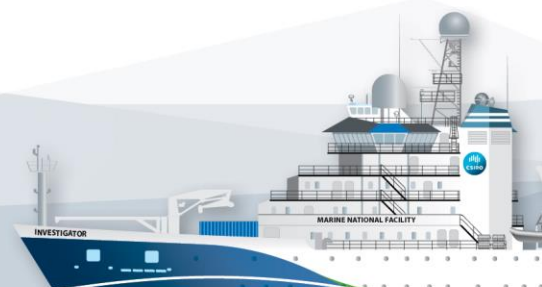


RV Investigator

ADCP Processing Report

Voyage #:	IN2017_v04
Voyage title:	The whole enchilada: from production to predation in Tasman Sea ecosystems
Depart:	Brisbane, 1415 Thursday, 31 August 2017
Return:	Sydney, 0903 Tuesday, 18 September 2017
Chief Scientist:	Iain Suthers
Affiliation:	University of New South Wales
Report compiled by:	Karl Malakoff



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1 Summary

Data was collected during in2017_v04 for the entire voyage. Data was collected using UHDAS and post-processed using CODAS.

The os150(150kHz) ADCP was not operational during this voyage.

The 75kHz ADCP was operated in narrowband and broadband 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 2m for the voyage.

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 2417:49ecfa0cc6c5 dated Sep 13 2017 was used.

3 Processing Notes

Overall data quality was good for the narrowband data and of average quality for the broadband data.

There are other 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 rotated by 0.15 degrees.

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 in2017_v04_os75bb {
dimensions:
    time = 4636 ;
    depth_cell = 80 ;
variables:
    int trajectory ;
        trajectory:standard_name = "trajectory_id" ;
    double time(time) ;
        time:long_name = "Decimal day" ;
        time:units = "days since 2017-01-01 00:00:00" ;
        time:C_format = "%12.5f" ;
        time:standard_name = "time" ;
        time:data_min = 242.676180555556 ;
        time:data_max = 258.8084375 ;
    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 = 150.342338888889 ;
        lon:data_max = 156.527113888889 ;
    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 = -36.3606444444444 ;
        lat:data_max = -26.9111444444444 ;
    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 = 22.5f ;
        depth:data_max = 654.54f ;
    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 = -0.8727503f ;
        u:data_max = 1.469363f ;
    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 = -1.5489f ;
        v:data_max = 1.782803f ;
    short amp(time, depth_cell) ;
        amp:missing_value = 32767s ;
        amp:long_name = "Received signal strength" ;
        amp:C_format = "%d" ;
        amp:data_min = 7s ;
        amp:data_max = 207s ;
    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 = -179.9954f ;
    heading:data_max = 179.9971f ;
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 = 16.4986f ;
    tr_temp:data_max = 24.40711f ;
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 = 19b ;
    num_pings:data_max = 74b ;
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 = -5.67651f ;
    uship:data_max = 6.028123f ;
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 = -6.126006f ;
    vship:data_max = 6.2867f ;

// global attributes:
    :featureType = "trajectoryProfile" ;
    :history = "Created: 2018-05-21 06:19:27 UTC" ;
    :Conventions = "COARDS" ;
    :software = "pycurrents" ;
    :hg_changeset = "2417:49ecfa0cc6c5" ;
    :title = "Shipboard ADCP velocity profiles" ;
    :description = "Shipboard ADCP velocity profiles from in2017_v04 using instrument
os75bb" ;
    :cruise_id = "in2017_v04" ;
    :sonar = "os75bb" ;
    :yearbase = 2017 ;
}

netcdf in2017_v04_os75nb {
dimensions:
    time = 4734 ;
    depth_cell = 60 ;
variables:
    int trajectory ;
        trajectory:standard_name = "trajectory_id" ;
    double time(time) ;
        time:long_name = "Decimal day" ;
        time:units = "days since 2017-01-01 00:00:00" ;
        time:C_format = "%12.5f" ;
        time:standard_name = "time" ;
        time:data_min = 242.182731481481 ;
        time:data_max = 258.811851851852 ;
    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 = 150.333752777778 ;
lon:data_max = 156.527113888889 ;
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 = -36.3689916666667 ;
lat:data_max = -26.7573888888889 ;
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 = 974.f ;
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 = -0.8811846f ;
u:data_max = 1.46129f ;
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 = -1.5933f ;
v:data_max = 1.788836f ;
short amp(time, depth_cell) ;
amp:missing_value = 32767s ;
amp:long_name = "Received signal strength" ;
amp:C_format = "%d" ;
amp:data_min = 7s ;
amp:data_max = 215s ;
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 = -179.9954f ;
heading:data_max = 179.9971f ;
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 = 16.4986f ;
tr_temp:data_max = 24.40711f ;
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 = 19b ;
    num_pings:data_max = 75b ;
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 = -5.895446f ;
    uship:data_max = 6.02602f ;
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 = -6.106576f ;
    vship:data_max = 6.288044f ;

// global attributes:
    :featureType = "trajectoryProfile" ;
    :history = "Created: 2018-05-21 06:20:04 UTC" ;
    :Conventions = "COARDS" ;
    :software = "pycurrents" ;
    :hg_changeset = "2417:49ecfa0cc6c5" ;
    :title = "Shipboard ADCP velocity profiles" ;
    :description = "Shipboard ADCP velocity profiles from in2017_v04 using instrument
os75nb" ;

    :cruise_id = "in2017_v04" ;
    :sonar = "os75nb" ;
    :yearbase = 2017 ;
}
```