

CSB Validation Tools



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IHO Data Center for Digital Bathymetry (DCDB)

Bathymetry Tools Workshop

Unlock the Potential of Crowdsourced Bathymetry



IHO

CSB Data Flow Overview

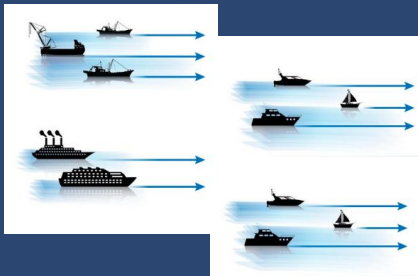
```

{
  "crs": {
    "horizontal": {
      "type": "EPSG",
      "value": 4326
    },
    "vertical": "Transducer"
  },
  "providerContactPoint": {
    "orgName": "Example Cruises Inc",
    "email": "support@example.com",
    "logger": "Rose Point ECS",
    "loggerVersion": "1.0"
  },
  "convention": "XYZ CSB 3.0",
  "dataLicense": "CC0 1.0",
  "platform": {
    "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",
    "correctors": {
      "positionReferencePoint": "GNSS"
    }
  }
}

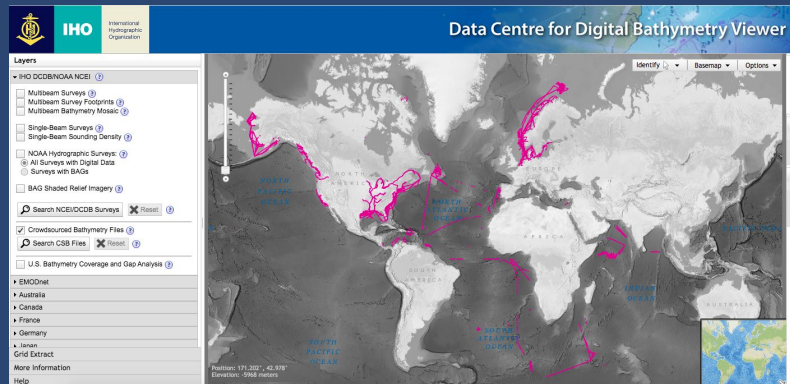
```

**CSB data log file
(with JSON
metadata string)**

LON	LAT	DEPTH	TIME
68.499214	15.832683	59.3	2020-02-25T01:08:06Z
68.499151	15.832738	59.3	2020-02-25T01:08:07Z
68.498965	15.832905	61.3	2020-02-25T01:08:11Z
68.498965	15.832905	61.3	2020-02-25T01:08:11Z
68.498655	15.833184	61.3	2020-02-25T01:08:15Z
68.498592	15.833239	61.3	2020-02-25T01:08:16Z
68.498213	15.833567	55.3	2020-02-25T01:08:23Z
68.49815	15.833622	55.3	2020-02-25T01:08:24Z
68.49815	15.833622	55.3	2020-02-25T01:08:24Z
68.497713	15.83401	54.3	2020-02-25T01:08:30Z
68.497399	15.834287	53.3	2020-02-25T01:08:35Z
68.497399	15.834287	53.3	2020-02-25T01:08:36Z
68.497336	15.834341	53.3	2020-02-25T01:08:36Z
68.497147	15.834506	59.3	2020-02-25T01:08:39Z
68.497147	15.834506	59.3	2020-02-25T01:08:40Z
68.497084	15.83456	59.3	2020-02-25T01:08:40Z
68.496959	15.83467	59.3	2020-02-25T01:08:43Z
68.496897	15.834725	59.3	2020-02-25T01:08:44Z
68.496897	15.834725	59.3	2020-02-25T01:08:44Z
68.496708	15.83489	54.3	2020-02-25T01:08:47Z
68.496708	15.83489	54.3	2020-02-25T01:08:47Z
68.496646	15.834946	54.3	2020-02-25T01:08:48Z
68.496457	15.835112	49.3	2020-02-25T01:08:50Z
68.496457	15.835112	49.3	2020-02-25T01:08:51Z
68.496205	15.835332	53.3	2020-02-25T01:08:55Z
68.496143	15.835387	53.3	2020-02-25T01:08:55Z



Data discovery and access via map viewer.



*Data and identifying
token are submitted
to DCDB via HTTPS
post*

*Frequent update of
viewer*



Common Follow-up From Providers



Common Submission Errors

```
{{"path":"data[0]","message":"Missing feature geometry coordinates"}, {"path":"data[1]","message":"Missing feature geometry coordinates"}, {"path":"data[2]","message":"Missing feature geometry coordinates"}, {"path":"data[3]","message":"Missing feature geometry coordinates"}, {"path":"data[4]","message":"Missing
```

```
Timestamps are out of order"}, {"path":"data[109].timestamp","message":"Timestamps are out of order"}, {"path":"data[110].timestamp","message":"Timestamps are out of order"}, {"path":"data[111].timestamp","message":"Timestamps are out of order"},
```

```
{{"path":"data[0].longitude","message":"LonLeft should be less than or equal to 180"}, {"path":"data[0].latitude","message":"Latitude should be less than or equal to 90"}, {"path":"data[0].time","message":"Timestamp should be specified in the past"}, {"path":"data[1].latitude","message":"Latitude should be less than or equal to 90"}, {"path":"data[1].time","message":"Timestamp should be specified in the past"}, {"path":"data[1].longitude","message":"LonLeft should be less than or equal to 180"},
```

```
1(GeometryGenerator.java:90) at gov.noaa.ncei.cmg.crowbar.message.util.Pipe.lambda$pipe$2(Pipe.java:51) ... 5 more Caused by: edu.colorado.cires.cmg.tracklinegen.ValidationException: Speed from (73.194930, -45.021670, 2025-11-28T06:47:45Z) to (73.223880, -45.011260, 2025-11-28T06:48:43Z) was 85.745768 knots, which exceeded allowed maximum of 60.000000 knots at edu.colorado.cires.cmg.tracklinegen.AntimeridianUtils.getSpeed(AntimeridianUtils.java:44) at edu.colorado.cires.cmg.tracklinegen.GeoJsonMultiLineParser.
```

Unlock the Potential of Crowdsourced Bathymetry

Pre-Submission Validation

Me: watch my live demo
My computer:



Thank you.



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Crowdsourced Bathymetry Tools Workshop

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Links and References

International
Hydrographic
Organization

- DCDB Map Viewer: <https://www.ncei.noaa.gov/maps/bathymetry/>
- Point Store Documentation: https://github.com/CI-CMG/pointstore-api-docs/blob/main/csb_readme.html
- IHO B-12 3.0: https://iho.int/uploads/user/pubs/bathy/B_12_CSB-Guidance_Document-Edition_3.0.0_Final.pdf
- Guidance for submitting CSB Data to the DCDB: <https://www.ncei.noaa.gov/sites/g/files/anmtlf171/files/2024-04/GuidanceforSubmittingCSBDataToTheIHODCDB%20%281%29.pdf>
- Sample CSB File Formats: <https://www.ncei.noaa.gov/sites/g/files/anmtlf171/files/2024-04/SampleCSBFileFormats.pdf>
- GitHub: <https://github.com/CI-CMG/csb-validator>
- PyPI: <https://pypi.org/project/csb-validator/>