

## Content Standard for Digital Geospatial Metadata V. 2 Extension for Bathymetry Raw Data

### Summary:

In order to create metadata for bathymetric raw data, it is necessary to extend the CSDGM. Two new sections are defined, the first new section provides information about the data collection environment, the second section offers information about the datasets itself like statistical values.

The document starts with a view of the main metadata structure, listing standard and new sections (bold letters), next the new sections are described according to the CSDGM.

(30.3.2006)

### Metadata Structure

- 0      Metadata -- data about the content, quality, condition, and other characteristics of data.  
           Type: compound  
           Short Name: metadata

Metadata =

```

Identification_Information +
0{Data_Quality_Information}1 +
0{Spatial_Data_Organization_Information}1 +
0{Spatial_Reference_Information}1 +
0{Entity_and_Attribute_Information}1 +
0{Distribution_Information}n +
Metadata_Reference_Information +
0{Cruise_Description}1 //new section, S. 1
0{Bathymetry_Data_Description}1 //new section, S. 2
  
```

### Cruise and Equipment Information (New Section)

- 11      Cruise Description – information about the cruise on which the data were collected and the equipment, i.e. the navigation system and the sonar system.  
           Type: compound  
           Short Name: cruise\_descr

Cruise\_Description =

```

Vessel_Name +
Vessel_Operating_Institute +
Sonar_Platform +
Sonar_Model +
0{Sonar_Version}1 +
Navigation_System +
Cruise_Name +
Main_Investigator +
Main_Investigator_Institute
  
```

- 11.1 Vessel name --  
Type: text  
Domain: free text  
Short Name: vessel
- 11.2 Vessel Operating Institute --  
Type: text  
Domain: free text  
Short Name: vessel\_opinst
- 11.3 Sonar Platform --  
Type: text  
Domain: "Ship" "Vehicle" free text  
Short Name: sonar\_platform
- 11.4 Sonar Model --  
Type: text  
Domain: "Hydrosweep" "Seabeam" free text  
Short Name: sonar\_model
- 11.5 Sonar Version --  
Type: text  
Domain: "DS1" "DS2" free text  
Short Name: sonar\_version
- 11.6 Navigation System --  
Type: text  
Domain: free text  
Short Name: nav\_sys\_descr
- 11.7 Cruise Name --  
Type: text  
Domain: free text  
Short Name: cruise\_name
- 11.8 Main Investigator --  
Type: text  
Domain: free text  
Short Name: main\_invstgtr
- 11.9 Main Investigator Institute --  
Type: text  
Domain: free text  
Short Name: main\_invstgtr\_inst

**Bathymetry Raw Data Description Information (New Section)**

- 12 Data Description – information about the collected data, i.e. about the settings and the track section as well as statistical information about the measurements in the dataset

Type: compound

Short Name: data\_descr

Data\_Description =

Swath\_Angle +  
 Swath\_Angle\_Units +  
 Swath\_Spacing +  
 Surveying\_Mode +  
 Beams\_per\_Swath +  
 Number\_of\_Records +  
 Bathymetry\_Data\_Statistics +  
 0{Amplitude\_Data\_Statistics}1 +  
 0{Sidescan\_Data\_Statistics}1 +  
 Range\_of\_Depths +  
 Navigation\_Description

Bathymetry\_Data\_Statistics =

Number\_of\_Beams +  
 Number\_of\_Good\_Beams +  
 Number\_of\_Zero\_Beams +  
 Number\_of\_Flagged\_Beams +

Amplitude\_Data\_Statistics =

Number\_of\_Beams +  
 Number\_of\_Good\_Beams +  
 Number\_of\_Zero\_Beams +  
 Number\_of\_Flagged\_Beams +

Sidescan\_Data\_Statistics =

Number\_of\_Pixels\_per\_Swath +  
 Number\_of\_Good\_Pixels +  
 Number\_of\_Zero\_Pixels +  
 Number\_of\_Flagged\_Pixels +

Range\_of\_Depths =

Minimum\_Depth +  
 Maximum\_Depth +

Navigation\_Description =

Time\_Period +  
 Time\_Period\_Units +  
 Length\_of\_Track\_Section +  
 Length\_Units +  
 Average\_Speed +  
 Speed\_Units

- 12.1 Swath Angle --  
Type: text  
Domain: "90" "100" "120" free text  
Short Name: swath\_angle
- 12.2 Swath Angle Units --  
Type: text  
Domain: "Degrees" free text  
Short Name: swath\_angle\_unit
- 12.3 Swath Spacing --  
Type: text  
Domain: "Equal Spacing" "Equal Footprints" free text  
Short Name: swath\_spacing
- 12.4 Surveying Mode --  
Type: text  
Domain: "Hardbeams" "HDBE" "HDBE Standard" "HDBE ASLC"  
"HDBE Max Level" free text  
Short Name: mode
- 12.5 Beams per Swath --  
Type: integer  
Domain: Beams per Swath  $\geq 0$   
Short Name: beams\_per\_swath
- 12.6 Number of Records --  
Type: integer  
Domain: Number of Records  $\geq 0$   
Short Name: num\_of\_recs
- 12.7 Bathymetry Data Statistics --  
Type: compound  
Short Name: bat\_data
- 12.7.1 Number of Beams --  
Type: integer  
Domain: Number of Beams  $\geq 0$   
Short Name: num\_of\_beams
- 12.7.2 Number of Good Beams --  
Type: integer  
Domain: Number of Good Beams  $\geq 0$   
Short Name: num\_of\_good\_beams
- 12.7.3 Number of Zero Beams --  
Type: integer  
Domain: Number of Zero Beams  $\geq 0$   
Short Name: num\_of\_zero\_beams
- 12.7.4 Number of Flagged Beams --  
Type: integer  
Domain: Number of Flagged Beams  $\geq 0$   
Short Name: num\_of\_flag\_beams

- 12.8      Amplitude Data Statistics --
  - Type: compound
  - Short Name: ampl\_data
- 12.8.1    Number of Beams --
  - Type: integer
  - Domain: Number of Beams  $\geq 0$
  - Short Name: num\_of\_beams
- 12.8.2    Number of Good Beams --
  - Type: integer
  - Domain: Number of Good Beams  $\geq 0$
  - Short Name: num\_of\_good\_beams
- 12.8.3    Number of Zero Beams --
  - Type: integer
  - Domain: Number of Zero Beams  $\geq 0$
  - Short Name: num\_of\_zero\_beams
- 12.8.4    Number of Flagged Beams --
  - Type: integer
  - Domain: Number of Flagged Beams  $\geq 0$
  - Short Name: num\_of\_flag\_beams
- 12.9      Sidescan Data Statistics --
  - Type: compound
  - Short Name: sscan\_data
- 12.9.1    Number of Pixels per Swath --
  - Type: integer
  - Domain: Pixels per Swath  $\geq 0$
  - Short Name: pixels\_per\_swath
- 12.9.2    Number of Good Pixels --
  - Type: integer
  - Domain: Number of Good Pixels  $\geq 0$
  - Short Name: num\_of\_good\_pixels
- 12.9.3    Number of Zero Pixels --
  - Type: integer
  - Domain: Number of Zero Pixels  $\geq 0$
  - Short Name: num\_of\_zero\_pixels
- 12.9.4    Number of Flagged Pixels --
  - Type: integer
  - Domain: Number of Flagged Pixels  $\geq 0$
  - Short Name: num\_of\_flag\_pixels
- 12.10     Range of Depths --
  - Type: compound
  - Short Name: limits
- 12.10.1   Minimum Depth --
  - Type: real
  - Domain: Minimum Depth  $\geq 0.0$
  - Short Name: depth\_min

- 12.10.1 Maximum Depth --
  - Type: real
  - Domain: Max. Depth  $\geq 0.0$
  - Short Name: depth\_max
  
- 12.11 Navigation Description --
  - Type: compound
  - Short Name: nav\_descr
  
- 12.11.1 Time Period --
  - Type: real
  - Domain: Time Period  $> 0.0$
  - Short Name: total\_time
  
- 12.11.2 Time Period Units --
  - Type: text
  - Domain: "hours" "seconds" free text
  - Short Name: time\_units
  
- 12.11.3 Length of Track Section --
  - Type: real
  - Domain: Length  $> 0.0$
  - Short Name: total\_time
  
- 12.11.4 Length Units --
  - Type: text
  - Domain: "meters" "feet" free text
  - Short Name: length\_units
  
- 12.11.5 Average Speed --
  - Type: real
  - Domain: Speed  $\geq 0.0$
  - Short Name: avg\_speed
  
- 12.11.6 Speed Units --
  - Type: text
  - Domain: "km/h" "knots" free text
  - Short Name: speed\_units

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