

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)-QCed

Instrument

Radio navigation system

NO IMAGE

Overview

The following information is continuously collected and recorded as the Navigation QCed data during the cruise of R/V HAKUHO MARU.

Location
 Meteorological elements
 Surface temperature
 Current direction and velocity
 Water depth

System

Data are recorded every one minute, and data file named after cruise code.

Manufacturer: Clover Tech
 Model: DL1800

Sensor specifications

1) GPS receiver

Manufacturer: Trimble Navigation Limited
 FURUNO ELECTRIC CO., LTD.
 Model: SPS356
 GP-170

Receiver location:

2) Seawater Temperature

Manufacturer: Murayama DENKI Ltd.
 Model: RK(C)
 S/No.: 084.2
 Measurement range: -10 ~ +40°C
 Accuracy: +/-0.5%
 Sensor location: Outer Panel [port side] (near Fr.64)

3) Doppler sonar

Manufacturer: FURUNO ELECTRIC CO., LTD.
 Model: DS-60
 Range: Ship speed: -10.00 - +40.00knot [Cross direction]
 -9.99 - +9.99knot [Horizontal direction]
 Current direction and speed: 0.0 - 9.9knot [All direction]
 Accuracy: Water tracking: +/-1.0% or +/-0.1 knot, whichever is greater

4) Multi narrow beam echo sounder

Manufacturer: Kongsberg Maritime
 Model: EM124
 Frequency: 12kHz
 Range: 20m - 11,000m

5) Single beam echo sounder

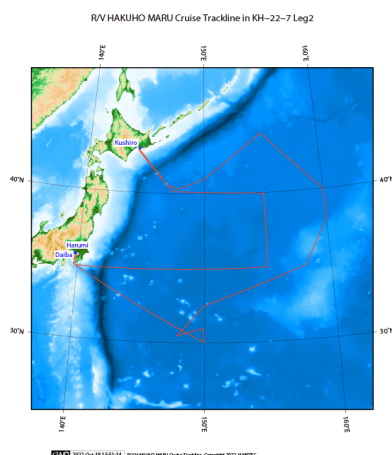
| | | |
|---------------|----------------------------------|-------------------------|
| Manufacturer: | Kongsberg Maritime | |
| Model: | EA600 | |
| Frequency: | 12kHz | |
| 6) Anemometer | | |
| Manufacturer: | NIPPON ELECTRIC INSTRUMENT, INC. | |
| Model: | N-162A | |
| Altitude: | 17m | |
| Range: | Wind direction: | all direction |
| | Wind speed: | 2 - 60m/s |
| Accuracy: | Wind speed: | +/- 0.5m/s (less 10m/s) |
| | | 10m/s or more +/-5% |

Note

Please see the 'data set' and 'readme' for the detail of the following observation.

| | |
|------------------------------|--|
| Water depth: | Bathymetry (MBES) |
| Current direction/ speed: | Shipboard Acoustic Doppler Current Profiler (ADCP) |

Related Information



KH-22-7 Leg2

| | |
|------------------|---|
| Ship Name: | HAKUHO MARU |
| Period: | 2022/08/10 - 2022/09/01 |
| Chief Scientist: | Hajime Obata (The University of Tokyo) |
| Proposal: | Comprehensive biogeochemical studies on distributions and cycles of trace elements and their isotopes in the western North Pacific and the equatorial Pacific (GEOTRACES) |
| | Study on the turbulence and double-diffusive mixing and impacts with fast-response thermistors |

Format Description for QCed Data of Navigation

The one record of this data has 117 bytes of data part and 12 bytes of flag part.

Data part

| No. | Column | Content | Format | Unit | Remarks |
|-----|-----------|------------------------------|---------------|-----------------|--|
| 1 | 1 - 8 | Date | i4,i2,i2 | | YYYYMMDD (UTC) |
| 2 | 10 - 15 | Time | i2,i2,i2 | | hhmmss (UTC) |
| 3 | 17 - 19 | Datum | a3 | | W84:WGS84 TD_:TOKYO DATUM |
| 4 | 21 - 31 | Latitude | i2,x1,f7.4,a1 | degree - minute | dd-mm.mmmmmN(S) |
| 5 | 33 - 44 | Longitude | i3,x1,f7.4,a1 | degree - minute | ddd-mm.mmmmmE(W) |
| 6 | 46 - 49 | Ship speed(Ground) | f4.1 | knot | |
| 7 | 51 - 55 | Course(Ground) | f5.1 | degree | |
| 8 | 57 - 60 | Ship speed(Water) | f4.1 | knot | *1 |
| 9 | 62 - 66 | Gyro | f5.1 | degree | |
| 10 | 68 - 72 | Air temperature | f5.1 | deg-C | |
| 11 | 74 - 78 | Sea surface temperature(SST) | f5.2 | deg-C | |
| 12 | 80 - 85 | Atmospheric pressure | f6.1 | hPa | Adjusted to the sea surface level |
| 13 | 87 - 89 | Relative humidity | i3 | % | |
| 14 | 91 - 93 | True wind direction | i3 | degree | Averaged over the previous 6 seconds *2 |
| 15 | 95 - 98 | True wind speed | f4.1 | m/sec | Averaged over the previous 6 seconds *2 No anemometer height adjustment |
| 16 | 100 - 106 | Depth | f7.1 | m | |
| 17 | 108 - 112 | Current direction | f5.1 | degree | Calculated value |
| 18 | 114 - 117 | Current speed | f4.1 | knot | Calculated value |

Flag part

| No. | Column | Content | Format | Remarks |
|-----|--------|---------|--------|---|
| 19 | 119 | Flag 1 | i1 | QC flag for 'Latitude' and 'Longitude' |
| 20 | 120 | Flag 2 | i1 | QC flag for 'Ship speed (Ground)' |
| 21 | 121 | Flag 3 | i1 | QC flag for 'Course (Ground)' |
| 22 | 122 | Flag 4 | i1 | QC flag for 'Ship speed (Water)' |
| 23 | 123 | Flag 5 | i1 | QC flag for 'Gyro' |
| 24 | 124 | Flag 6 | i1 | QC flag for 'Air temperature' |
| 25 | 125 | Flag 7 | i1 | QC flag for 'Sea Surface Temperature (SST)' |
| 26 | 126 | Flag 8 | i1 | QC flag for 'Atmospheric pressure' |
| 27 | 127 | Flag 9 | i1 | QC flag for 'Relative humidity' |
| 28 | 128 | Flag 10 | i1 | QC flag for 'Wind direction' and 'Wind speed' |
| 29 | 129 | Flag 11 | i1 | QC flag for 'Depth' |
| 30 | 130 | Flag 12 | i1 | QC flag for 'Current direction' and 'Current speed' |

*1 The plus and minus sign of No.8 [Ship speed (Water)] about R/V KAIREI indicates the velocity of direction of a bow and stem.

*2 No.14 [True wind direction] and No.15 [True wind speed] about R/V SHINSEI MARU are instantaneous value.

* The terminator of each record is 'CR+LF' code.

* Missing value and format error value are filled with '9'.

Definition of Quality Control Flags

Flag 1 : Longitude and Latitude

- 1 - accepted
- 2 - questionable value
- 4 - failed in location check
- 9 - system error or input error

Flag 2 : Ship speed (ground)

- 1 - accepted
 - 2 - questionable value
 - 4 - failed range check (under 20 knots)
 - 9 - system error or input error
- Flag 3 : Course (ground)
- 1 - accepted
 - 2 - questionable value
 - 4 - failed range check (0 ~ 360 degree)
 - 9 - system error or input error
- Flag 4 : Ship speed (water)
- 1 - accepted
 - 4 - failed range check (under 20 knots)
 - 9 - system error or input error
- Flag 5 : Gyro
- 1 - accepted
 - 4 - failed range check (0 ~ 360 degree)
 - 9 - system error or input error
- Flag 6 : Air temperature
- 3 - assumed good*
 - 4 - failed range check (-20 ~ 40 degC)
 - 9 - system error or input error
- Flag 7 : Sea surface temperature
- 3 - assumed good*
 - 4 - failed range check (-3 ~ 37 degC)
 - 9 - system error or input error
- Flag 8 : Atmospheric pressure
- 3 - assumed good*
 - 4 - failed range check (890 ~ 1040 hPa)
 - 9 - system error or input error
- Flag 9 : Relative humidity
- 3 - assumed good*
 - 4 - failed range check (0 ~ 100 %)
 - 9 - system error or input error
- Flag 10 : Wind direction and wind speed
- 3 - assumed good*
 - 4 - failed range check (0 ~ 360 degree : wind direction, 0 ~ 60 m/s : wind speed)
 - 9 - system error or input error
- Flag 11 : Depth
- 3 - assumed good*
 - 4 - failed range check (4 ~ 11000 m)
 - 9 - system error or input error
- Flag 12 : Current direction and current speed
- 3 - assumed good*
 - 4 - failed range check (0 ~ 360 degree : current direction, 0 ~ 5 knots : current speed)
 - 9 - system error or input error

* 'assumed good' means that this data passed range check but may contains leap or inappropriate zero.