Marine Information Overlays
Ice Coverage

Object Catalogue - Objects

Edition 1.0

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Introduction

The Object Catalogue is the data schema for “S-57 - The IHO Transfer Standard for Digital Hydrographic Data”. Its primary function is to provide a means of describing real world entities. That is entities which actually exist (either physically such as a beacon or legally such as an anchorage area) in the real world. The Object Catalogue is based on the theoretical model described in Part 2 of the S-57 Standard. The model assumes that real world entities can be categorised into a finite number of types, such as lights, wrecks, built up areas etc. These entity types are termed feature object classes in the Object Catalogue. An instance of a feature object class, referred to as a feature object, (that is one specific light or wreck or built up area) can be more precisely described by assigning to it a number of attributes and then specifying values for those attributes. A particular real world entity is encoded by specifying the appropriate feature object class, attributes and attribute values. For example, a red lateral buoy would be encoded as follows:- feature object class: buoy lateral; attribute: colour; attribute value: red.

The data model defines four types of feature object:

Geo	containing the descriptive characteristics of a real world entity.
Meta	containing information about other objects (eg. compilation scale, vertical datum).
Collection	containing information about the relationships between other objects.
Cartographic	containing information about the cartographic representation of a real world entity.

Object Catalogue - Objects (this document) contains a description of each feature object class. This includes a definition of the class and a list of the attributes that are allowed for that class. Instructions on how to interpret the information associated with each feature object class are given in the introduction.

The Object Catalogue does not mandate the use of any attributes. However, for each instance of a feature object, a particular attribute may only be used once. In general terms it is up to the encoder to select from the appropriate list the attributes that are relevant to a particular object instance. However, for some applications, certain attributes may be designated as mandatory for specific object classes. These attributes will be listed in the appropriate product specification.

A description of each attribute is contained in the accompanying document *Object Catalogue - Attributes*. This includes a definition of the attribute and, where appropriate, a list of allowable values, also with definitions. Instructions on how to interpret the information associated with each attribute are given in the introduction to *Attributes*.

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1 Introduction

Each object class is specified in a standardised way, under the following headings:

- Object Class: object class name
- Acronym: six character code for the object class
- Code: integer code to be used in the coding of data
- For each object class the set of relevant attributes is defined. This set is divided into three subsets:
  - * subset ‘Attribute_A’: Attributes in this subset define the individual characteristics of an object;
  - * subset ‘Attribute_B’: Attributes in this subset provide information relevant to the use of the data, e.g. for presentation or for an information system;
  - * subset ‘Attribute_C’: Attributes in this subset provide administrative information about the object and the data describing it;

  Each subset shows a list of ASCII attribute acronyms. For the description of each attribute see *Object Catalogue - Attributes*.
- Definition: Where possible each object class is defined and the source of the definition is quoted.
- References:
  - * INT 1: reference to the number of the paper chart feature in the ‘International Chart Series INT 1 Symbols, Abbreviations, Terms used on Charts’. INT 1 was one of the major guidelines for the definition of object classes.
  - * M-4: reference to the paragraph number in the ‘Chart Specifications of the IHO’, publication M-4. This was another guideline used in the definition and description of object classes.
- Remarks: Under ‘Remarks’ further comments and notes are given. Related but separate object classes are listed under the heading ‘Distinction’.

1.2 Geo Object Classes

GEO OBJECT CLASSES

Object Class: **Iceberg Limit**

Acronym: **brgIne** Code: **30300**

Set Attribute_A: NOBJNAM; OBJNAM

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

Limit of all known Icebergs

References:

Canadian Ice Service MANICE", 9th edition, June, 2005

Remarks:

Distinction :

GEO OBJECT CLASSES

Object Class: **Ice Drift**

Acronym: **icedft** Code: **30301**

Set Attribute_A: iceddr; icedis; icedsp; NOBJNM; OBJNAM; ORIENT;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

Motion of an ice field or floe as a result of forces such as wind and currents.

References:

"International System of Sea-Ice Symbols", WMO No. 259, TP. 145, Supplement No. 4, 1970.

Remarks:

The ORIENT attribute must match the direction given in the iceddr attribute.

Example: iceddr = 6 (Ice Drift to SW)

ORIENT = 225.00

Distinction :

GEO OBJECT CLASSES

Object Class: **Recommended Route Centerline**

Acronym: **RCRTCL** Code: **108**

Set Attribute_A: CATTRK; DATEND; DATSTA; DRVAL1; DRVAL2; NOBJNM; OBJNAM; ORIENT; PEREND; PERSTA; QUASOU; SOUACC; STATUS; TECSOU; TRAFIC; VERDAT;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

A recommended route is a route of undefined width, for the convenience of ships in transit, which is often marked by centerline buoys. (IHO Dictionary, S-32, 5th Edition, 4448)

The recommended route centerline indicates the >centerline= of a recommended route.

References:

INT 1: IM 28.1;

M-4: 435.4;

Remarks:

A recommended route describes the regulation of navigation for non-hydrographic reasons such as the prevention of collision or the avoidance of navigation risks. It is generally laid down by a national or international authority other than the hydrographic authority. (IHO Chart Specifications, M-4)

Distinction :

GEO OBJECT CLASSES

Object Class: **Sea Ice**

Acronym: **seaice** Code: **30302**

Set Attribute_A: iceact; iceapc; icesod; iceflz; NOBJNM; OBJNAM;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

Sea Ice is an area at sea that is covered, in whole or in part, with ice.

References:

"Workshop on International Standards for Ice Information in ECDIS," June 27-29, 1995, Canada/Germany/United States.

“Ice in ECDIS Workshop,” June 3-4, 2000, St. John’s, Canada.

“International System of Sea-Ice Symbols”, WMO No. 259, TP. 145, Supplement No. 4, 1970.

“SIGRID-3: A Vector Archive Format for Sea Ice Charts”, JCOMM Technical Report No. 23, 2004

Remarks:

Sea Ice ‘objects’ can also encode numerous other information that are traditionally shown on Ice Egg Codes. These are to be encoded as a text string in the INFORM attribute.

Distinction :

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1.3 Meta Object Classes

META OBJECT CLASSES

Object Class: **Accuracy of data**

Acronym: **M_ACCY** Code: **300**

Set Attribute_A: HORACC; POSACC; SOUACC; VERACC;

Set Attribute_B: INFORM; NINFOM; NTXTDS; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

An area within which the best estimate of the overall accuracy of the data is uniform. The overall accuracy takes into account for example the source accuracy, chart scale, digitising accuracy etc.

References:

INT 1: not specified;

M-4: not specified;

Remarks:

Distinction:

META OBJECT CLASSES

Object Class: **Coverage**

Acronym: **M_COVR** Code: **302**

Set Attribute_A: CATCOV;

Set Attribute_B: INFORM; NINFOM;

Set Attribute_C: SORDAT; SORIND;

Definition:

A geographical area that describes the coverage and extent of spatial objects.

References:

INT 1: not specified;

M-4: not specified;

Remarks:

This object class is intended to support an indication of coverage.

META OBJECT CLASSES

Object Class: **Nautical publication information**

Acronym: **M_NPUB** Code: **305**

Set Attribute_A:

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; PUBREF; TXTDSC;

Set Attribute_C: SORDAT; SORIND;

Definition:

Used to relate additional nautical information or publications to the data.

References:

INT 1: not specified

M-4: not specified

Remarks:

For example, geographic areas may be defined that relate to sections in Sailing Directions (Coast Pilots).

1.4 Collection Object Classes

COLLECTION OBJECT CLASSES

Object Class: **Association**

Acronym: **C_ASSO** Code: **401**

Set Attribute_A:	NOBJNM; OBJNAM;
Set Attribute_B:	INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;
Set Attribute_C:	SORDAT; SORIND;

Definition:

Used to identify an association between two or more objects. The association may be named.

Remarks:

For example: an association relationship may be used to indicate that a recommend route marks the best way through sea ice.

Distinction :