MIRAI MR17-08 Leg1 Shipboard Acoustic Doppler Current Profiler (ADCP)

Last Modified: 2018-06-30

Cruise ID MR17-08 Leg1

Shipboard Acoustic Doppler Current Profiler (ADCP): Processed (DMO)-Corrected

Observation Items: Depth, Absolute velocity (zonal, meridional and vertical)

Science Keywords:

OCEANS > OCEAN CIRCULATION > OCEAN CURRENTS

Cruise Report
http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR17-08_leg1-2_all.pdf

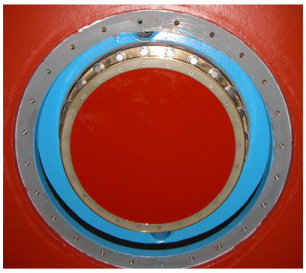
For Using Data

Principal Investigator
Data Management Office

Use Constraints
See **Terms and Conditions** about constrain of use.

Data Citation
See **Terms and Conditions** about data citation.

Instrument
Instrument :
Shipboard acoustic doppler current profiler (ADCP) (MR08-02 -)



Preface

Acoustic Doppler Current Profiler (ADCP) transmits acoustic pulses from a transducer assembly. The transducers receive backscattered sounds from small particles floating with water currents. Using the Doppler shift principle, the backscattered sound data can be converted into components of water current velocity at multiple depths. The shipboard ADCP mounted on R/V MIRAI can measure the speed and direction of water currents for up to 128 layers. The dataset provided here is a 5-minute time average of absolute velocity data (i.e., water current velocity in geophysical coordinates) after various kinds of corrections. This data processing was carried out by DMO. See **here** for detailed correction methods.

Specifications

Manufacturer:	Teledyne RD Instruments
System:	OS-ADCP 75kHz
Frequency:	76.8kHz
Configuration:	4-beam phased array
Beam angle:	30deg
Transducer Depth:	6.5m beneath calm water line
ADCP data logger:	RDI VmDas 1.46.5
Ship heading [instrument maker/model]:	iXBlue/PHINS
Navigation [instrument maker/model]:	Fugro/StarPack-D

ADCP configuration

Bottom track mode
2017/11/11 23:00 - 2017/11/12 02:02
2017/11/22 07:30 - 2017/11/23 20:27
2017/12/04 02:44 - 2017/12/06 13:07
2018/01/02 17:02 - 2018/01/03 01:15
2018/01/03 08:38 - 2018/01/04 03:10

Water track mode
2017/11/12 02:03 - 2017/11/12 23:40
2017/11/23 20:28 - 2017/12/04 02:43
2017/12/06 13:07 - 2018/01/02 00:18
2018/01/02 00:19 - 2018/01/02 17:01
2018/01/03 01:16 - 2018/01/03 08:37

Depth range:	23 m - 815 m (bin centers)
Bin length:	8 m
Number of bins:	100
Blanking interval:	8 m
Sound speed calculation:	used transducer temperature during acquisition
Correction of the alignment error [corrected angle]:	-0.204 deg

Need raw data?

If you would like the raw data set, please contact us from "Contact Us" above.

Data Format: ADCP Corrected,Qced 3

About data format

We provide the dataset as AWI Ocean Data View format (generic spreadsheet format).
Ocean Data View : *http://odv.awi.de/*
Japanese Guide : *http://www.jodc.go.jp/jodc_pub/digitalpub_j.html*

Format Description (tab space separated)

Data No.	Content	Unit	Format	Remarks
1	CruiseID		i6	Cruise name
2	Station		i12	Station name set to be measurement time [YYYYMMDDhhmm]
3	Type		i1	Always "B", due to the number of data acquisition layers lower than 250-layer
4	Day		i10	Measurement day(UTC) [MM/DD/YYYY]
5	Time		i5	Measurement time [Center of average time](UTC) [hh:mm]
6	Longitude	degree	f8.4	Position at the measurement time [0 - 360]
7	Latitude	degree	f8.4	Position at the measurement time [North: +, South: -]
8	Bottom depth	m	f6.1	Set to be "0" if there is no data
9	Measurement depth	m	f7.2	Depth of measurement layer
10	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
11	Current speed (zonal)	m/sec	f8.4	5-minute average of zonal component of absolute velocity [Eastward: +] [Only good data of more than 120 count of ping correlation and more than 25 count of echo intensity were used for the average]
12	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
13	Current speed (meridional)	m/sec	f8.4	5-minute average of meridional component of absolute velocity [Northward: +] [Only good data of more than 120 count of ping correlation and more than 25 count of echo intensity were used for the average]
14	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
15	Current speed (vertical)	m/sec	f8.4	5-minute average of vertical component of absolute velocity [Upward: +] [Only good data of more than 120 count of ping correlation and more than 25 count of echo intensity were used for the average]
16	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
17	Speed of absolute velocity	m/sec	f7.4	Magnitude of absolute velocity
18	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
19	Current direction	degree	f5.1	Current direction of absolute velocity [0 to 360]
20	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
21	Error velocity	m/sec	f8.4	5-minute average of error velocity
22	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
23	Correlation	count	f5.1	5-minute average by 4-beam average correlation(send beam - received beam) [max:250count] [The data used to calculate velocity were used to average]
24	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
25	Echo Intensity	count	f5.1	5-minute average by 4-beam average echo intensity [max:120count] [The data used to calculate velocity were used to average]
26	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad

Data No.	Content	Unit	Format	Remarks
27	Percentgood	%	f5.1	Rate of the good data that is used velocity calculation to the all data [0 to 100]
28	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
29	Ship's speed	m/sec	f7.4	Ship's speed by GPS
30	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
*31	Standard deviation of the Ship's Speed	m/sec	f5.2	Standard deviation of the Ship's Speed in the 5-minute
32	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
*33	Standard deviation of the Ship's Heading	degree	f6.2	Standard deviation of the Ship's Heading in the 5-minute
34	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
*35	Standard deviation of the Ship's Roll	degree	f5.2	Standard deviation of the Ship's Roll in the 5-minute
36	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad
*37	Standard deviation of the ship's pitch	degree	f5.2	Standard deviation of the ship's pitch in the 5-minute
38	Quality flag		i1	"0"=good, "4"=questionable, "8"=bad

* Standard deviations of the ship's speed and the ship's heading, roll, and pitch in each 5-minute avarage section are also included in the dataset, since data quality of ADCP velocity might be dropped due to the high variablities of each variables. However, DMO doesn't make any evaluation for the ADCP data by them.