculated by adding depth increment specified in the file header. After the date/time stamp, two components of current velocities (eastward and northward) for each ADCP bin are provided, starting from the first bin. In case of missing values or data quality concerns the specific error code (-9999) was used to replace observations.

*4. Data processing*

All ADCP instruments from moorings deployed in 2015 were successfully recovered during 2018 NABOS Cruise aboard the R/V *Academik Tryoshnikov* (see 2018 Cruise Report for details). Data processing of ADCP data includes conversion from original (binary) files, collected at the instrument’s flash card, to Matlab formats, which was performed using WinADCP software available at RDI website (http://rdinstruments.com). After conversion magnetic declination determined from the International Geomagnetic Reference Field for the mooring positions (see www.ngdc.noaa.gov/IAGA/vmod/) was added to the ADCP current direction. ADCP data files include all bins up to the surface although bins near the surface contain much larger errors (likely due to surface effects) and should be treated with caution. Processed data have been archived in different formats and converted to ASCII files using Matlab scripts.

*5. Acknowledgements and contact information*

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