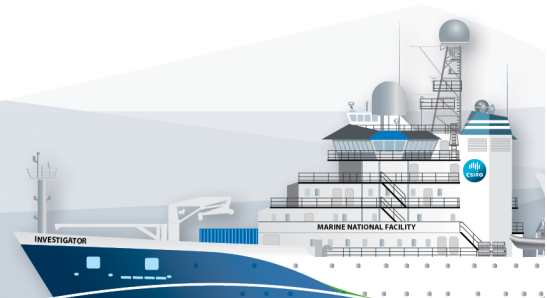


RV Investigator

ADCP Processing Report

Voyage #:	In2016_v02
Voyage title:	SOTS: Southern Ocean Time Series automated moorings for climate and carbon cycle studies southwest of Tasmania
Depart:	Monday 14th March 1000 2017, Hobart
Return:	Saturday 16th April 2017, Hobart
Chief Scientist:	Tom Trull
Affiliation:	CSIRO O&A
Report compiled by:	Hugh Barker



Contents

1	Summary	3
2	Processing Background	3
3	Processing Notes.....	3
4	Data Header.....	3

1 Summary

Data was collected during in2016_v02 for the duration of the voyage using vmDAS.

Both the OS150kHz and OS75kHz ADCPs were operated for the duration of the voyage in narrowband mode.

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

The drop keels were at 7.7m below the waterline for the duration of the voyage.

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

See webpy_os150 and webpy_os75 folders for overview plots.

2 Processing Background

The University of Hawaii's CODAS software was used for data post-processing. Revision 269:5bd8c22f6560 dated Oct 19 2016 was used.

3 Processing Notes

There were numerous issues with navigation data acquired with vmDAS. To remedy this, TECHSAS acquired navigation data (Seapath GPS, gyrocompass) was reformatted suitably for processing with CODAS.

Data coverage and quality is generally very good. There are some small gaps in the data, most likely due to the ADCPs being isolated during mooring triangulation. Some bad data was edited out using CODAS' interactive editing tools.

4 netCDF Data Headers

```
netcdf os150nb {
  dimensions:
    time = 9025 ;
    depth_cell = 50 ;
  variables:
    int trajectory ;
        trajectory:standard_name = "trajectory_id" ;
    double time(time) ;
        time:long_name = "Decimal day" ;
        time:units = "days since 2016-01-01 00:00:00" ;
        time:C_format = "%12.5f" ;
        time:standard_name = "time" ;
        time:data_min = 72.980347222222 ;
        time:data_max = 105.960509259259 ;
    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 = 141.560375 ;
        lon:data_max = 151.319280555556 ;
    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 = -53.012633333333 ;
lat:data_max = -42.8836138888889 ;
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 = 17.124f ;
depth:data_max = 409.184f ;
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 = -5.426107f ;
u:data_max = 1.577789f ;
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 = -2.619779f ;
v:data_max = 5.689265f ;
short amp(time, depth_cell) ;
amp:missing_value = 32767s ;
amp:long_name = "Received signal strength" ;
amp:C_format = "%d" ;
amp:data_min = 18s ;
amp:data_max = 228s ;
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 = -179.9518f ;
heading:data_max = 179.9958f ;
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 = 4.899305f ;
tr_temp:data_max = 24.56f ;
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 = -5.738648f ;
uship:data_max = 6.692031f ;
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 = -6.395269f ;
vship:data_max = 5.761135f ;

// global attributes:
:featureType = "trajectoryProfile" ;
:history = "Created: 2018-04-24 07:28:26 UTC" ;
:Conventions = "COARDS" ;
:software = "pycurrents" ;
:hg_changeset = "2320:184969c40ec8" ;
:title = "Shipboard ADCP velocity profiles" ;
:description = "Shipboard ADCP velocity profiles from in2016_v02 using instrument
os150nb" ;
:cruise_id = "in2016_v02" ;
:sonar = "os150nb" ;
}

netcdf in2016_v02_os75nb {
dimensions:
    time = 9165 ;
    depth_cell = 50 ;
variables:
    int trajectory ;
        trajectory:standard_name = "trajectory_id" ;
    double time(time) ;
        time:long_name = "Decimal day" ;
        time:units = "days since 2016-01-01 00:00:00" ;
        time:C_format = "%12.5f" ;
        time:standard_name = "time" ;
        time:data_min = 72.9772453703704 ;
        time:data_max = 105.957824074074 ;
    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 = 141.525888888889 ;
        lon:data_max = 151.319269444444 ;
    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 = -53.0126416666667 ;
        lat:data_max = -42.8837083333333 ;
    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 = 23.67f ;
        depth:data_max = 815.7f ;
    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 = -1.726252f ;
        u:data_max = 1.614718f ;
    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 = -2.611563f ;
```

```
        v:data_max = 1.264214f ;
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 = 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 = -179.9773f ;
    heading:data_max = 179.9888f ;
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 = 5.096695f ;
    tr_temp:data_max = 20.00809f ;
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 = -5.726375f ;
    uship:data_max = 6.729988f ;
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 = -6.40866f ;
    vship:data_max = 5.734577f ;

// global attributes:
    :featureType = "trajectoryProfile" ;
    :history = "Created: 2018-04-27 01:58:25 UTC" ;
    :Conventions = "COARDS" ;
    :software = "pycurrents" ;
    :hg_changeset = "2320:184969c40ec8" ;
    :title = "Shipboard ADCP velocity profiles" ;
    :description = "Shipboard ADCP velocity profiles from in2016_v02 using instrument
os75nb" ;
    :cruise_id = "in2016_v02" ;
    :sonar = "os75nb" ;
}
```