

**For Using Data**

Data Policy	JAMSTEC
Principal Investigator	Data Management Office
Use Constraints	See Terms and Conditions about constrain of use.
Data Citation	See Terms and Conditions about data citation.

**Quality**

DMO-Processed

**Instrument**

Multi-narrow beam echo sounder for shallow water (MBES-S)



Multi-narrow beam echo sounder for deep water (MBES-D)

**Overview**

The data provided here are the bathymetric data obtained from the multibeam echo sounder system (MBES). The system transmits the shape echo sounder beam from the transmitter and receives the beam reflected from the seabed using the hydrophone. The water depth is calculated from the travel time of the beam between the transmitter and the receiver. Having many transmitters make fan beams across the keel, this system can obtain a lot of bathymetric data on a wide angle at once.

The travel time of the beam (from the transmitter to the seabed and from the seabed to the receiver) is corrected using the vertical profile of the sound velocity obtained from the in-situ observations (see section Sound velocity profile correction). The raw data with the low reliability such as the noise are removed using the software (see section Data processing).

**Measurement System**

	Multi-narrow beam echo sounder for shallow water (MBES-S)	Multi-narrow beam echo sounder for deep water (MBES-D)
Manufacturer :	Kongsberg Maritime	Kongsberg Maritime
Type :	EM712	EM122
Frequency :	40 kHz ~ 100 kHz	12 kHz
Swath angle :	max 140 degree	max 150 degree
Beam angle :	1 * 1 degree (50kHz) 0.5 * 0.5 degree (100kHz)	1 * 1 degree
Beam number :	256 (Soundings: max 400)	288 (Soundings: max 432)
Range :	3 m - 3,600 m	20 m - 11,000 m
Accuracy (Depth) :	less than depth [m] * 0.2% (swath width ± 45 degree)	less than depth [m] * 0.2% (swath width ± 45 degree)

**Sound velocity profile correction**

In the survey area, the sound velocity profile correction is made using the XBT data acquired during the cruise. On the other hand, in the transit area, e.g., from the survey area to the port, where we do not conduct the XBT observations, the data are corrected using the historical XBT and XCTD data or the Argo float data.

**Data processing**

Following raw data with the low reliability are removed using the processing software "CARIS HIPS and SIPS Version 11.4" of Teledyne Technologies Inc. Processed data is interpolated onto 100m grid data, and output as ascii data.

- Navigation error data
- The Data exceeded the "Range" in the Measurement system section
- The Data with swath angle exceeded 60 degrees
- Spike noise data (If both of slopes calculated from the evaluated beam and prior/post one on the same swath are exceeded 15 degrees.)
- The Bottom lost data due to the sea state etc.

- The data with high possibility of noise judged by Sonar Noise Classifier on CARIS Mira AI\*  
(processing parameters are changed depending on the noise level, water depth, etc.)

The data quality is different in the survey and transit area because of the difference of the temperature data for the sound velocity profile correction. Therefore, we open the survey and transit area data separately. The rule of the file name is as follows.

File name :

- Survey area data : XXXX.dat
- Transit area data : XXXX\_t.dat

XXXX indicates cruise ID, "\_t" indicates the transit area data.

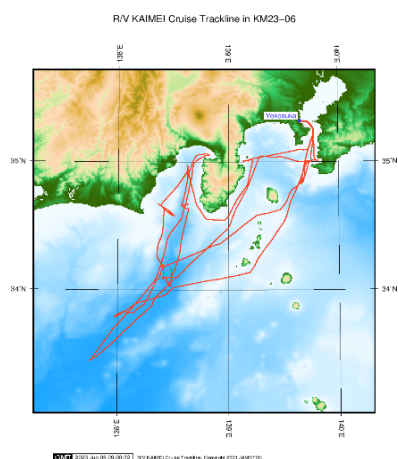
\* <https://www.teledynecaris.com/en/products/caris-mira-ai/>

#### **Note**

- 1) Geodetic system : WGS84.
- 2) The tide is not corrected.
- 3) MBES-S data was not collected in this cruise.
- 4) If you would like the raw data set, please contact DMO at "dmo@jamstec.go.jp".

## Related Information

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### KM23-06

Ship Name:

KAIMEI

Period:

2023/05/10 - 2023/05/23

Chief Scientist:

Kyoma Takahashi (JAMSTEC)

Proposal:

R/V Kaimei & KM-ROV & Jinbei Engineering cruise

#### Format Description for Bathymetry XYZ

No.	Column	Content	Format	Unit	Remarks
1	1 - 11	Longitude	f11.6	degree	+ : Eastern hemisphere - : Western hemisphere
2	13 - 22	Latitude	f10.5	degree	+ : Northern hemisphere - : Southern hemisphere
3	24 - 31	Depth	f9.3	m	
4	32 - 33	Terminator	a2		[CR][LF]