

# MVP, ADCP, CTD, and EK60 data in the central Canadian Arctic Archipelago: A summary of the processed data

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This document describes the ADCP, CTD, EK60, and MVP data processed by the author that are associated with Hughes et al. (in prep)\*. The data included here are in a form that I believe is immediately useful. Please email me if there appear to be any mistakes or omissions. Further, the data are only intended to be a digital version of the dataset presented in the paper, rather than an official record.

The official data are archived and quality controlled by ArcticNet (see licenses in the licenses directory). As of writing (September 2017), however, these have not yet been made publicly available. Please note that the datasets here underwent separate processing from that of the data maintained by ArcticNet. The data here include a number of extra details specific to the publication such as transect names and along-channel distance coordinates.

## Version history

22 September 2017: Initial release

## 1 Notes

- Data obtained aboard the CCGS Amundsen in September 2015
- All data are stored in .mat files with standard naming conventions and units that largely negate the need for official metadata, which are not included
- Further details are included in this document and the associated scientific publication
- All datasets, with the exception of CTD data are saved in transect files, as these are the most natural way to group data
- CTD data are saved as individual profiles,
- Erroneous near-surface data remain in rosette CTD profiles,
- Along-channel transects are all on same coordinate, whereas cross-channel transects have zero point on westernmost point

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\*Official citation to be included once the article is published

- If opening files in Matlab, date strings may need to be converted using `char(date)`
- No ADCP data are included for the ADCP transect in Lancaster Sound as there was an unintended gap in the record
- Echosounder data are 120 kHz and are only included for along-channel transects
- A gap exists in the echosounder record affecting the Repeat 2 transect

## 2 MVP data

Raw .m1 MVP data files were processed using self-created python scripts

Fields:

- Salinity (psu)
- Potential temperate (°C)
- Potential density ( $\text{kg m}^{-3}$ )
- Pressure (dbar)

Coordinates:

- Distance (km) either along-track or across-channel
- Longitude (decimal degrees)
- Latitude (decimal degrees)
- Seafloor depth (m)
- Measurement depth (m), which is always 0–250 m in 1 m increments
- Cast number

## 3 ADCP data

Raw .ENX ADCP data files were processed using CODAS<sup>†</sup> and self-created python scripts

Fields:

- Along-track velocity if applicable ( $\text{m s}^{-1}$ )
- Eastward velocity ( $\text{m s}^{-1}$ )
- Northward velocity ( $\text{m s}^{-1}$ )
- Ship heading (decimal degrees)

Coordinates:

- Distance (km) either along-track or across-channel
- Longitude (decimal degrees)
- Latitude (decimal degrees)
- Seafloor depth (m)
- Measurement depth (m), which is always 12–188 m in 4 m bins

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<sup>†</sup>[https://currents.soest.hawaii.edu/docs/adcp\\_doc/codas\\_doc/](https://currents.soest.hawaii.edu/docs/adcp_doc/codas_doc/)

## 4 CTD data

Raw .hex CTD data files were processed using Sea-Bird's Seasave program and self-created python scripts

Fields:

- Conductivity (mS/cm)
- Potential temperature (°C)
- Potential density ( $\text{kg m}^{-3}$ )
- Salinity (psu)

Coordinates:

- Pressure (dbar)
- Longitude (decimal degrees)
- Latitude (decimal degrees)
- Seafloor depth (m)
- Cast number
- Date and time (UTC)

## 5 EK60 data

Raw .raw echosounder data files were parsed using the Echonix.m Matlab toolbox (<https://github.com/RobBlackwell/echonix.m>, accessed March 7, 2017) and further processed using self-created python scripts

Fields:

- Raw backscatter strength
- Volume backscatter (dB) (termed Sv in the processed files)

Coordinates:

- Longitude (decimal degrees)
- Latitude (decimal degrees)
- Measurement depth (m)