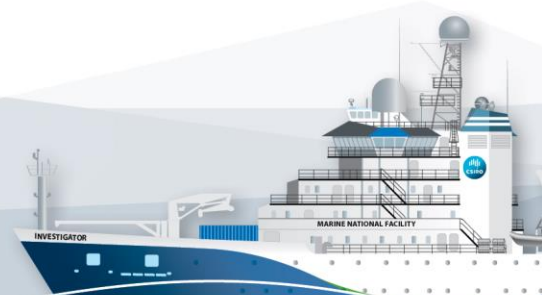


RV Investigator

ADCP Processing Report

Voyage #:	in2106_v04
Voyage title:	Influence of temperature and nutrient supply on the biogeochemical function and diversity of oceans microbes
Depart:	Sydney, 1400 Wednesday, 31 August 2016
Return:	Brisbane, 1200 Thursday, 22 September 2016
Chief Scientist:	Martina Doblin
Affiliation:	University of Technology, Sydney
Report compiled by:	Karl Malakoff



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1 Summary

Data was collected during 2016_v04 for the entire duration of the voyage. Data collection stopped shortly before the drop keel was raised before entering Moreton Bay on the morning of the 22nd of September.

Only os150(150kHz) data is available as it was decided by the chief scientist and primary investigators to silence the 75kHz ADCP unit to prevent interference with the 70kHz single beam instrument.

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

The drop keel was at 2m for the entire voyage.

The ADCP was operated in narrowband mode with 8m bins for the duration of 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 processing. Revision 268:8bfb8abff3a7 dated Feb 27 2016 was used.

A new method for converting navigation data into a native CODAS format was developed to fill gaps in the navigation data and improve the coverage of the data set.

Data was processed using raw single ping (*.ENR files), along with Seapath (position, attitude, heading correction) and gyro devices for position information.

3 Processing Notes

Overall data quality and coverage was good. There are some small gaps in data where CODAS was unable to correctly process navigation data, this seems to only have effected a few bins every other day.

Some profiles were edited out, both manually and using CODAS's automatic processing. The dataset did not need rotating and no significant issues were encountered when processing.

4 netCDF Data Header

```
netcdf os150nb {
dimensions:
    time = 6228 ;
    depth_cell = 50 ;
variables:
    int trajectory ;
        trajectory:standard_name = "trajectory_id" ;
    float vship(time) ;
        vship:data_max = 6.209849f ;
        vship:long_name = "Ship meridional velocity component" ;
        vship:C_format = "%9.4f" ;
        vship:data_min = -7.480705f ;
        vship:units = "meter second-1" ;
        vship:missing_value = 1.e+38f ;
    float v(time, depth_cell) ;
        v:data_max = 1.190465f ;
        v:long_name = "Meridional velocity component" ;
        v:C_format = "%7.2f" ;
        v:data_min = -1.646306f ;
        v:units = "meter second-1" ;
        v:missing_value = 1.e+38f ;
    float uship(time) ;
        uship:data_max = 6.627427f ;
        uship:long_name = "Ship zonal velocity component" ;
        uship:C_format = "%9.4f" ;
        uship:data_min = -6.821673f ;
        uship:units = "meter second-1" ;
        uship:missing_value = 1.e+38f ;
    float u(time, depth_cell) ;
        u:data_max = 0.8974966f ;
        u:long_name = "Zonal velocity component" ;
        u:C_format = "%7.2f" ;
        u:data_min = -1.010397f ;
        u:units = "meter second-1" ;
        u:missing_value = 1.e+38f ;
    float tr_temp(time) ;
        tr_temp:data_max = 23.87979f ;
        tr_temp:long_name = "ADCP transducer temperature" ;
        tr_temp:C_format = "%4.1f" ;
        tr_temp:data_min = 15.84856f ;
        tr_temp:units = "Celsius" ;
        tr_temp:missing_value = 1.e+38f ;
    double time(time) ;
        time:C_format = "%12.5f" ;
        time:long_name = "Decimal day" ;
        time:standard_name = "time" ;
        time:data_min = 243.205289351852 ;
        time:units = "days since 2016-01-01 00:00:00" ;
        time:data_max = 264.838125 ;
    byte pg(time, depth_cell) ;
        pg:long_name = "Percent good pings" ;
        pg:missing_value = -1b ;
        pg:data_min = 0b ;
        pg:data_max = 100b ;
        pg:C_format = "%d" ;
    byte pflag(time, depth_cell) ;
        pflag:long_name = "Editing flags" ;
        pflag:C_format = "%d" ;
        pflag:data_min = 0b ;
        pflag:data_max = 7b ;
    double lon(time) ;
        lon:C_format = "%9.4f" ;
        lon:long_name = "Longitude" ;
        lon:standard_name = "longitude" ;
```

```
lon:data_min = 150.112080555556 ;
lon:units = "degrees_east" ;
lon:missing_value = 1.e+38 ;
lon:data_max = 155.1451 ;
double lat(time) ;
lat:C_format = "%9.4f" ;
lat:long_name = "Latitude" ;
lat:standard_name = "latitude" ;
lat:data_min = -37.0033527777778 ;
lat:units = "degrees_north" ;
lat:missing_value = 1.e+38 ;
lat:data_max = -26.7748166666667 ;
float heading(time) ;
heading:data_max = 179.9808f ;
heading:long_name = "Ship heading" ;
heading:C_format = "%6.1f" ;
heading:data_min = -179.8746f ;
heading:units = "degrees" ;
heading:missing_value = 1.e+38f ;
float depth(time, depth_cell) ;
depth:C_format = "%8.2f" ;
depth:positive = "down" ;
depth:long_name = "Depth" ;
depth:data_min = 17.93f ;
depth:units = "meter" ;
depth:missing_value = 1.e+38f ;
depth:data_max = 409.99f ;
short amp(time, depth_cell) ;
amp:long_name = "Received signal strength" ;
amp:missing_value = 32767s ;
amp:data_min = 26s ;
amp:data_max = 219s ;
amp:C_format = "%d" ;

// global attributes:
:featureType = "trajectoryProfile" ;
:description = "Shipboard ADCP velocity profiles from in2016_v04 using instrument
os150nb" ;
:title = "Shipboard ADCP velocity profiles" ;
:cruise_id = "in2016_v04" ;
:Conventions = "COARDS" ;
:sonar = "os150nb" ;
:history = "Created: 2016-10-21 13:01:15" ;
:software = "pycurrents" ;
}
```