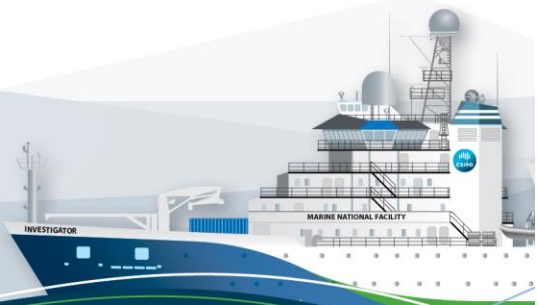
RV *Investigator*

ADCP Processing Report

Voyage #:	IN2018_v03
Voyage title:	Integrated Marine Observing System: monitoring of East Australian Current property transports at 27°S
Depart:	Brisbane, 0800 Thursday 19 April, 2018
Return:	Brisbane, 1200 Thursday, 10 May 2018
Chief Scientist:	Bernadette Sloyan
Affiliation:	CSIRO
Report compiled by:	Karl Malakoff



Contents

1 Summary

Data was collected during in2018_v03 for the entire voyage. Data was collected using UHDAS and post-processed using CODAS.

The os150(150kHz) ADCP was not operational during this voyage and was replaced with a wh150(150kHZ). The wh150 was calibrated in the preceding transit.

The 75khz ADCP was operated in narrowband mode with 8m bins for the duration of the voyage.

Internal triggering was used as external triggering was found to be unstable on previous voyages.

The drop keel was at 4m for most of the voyage but raised to 2m during periods of rough weather. Acquisition was stopped and started upon a keel depth change to ensure no data was corrupted.

See the voyage computing and electronics report for more details regarding data acquisition.

2 Processing Background

The University of Hawaii's CODAS software was used for data post-processing. Revision 2470:8c005662c48b dated Mar 26 2018 was used.

3 Processing Notes

Overall data quality was good for the duration of the voyage.

There are small gaps in data caused by a low percent good on ping returns.

Some profiles were edited out, both manually and using CODAS's automatic processing. The dataset was not rotated.

Some ringing was found. The top 1 – 2 bins, or about 35 meters, were edited out when needed. This effect of this was minimal while on station and did not always occur while underway.

CTD wire interference can be seen in some bins while on station. This has been edited out.

4 netCDF Data Headers

```
netcdf in2018_v03_wh150 {
dimensions:
        time = 6043 ;
        depth_cell = 70 ;
variables:
        int trajectory ;
                trajectory:standard_name = "trajectory_id" ;
        double time(time) ;
                time:long_name = "Decimal day" ;
                time:units = "days since 2018-01-01 00:00:00" ;
                time:C_format = "%12.5f" ;
                time:standard_name = "time" ;
                time:data_min = 108.042615740741 ;
                time:data_max = 129.073391203704 ;
        double lon(time) ;
                lon:missing_value = 1.e+38 ;
                lon:long_name = "Longitude" ;
                lon:units = "degrees_east" ;
                lon:C_format = "%9.4f" ;
                lon:standard_name = "longitude" ;
                lon:data_min = 153.075280555556 ;
                lon:data_max = 155.535911111111 ;
        double lat(time) ;
                lat:missing_value = 1.e+38 ;
                lat:long_name = "Latitude" ;
                lat:units = "degrees_north" ;
                lat:C_format = "%9.4f" ;
                lat:standard_name = "latitude" ;
                lat:data_min = -28.1060194444444 ;
                lat:data_max = -26.4138777777778 ;
        float depth(time, depth_cell) ;
                depth:missing_value = 1.e+38f ;
                depth:long_name = "Depth" ;
                depth:units = "meter" ;
                depth:C_format = "%8.2f" ;
                depth:positive = "down" ;
                depth:data_min = 14.19f ;
                depth:data_max = 290.2f ;
        float u(time, depth_cell) ;
                u:missing_value = 1.e+38f ;
                u:long_name = "Zonal velocity component" ;
                u:units = "meter second-1" ;
                u:C_format = "%7.2f" ;
                u:data_min = -0.970831f ;
                u:data_max = 0.7708369f ;
        float v(time, depth_cell) ;
                v:missing_value = 1.e+38f ;
                v:long_name = "Meridional velocity component" ;
                v:units = "meter second-1" ;
                v:C_format = "%7.2f" ;
                v:data_min = -1.402903f ;
                v:data_max = 1.042807f ;
        short amp(time, depth_cell) ;
                amp:missing_value = 32767s ;
                amp:long_name = "Received signal strength" ;
                amp:C_format = "%d" ;
                amp:data_min = 34s ;
                amp:data_max = 214s ;
        byte pg(time, depth_cell) ;
                pg:missing_value = -1b ;
                pg:long_name = "Percent good pings" ;
                pg:C_format = "%d" ;
                pg:data_min = 0b ;
                pg:data_max = 100b ;
```

```
        byte pflag(time, depth_cell) ;
                pflag:long_name = "Editing flags" ;
                pflag:C_format = "%d" ;
                pflag:data_min = 0b ;
                pflag:data_max = 7b ;
        float heading(time) ;
                heading:missing_value = 1.e+38f ;
                heading:long_name = "Ship heading" ;
                heading:units = "degrees" ;
                heading:C_format = "%6.1f" ;
                heading:data_min = -179.9528f ;
                heading:data_max = 179.9854f ;
        float tr_temp(time) ;
                tr_temp:missing_value = 1.e+38f ;
                tr_temp:long_name = "ADCP transducer temperature" ;
                tr_temp:units = "Celsius" ;
                tr_temp:C_format = "%4.1f" ;
                tr_temp:data_min = 21.84601f ;
                tr_temp:data_max = 26.43439f ;
        byte num_pings(time) ;
                num_pings:long_name = "Number of pings averaged per ensemble" ;
                num_pings:units = "None" ;
                num_pings:C_format = "%d" ;
                num_pings:data_min = -115b ;
                num_pings:data_max = 90b ;
        float uship(time) ;
                uship:missing_value = 1.e+38f ;
                uship:long_name = "Ship zonal velocity component" ;
                uship:units = "meter second-1" ;
                uship:C_format = "%9.4f" ;
                uship:data_min = -6.041669f ;
                uship:data_max = 6.327024f ;
        float vship(time) ;
                vship:missing_value = 1.e+38f ;
                vship:long_name = "Ship meridional velocity component" ;
                vship:units = "meter second-1" ;
                vship:C_format = "%9.4f" ;
                vship:data_min = -6.322751f ;
                vship:data_max = 6.214444f ;

// global attributes:
                :featureType = "trajectoryProfile" ;
                :history = "Created: 2018-05-22 05:46:03 UTC" ;
                :Conventions = "COARDS" ;
                :software = "pycurrents" ;
                :hg_changeset = "2470:8c005662c48b" ;
                :title = "Shipboard ADCP velocity profiles" ;
                :description = "Shipboard ADCP velocity profiles from in2018_v03 using instrument
wh150" ;
                :cruise_id = "in2018_v03" ;
                :sonar = "wh150" ;
                :yearbase = 2018 ;
}

netcdf in2018_v03_os75nb {
dimensions:
        time = 6043 ;
        depth_cell = 60 ;
variables:
        int trajectory ;
                trajectory:standard_name = "trajectory_id" ;
        double time(time) ;
                time:long_name = "Decimal day" ;
                time:units = "days since 2018-01-01 00:00:00" ;
                time:C_format = "%12.5f" ;
                time:standard_name = "time" ;
                time:data_min = 108.042638888889 ;
                time:data_max = 129.073402777778 ;
        double lon(time) ;
```

```
        lon:missing_value = 1.e+38 ;
        lon:long_name = "Longitude" ;
        lon:units = "degrees_east" ;
        lon:C_format = "%9.4f" ;
        lon:standard_name = "longitude" ;
        lon:data_min = 153.075183333333 ;
        lon:data_max = 155.535919444444 ;
double lat(time) ;
        lat:missing_value = 1.e+38 ;
        lat:long_name = "Latitude" ;
        lat:units = "degrees_north" ;
        lat:C_format = "%9.4f" ;
        lat:standard_name = "latitude" ;
        lat:data_min = -28.1060694444444 ;
        lat:data_max = -26.4138972222222 ;
float depth(time, depth_cell) ;
        depth:missing_value = 1.e+38f ;
        depth:long_name = "Depth" ;
        depth:units = "meter" ;
        depth:C_format = "%8.2f" ;
        depth:positive = "down" ;
        depth:data_min = 29.93f ;
        depth:data_max = 973.99f ;
float u(time, depth_cell) ;
        u:missing_value = 1.e+38f ;
        u:long_name = "Zonal velocity component" ;
        u:units = "meter second-1" ;
        u:C_format = "%7.2f" ;
        u:data_min = -0.9183985f ;
        u:data_max = 0.754191f ;
float v(time, depth_cell) ;
        v:missing_value = 1.e+38f ;
        v:long_name = "Meridional velocity component" ;
        v:units = "meter second-1" ;
        v:C_format = "%7.2f" ;
        v:data_min = -1.328845f ;
        v:data_max = 1.01849f ;
short amp(time, depth_cell) ;
        amp:missing_value = 32767s ;
        amp:long_name = "Received signal strength" ;
        amp:C_format = "%d" ;
        amp:data_min = 6s ;
        amp:data_max = 218s ;
byte pg(time, depth_cell) ;
        pg:missing_value = -1b ;
        pg:long_name = "Percent good pings" ;
        pg:C_format = "%d" ;
        pg:data_min = 0b ;
        pg:data_max = 100b ;
byte pflag(time, depth_cell) ;
        pflag:long_name = "Editing flags" ;
        pflag:C_format = "%d" ;
        pflag:data_min = 0b ;
        pflag:data_max = 7b ;
float heading(time) ;
        heading:missing_value = 1.e+38f ;
        heading:long_name = "Ship heading" ;
        heading:units = "degrees" ;
        heading:C_format = "%6.1f" ;
        heading:data_min = -179.9617f ;
        heading:data_max = 179.9945f ;
float tr_temp(time) ;
        tr_temp:missing_value = 1.e+38f ;
        tr_temp:long_name = "ADCP transducer temperature" ;
        tr_temp:units = "Celsius" ;
        tr_temp:C_format = "%4.1f" ;
        tr_temp:data_min = 22.41784f ;
        tr_temp:data_max = 26.79582f ;
byte num_pings(time) ;
```

```
                num_pings:long_name = "Number of pings averaged per ensemble" ;
                num_pings:units = "None" ;
                num_pings:C_format = "%d" ;
                num_pings:data_min = -124b ;
                num_pings:data_max = 122b ;
        float uship(time) ;
                uship:missing_value = 1.e+38f ;
                uship:long_name = "Ship zonal velocity component" ;
                uship:units = "meter second-1" ;
                uship:C_format = "%9.4f" ;
                uship:data_min = -6.048279f ;
                uship:data_max = 6.312655f ;
        float vship(time) ;
                vship:missing_value = 1.e+38f ;
                vship:long_name = "Ship meridional velocity component" ;
                vship:units = "meter second-1" ;
                vship:C_format = "%9.4f" ;
                vship:data_min = -6.32366f ;
                vship:data_max = 6.214273f ;

// global attributes:
                :featureType = "trajectoryProfile" ;
                :history = "Created: 2018-05-22 05:45:31 UTC" ;
                :Conventions = "COARDS" ;
                :software = "pycurrents" ;
                :hg_changeset = "2470:8c005662c48b" ;
                :title = "Shipboard ADCP velocity profiles" ;
                :description = "Shipboard ADCP velocity profiles from in2018_v03 using instrument
os75nb" ;
                :cruise_id = "in2018_v03" ;
                :sonar = "os75nb" ;
                :yearbase = 2018 ;
}
```