S-412 Data Classification and Encoding Guide (DCEG)

# Section A - DCEG – Feature Types and Information Types

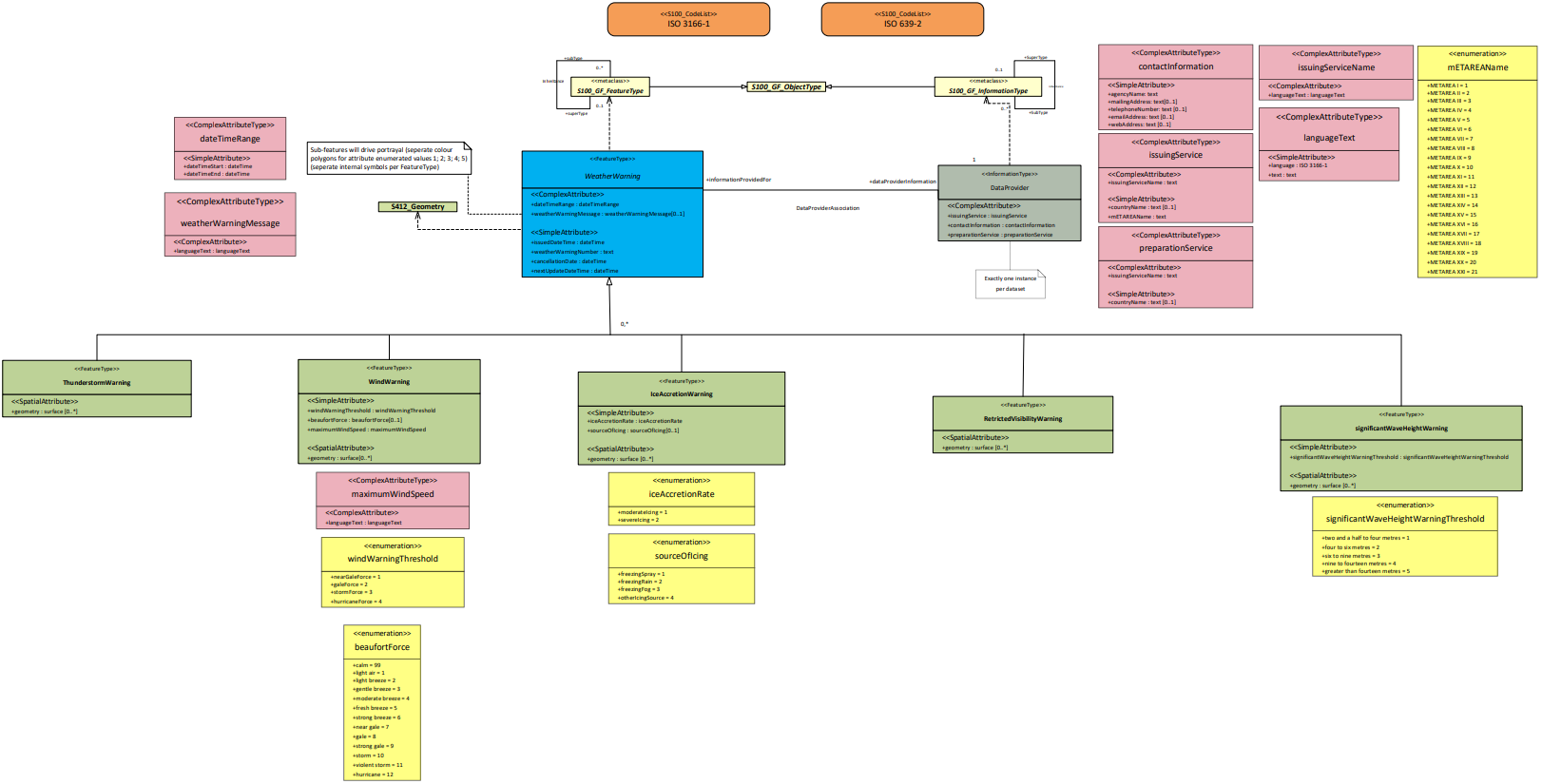
Section A contains a complete list of all allowable features and their attributes within an S-412 compliant data set. This list has been defined within the IHO Registry WMO Weather Domain and is visualised in the S-412 Application Schema (UML diagram) in Figure A.1.. Listings for each allowable attribute (and subsequent dataType) and any associations between feature or information types are provided for each feature. Additionally, specific restrictions and/or use cases for each feature are outlined in each feature’s remarks section.

As described in Section 4 of the S-412 product specification, real world meteorological and oceanographic elements are realised through both InformationType and FeatureType classes (features), complex and primitive data types (complex and simple attributes), code lists, and associations. Additional feature constraints, behaviours, relationships or use cases are provided in each feature’s remarks section.

In addition to S-100 Edition 5.2.0, the below tables should be referenced to identify the labels used in this Annex. The abbreviations listed below represent S-100 dataTypes that are used in S-412.

| Data Types | Abbreviation | |
| --- | --- | --- |
| Real | | (S\*) RE |
| Date Time | | (S) DT |
| Integer | | (S) IN |
| Enumerated | | (S) EN |
| Text | | (S) TE |
| Boolean | | (S) BO |
| Complex | | C\* |
| Uniform Resource Name | | URN |
| Code List Types | Abbreviation | |
| Open Enumeration | | (CL\*) OE |
| \*  S = Simple  C = Complex  CL = Code List | |  |

Additional information, including descriptions and definitions of all attributes listed in this Section and defined within the IHO Registry WMO Weather domain can be found in Section B. ISO specific data types are specified in the appropriate ISO document.



**Figure A.1. -** S-412 Application Schema

| **Feature Number** | **Feature Name** | **Camel Case Identifier** |
| --- | --- | --- |
| A.01 | Data Provider | dataProvider |
| A.02 | Ice Accretion Warning | iceAccretionWarning |
| A.03 | Restricted Visibility Warning | restrictedVisibilityWarning |
| A.04 | Significant Wave Height Warning | significantWaveHeightWarning |
| A.05 | Thunderstorm Warning | thunderstormWarning |
| A.06 | Weather Warning | weatherWarning |
| A.07 | Wind Warning | windWarning |

## A.01 Data Provider

| **Description:** Data Provider is an Information Type that contains an association to Weather Warning called DataProviderAssociation. |
| --- |
| **Definition:** The national authority providing a data in an official capacity. |
| **Camel Case:** dataProvider |
| **Spatial Primitives:** None |

| **Attribute Name** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| contactInformation |  | C | 1 |
| mailingAddress | Maximum of 300 Characters | (S) TE | 0,\* |
| telephoneNumber | Maximum of 300 Characters | (S) TE | 0,\* |
| emailAddress | Maximum of 300 Characters | (S) TE | 0,\* |
| agencyName | Maximum of 300 Characters | (S) TE | 1 |
| webAddress | Maximum of 300 Characters | (S) TE | 0,\* |
| issuingService |  | C | 1 |
| countryName | Maximum of 300 Characters | (S) TE | 0,1 |
| issuingServiceName |  | C | 1 |
| languageText |  | C | 1 |
| mETAREAName | 1: METAREA I  2: METAREA II  3: METAREA III  4: METAREA IV  5: METAREA V  6: METAREA VI  7: METAREA VII  8: METAREA VIII  9: METAREA IX  10: METAREA X  11: METAREA XI  12: METAREA XII  13: METAREA XIII  14: METAREA XIV  15: METAREA XV  16: METAREA XVI  17: METAREA XVII  18: METAREA XVIII  19: METAREA XIX  20: METAREA XX  21: METAREA XXI | (S) EN | 1 |
| preparationService |  | C | 1 |
| countryName | Maximum of 300 Characters | (S) TE | 1 |
| issuingServiceName |  | C | 1 |
| languageText |  | C | 1 |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| None |  |  |  |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References :**  **Remarks:**   * Exactly one instance of this Information Type per dataset |
| --- |

## A.02 Ice Accretion Warning

| **Description:** Ice AccretionWarning is a Feature Type that is a subType of the Weather Warning abstract Feature Type. All attributes within and associations to/from Weather Warning are inherited by Ice Accretion Warning. |
| --- |
| **Definition:** A product issued by a national authority when ice accumulation rates pose a hazard to vessels. |
| **Feature Type:** Geographic |
| **Camel Case:** iceAccretionWarning |
| **Spatial Primitives:** Surface |

| **Attribute Name** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| iceAccretionRate | 1: moderate icing  2: severe icing | (S) EN | 1 |
| sourceOfIcing | 1: freezing spray  2: freezing rain  3: freezing fog  4: other icing source | (S) EN | 0,\* |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References:**   * WMO-No. 471, Annex 2.B, Multilingual List of Terms used in Weather and Sea Bulletins * WMO-No. 558, Appendix I.2, Multilingual List of terms used in Weather and Sea Bulletins * {Is a reference needed for ice accumulation thresholds?}   **Remarks:**   * None |
| --- |

## 

## A.03 Restricted Visibility Warning

| **Description:** Restricted Visibility Warning is a Feature Type that is a subType of the Weather Warning abstract Feature Type. All attributes within and associations to/from Weather Warning are inherited by Restricted Visibility Warning. |
| --- |
| **Definition:** A product issued by a national authority when horizontal visibility is degraded to less than 0.5 nautical mile by fog, smoke, dust, haze, heavy precipitation, or any other phenomena. |
| **Feature Type:** Geographic |
| **Camel Case:** restrictedVisibilityWarning |
| **Spatial Primitives:** Surface |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References:**   * WMO-No. 471, Annex 2.B, Multilingual List of Terms used in Weather and Sea Bulletins * WMO-No. 558, Appendix I.2, Multilingual List of terms used in Weather and Sea Bulletins, {also in forecast/warning section about restricted visibility?}   **Remarks:**   * None |
| --- |

## A.04 Significant Wave Height Warning

| **Description:** Significant Wave Height Warning is a Feature Type that is a subType of the Weather Warning abstract Feature Type. All attributes within and associations to/from Weather Warning are inherited by Significant Wave Height Warning. |
| --- |
| **Definition:** A product issued by a national authority when sea state conditions pose a hazard or are life-threatening. |
| **Feature Type:** Geographic |
| **Camel Case:** significantWaveHeightWarning |
| **Spatial Primitives:** Surface |

| **Attribute Name** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| significantWaveHeightWarningThreshold | 1: two and a half to four metres  2: four to six metres  3: six to nine metres  4: nine to fourteen metres  5: greater than fourteen metres | (S) EN | 1 |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References:**   * WMO-No. 182, International Meteorological Vocabulary * {May want reference about significant wave height definition or WMO 558 }   **Remarks:**   * None |
| --- |

## A.05 Thunderstorm Warning

| **Description:** Thunderstorm Warning is a Feature Type that is a subType of the Weather Warning abstract Feature Type. All attributes within and associations to/from Weather Warning are inherited by Thunderstorm Warning. |
| --- |
| **Definition:** A product issued by a national authority when an area of thunderstorms or squalls poses a hazard. Conditions could include strong winds, locally higher waves, potentially heavy precipitation, hail, and dangerous lightning strikes. |
| **Feature Type:** Geographic |
| **Camel Case:** thunderstormWarning |
| **Spatial Primitives:** Surface |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References:**  **Remarks:**   * None |
| --- |

## A.06 Weather Warning

| **Description:** Weather Warning is the base Abstract Feature Type for all categories of marine weather warning Feature Types for S-412. All attributes and associations to and from Weather Warning are inherited by all weather warning SubTypes. |
| --- |
| **Definition:** A product issued by a national authority when a specific weather scenario or event that threatens people or property meets criteria defined by WMO (WMO No. 558 and No. 471) or by a national authority where applicable. |
| **Camel Case:** weatherWarning |
| **Spatial Primitives:** None |

| **Attribute Name** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| None |  |  |  |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References :**  **Remarks:**   * None |
| --- |

## A.07 Wind Warning

| **Description:** Wind Warning is a Feature Type that is a subType of the Weather Warning abstract Feature Type. All attributes within and associations to/from Weather Warning are inherited by Wind Warning. |
| --- |
| **Definition:** A product issued by a national authority when high wind speeds pose a hazard or are life-threatening. |
| **Feature Type:** Geographic |
| **Camel Case:** windWarning |
| **Spatial Primitives:** Surface |

| **Attribute Name** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| beaufortForce | 1: light air  2: light breeze  3: gentle breeze  4: moderate breeze  5: fresh breeze  6: strong breeze  7: near gale  8: gale  9: strong gale  10: storm  11: violent storm  12: hurricane  99: calm | (S) EN | 0,1 |
| windWarningThreshold | 1: near gale force  2: gale force  3: storm force  4: hurricane force | (S) EN | 1 |
| maximumWindSpeed |  | C | 0,1 |
| languageText |  | C | 1 |

| **Inherited Attribute Names** | **Allowable Encoding Value** | **Type** | **Multiplicity** |
| --- | --- | --- | --- |
| cancellationDate | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeRange |  | C | 1 |
| dateTimeStart | YYYYMMDDTHHMMSS | (S) DT | 1 |
| dateTimeEnd | YYYYMMDDTHHMMSS | (S) DT | 1 |
| issuedDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| nextUpdateDateTime | YYYYMMDDTHHMMSS | (S) DT | 1 |
| weatherWarningMessage | Maximum of 300 Characters | C | 0,\* |
| languageText |  | C | 1 |
| weatherWarningNumber | Maximum of 300 Characters | (S) TE | 1 |

| **Associations** | | |
| --- | --- | --- |
| DataProviderAssociation | Label: Data Provider  Role: dataProviderInformation  Multiplicity: 1  Ordered: False | Label: Weather Warning  Role: informationProvidedFor  Multiplicity: 1  Ordered: False |

| **Additional References:**   * **WMO-No. 471, Annex 2.B, Multilingual List of Terms used in Weather and Sea Bulletins** * **WMO-No. 558, Appendix I.2, Multilingual List of terms used in Weather and Sea Bulletins** * Manual on Codes, Volume I.1-International Codes, WMO Technical Regulations, Annex II, Part A, Alphanumeric Codes, Section E Beaufort Wind Scale, pp A-379   **Remarks:**   * None |
| --- |

# Section B – DCEG – Attributes

Section B contains a list of all attributes defined within the IHO Registry that are used by the S-412 Marine Weather Warnings Product Specification WMO Weather Domain. Each attribute description follows the basic format, providing details about the data type, allowable encoding values, camel case, etc.

| **Attribute Number** | **Register**  **Dictionary** | **Attribute Name** | **Camel Case** |
| --- | --- | --- | --- |
| B.01 | WMO | Agency Name | agencyName |
| B.02 | WMO | Beaufort Force | beaufortForce |
| B.03 | IHO Hydro | Cancellation Date | cancellationDate |
| B.04 | WMO | Contact Information | contactInformation |
| B.05 | IHO Hydro | Country Name | countryName |
| B.06 | WMO | Date Time End | dateTimeEnd |
| B.07 | WMO | Date Time Range | dateTimeRange |
| B.08 | WMO | Date Time Start | dateTimeStart |
| B.09 | IHO Hydro | Email Address | emailAddress |
| B.10 | WMO | Ice Accretion Rate | iceAccretionRate |
| B.11 | WMO | Issued Date Time | issuedDateTime |
| B.12 | WMO | Issuing Service | issuingService |
| B.13 | WMO | Issuing Service Name | issuingServiceName |
| B.14 | IHO Hydro | Language | language |
| B.15 | WMO | Language Text | languageText |
| B.16 | WMO | Mailing Address | mailingAddress |
| B.17 | WMO | Maximum Wind Speed | maximumWindSpeed |
| B.18 | WMO | METAREA Name | mETAREAName |
| B.19 | WMO | Next Update Date Time | nextUpdateDateTime |
| B.20 | WMO | Preparation Service | preparationService |
| B.21 | WMO | Source of Icing | sourceOfIcing |
| B.22 | IHO Hydro | Telephone Number | telephoneNumber |
| B.23 | IHO Hydro | Text | text |
| B.24 | WMO | Significant Wave Height Warning Threshold | significantWaveHeightWarningThreshold |
| B.25 | WMO | Weather Warning Message | weatherWarningMessage |
| B.26 | WMO | Weather Warning Number | weatherWarningNumber |
| B.27 | IHO Hydro | Web Address | webAddress |
| B.28 | WMO | Wind Warning Threshold | windWarningThreshold |

## B.01 Agency Name

| Definition:  The name of an agency, entity or organization.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: text)  Camel Case:  agencyName  Length:  Maximum of 300 characters.  Remarks:  None |
| --- |

## B.02 Beaufort Force

| Definition:  Wind force scale, originally based on the state of the sea, expressed in numbers from 0 to 12, as defined by WMO (WMO 306 Manual on Codes, Volume I.1 – International Codes).  Item Type:  Simple Attribute (data type: Enumeration)  Reference:  WMO 306 Manual on Codes, Volume I.1 – International Codes  Camel Case:  beaufortForce  Enumeration Values:   1. **light air**   Definition: Wind with a speed between 1 and 3 knots (Beaufort scale wind force 1). (WMO-No. 182, L0500)  Camel Case: lightAir   1. **light breeze**   Definition: Wind with a speed between 4 and 6 knots (Beaufort scale wind force 2). (WMO-No. 182, L0510)  Camel Case: lightBreeze   1. **gentle breeze**   Definition: Wind with a speed between 7 and 10 knots (Beaufort scale wind force 3). (WMO-No. 182, G0200)  Camel Case: gentleBreeze   1. **moderate breeze**   Definition: Wind with a speed between 11 and 16 knots (Beaufort scale wind force 4). (WMO-No. 182, M1680)  Camel Case: moderateBreeze   1. **fresh breeze**   Definition: Wind with a speed between 17 and 21 knots (Beaufort scale wind force 5). (WMO-No. 182, F1200)  Camel Case: freshBreeze   1. **strong breeze**   Definition: Wind with a speed between 22 and 27 knots (Beaufort scale wind force 6). (WMO-No. 182, S3120)  Camel Case: strongBreeze   1. **near gale**   Definition: Wind with a speed between 28 and 33 knots (Beaufort scale wind force 7). (WMO-No. 182, N0150)  Camel Case: nearGale   1. **gale**   Definition: Wind with a speed between 34 and 40 knots (Beaufort scale wind force 8). (WMO-No. 182, G0010)  Camel Case: gale   1. **strong gale**   Definition: Wind with a speed between 41 and 47 knots (Beaufort scale wind force 9). (WMO-No. 182, S3130)  Camel Case: strongGale   1. **storm**   Definition: Wind with a speed between 48 and 55 knots (Beaufort scale wind force 10). (WMO-No. 182, S2950 (2))  Camel Case: storm   1. **violent storm**   Definition: Wind with a speed between 56 and 63 knots (Beaufort scale wind force 11). (WMO-No. 182, V0340)  Camel Case: violentStorm   1. **hurricane**   Definition: (1) Term, derived from a Caribbean word, first applied to tropical cyclones of the Caribbean Sea. (2) Wind with a speed of 64 knots or higher. (Beaufort scale wind force 12.)  Camel Case: hurricane  99) **calm**  Definition: Wind with a speed zero or less than 2 knots (Beaufort scale wind force 0). The state of sea when there are no waves.  Camel Case: calm  Remarks:  Note: for S-412, we will limit the attribute to enumeration values 7-12. |
| --- |

## 

## B.03 Cancellation Date

| Definition:  Date and time of cancelling a notice or warning.  Reference:  IHO WWNWS-SC  Item Type:  Simple Attribute (data type: dateTime)  Camel Case:  cancellationDate  Unit:  Years, months, days, hours, minutes, seconds  Resolution:  1 second  Format:  YYYYMMDDTHHMMSS, where Y is year, M is month, D is day, H is hour, M is minute, and S is second  Remarks:  None |
| --- |

## B.04 Contact Information

| Definition:  Information about where inquiries can be sent.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  contactInformation  Sub-Attributes:  agencyName  emailAddress  mailingAddress  telephoneNumber  webAddress  Remarks:  None |
| --- |

## B.05 Country Name

| Definition:  The name of a nation.  Reference:  American Heritage Dictionary of the English Language  Item Type:  Simple Attribute (data type: text)  Camel Case:  countryName  Remarks:  None  Length:  Maximum of 150 characters. |
| --- |

## B.06 Date Time End

| Definition:  The end of a time range, expressed in Universal Time Coordinated (UTC).  Reference:  S-57: IHO Transfer Standard for Digital Hydrographic Data, Appendix A, Chapter 2 (2.219 TIMEND)  Item Type:  Simple Attribute (data type: dateTime)  Camel Case:  dateTimeEnd  Unit:  Years, months, days, hours, minutes, seconds  Resolution:  1 second  Format:  YYYYMMDDTHHMMSS, where Y is year, M is month, D is day, H is hour, M is minute, and S is second  Remarks:  19850412T183059 denotes 18 hours, 30 minutes, and 59 seconds on 12 April 1985. |
| --- |

## B.07 Date Time Range

| Definition:  The range of time a feature is valid for.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  dateTimeRange  Sub-Attributes:  dateTimeStart  dateTimeEnd  Remarks:  None |
| --- |

## B.08 Date Time Start

| Definition:  The beginning of a time range, expressed in Universal Time Coordinated (UTC).  Reference:  S-57: IHO Transfer Standard for Digital Hydrographic Data, Appendix A, Chapter 2 (2.220 TIMSTA)  Item Type:  Simple Attribute (data type: dateTime)  Camel Case:  dateTimeStart  Unit:  Years, months, days, hours, minutes, seconds  Resolution:  1 second  Format:  YYYYMMDDTHHMMSS, where Y is year, M is month, D is day, H is hour, M is minute, and S is second  Remarks:  19850412T183059 denotes 18 hours, 30 minutes, and 59 seconds on 12 April 1985. |
| --- |

## B.09 Email Address

| Definition:  Identifies an email box to which email messages are delivered.  Reference:  IHO Registry, Hydro Domain, https://en.wikipedia.org/wiki/Email\_address  Item Type:  Simple Attribute (data type: text)  Camel Case:  emailAddress  Remarks:  None |
| --- |

## B.10 Ice Accretion Rate

| Definition:  Represents the ice accretion warning that has been exceeded or forecast to be exceeded based on ice accumulation rates.  Reference:  WMO-No.558  Item Type:  Simple Attribute (data type: Enumeration)  Camel Case:  iceAccretionRate  Enumeration Values:   1. **moderate icing**   Definition: Ice accumulation rates between 0.7 and 2 centimetres per hour are forecast or occurring.  Camel Case: moderateIcing   1. **severe icing**   Definition: Ice accumulation rates greater than 2 centimetres per hour are forecast or occurring.  Camel Case: severeIcing  Remarks:  None |
| --- |

## B.11 Issued Date Time

| Definition:  The time, expressed in Universal Time Coordinated (UTC) at which an object and its attributes are issued from an agency.  Reference:  NWSI 10-303, 5.8  Item Type:  Simple Attribute (data type: dateTime)  Camel Case:  issuedDateTime  Unit:  Years, months, days, hours, minutes, seconds  Resolution:  1 second  Format:  YYYYMMDDTHHMMSS, where Y is year, M is month, D is day, H is hour, M is minute, and S is second  Remarks:  19850412T183059 denotes 18 hours, 30 minutes, and 59 seconds on 12 April 1985. |
| --- |

## 

## B.12 Issuing Service

| Definition:  The number of the METAREA, name of the Nation, and the National Meteorological and Hydrological Service (NMHS) or National Authority that broadcast the warning.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  issuingService  Sub-Attributes:  countryName  issuingServiceName  mETAREAName  Remarks:  None |
| --- |

## B.13 Issuing Service Name

| Definition:  The identifier that indicates which organization issued meteorological and oceanographic data.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  issuingServiceName  Sub-Attributes:  languageText  Remarks:  None |
| --- |

## B.14 Language

| Definition:  The method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way.  Reference:  Edition 1.0.0, Clause 27.113, S-101 IHO Electronic Navigational Chart Product Specification  Item Type:  Simple Attribute (data type: language codelist)  Camel Case:  language  Remarks:  The language is encoded by a 3 character code following ISO 639-2/T. |
| --- |

## B.15 Language Text

| Definition:  A combination of written text and language indication.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  languageText  Sub-Attributes:  language  text  Remarks: |
| --- |

## B.16 Mailing Address

| Definition:  The physical address a parcel may be sent to.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: text)  Camel Case:  mailingAddress  Remarks:  None |
| --- |

## B.17 Maximum Wind Speed

| Definition:  When applied to a warning or forecast polygon, refers to the maximum wind speed or range of wind speeds found within the contour of the polygon.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  maximumWindSpeed  Sub-Attributes:  languageText  Remarks:  None |
| --- |

## B.18 METAREA Name

| Definition:  A name referencing a defined geographical area of the ocean used to coordinate the transmission of meteorological information and services to mariners.  Item Type:  Simple Attribute (data type: Enumeration)  Reference:  WWMIWS ([*https://wwmiws.wmo.int/index.php*](https://wwmiws.wmo.int/index.php))  Camel Case:  mETAREAName  Enumeration Values:   1. **metarea i**   Definition: METAREA 1.  Camel Case: mETAREAI   1. **metarea ii**   Definition: METAREA 2.  Camel Case: mETAREAII   1. **metarea iii**   Definition: METAREA 3.  Camel Case: mETAREAIII   1. **metarea iv**   Definition: METAREA 4.  Camel Case: mETAREAIV   1. **metarea v**   Definition: METAREA 5.  Camel Case: mETAREAV   1. **metarea vi**   Definition: METAREA 6.  Camel Case: mETAREAVI   1. **metarea vii**   Definition: METAREA 7.  Camel Case: mETAREAVII   1. **metarea viii**   Definition: METAREA 8.  Camel Case: mETAREAVIII   1. **metarea ix**   Definition: METAREA 9.  Camel Case: mETAREAIX   1. **metarea x**   Definition: METAREA 10.  Camel Case: mETAREAX   1. **metarea xi**   Definition: METAREA 11.  Camel Case: mETAREAXI   1. **metarea xii**   Definition: METAREA 12.  Camel Case: mETAREAXII   1. **metarea xiii**   Definition: METAREA 13.  Camel Case: mETAREAXIII   1. **metarea xiv**   Definition: METAREA 14.  Camel Case: mETAREAXIV   1. **metarea xv**   Definition: METAREA 15.  Camel Case: mETAREAXV   1. **metarea xvi**   Definition: METAREA 16.  Camel Case: mETAREAXVI   1. **metarea xvii**   Definition: METAREA 17.  Camel Case: mETAREAXVII   1. **metarea xviii**   Definition: METAREA 18.  Camel Case: mETAREAXVIII   1. **metarea xix**   Definition: METAREA 19.  Camel Case: mETAREAXIX   1. **metearea xx**   Definition: METAREA 20.  Camel Case: mETAREAXX   1. **metarea xxi**   Definition: METAREA 21.  Camel Case: mETAREAXXI  Remarks:  None |
| --- |

## B.19 Next Update Date Time

| Definition:  The time, expressed in Universal Time Coordinated (UTC) an object and its attributes are scheduled to be updated.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: dateTime)  Camel Case:  nextUpdateDateTime  Remarks:  None |
| --- |

## 

## B.20 Preparation Service

| Definition:  The name of the Nation and National Meteorological and Hydrological Service (NMHS) or National Authority that prepared the warning and transferred it to the relevant Issuing Service for broadcast if not the same.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Complex Attribute  Camel Case:  preparationService  Sub-Attributes:  countryName  issuingServiceName  Remarks:  None |
| --- |

## B.21 Source of Icing

| Definition:  The type of weather phenomenon causing hazardous ice accretion.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: Enumeration)  Camel Case:  sourceOfIcing  Enumeration Values:   1. **freezing spray**   Definition: Water droplets transported through air at below freezing temperatures.  Camel Case: freezingSpray   1. **freezing rain**   Definition: Precipitation drops freezing on impact to form a coating of clear ice (glaze) on the ground and on exposed objects.  Camel Case: freezingRain   1. **freezing fog**   Definition: Tiny, supercooled liquid water droplets in fog can freeze instantly on exposed surfaces when surface temps are at or below freezing.  Camel Case: freezingFog   1. **other icing source**   Definition: Source of icing is unknown or is different from other types of icing sources.  Camel Case: otherIcingSource  Remarks:  None |
| --- |

## B.22 Telephone number

| Definition:  The telephone number of an entity.  Reference:  IHO S-121 Project Team  Item Type:  Simple Attribute (data type: text)  Camel Case:  telephoneNumber  Length:  Maximum of 30 characters.  Remarks:  None |
| --- |

## B.23 Text

| Definition:  A non-formatted digital text string.  Reference:  Edition 1.0.0, Page 27.170, S-101 IHO Electronic Navigation Product Specification  Item Type:  Simple Attribute (data type: text)  Camel Case:  text  Length:  Maximum of 300 characters.  Remarks:  Should be used, for example, to hold the information that is for short cautionary or explanatory notes. Therefore, text populated in text must not exceed 300 characters. Text may be in English, or in a national language. No formatting of text is possible within text. If formatted text, or text strings exceeding 300 characters, is required, then an alternate concept should be used. |
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## B.24 Significant Wave Height Warning Threshold

| Definition:  Represents the significant wave height warning that has been exceeded or forecast to be exceeded based on predetermined bins of significant wave height values.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: Enumeration)  Camel Case:  significantWaveHeightWarningThreshold  Enumeration Values:   1. **two and a half to four metres**   Definition: Significant wave heights between 2.5 and 4 metres (8-13 ft) are forecast or occurring.  Camel Case: twoAndAHalfToFourMetres   1. **four to six metres**   Definition: Significant wave heights between 4 and 6 metres (13-20 ft) are forecast or occurring.  Camel Case: fourToSixMetres   1. **six to nine metres**   Definition: Significant wave heights between 6 and 9 metres (20-30 ft) are forecast or occurring.  Camel Case: sixToNineMetres   1. **nine to fourteen metres**   Definition: Significant wave heights between 9 and 14 metres (30-45 ft) are forecast or occurring.  Camel Case: nineToFourteenMetres   1. **greater than fourteen metres**   Definition: Significant wave heights greater than 14 metres (>45 ft) are forecast or occurring.  Camel Case: greaterThanFourteenMetres  Remarks:  None |
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## B.25 Weather Warning Message

| Definition:  Text message associated with a weather warning polygon.  Reference:  S-412 WMO Weather Warning Product Specification  Item Type:  Complex Attribute  Camel Case:  weatherWarningMessage  Sub-Attributes:  languageText  Remarks:  None |
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## B.26 Weather Warning Number

| Definition:  Identification number given to a specific weather warning.  Reference:  S-412 WMO Weather Product Specification  Item Type:  Simple Attribute (data type: Text)  Camel Case:  weatherWarningNumber  Length:  Maximum of 300 characters.  Remarks:  None |
| --- |

## B.27 Web Address

| Definition:  A reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it.  Reference:  https://en.wikipedia.org/wiki/URL  Item Type:  Simple Attribute (data type: Text)  Camel Case:  webAddress  Remarks:  None |
| --- |

## B.28 Wind Warning Threshold

| Definition:  Represents the wind warning that has been exceeded or forecast to be exceeded.  Reference:  WMO-No.558  Item Type:  Simple Attribute (data type: Enumeration)  Camel Case:  windWarningThreshold  Enumeration Values:   1. **near gale force**   Definition: Wind speeds between 28 and 33 knots (Beaufort scale wind force 7) are forecast or occurring.  Camel Case: nearGaleForce   1. **gale force**   Definition: Wind speeds between 34 and 47 knots (Beaufort scale wind force 8 or 9) are forecast or occurring.  Camel Case: galeForce   1. **storm force**   Definition: Wind speeds between 48 and 63 knots (Beaufort scale wind force 10 or 11) are forecast or occurring.  Camel Case: stormForce   1. **hurricane force**   Definition: Sustained wind speeds 64 knots or higher (Beaufort scale wind force 12) are forecast or occurring.  Camel Case: hurricaneForce  Remarks:  None |
| --- |

# Section C – DCEG – Associations

## C.1 Association Names

### C.1.1 Data Provider Association

| Definition: An association that binds information about the data provider to features.  Camel Case: dataProviderAssociation | | | |
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| **Role Type** | **Role** | **Associated With** | **Multiplicity** |
| Association | dataProviderInformation | **d**ataProvider | 1 |
| informationProvidedFor | weatherWarning | 1 |
| Remarks:   * Only one dataProvider feature per dataset | | | |

## C.2 Association Roles

### C.2.1 Data Provider Information

| Definition: A pointer to an object that provides information about the data providers for the particular object.  Camel Case: dataProviderInformation |
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### C.2.2 Information Provided For

| Definition: A pointer to a specific feature(s) for which further information is required. (S-101)  Camel Case: informationProvidedFor |
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