

## For Using Data

Data Policy	JURCAOS-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 level

Processed(DMO)-Basic

## 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 :	Teledyne RESON	Elac
Type :	SeaBat7125SV2	SeaBeam3020
Frequency :	200 kHz or 400 kHz	20 kHz
Swath angle :	max 165 degree	max 140 degree
Beam angle :	1.0 * 2.0 degree (200 kHz) 0.5 * 1.0 degree (400 kHz)	1 * 1 degree
Beam number :	256 (200 kHz), 512 (400 kHz)	301
Range :	0.5 m - 450 m	50 m - 7,000 m
Accuracy (Depth) :	Compliance with IHO S-44 over entire depths range	Compliance with IHO S-44 for depths greater than 100 metres

## 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 9.1" 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 which came off from the sea bottom (Surface Cleaning with CARIS :  
Cleaning parameter=threshold  $2\sigma$  (95.44%), Surface parameter=tilted plane,threshold  $2\sigma$  (95.44%))

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

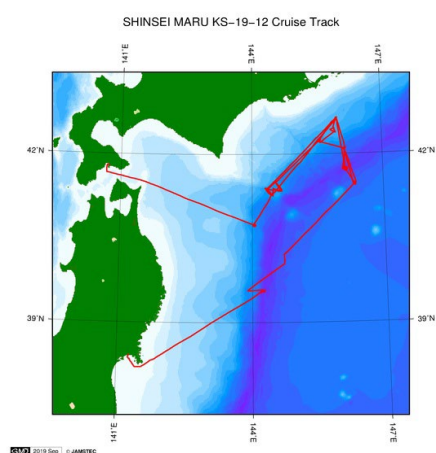
XXXX indicates cruise ID, "\_t" indicates the transit area data.

#### **Note**

- 1) Geodetic system : WGS84.
- 2) The tide is not corrected.
- 3) MBES-S data was not collected in this cruise.
- 4) This data was corrected for the sound velocity, without the surface sound velocity sensor data.  
Therefore, data quality may be degraded.
- 5) If you would like the raw data set, please contact DMO at "dmo@jamstec.go.jp".

## Related Information

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### KS-19-12

Ship Name:

SHINSEI MARU

Period:

2019/07/03 - 2019/07/13

Chief Scientist:

Yusaku Ohta (RCPEVE, Graduate School of Science,  
Tohoku University)

Proposal:

Investigation of preparation process for the huge  
interplate rathquake along the southwestern  
Kuril Trench based on the multiple sea-floor geodetic  
observation

#### 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]