

Crowdsourced Bathymetry File Formats for Submission to the IHO Data Center for Digital Bathymetry

GeoJSON Format - Required Fields Only

Format Version 3.0

Last Update: April 7, 2022

```
{
  "type": "FeatureCollection",
  "crs": {
    "horizontal": {
      "type": "EPSG",
      "value": 4326
    },
    "vertical": "Transducer"
  },
  "properties": {
    "providerContactPoint": {
      "orgName": "Example Cruises Inc",
      "email": "support@example.com",
      "logger": "Rose Point ECS",
      "loggerVersion": "1.0"
    },
    "convention": "GeoJSON CSB 3.0",
    "dataLicense": "CC0 1.0",
    "platform": {
      "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",
      "correctors": {
        "positionReferencePoint": "GNSS"
      }
    }
  },
  "features": [
    {
      "type": "Feature",
      "geometry": {
        "type": "Point",
        "coordinates": [
          -119.37249833123325,
          72.09587373217158
        ]
      },
      "properties": {
        "depth": 108.9,

```

```
    "time": "2015-08-06T22:00:00.000Z"  
  }  
}  
]
```

XYZ Format - Required Fields Only

Format Version 3.0

Last Update: April 7, 2022

Metadata for inclusion in post to DCDB API:

```
{  
  "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": "CCO 1.0",  
  "platform": {  
    "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",  
    "correctors": {  
      "positionReferencePoint": "GNSS"  
    }  
  }  
}
```

Contents of file (LON,LAT,DEPTH,TIME):

```
LON,LAT,DEPTH,TIME  
-119.372498, 72.095873, 108.9, 2015-08-06T22:00:00.000Z
```

Alternative file format (LAT,LON,DEPTH,TIME):

```
LAT,LON,DEPTH,TIME  
72.095873, -119.372498, 108.9, 2015-08-06T22:00:00.000Z
```

GeoJSON Format - Includes Suggested Metadata

Format Version 3.0

Last Update: April 7, 2022

```
{
  "type": "FeatureCollection",
  "crs": {
    "horizontal": {
      "type": "EPSG",
      "value": 8252
    },
    "vertical": "Transducer"
  },
  "properties": {
    "providerContactPoint": {
      "orgName": "Example Cruises Inc",
      "email": "support@example.com",
      "logger": "Rose Point ECS",
      "loggerVersion": "1.0"
    },
    "convention": "GeoJSON CSB 3.0",
    "dataLicense": "CC0 1.0",
    "platform": {
      "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",
      "type": "Ship",
      "name": "USCGC Healy",
      "length": 128,
      "IDType": "IMO",
      "IDNumber": 9083380,
      "sensors": [
        {
          "type": "Sounder",
          "make": "Kongsberg Maritime",
          "model": "EM122",
          "position": [-18.404, -1.909, 8.919],
          "draft": 8.321,
          "frequency": 12000,
          "transducer": "EM122-CentreBeam"
        },
        {
          "type": "GNSS",
          "make": "Kongsberg Maritime",
          "model": "Seapath 330+",
          "position": [0, 0, 0]
        }
      ]
    }
  }
}
```

```

    "type": "MotionSensor",
    "make": "Kongsberg Maritime",
    "model": "Seapath 330+",
    "position": [0, 0, 0]
  }
],
"correctors": {
  "positionReferencePoint": "GNSS",
  "soundSpeedDocumented": true,
  "positionOffsetsDocumented": true,
  "dataProcessed": true,
  "motionOffsetsApplied": true,
  "draftApplied": true
}
},
"algorithms": [
  {
    "name": "deduplicate",
    "Params": ""
  }
]
},
"lineage": [
  {
    "type": "CRSTransformation",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "origin": "EPSG:4326",
      "destination": "EPSG:8252",
      "method": "GeoTrans"
    }
  },
  {
    "type": "TimeInterpolation",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "source": "SystemTime | ZDA | RMC | ...",
      "method": "Midway | ElapsedTime | DataSource | NTP | PTP | ...",
      "comment": "Millisecond elapsed time on first character of strings used for interpolation"
    }
  },
  {
    "type": "algorithm",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "name": "deduplicate",
      "parameters": "",
      "comment": "Selected 11281 non-duplicate depths from 35744 in input."
    }
  }
]

```

```

    }
  },
  {
    "type": "GNSSProcessing",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "algorithm": "RTKLib | CSRS-PPP | ...",
      "version": "1.2.0",
      "comment": "Base stations from New Hampshire CORS at NHUN
https://www.unh.edu/facilities/gis-cors"
    }
  },
  {
    "type": "SoundSpeedCorrection",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "Source": "Model | Profile | GeometricMean | Fixed | CarterTable | MatthewTable | WOA13 |
...",
      "algorithm": "CIDCO-Ocean | Raytraced | ...",
      "version": "1.1.0",
      "comment": "Solutions from 25 profiles, 15 used, 10 duplicate."
    }
  },
  {
    "type": "VerticalReduction",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "reference": "ChartDatum | Ellipsoid",
      "method": "ObservedWL | PredictedWL | ModelledWL | EllipsoidReduction | ...",
      "model": "CANNORTH2016v1HyVSEP_NAD83v6_CD | StationReference | VDatum | VORF | ...",
      "comment": "Water levels from NOAA gauge
https://tidesandcurrents.noaa.gov/stationhome.html?id=8419870"
    }
  },
  {
    "type": "CRS",
    "timestamp": "2021-11-22T16:10:09.346821",
    "detail": {
      "type": "EPSG",
      "value": 8252,
      "comment": "Transformed with GeoTrans v 3.23"
    }
  }
],
"features": [
  {
    "type": "Feature",
    "geometry": {

```

```
    "type": "Point",
    "coordinates": [
      -119.372498,
      72.095873
    ]
  },
  "properties": {
    "depth": 108.9,
    "time": "2015-08-06T22:00:00.000Z"
  }
}
]
```

XYZ Format - Includes Suggested Metadata

Format Version 3.0

Last Update: April 7, 2022

Metadata for inclusion in post to DCDB API:

```
{
  "crs": {
    "horizontal": {
      "type": "EPSG",
      "value": 8252
    },
    "vertical": "Transducer"
  },
  "providerContactPoint": {
    "orgName": "Example Cruises Inc",
    "email": "support@example.com",
    "logger": "Rose Point ECS",
    "loggerVersion": "1.0"
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    "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",
    "type": "Ship",
    "name": "USCGC Healy",
    "length": 128,
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    "make": "Kongsberg Maritime",  
    "model": "Seapath 330+",  
    "position": [0, 0, 0]  
  }  
],  
"correctors": {  
  "positionReferencePoint": "GNSS",  
  "soundSpeedDocumented": true,  
  "positionOffsetsDocumented": true,  
  "dataProcessed": true,  
  "motionOffsetsApplied": true,  
  "draftApplied": true  
}  
},  
"algorithms": [  
  {  
    "name": "deduplicate",  
    "params": ""  
  }  
],  
"lineage": [  
  {  
    "type": "CRSTransformation",  
    "timestamp": "2021-11-22T16:10:09.346821",
```

```

    "detail": {
      "origin": "EPSG:4326",
      "destination": "EPSG:8252",
      "method": "GeoTrans"
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      "algorithm": "CIDCO-Ocean | Raytraced | ...",
      "version": "1.1.0",

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```

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  "timestamp": "2021-11-22T16:10:09.346821",
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    "method": "ObservedWL | PredictedWL | ModelledWL | EllipsoidReduction | ...",
    "model": "CANNORTH2016v1HyVSEP_NAD83v6_CD | StationReference | VDatum | VORF | ...",
    "comment": "Water levels from NOAA gauge
https://tidesandcurrents.noaa.gov/stationhome.html?id=8419870"
  }
},
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  "type": "CRS",
  "timestamp": "2021-11-22T16:10:09.346821",
  "detail": {
    "type": "EPSG",
    "value": 8252,
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  }
}
]
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```

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