

**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**

DMO-Procesed

**Instrument**

Multi-narrow beam echo sounder ( - KH-21-4)

**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**

Manufacturer :	Elac
Type :	SeaBeam3020
Frequency :	20 kHz
Swath angle :	max 140 degree
Beam angle :	1 * 1 degree
Max soundings :	301
Range :	50 m - 7,000 m
Accuracy (Depth) :	less than depth [m] * 1%

**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 12.0" 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.

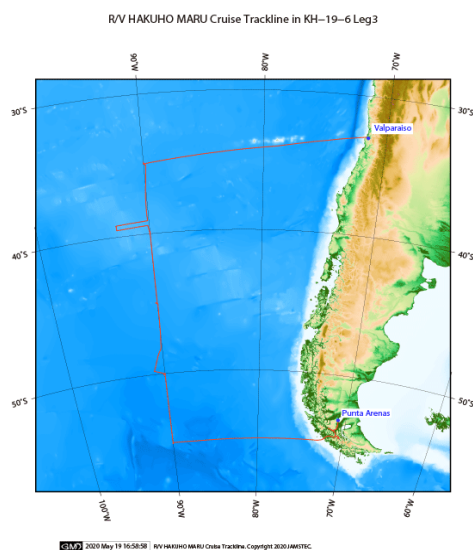
\* <https://www.teledynecaris.com/en/products/caris-mira-ai/>

#### **Note**

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

## Related Information

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### KH-19-6 Leg3

Ship Name:

HAKUHO MARU

Period:

2019/11/27 - 2019/12/15

Chief Scientist:

Atsushi Tsuda (AORI, The University of Tokyo)

Proposal:

Interdisciplinary research on oceanography and earth science in Weddell Sea and southern Pacific -Around the world cruise for anniversary of 30 years of R.V. Hakuho Maru-

Turbulence observation in the Southern Ocean west of South America using CTD-attached fast-response thermistors

Exploring the dynamics of planktonic larvae responsible for the biogeographic subdivision of deep-sea benthic fauna

Do submarine volcanism in mid-ocean ridges impact global climate change?

Float observation of mesoscale eddies in Southern Ocean

#### 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]