

# **WMO-No. 47**

## *International list of Voluntary Observing Ships*

**Metadata fields & descriptions, exchange formats and code tables**

**Metadata Format Version 04**

(Document Revision 4.2)

Prepared for the World Meteorological Organization by the  
JCOMM Ship Observations Team



(Effective 1 May 2015)



# WMO-No. 47

## Metadata Format Version 04

### Contents

|   |    |
|---|----|
| Introduction  | 4  |
| Obligations for WMO Members   | 5  |
| General notes on exchange formats and XML schema                        | 6  |
| Annex 1. Semi-colon delimited exchange format – fields and descriptions | 7  |
| Annex 2. XML exchange format – fields and descriptions                  | 11 |
| Annex 3. XML File Structure   | 15 |
| Annex 4. Code Tables  | 18 |
| Annex 5. Ship's Layout Diagram  | 33 |
| Annex 6. Vessel Digital Images  | 34 |

# WMO-No. 47

## Metadata Format Version 04

### Introduction

WMO maintains a catalogue of ships participating in the global Voluntary Observing Ship (VOS) Scheme. The catalogue is produced from the national VOS lists submitted by WMO Members.

The catalogue, which contains a comprehensive range of ship's metadata, was originally available as a WMO publication, WMO-No. 47 (commonly referred to as Pub 47). Due to increasing printing and distribution costs, the publication was suspended in the late 1990s. An electronic version of the catalogue became available on the WMO website < <http://www.wmo.ch/web/www/ois/pub47/pub47-home.htm> > during 2003. Despite the changed method of distribution, the electronic file retains the name of the original publication.

Because of changing demands for ship's metadata, the Ship Observations Team (SOT) formed a Task Team at SOT-II (July 2003, London, UK) to revise the metadata requirements of WMO-No. 47. The proposed changes were subsequently approved at JCOMM-II (September 2006, Halifax, Canada).

This document describes the field descriptions, presentation layout and file exchange formats for WMO-No. 47, Metadata Format Version 04, approved at JCOMM-II. These changes come into effect on **1 June 2013**.

#### Summary of changes in this version

1. Type of meteorological reporting ships **vssIM** (Code Table 2202):
  - a. Add new code 80 for manually reporting Ancillary Class ship.
  - b. Add new code 85 for AWS-equipped Ancillary Class ship.
2. Exposure of the hygrometer **hgrE**, exposure of the dry-bulb thermometer **thmE** (Code Table 0801)
  - a. Add new code HH for hand held digital thermometer/humidity sensor.
3. Recruiting country **rcnty**, country of registration **reg** (Code Table 1801)
  - a. Add new code ZZ for JCOMMOPS recruited Ancillary Class ship.
4. Change in the location referenced in the XML Schema namespace variable. The changed location is highlighted on page 6.

# WMO-No. 47

## Metadata Format Version 04

### Obligations for WMO Members

1. The Manual on the Global Observing System, WMO-No. 544, requires WMO Members operating a VOS Program to provide the WMO Secretariat with a copy of their national VOS list.
2. Because of frequent changes in merchant fleets, and to ensure that WMO-No. 47 remains as current as is practicable, particularly for quality monitoring applications, members are asked to make regular submissions of their national VOS list to the Secretariat.
  - a. The Guide to Marine Meteorological Services, WMO-No. 471 (paragraph 6.2.5) asks members to provide the Secretariat with an updated VOS lists every quarter.
  - b. The Ship Observations Team at its fifth session (SOT-V, Geneva, 2009) asked members, wherever possible, to provide the Secretariat with an updated VOS list every month.
3. WMO Members submitting to WMO-No. 47 should note the following:
  - a. To comply with the decision of the WMO Expert Team on Marine Climatology, only mobile platforms, including ships either temporarily or semi-permanently at anchor, shall be reported in WMO-No. 47. Fixed platforms shall be reported under the JCOMM ODAS metadata scheme.
  - b. The list of ships shall be sorted alphabetically by name.
  - c. Only mobile platforms recruited by the WMO Member shall be included in its national VOS list.
  - d. Ship's digital images and drawings shall be retained by the NMS.
4. WMO Members should ensure that ships they intend to recruit are not already members of another country's VOS fleet by consulting the WMO-No. 47.
5. The following mandatory fields represent the minimum suite of metadata that can be submitted for a ship:
  - a. rcnty (recruiting country)
  - b. call (callsign)
  - c. vosR (VOS recruitment date)
  - d. vssIM (type of meteorological reporting vessel)
  - e. atm (general observing practice)
6. Operators are strongly encouraged to use the search facility provided by the **E-Surfmar VOS Database** at < <http://esurfmar.meteo.fr/doc/vosmetadata/index.php> > to check for the multiple recruitment of ships in their national VOS fleet. In such cases, the recruiting countries should resolve the issue through bilateral agreement.
7. The national VOS list shall be emailed to the WMO Secretariat at: [pub47@wmo.int](mailto:pub47@wmo.int) whereby the updated list will automatically be distributed to WMO, JCOMMOPS and E-SURFMAR.

# WMO-No. 47

## Metadata Format Version 04

### General notes on exchange formats and XML schema

WMO-No. 47, Metadata Format Version 04, now gives WMO Members the choice of submitting their national VOS list as either a semi-colon delimited text file as in the past, or an XML (eXtensible Markup Language) file.

#### CSV (Semi-colon delimited) file

1. The file shall contain one line, comprising 120 metadata elements, for each platform.
2. The sequence of elements is given in Annex 1.
3. Each metadata element includes a semi-colon (;) delimiter as the last character as shown in Annex 1.

#### XML file

1. The sequence of elements in the XML file is given in Annex 3
2. The XML file shall consist of a top-level header: `<?xml version="1.0"?>`.
3. The dataset shall begin with an opening tag:  
`<pub47dataset country="" version="04" prepared="" namespace>`,  
where namespace consists of two parts, (a) and (b) below, separated by a space:
  - a. `xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"`
  - b. `xsi:noNamespaceSchemaLocation="http://sot.jcommops.org/vos/pub47/v4pub47.xsd"`
4. The dataset shall end with a closing tag: `</pub47dataset>`.
5. Each ship record in the dataset will comprise 98 metadata elements and section headers, and shall:
  - a. Begin with an opening tag: `<pub47record nmsID="">`
  - b. End with a closing tag `</pub47record>`.

## WMO-No. 47

## Metadata Format Version 04

## Semi-colon delimited exchange format – element descriptions, formats and sequence

| Order | Code Name | Explanation   | Table | Format   | Footnote | Example |
|-------|-----------|---|-------|----------|----------|---------|
| 1     | rcnty;    | Recruiting country.   | 1801  |          | No       | 04      |
| 2     | ver;      | Metadata format version   |       |          | No       |         |
| 3     | prepared; | Date of report preparation.   |       | ddmmyyyy | No       |         |
| 4     | name;     | Ship's name.  | 1801  |          | No       |         |
| 5     | reg;      | Country of registration.  |       |          | No       |         |
| 6     | call;     | Call sign or WMO Number. Some sea stations are identified by a WMO Number instead of a call sign. |       |          | No       |         |
| 7     | IMOn;     | IMO Number. Unique identifying number assigned by Lloyd's Register to the hull of the ship.       |       | No       |          |         |
| 8     | vssl;     | Vessel type.  | 2201  |          | Yes      |         |
| 9     | vssIP;    | Vessel digital image.   | 2203  |          | No       |         |
| 10    | lenvssID; | Length overall of the ship, ignoring bulbous bow.   |       | 0.0 m    | No       |         |
| 11    | brdvssID; | Moulded breadth. The greatest breadth amidships.  |       | 0.0 m    | No       |         |
| 12    | frbvssID; | Freeboard. The average height of the upper deck above the maximum Summer load line.               |       | 0.0 m    | No       |         |
| 13    | drfvssID; | Draught. The average depth of the keel below the maximum Summer load line.                        |       | 0.0 m    | No       |         |
| 14    | chtvssID; | Cargo height. Maximum height above the maximum Summer load line.                                  |       | 0.0 m    | No       |         |
| 15    | brdg;     | Distance of the bridge from the bow.  |       | 0.0 m    | No       |         |
| 16    | spd;      | Maximum operating speed of the vessel on normal service.  |       | 0 kts    | No       |         |
| 17    | rte;      | Route No.1.   | 1802  |          | Yes      |         |
| 18    | rte;      | Route No.2.   | 1802  |          | Yes      |         |
| 19    | rte;      | Route No.3.   | 1802  |          | Yes      |         |
| 20    | rte;      | Route No.4.   | 1802  |          | Yes      |         |
| 21    | rte;      | Route No.5.   | 1802  |          | Yes      |         |
| 22    | rte;      | Route No.6.   | 1802  |          | Yes      |         |
| 23    | rte;      | Route No.7  | 1802  |          | Yes      |         |

|    |        |  |      |          |     |                   |
|----|--------|--|------|----------|-----|-------------------|
| 24 | rte;   | Route No.8.  | 1802 |          | Yes |                   |
| 25 | rte;   | Route No.9.  | 1802 |          | Yes |                   |
| 26 | rte;   | Route No.10.   | 1802 |          | Yes |                   |
| 27 | vosR;  | Recruitment date of the current VOS participation.   |      | ddmmyyyy | No  |                   |
| 28 | vosD;  | De-recruitment date of the last VOS participation (report only if the vessel has been re-recruited). |      | ddmmyyyy | No  |                   |
| 29 | vclmR; | Last VOSclim recruitment date if within the current period of VOS participation.                     |      | ddmmyyyy | No  |                   |
| 30 | vclmD; | Last VOSclim de-recruitment date if within the current period of VOS participation.                  |      | ddmmyyyy | No  |                   |
| 31 | vsslM; | Type of meteorological reporting ship.   | 2202 |          | Yes | TurboWin 3.5      |
| 32 | atm;   | General observing practice.  | 0105 |          | Yes |                   |
| 33 | freq;  | Routine observing frequency.   | 0602 |          | Yes |                   |
| 34 | prST;  | Transmission system for sending weather reports.   | 1601 |          | Yes |                   |
| 35 | logE;  | Name and version of the electronic logbook software.   |      |          | No  |                   |
| 36 | wwH;   | Visual wind/wave observing height.   |      | 0.0 m    | No  |                   |
| 37 | anmU;  | General wind observing practice.   | 0103 |          | No  |                   |
| 38 | blc;   | Baseline check of the automatic weather station.   | 0203 |          | No  |                   |
| 39 | awsM;  | Make and model of the automatic weather station.   |      |          | No  | Vaisala Milos 500 |
| 40 | awsP;  | Name and version of the automatic weather station processing software.                               |      |          | No  | Milos 500 2.56    |
| 41 | awsC;  | Name and version of the automatic weather station data entry/display software.                       |      |          | No  | Yourlink 1.03.20  |
| 42 | barm;  | Primary barometer type.  | 0202 |          | Yes |                   |
| 43 | barm;  | Secondary barometer type.  | 0202 |          | Yes |                   |
| 44 | bMS;   | Make and model of the primary barometer.   |      |          | No  | Vaisala PTB220B   |
| 45 | bMS;   | Make and model of the secondary barometer.   |      |          | No  |                   |
| 46 | brmH;  | Height of the primary barometer above the maximum Summer load line.                                  |      | 0.0 m    | No  |                   |
| 47 | brmH;  | Height of the secondary barometer above the maximum Summer load line.                                |      | 0.0 m    | No  |                   |
| 48 | brmL;  | Location of the primary barometer.   | 0204 |          | Yes |                   |
| 49 | brmL;  | Location of the secondary barometer.   | 0204 |          | Yes |                   |
| 50 | brmU;  | Pressure units of the primary barometer.   |      |          | No  | hPa               |
| 51 | brmU;  | Pressure units of the secondary barometer.   |      |          | No  |                   |
| 52 | brmC;  | Most recent calibration date of the primary barometer.   |      | ddmmyyyy | No  |                   |
| 53 | brmC;  | Most recent calibration date of the secondary barometer.   |      | ddmmyyyy | No  |                   |
| 54 | thrm;  | Dry bulb thermometer type No.1.  | 2002 |          | Yes |                   |
| 55 | thrm;  | Dry bulb thermometer type No.2.  | 2002 |          | Yes |                   |



|    |         |   |      |       |     |                         |
|----|---------|---|------|-------|-----|-------------------------|
| 56 | thMS;   | Make and model of the dry bulb thermometer No.1.  |      |       | No  | Rosemount ST401         |
| 57 | thMS;   | Make and model of the dry bulb thermometer No.2.  |      |       | No  |                         |
| 58 | thmE;   | Exposure of the dry bulb thermometer No.1.  | 0801 |       | Yes |                         |
| 59 | thmE;   | Exposure of the dry bulb thermometer No.2.  | 0801 |       | Yes |                         |
| 60 | thmL;   | Location of dry bulb thermometer No.1 and hgyrometer No.1.                                      | 2001 |       | Yes |                         |
| 61 | thmL;   | Location of dry bulb thermometer No.2 and hgyrometer No.2.                                      | 2001 |       | Yes |                         |
| 62 | thmH;   | Height of the dry bulb thermometer No.1 and hygrometer No.1 above the maximum Summer load line. |      | 0.0 m | No  |                         |
| 63 | thmH;   | Height of the dry bulb thermometer No.2 and hygrometer No.2 above the maximum Summer load line. |      | 0.0 m | No  |                         |
| 64 | tscale; | General reporting practice for dry bulb thermometer No.1 and hygrometer No.1.                   | 2003 |       | Yes |                         |
| 65 | tscale; | General reporting practice for dry bulb thermometer No.2 and hygrometer No.2.                   | 2003 |       | Yes |                         |
| 66 | hygr;   | Hygrometer type No.1.   | 0802 |       | Yes |                         |
| 67 | hygr;   | Hygrometer type No.2.   | 0802 |       | Yes |                         |
| 68 | hgrE;   | Exposure of the hygrometer No.1.  | 0801 |       | No  |                         |
| 69 | hgrE;   | Exposure of the hygrometer No.2.  | 0801 |       | No  |                         |
| 70 | sstM;   | Primary method of obtaining the sea surface temperature.  | 1901 |       | Yes |                         |
| 71 | sstM;   | Secondary method of obtaining the sea surface temperature.                                      | 1901 |       | Yes |                         |
| 72 | sstD;   | Depth of the primary sea surface temperature observation below the maximum Summer load line.    |      | 0.0 m | No  |                         |
| 73 | sstD;   | Depth of the secondary sea surface temperature observation below the maximum Summer load line.  |      | 0.0 m | No  |                         |
| 74 | barg;   | Primary barograph type, or method of determining pressure tendency.                             | 0201 |       | Yes |                         |
| 75 | barg;   | Secondary barograph type, or method of determining pressure tendency.                           | 0201 |       | Yes |                         |
| 76 | anmT;   | Primary anemometer type.  | 0102 |       | Yes |                         |
| 77 | anmT;   | Secondary anemometer type.  | 0102 |       | Yes |                         |
| 78 | anmM;   | Make and model of the primary anemometer.   |      |       | No  | Vaisala WAV151 & WAA151 |
| 79 | anmM;   | Make and model of the secondary anemometer.   |      |       | No  |                         |
| 80 | anmL;   | Location of the primary anemometer.   | 0101 |       | Yes |                         |
| 81 | anmL;   | Location of the secondary anemometer.   | 0101 |       | Yes |                         |
| 82 | anDB;   | Distance of the primary (fixed) anemometer from the bow.  |      | 0.0 m | No  |                         |
| 83 | anDB;   | Distance of the secondary (fixed) anemometer from the bow.                                      |      | 0.0 m | No  |                         |
| 84 | anDC;   | Distance of the primary (fixed) anemometer from the centre line.                                |      | 0.0 m | No  |                         |
| 85 | anSC;   | Side indicator of the primary (fixed) anemometer from the centre line, if appropriate.          | 0104 |       | No  |                         |
| 86 | anDC;   | Distance of the secondary (fixed) anemometer from the centre line.                              |      | 0.0 m | No  |                         |
| 87 | anSC;   | Side indicator of the secondary (fixed) anemometer from the centre line, if appropriate.        | 0104 |       | No  |                         |

|     |              |   |      |          |     |  |
|-----|--------------|---|------|----------|-----|--|
| 88  | anHL;        | Height of the primary (fixed) anemometer above the maximum Summer load line.                                      |      | 0.0 m    | No  |  |
| 89  | anHL;        | Height of the secondary (fixed) anemometer above the maximum Summer load line.                                    |      | 0.0 m    | No  |  |
| 90  | anHD;        | Height of the primary (fixed) anemometer above the deck on which it is installed.                                 |      | 0.0 m    | No  |  |
| 91  | anHD;        | Height of the secondary (fixed) anemometer above the deck on which it is installed.                               |      | 0.0 m    | No  |  |
| 92  | anmC;        | Most recent calibration date of the primary anemometer.   |      | ddmmyyyy | No  |  |
| 93  | anmC;        | Most recent calibration date of the secondary anemometer.   |      | ddmmyyyy | No  |  |
| 94  | othI;        | Other meteorological/oceanographic instrument No.1.   | 1501 |          | Yes |  |
| 95  | othI;        | Other meteorological/oceanographic instrument No.2.   | 1501 |          | Yes |  |
| 96  | othI;        | Other meteorological/oceanographic instrument No.3.   | 1501 |          | Yes |  |
| 97  | othI;        | Other meteorological/oceanographic instrument No.4.   | 1501 |          | Yes |  |
| 98  | othI;        | Other meteorological/oceanographic instrument No.5.   | 1501 |          | Yes |  |
| 99  | othI;        | Other meteorological/oceanographic instrument No.6.   | 1501 |          | Yes |  |
| 100 | chgd;        | Last date of change to any metadata value.  |      | ddmmyyyy | No  |  |
| 101 | fieldabbrev; | Code name of the field to which footnote No. 1 applies.   | 0601 |          |     | vssl   |
| 102 | fieldabbrev; | Code name of the field to which footnote No. 2 applies.   | 0601 |          |     | thmE   |
| 103 | fieldabbrev; | Code name of the field to which footnote No. 3 applies.   | 0601 |          |     | rte  |
| 104 | fieldabbrev; | Code name of the field to which footnote No. 4 applies.   | 0601 |          |     |  |
| 105 | fieldabbrev; | Code name of the field to which footnote No. 5 applies.   | 0601 |          |     |  |
| 106 | fieldabbrev; | Code name of the field to which footnote No. 6 applies.   | 0601 |          |     |  |
| 107 | fieldabbrev; | Code name of the field to which footnote No. 7 applies.   | 0601 |          |     |  |
| 108 | fieldabbrev; | Code name of the field to which footnote No. 8 applies.   | 0601 |          |     |  |
| 109 | fieldabbrev; | Code name of the field to which footnote No. 9 applies.   | 0601 |          |     |  |
| 110 | fieldabbrev; | Code name of the field to which footnote No. 10 applies.  | 0601 |          |     |  |
| 111 | footID;      | Footnote No. 1 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     | Ice strengthened<br>Plastic screen<br>Area 73 – Austral<br>Summer only |
| 112 | footID;      | Footnote No. 2 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 113 | footID;      | Footnote No. 3 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 114 | footID;      | Footnote No. 4 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 115 | footID;      | Footnote No. 5 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 116 | footID;      | Footnote No. 6 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 117 | footID;      | Footnote No. 7 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 118 | footID;      | Footnote No. 8 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |
| 119 | footID;      | Footnote No. 9 (Mandatory extra details if code <b>OT</b> is reported. Optional if <b>Yes</b> in footnote column) |      |          |     |  |

DRAFT

## WMO-No. 47

## Metadata Format Version 04

## XML exchange format – element descriptions, formats and sequence

| Order | Code Name | Header Code Name Explanation | Table | Format   | Footnote* | Example |
|-------|-----------|------------------------------|-------|----------|-----------|---------|
| 1     | country   | Recruiting country.          | 1801  | yyyymmdd | No        | 04      |
| 2     | version   | Metadata format version      |       |          | No        |         |
| 3     | prepared  | Date of report preparation.  |       |          | No        |         |

| Order | Code Name | Record Code Name Explanation  | Table | Format | Footnote* | Example |
|-------|-----------|---|-------|--------|-----------|---------|
| 1     | nmsID     | NMS reference number. Unique reference or identifier assigned by the NMS to the ship (if applicable). | 1801  |        | No        |         |
| 2     | name      | Ship's name.  |       |        | No        |         |
| 3     | reg       | Country of registration.  |       |        | No        |         |
| 4     | call      | Call sign or WMO Number. Some sea stations are identified by a WMO Number instead of a call sign.     |       |        | No        |         |
| 5     | IMOn      | IMO Number. Unique identifying number assigned by Lloyd's Register to the hull of the ship.           | 2201  |        | No        |         |
| 6     | vsSl      | Vessel type.  |       |        | Yes       |         |
| 7     | vsSlP     | Vessel digital image.   | 2203  |        | No        |         |
| 8     | lenvsSlD  | Length overall of the ship, ignoring bulbous bow.   |       | 0.0 m  | No        |         |
| 9     | brdvsSlD  | Moulded breadth. The greatest breadth amidships.  |       | 0.0 m  | No        |         |
| 10    | frbvsSlD  | Freeboard. The average height of the upper deck above the maximum Summer load line.                   |       | 0.0 m  | No        |         |
| 11    | drfvsSlD  | Draught. The average depth of the keel below the maximum Summer load line.                            |       | 0.0 m  | No        |         |
| 12    | chtvsSlD  | Cargo height. Maximum height above the maximum Summer load line.                                      |       | 0.0 m  | No        |         |
| 13    | brdg      | Distance of the bridge from the bow.  |       | 0.0 m  | No        |         |
| 14    | spd       | Maximum operating speed of the vessel on normal service.  |       | 0 kts  | No        |         |
| 15    | rte       | Route No.1.   | 1802  |        | Yes       |         |
| 16    | rte       | Route No.2.   | 1802  |        | Yes       |         |
| 17    | rte       | Route No.3.   | 1802  |        | Yes       |         |
| 18    | rte       | Route No.4.   | 1802  |        | Yes       |         |

|    |       |  |      |          |     |                   |
|----|-------|--|------|----------|-----|-------------------|
| 19 | rte   | Route No.5.  | 1802 |          | Yes |                   |
| 20 | rte   | Route No.6.  | 1802 |          | Yes |                   |
| 21 | rte   | Route No.7   | 1802 |          | Yes |                   |
| 22 | rte   | Route No.8.  | 1802 |          | Yes |                   |
| 23 | rte   | Route No.9.  | 1802 |          | Yes |                   |
| 24 | rte   | Route No.10.   | 1802 |          | Yes |                   |
| 25 | vosR  | Recruitment date of the current VOS participation.   |      | yyyymmdd | No  |                   |
| 26 | vosD  | De-recruitment date of the last VOS participation (report only if the vessel has been re-recruited). |      | yyyymmdd | No  |                   |
| 27 | vclmR | Last VOSclim recruitment date if within the current period of VOS participation.                     |      | yyyymmdd | No  |                   |
| 28 | vclmD | Last VOSclim de-recruitment date if within the current period of VOS participation.                  |      | yyyymmdd | No  |                   |
| 29 | vssIM | Type of meteorological reporting ship.   | 2202 |          | Yes |                   |
| 30 | atm   | General observing practice.  | 0105 |          | Yes |                   |
| 31 | freq  | Routine observing frequency.   | 0602 |          | Yes |                   |
| 32 | prST  | Transmission system for sending weather reports.   | 1601 |          | Yes |                   |
| 33 | logE  | Name and version of the electronic logbook software.   |      |          | No  | TurboWin 3.5      |
| 34 | wwH   | Visual wind/wave observing height.   |      | 0.0 m    | No  |                   |
| 35 | anmU  | General wind observing practice.   | 0103 |          | Yes |                   |
| 36 | blc   | Baseline check of the automatic weather station.   | 0203 |          | Yes |                   |
| 37 | awsM  | Make and model of the automatic weather station.   |      |          | No  | Vaisala Milos 500 |
| 38 | awsP  | Name and version of the automatic weather station processing software.                               |      |          | No  | Milos 500 2.56    |
| 39 | awsC  | Name and version of the automatic weather station data entry/display software.                       |      |          | No  | Yourlink 1.03.20  |
| 40 | barm  | Primary barometer type.  | 0202 |          | Yes |                   |
| 41 | bMS   | Make and model of the primary barometer.   |      |          | No  | Vaisala PTB220B   |
| 42 | brmH  | Height of the primary barometer above the maximum Summer load line.                                  |      | 0.0 m    | No  |                   |
| 43 | brmL  | Location of the primary barometer.   | 0204 |          | Yes |                   |
| 44 | brmU  | Pressure units of the primary barometer.   |      |          | No  | hPa               |
| 45 | brmC  | Most recent calibration date of the primary barometer.   |      | yyyymmdd | No  |                   |
| 46 | barm  | Secondary barometer type.  | 0202 |          | Yes |                   |
| 47 | bMS   | Make and model of the secondary barometer.   |      |          | No  |                   |
| 48 | brmH  | Height of the secondary barometer above the maximum Summer load line.                                |      | 0.0 m    | No  |                   |
| 49 | brmL  | Location of the secondary barometer.   | 0204 |          | Yes |                   |
| 50 | brmU  | Pressure units of the secondary barometer.   |      |          | No  |                   |

|    |        |   |      |          |     |                         |
|----|--------|---|------|----------|-----|-------------------------|
| 51 | brnC   | Most recent calibration date of the secondary barometer.  |      | yyyymmdd | No  |                         |
| 52 | thrm   | Dry bulb thermometer type No.1.   | 2002 |          | Yes | Rosemount ST401         |
| 53 | thMS   | Make and model of the dry bulb thermometer No.1.  |      |          | No  |                         |
| 54 | thmE   | Exposure of the dry bulb thermometer No.1.  | 0801 |          | Yes |                         |
| 55 | thmL   | Location of dry bulb thermometer No.1 and hgyrometer No.1.                                      | 2001 |          | Yes |                         |
| 56 | thmH   | Height of the dry bulb thermometer No.1 and hygrometer No.1 above the maximum Summer load line. |      | 0.0 m    | No  |                         |
| 57 | tscale | General reporting practice for dry bulb thermometer No.1 and hygrometer No.1.                   | 2003 |          | Yes |                         |
| 58 | thrm   | Dry bulb thermometer type No.2.   | 2002 |          | Yes |                         |
| 59 | thMS   | Make and model of the dry bulb thermometer No.2.  |      |          | No  |                         |
| 60 | thmE   | Exposure of the dry bulb thermometer No.2.  | 0801 |          | Yes |                         |
| 61 | thmL   | Location of dry bulb thermometer No.2 and hgyrometer No.2.                                      | 2001 |          | Yes |                         |
| 62 | thmH   | Height of the dry bulb thermometer No.2 and hygrometer No.2 above the maximum Summer load line. |      | 0.0 m    | No  |                         |
| 63 | tscale | General reporting practice for dry bulb thermometer No.2 and hygrometer No.2.                   | 2003 |          | Yes |                         |
| 64 | hygr   | Hygrometer type No.1.   | 0802 |          | Yes |                         |
| 65 | hgrE   | Exposure of the hygrometer No.1.  | 0801 |          | Yes |                         |
| 66 | hygr   | Hygrometer type No.2.   | 0802 |          | Yes |                         |
| 67 | hgrE   | Exposure of the hygrometer No.2.  | 0801 |          | Yes |                         |
| 68 | sstM   | Primary method of obtaining the sea surface temperature.  | 1901 |          | Yes |                         |
| 69 | sstD   | Depth of the primary sea surface temperature observation below the maximum Summer load line.    |      | 0.0 m    | No  |                         |
| 70 | sstM   | Secondary method of obtaining the sea surface temperature.                                      | 1901 |          | Yes |                         |
| 71 | sstD   | Depth of the secondary sea surface temperature observation below the maximum Summer load line.  |      | 0.0 m    | No  |                         |
| 72 | barg   | Primary barograph type, or method of determining pressure tendency.                             | 0201 |          | Yes |                         |
| 73 | barg   | Secondary barograph type, or method of determining pressure tendency.                           | 0201 |          | Yes |                         |
| 74 | anmT   | Primary anemometer type.  | 0102 |          | Yes | Vaisala WAV151 & WAA151 |
| 75 | anmM   | Make and model of the primary anemometer.   |      |          | No  |                         |
| 76 | anmL   | Location of the primary anemometer.   | 0101 |          | Yes |                         |
| 77 | anDB   | Distance of the primary (fixed) anemometer from the bow.  |      | 0.0 m    | No  |                         |
| 78 | anDC   | Distance of the primary (fixed) anemometer from the centre line.                                |      | 0.0 m    | No  |                         |
| 79 | anSC   | Side indicator of the primary (fixed) anemometer from the centre line, if appropriate.          | 0104 |          | No  |                         |
| 80 | anHL   | Height of the primary (fixed) anemometer above the maximum Summer load line.                    |      | 0.0 m    | No  |                         |
| 81 | anHD   | Height of the primary (fixed) anemometer above the deck on which it is installed.               |      | 0.0 m    | No  |                         |
| 82 | anmC   | Most recent calibration date of the primary anemometer.   |      | yyyymmdd | No  |                         |

|    |      |  |      |         |     |  |
|----|------|--|------|---------|-----|--|
| 83 | anmT | Secondary anemometer type.   | 0102 |         | Yes |  |
| 84 | anmM | Make and model of the secondary anemometer.  |      |         | No  |  |
| 85 | anmL | Location of the secondary anemometer.  | 0101 |         | Yes |  |
| 86 | anDB | Distance of the secondary (fixed) anemometer from the bow.                               |      | 0.0 m   | No  |  |
| 87 | anDC | Distance of the secondary (fixed) anemometer from the centre line.                       |      | 0.0 m   | No  |  |
| 88 | anSC | Side indicator of the secondary (fixed) anemometer from the centre line, if appropriate. | 0104 |         | No  |  |
| 89 | anHL | Height of the secondary (fixed) anemometer above the maximum Summer load line.           |      | 0.0 m   | No  |  |
| 90 | anHD | Height of the secondary (fixed) anemometer above the deck on which it is installed.      |      | 0.0 m   | No  |  |
| 91 | anmC | Most recent calibration date of the secondary anemometer.                                |      | yyymmdd | No  |  |
| 92 | oth1 | Other meteorological/oceanographic instrument No.1.                                      | 1501 |         | Yes |  |
| 93 | oth1 | Other meteorological/oceanographic instrument No.2.                                      | 1501 |         | Yes |  |
| 94 | oth1 | Other meteorological/oceanographic instrument No.3.                                      | 1501 |         | Yes |  |
| 95 | oth1 | Other meteorological/oceanographic instrument No.4.                                      | 1501 |         | Yes |  |
| 96 | oth1 | Other meteorological/oceanographic instrument No.5.                                      | 1501 |         | Yes |  |
| 97 | oth1 | Other meteorological/oceanographic instrument No.6.                                      | 1501 |         | Yes |  |
| 98 | chgd | Last date of change to any metadata value.   |      | yyymmdd | No  |  |

\* Provision to report a footnote (Mandatory extra detail if **OT** is selected from a Code Table. Optional if **Yes** in footnote column)

## WMO-No. 47

### Metadata Format Version 04

### XML File Structure and element sequence

```

<?xml version="1.0"?>
<pub47dataset country="" version="04" prepared="" namespace>
  <pub47record nmsID="">
    <name/>
    <reg/>
    <call/>
    <IMOn/>
    <vssl footnote=""/>
    <digital_image>
      <vsslP/>
    </digital_image>
    <dimensions>
      <lenvsslID/>
      <brdvsslID/>
      <frbvsslID/>
      <drfvsslID/>
      <chtvsslID/>
      <brdg/>
      <spd/>
    </dimensions>
    <operations>
      <rte Id="1" footnote=""/>
      <rte Id="2" footnote=""/>
      <rte Id="3" footnote=""/>
      <rte Id="4" footnote=""/>
      <rte Id="5" footnote=""/>
      <rte Id="6" footnote=""/>
      <rte Id="7" footnote=""/>
      <rte Id="8" footnote=""/>
  </pub47record>
</pub47dataset>

```



```
        <rte Id="9" footnote=""/>
        <rte Id="10" footnote=""/>
</operations>
<vos_service>
    <vosR/>
    <vosD/>
    <vclmR/>
    <vclmD/>
</vos_service>
<met_prgm>
    <vssIM footnote=""/>
    <atm footnote=""/>
    <freq footnote=""/>
    <prST footnote=""/>
    <logE/>
    <wwH/>
    <anmU footnote=""/>
    <blc footnote=""/>
</met_prgm>
<instrumentation>
    <automated Id="1">
        <awsM/>
        <awsP/>
        <awsC/>
    </automated>
    <barometer Id="1">
        <barm footnote=""/>
        <bMS/>
        <brmH/>
        <brmL footnote=""/>
        <brmU/>
        <brmC/>
    </barometer>
    <barometer Id="2">
        <barm footnote=""/>
        <bMS/>
        <brmH/>
        <brmL footnote=""/>
        <brmU/>
        <brmC/>
    </barometer>
    <dry_bulb Id="1">
        <thrm footnote=""/>
```

```
<thMS/>
<thmE footnote=""/>
<thmL footnote=""/>
<thmH/>
<tscale footnote=""/>
</dry_bulb>
<dry_bulb Id="2">
  <thrm footnote=""/>
  <thMS/>
  <thmE footnote=""/>
  <thmL footnote=""/>
  <thmH/>
  <tscale footnote=""/>
</dry_bulb>
<hygrometer Id="1">
  <hygr footnote=""/>
  <hygE footnote=""/>
</hygrometer>
<hygrometer Id="2">
  <hygr footnote=""/>
  <hygE footnote=""/>
</hygrometer>
<sea_temp Id="1">
  <sstM footnote=""/>
  <sstD/>
</sea_temp>
<sea_temp Id="2">
  <sstM footnote=""/>
  <sstD/>
</sea_temp>
<barograph Id="1">
  <barg footnote=""/>
</barograph>
<barograph Id="2">
  <barg footnote=""/>
</barograph>
```

```

<anemometer Id="1">
  <anmT footnote=""/>
  <anmM/>
  <anmL footnote=""/>
  <anDB/>
  <anDC/>
  <anSC/>
  <anHL/>
  <anHD/>
  <anmC/>
</anemometer>
<anemometer Id="2">
  <anmT footnote=""/>
  <anmM/>
  <anmL footnote=""/>
  <anDB/>
  <anDC/>
  <anSC/>
  <anHL/>
  <anHD/>
  <anmC/>
</anemometer>
<other>
  <othl Id="1" footnote=""/>
  <othl Id="2" footnote=""/>
  <othl Id="3" footnote=""/>
  <othl Id="4" footnote=""/>
  <othl Id="5" footnote=""/>
  <othl Id="6" footnote=""/>
</other>
</instrumentation>
<chgd/>
</pub47record>
</pub47dataset>

```

**namespace specification for Pub47 XML Schema, version 4.0:**

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://sot.jcommops.org/vos/pub47/v4pub47.xsd"

## WMO-No. 47

## Metadata Format Version 04

## Code Tables

| Table | Code        | Description  |
|-------|-------------|--|
| 0101  | anmL        | Location of the anemometer.  |
| 0102  | anmT        | Anemometer type.   |
| 0103  | anmU        | General wind observing practice.   |
| 0104  | anSC        | Side indicator of the (fixed) anemometer from the centre line, if appropriate.         |
| 0105  | atm         | General observing practice.  |
| 0201  | barg        | Barograph type, or method of determining pressure tendency.                            |
| 0202  | barm        | Barometer type.  |
| 0203  | blc         | Baseline check of the automatic weather station.                                       |
| 0204  | brmL        | Location of the barometer.   |
| 0601  | fieldabbrev | Code name of the field to which the footnote applies (in order of reporting in pub47). |
| 0602  | freq        | Routine observing frequency.   |
| 0801  | hgrE        | Exposure of the hygrometer.  |
|       | thmE        | Exposure of the dry bulb thermometer.  |
| 0802  | hygr        | Hygrometer type.   |
| 1501  | othl        | Other meteorological/oceanographic instrument.   |
| 1601  | prST        | Transmission system for sending weather reports.                                       |
| 1801  | rcnty       | Recruiting country.  |
|       | reg         | Country of registration.   |
| 1802  | rte         | Route  |
| 1901  | sstM        | Method of obtaining the sea surface temperature.                                       |
| 2001  | thmL        | Location of the dry bulb thermometer and hygrometer                                    |
| 2002  | thrm        | Dry bulb thermometer type.   |
| 2003  | tscale      | General temperature reporting practice.  |
| 2201  | vssl        | Vessel type.   |
| 2202  | vssIM       | Type of meteorological reporting ship.   |
| 2203  | vssIP       | Vessel digital image.  |

Changes to Code Table entries are denoted by a solid black block to the extreme right.

**0101****anmL**      **Location of the anemometer.**

| <b>Code</b> | <b>Description</b>                        |
|-------------|---|
| 1           | Not fitted.                               |
| 2           | Mainmast.                                 |
| 3           | Mainmast port yardarm.                    |
| 4           | Mainmast starboard yardarm.               |
| 5           | Aft mast.                                 |
| 6           | Foremast.                                 |
| 7           | Foremast port yardarm.                    |
| 8           | Foremast starboard yardarm.               |
| 9           | Meteorological mast.                      |
| 10          | Mast on wheelhouse top.                   |
| 11          | Mast on wheelhouse top port yardarm.      |
| 12          | Mast on wheelhouse top starboard yardarm. |
| 13          | Handheld.                                 |
| OT          | Other (specify in footnote).              |

**0102****anmT**      **Anemometer type.**

| <b>Code</b> | <b>Description</b>                                   |
|-------------|--|
| AN          | Anemograph.  |
| CCV         | Cup anemometer and wind vane (combined unit).        |
| SCV         | Cup anemometer and wind vane (separate instruments). |
| HA          | Handheld anemometer.                                 |
| PV          | Propeller vane.                                      |
| SON         | Sonic anemometer.                                    |
| OT          | Other (specify in footnote).                         |

**0103****anmU**      **General wind observing practice.**

| <b>Code</b> | <b>Description</b>                                  |
|-------------|---|
| 1           | Anemometer, true wind computed.                     |
| 2           | Anemometer, true wind manual.                       |
| 3           | Visual estimates (sea state).                       |
| 4           | Visual estimate (open sea), anemometer (near port). |

**0104****anSC**      **Side indicator of the (fixed) anemometer from the centre line, if appropriate.**

| <b>Code</b> | <b>Description</b> |
|-------------|--------------------|
| P           | Port               |
| S           | Starboard          |

## 0105

**atm**                    **General observing practice.**

| Code | Description                                |
|------|--|
| 1    | Fully automated.                           |
| 2    | Always supplemented by manual input.       |
| 3    | Occasionally supplemented by manual input. |
| 4    | Unknown.                                   |
| 5    | Fully manual (no automation).              |

## 0201

**barg**                    **Barograph type, or method of determining pressure tendency.**

| Code | Description   |
|------|---|
| OS   | Open Scale barograph.                                   |
| OS1  | Open Scale barograph with 1 day clock.                  |
| OS2  | Open Scale barograph with 2 day clock.                  |
| OS3  | Open Scale barograph with 3 day clock.                  |
| OS4  | Open Scale barograph with 4 day clock.                  |
| OS5  | Open Scale barograph with 5 day clock.                  |
| OS6  | Open Scale barograph with 6 day clock.                  |
| OS7  | Open Scale barograph with 7 day clock.                  |
| OS8  | Open Scale barograph with 8 day clock.                  |
| OS9  | Open Scale barograph with 9 day clock.                  |
| SS   | Small Scale barograph.                                  |
| ET   | Tendency obtained from an electronic digital barometer. |
| OT   | Other (specify in footnote).                            |

## 0202

**barm**                    **Barometer type.**

| Code | Description  |
|------|--|
| AN   | Aneroid barometer (issued by the PMO or a NMS).                                |
| DA   | Digital aneroid barometer (aka Precision Aneroid Barometer).                   |
| ELE  | Electronic digital barometer (consisting of one or more pressure transducers). |
| MER  | Mercury barometer.   |
| SAN  | Ship's aneroid barometer.  |
| OT   | Other (specify in footnote).   |

## 0203

**blc**                    **Baseline check of the automatic weather station.**

| Code | Description  |
|------|--|
| 1    | Yes - periodic baseline check to ensure system operating satisfactorily. |
| 2    | No.  |
| 3    | No automation.   |

**0204****brmL**      **Location of the barometer.**

| Code | Description  |
|------|--|
| PW   | Pressurised wheelhouse (closed and not vented to the outside). |
| WH   | Wheelhouse, not pressurised (vented to the outside).           |
| OT   | Other (specify in footnote).                                   |

**0601****fieldabbrev**      **Code name of the field to which the footnote applies.**

| Code   | Description   |
|--------|---|
| vssl   | Vessel type.  |
| rte    | Route   |
| vssIM  | Type of meteorological reporting ship.                      |
| atm    | General observing practice.                                 |
| freq   | Routine observing frequency.                                |
| prST   | Transmission system for sending weather reports             |
| anmU   | General wind observing practice.                            |
| blc    | Baseline check of the automatic weather station.            |
| barm   | Barometer type.   |
| brmL   | Location of the barometer.                                  |
| thrm   | Dry bulb thermometer type.                                  |
| thmE   | Exposure of the dry bulb thermometer.                       |
| thmL   | Location of the dry bulb thermometer and hygrometer         |
| tscale | General temperature reporting practice.                     |
| hygr   | Hygrometer type.  |
| hgrE   | Exposure of the hygrometer.                                 |
| sstM   | Method of obtaining the sea surface temperature.            |
| barg   | Barograph type, or method of determining pressure tendency. |
| anmT   | Anemometer type.  |
| anmL   | Location of the anemometer.                                 |
| othl   | Other meteorological/oceanographic instrument.              |

**0602****freq**      **Routine observing frequency.**

| Code | Description                                    |
|------|--|
| OPD  | One observation per day (24 hour intervals).   |
| TPD  | Two observations per day (12 hour intervals).  |
| FPD  | Four observations per day (6 hour intervals).  |
| EPD  | Eight observations per day (3 hour intervals). |
| HLY  | Hourly observations.                           |
| IRR  | Irregular observations.                        |

**0801****hgrE**  
**thmE****Exposure of the hygrometer.**  
**Exposure of the dry bulb thermometer.**

| <b>Code</b> | <b>Description</b>                                 |
|-------------|--|
| A           | Aspirated (Assmann type).                          |
| S           | Screen (non ventilated, i.e. natural ventilation). |
| H           | Hand-held digital temperature/humidity sensor      |
| VS          | Screen (ventilated, i.e. assisted ventilation).    |
| SN          | Ship's screen (property of the ship).              |
| SG          | Ship's sling (property of the ship).               |
| US          | Unscreened.  |
| W           | Whirling or Sling psychrometer.                    |

**0802****hygr****Hygrometer type.**

| <b>Code</b> | <b>Description</b>           |
|-------------|------------------------------|
| C           | Capacitance.                 |
| CM          | Chilled mirror.              |
| E           | Electric.                    |
| H           | Hair hygrometer.             |
| HG          | Hygristor.                   |
| P           | Psychrometer.                |
| T           | Torsion.                     |
| OT          | Other (specify in footnote). |



1501

othl Other meteorological/oceanographic instrument.

| Code | Description   |
|------|---|
| BAT  | Bathythermometer.                                   |
| BT   | Bathythermograph (towed).                           |
| FLM  | Fluorometer.  |
| LWR  | Long wave radiation.                                |
| MAX  | Maximum thermometer.                                |
| MIN  | Minimum thermometer.                                |
| NTE  | Nitrate sensor.                                     |
| NTT  | Nutrient sensor.                                    |
| P    | Pilot balloon equipment.                            |
| CO2  | pCO2 system.  |
| PLK  | Plankton recorder.                                  |
| PRS  | Photosynthetic radiation sensor.                    |
| PYG  | Pyrogeometer.                                       |
| R    | Radiosonde equipment.                               |
| RG   | Rain gauge.   |
| RSD  | Radar storm and meteorological phenomena detection. |
| RT   | Reversing thermometer.                              |
| SKY  | Sky camera.   |
| SLM  | Solarimeter.  |
| ST   | Sea thermograph.                                    |
| SWR  | Short wave radiation.                               |
| TSD  | Temperature/salinity/depth probe.                   |
| TUR  | Turbidity sensor.                                   |
| W    | Radiowind or radarwind equipment.                   |
| WR   | Wave Recorder                                       |
| XBT  | Expendable bathythermograph.                        |
| OT   | Other (specify in footnote).                        |

prST

Transmission system for sending weather reports.

|                                      | Code | Description  |
|--------------------------------------|------|--|
| Costs borne by the ship              | SVCE | Voice (ship). The observation is sent to a NMS through the telephone network. The communication may use Inmarsat, Iridium, Vsat, VHF   |
|                                      | SMAI | Email (ship). The observation is sent to a NMS through an email. The WMO message is attached to this email. The satellite communication provider may be Inmarsat, Iridium, Vsat  |
|                                      | SWEB | Web (ship). The observation is sent through the Web (example: TurboWeb). The satellite communication provider may be Inmarsat, Iridium, Vsat   |
| Conventional VOS                     | CT41 | Inmarsat-C (FM13, SAC41). Standard procedure used to report observations (FM13 messages) from conventional VOS for many years. Collect call system: the NMS which receives the observations pays the communication costs |
|                                      | CTX  | Inmarsat-C (FM13, other SAC). FM13 messages are sent to a dedicated SAC (other than SAC41) established at one, or more LES. In general, communications are paid by the country who recruited the ship                    |
|                                      | CTH  | Inmarsat-C (EUHC). Text messages containing compressed data (E-SURFMAR format) are sent ashore through Inmarsat-C to a dedicated SAC and LES. Communications are paid by the country who recruited the ship              |
|                                      | CDS  | Inmarsat-C (SEAS). SEAS binary messages sent through Inmarsat-C Data Mode to a dedicated SAC and LES. Communications are paid by NOAA/NWS  |
| Shipboard Automatic Weather Stations | AIS  | Automated Identification System (direct or through satellite)  |
|                                      | ARG  | Argos system   |
|                                      | TDUP | Cellular (Dial-up). Dial-up communication using terrestrial wireless networks (GSM, GPRS)  |
|                                      | TSMS | Cellular (SMS). SMS sent through terrestrial wireless networks (GSM, GPRS)   |
|                                      | GBS  | Globalstar communication system  |
|                                      | GMS  | GMS (DCP). Data Collecting Platform of Geostationary Meteorological Satellites   |
|                                      | ISBD | Iridium (SBD). Short Burst Data service of Iridium communication system  |
|                                      | IMAI | Iridium (Email). Email sent through Iridium (e.g. Easymail)  |
|                                      | IDUP | Iridium (Dial-up). Dial-up communication using Iridium   |
|                                      | CDM  | Inmarsat-C (Data Mode). Data Mode service of Inmarsat-C used by S-AWS. See above for SEAS which also uses this service for conventional VOS  |
|                                      | CMAI | Inmarsat-C (Email). Email sent through Inmarsat-C  |
|                                      | ORBC | Orbcomm communication system   |
|                                      | VMAI | Vsat (Email). Email sent through Vsat  |
|                                      | VDUP | Vsat (Dial-up). Dial-up communication using Vsat   |
|                                      | DMO  | Delayed Mode only  |
|                                      | OT   | Other (specify in footnote).   |

1.  
1801

(Source: ISO 3166-1, 2 June 2008)

**rcnty**            **Recruiting country.**  
**reg**                **Country of registration.**

| <b>Code</b> | <b>Description</b>             |
|-------------|--------------------------------|
| AF          | AFGHANISTAN                    |
| AX          | ÅLAND ISLANDS                  |
| AL          | ALBANIA                        |
| DZ          | ALGERIA                        |
| AS          | AMERICAN SAMOA                 |
| AD          | ANDORRA                        |
| AO          | ANGOLA                         |
| AI          | ANGUILLA                       |
| AQ          | ANTARCTICA                     |
| AG          | ANTIGUA AND BARBUDA            |
| AR          | ARGENTINA                      |
| AM          | ARMENIA                        |
| AW          | ARUBA                          |
| AU          | AUSTRALIA                      |
| AT          | AUSTRIA                        |
| AZ          | AZERBAIJAN                     |
| BS          | BAHAMAS                        |
| BH          | BAHRAIN                        |
| BD          | BANGLADESH                     |
| BB          | BARBADOS                       |
| BY          | BELARUS                        |
| BE          | BELGIUM                        |
| BZ          | BELIZE                         |
| BJ          | BENIN                          |
| BM          | BERMUDA                        |
| BT          | BHUTAN                         |
| BO          | BOLIVIA                        |
| BA          | BOSNIA AND HERZEGOVINA         |
| BW          | BOTSWANA                       |
| BV          | BOUVET ISLAND                  |
| BR          | BRAZIL                         |
| IO          | BRITISH INDIAN OCEAN TERRITORY |
| BN          | BRUNEI DARUSSALAM              |
| BG          | BULGARIA                       |
| BF          | BURKINA FASO                   |
| BI          | BURUNDI                        |
| KH          | CAMBODIA                       |
| CM          | CAMEROON                       |
| CA          | CANADA                         |
| CV          | CAPE VERDE                     |
| KY          | CAYMAN ISLANDS                 |
| CF          | CENTRAL AFRICAN REPUBLIC       |
| TD          | CHAD                           |
| CL          | CHILE                          |
| CN          | CHINA                          |
| CX          | CHRISTMAS ISLAND               |
| CC          | COCOS (KEELING) ISLANDS        |
| CO          | COLOMBIA                       |

|    |                                       |
|----|---------------------------------------|
| KM | COMOROS                               |
| CG | CONGO                                 |
| CD | CONGO, THE DEMOCRATIC REPUBLIC OF THE |
| CK | COOK ISLANDS                          |
| CR | COSTA RICA                            |
| CI | CÔTE D'IVOIRE                         |
| HR | CROATIA                               |
| CU | CUBA                                  |
| CY | CYPRUS                                |
| CZ | CZECH REPUBLIC                        |
| DK | DENMARK                               |
| DJ | DJIBOUTI                              |
| DM | DOMINICA                              |
| DO | DOMINICAN REPUBLIC                    |
| EC | ECUADOR                               |
| EG | EGYPT                                 |
| SV | EL SALVADOR                           |
| GQ | EQUATORIAL GUINEA                     |
| ER | ERITREA                               |
| EE | ESTONIA                               |
| ET | ETHIOPIA                              |
| FK | FALKLAND ISLANDS (MALVINAS)           |
| FO | FAROE ISLANDS                         |
| FJ | FIJI                                  |
| FI | FINLAND                               |
| FR | FRANCE                                |
| GF | FRENCH GUIANA                         |
| PF | FRENCH POLYNESIA                      |
| TF | FRENCH SOUTHERN TERRITORIES           |
| GA | GABON                                 |
| GM | GAMBIA                                |
| GE | GEORGIA                               |
| DE | GERMANY                               |
| GH | GHANA                                 |
| GI | GIBRALTAR                             |
| GR | GREECE                                |
| GL | GREENLAND                             |
| GD | GRENADA                               |
| GP | GUADELOUPE                            |
| GU | GUAM                                  |
| GT | GUATEMALA                             |
| GG | GUERNSEY                              |
| GN | GUINEA                                |
| GW | GUINEA-BISSAU                         |
| GY | GUYANA                                |
| HT | HAITI                                 |
| HM | HEARD ISLAND AND MCDONALD ISLANDS     |
| VA | HOLY SEE (VATICAN CITY STATE)         |
| HN | HONDURAS                              |
| HK | HONG KONG                             |
| HU | HUNGARY                               |
| IS | ICELAND                               |
| IN | INDIA                                 |
| ID | INDONESIA                             |
| IR | IRAN, ISLAMIC REPUBLIC OF             |

|    |  |
|----|--|
| IQ | IRAQ                                       |
| IE | IRELAND                                    |
| IM | ISLE OF MAN                                |
| IL | ISRAEL                                     |
| IT | ITALY                                      |
| JM | JAMAICA                                    |
| JP | JAPAN                                      |
| JE | JERSEY                                     |
| JO | JORDAN                                     |
| KZ | KAZAKHSTAN                                 |
| KE | KENYA                                      |
| KI | KIRIBATI                                   |
| KP | KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF     |
| KR | KOREA, REPUBLIC OF                         |
| KW | KUWAIT                                     |
| KG | KYRGYZSTAN                                 |
| LA | LAO PEOPLE'S DEMOCRATIC REPUBLIC           |
| LV | LATVIA                                     |
| LB | LEBANON                                    |
| LS | LESOTHO                                    |
| LR | LIBERIA                                    |
| LY | LIBYAN ARAB JAMAHIRIYA                     |
| LI | LIECHTENSTEIN                              |
| LT | LITHUANIA                                  |
| LU | LUXEMBOURG                                 |
| MO | MACAO                                      |
| MK | MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF |
| MG | MADAGASCAR                                 |
| MW | MALAWI                                     |
| MY | MALAYSIA                                   |
| MV | MALDIVES                                   |
| ML | MALI                                       |
| MT | MALTA                                      |
| MH | MARSHALL ISLANDS                           |
| MQ | MARTINIQUE                                 |
| MR | MAURITANIA                                 |
| MU | MAURITIUS                                  |
| YT | MAYOTTE                                    |
| MX | MEXICO                                     |
| FM | MICRONESIA, FEDERATED STATES OF            |
| MD | MOLDOVA, REPUBLIC OF                       |
| MC | MONACO                                     |
| MN | MONGOLIA                                   |
| ME | MONTENEGRO                                 |
| MS | MONTserrat                                 |
| MA | MOROCCO                                    |
| MZ | MOZAMBIQUE                                 |
| MM | MYANMAR                                    |
| NA | NAMIBIA                                    |
| NR | NAURU                                      |
| NP | NEPAL                                      |
| NL | NETHERLANDS                                |
| AN | NETHERLANDS ANTILLES                       |
| NC | NEW CALEDONIA                              |
| NZ | NEW ZEALAND                                |

|    |  |
|----|--|
| NI | NICARAGUA                                    |
| NE | NIGER  |
| NG | NIGERIA                                      |
| NU | NIUE   |
| NF | NORFOLK ISLAND                               |
| MP | NORTHERN MARIANA ISLANDS                     |
| NO | NORWAY                                       |
| OM | OMAN   |
| PK | PAKISTAN                                     |
| PW | PALAU  |
| PS | PALESTINIAN TERRITORY, OCCUPIED              |
| PA | PANAMA                                       |
| PG | PAPUA NEW GUINEA                             |
| PY | PARAGUAY                                     |
| PE | PERU   |
| PH | PHILIPPINES                                  |
| PN | PITCAIRN                                     |
| PL | POLAND                                       |
| PT | PORTUGAL                                     |
| PR | PUERTO RICO                                  |
| QA | QATAR  |
| RE | REUNION                                      |
| RO | ROMANIA                                      |
| RU | RUSSIAN FEDERATION                           |
| RW | RWANDA                                       |
| BL | SAINT BARTHÉLEMY                             |
| SH | SAINT HELENA                                 |
| KN | SAINT KITTS AND NEVIS                        |
| LC | SAINT LUCIA                                  |
| MF | SAINT MARTIN                                 |
| PM | SAINT PIERRE AND MIQUELON                    |
| VC | SAINT VINCENT AND THE GRENADINES             |
| WS | SAMOA  |
| SM | SAN MARINO                                   |
| ST | SAO TOME AND PRINCIPE                        |
| SA | SAUDI ARABIA                                 |
| SN | SENEGAL                                      |
| RS | SERBIA                                       |
| SC | SEYCHELLES                                   |
| SL | SIERRA LEONE                                 |
| SG | SINGAPORE                                    |
| SK | SLOVAKIA                                     |
| SI | SLOVENIA                                     |
| SB | SOLOMON ISLANDS                              |
| SO | SOMALIA                                      |
| ZA | SOUTH AFRICA                                 |
| GS | SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS |
| ES | SPAIN  |
| LK | SRI LANKA                                    |
| SD | SUDAN  |
| SR | SURINAME                                     |
| SJ | SVALBARD AND JAN MAYEN                       |
| SZ | SWAZILAND                                    |
| SE | SWEDEN                                       |
| CH | SWITZERLAND                                  |

|    |   |
|----|---|
| SY | SYRIAN ARAB REPUBLIC                    |
| TW | TAIWAN, PROVINCE OF CHINA               |
| TJ | TAJIKISTAN                              |
| TZ | TANZANIA, UNITED REPUBLIC OF            |
| TH | THAILAND                                |
| TL | TIMOR-LESTE                             |
| TG | TOGO                                    |
| TK | TOKELAU                                 |
| TO | TONGA                                   |
| TT | TRINIDAD AND TOBAGO                     |
| TN | TUNISIA                                 |
| TR | TURKEY                                  |
| TM | TURKMENISTAN                            |
| TC | TURKS AND CAICOS ISLANDS                |
| TV | TUVALU                                  |
| UG | UGANDA                                  |
| UA | UKRAINE                                 |
| AE | UNITED ARAB EMIRATES                    |
| GB | UNITED KINGDOM                          |
| US | UNITED STATES                           |
| UM | UNITED STATES MINOR OUTLYING ISLANDS    |
| UY | URUGUAY                                 |
| UZ | UZBEKISTAN                              |
| VU | VANUATU                                 |
| VE | VENEZUELA                               |
| VN | VIET NAM                                |
| VG | VIRGIN ISLANDS, BRITISH                 |
| VI | VIRGIN ISLANDS, U.S.                    |
| WF | WALLIS AND FUTUNA                       |
| EH | WESTERN SAHARA                          |
| YE | YEMEN                                   |
| ZM | ZAMBIA                                  |
| ZW | ZIMBABWE                                |
| ZZ | JCOMMOPS recruited Ancillary Class ship |

1802

rte                      Route

| Code | Description/marine area                          |
|------|--|
|      |  |
| R90  | More than 10 separate marine areas (see Note 2). |
| R91  | Inland sea or river (see Note 3).                |
| R92  | Variable or no fixed route (see Note 2).         |

- Note 1**                      A maximum of 10 marine areas visited by the ship can be reported individually, otherwise use R90.
- Note 2**                      For R90 or R92, specify the most visited marine area(s) by the ship in the footnote if this can be determined, e.g. "most visited - R62, R41".
- Note 3**                      For R91, specify the location in the footnote, e.g. "Black Sea", "Mackenzie River".
- Note 4**                      Use footnotes as necessary to provide more detail, e.g. "coastal service", "fixed location".
- Note 5**                      If using the semi-colon delimited metadata exchange format, include the relevant marine area in the footnote if more than one **rte** is defined, e.g. "R73 – Austral Summer only", otherwise format the footnote as shown in the examples for Notes 2 – 4.

1901

sstM                      Method of obtaining the sea surface temperature.

| Code | Description   |
|------|---|
| BTT  | Bait tanks thermometer.   |
| BU   | Bucket thermometer.   |
| C    | Condenser Intake on Steam Ships, or Engine Cooling System Inlet on Motor Ships. |
| HC   | Hull contact sensor.  |
| HT   | "Through Hull" sensor.  |
| RAD  | Radiation thermometer.  |
| TT   | Trailing thermistor.  |
| OT   | Other (specify in footnote).  |



**2001**

**thmL                      Location of the dry bulb thermometer and hygrometer**

| <b>Code</b> | <b>Description</b>            |
|-------------|-------------------------------|
| 1           | Bridge wing port.             |
| 2           | Bridge wing starboard.        |
| 3           | Bridge wing both sides.       |
| 4           | Bridge wing windward side.    |
| 5           | Wheelhouse top port.          |
| 6           | Wheelhouse top starboard.     |
| 7           | Wheelhouse top both.          |
| 8           | Wheelhouse top center.        |
| 9           | Wheelhouse top windward side. |
| 10          | Mainmast.                     |
| 11          | Foremast.                     |
| 12          | Mast on wheelhouse top.       |
| 13          | Main deck port side.          |
| 14          | Main deck starboard side.     |
| 15          | Main deck both sides.         |
| OT          | Other (specify in footnote).  |

**2002**

**thrm                      Dry bulb thermometer type.**

| <b>Code</b> | <b>Description</b>                 |
|-------------|------------------------------------|
| ALC         | Alcohol thermometer.               |
| MER         | Dry bulb mercury thermometer.      |
| ELE         | Electric (resistance) thermometer. |

**2003**

**tscal                      General temperature reporting practice.**

| <b>Code</b> | <b>Description</b>                                 |
|-------------|--|
| 1           | Centigrade to tenths.                              |
| 2           | Half degrees centigrade.                           |
| 3           | Whole degree centigrade.                           |
| 4           | Whole degree fahrenheit.                           |
| 5           | Fahrenheit to tenths.                              |
| 6           | Dry bulb centigrade, wet bulb fahrenheit.          |
| 7           | Dry bulb fahrenheit, wet bulb centigrade.          |
| OT          | Other combinations or scale (specify in footnote). |

**vssl**            **Vessel type.**

| <b>Code</b> | <b>Description</b>   |
|-------------|--|
| BA          | Barges, including crane barges and tank barges.  |
| BC          | Bulk Carriers, including Ore/Bulk/Oil (OBO) carriers and Ore/Oil carriers.   |
| CA          | Cable ships.   |
| CG          | Coastguard cutters, patrol ships and launches.   |
| CS          | Container ships, including open and closed container ships and refrigerated container ships.   |
| DR          | Dredgers including bucket, hopper, grab and suction dredgers.  |
| FE          | Passenger ferries (carrying passengers only).  |
| FP          | Floating Production and Storage Units.   |
| FV          | Fishing Vessels including purse seiners, long liners etc., but excluding trawlers.   |
| GC          | General Cargo ships with one or more holds.  |
| GT          | Liquefied gas carriers/tankers including LNG and LPG carriers.   |
| IC          | Icebreaking vessels (dedicated vessel). If the vessel fits in another category and is ice strengthened then include 'ice strengthened' as a footnote.  |
| LC          | Livestock Carrier (dedicated ship for the carriage of livestock).  |
| LT          | Liquid tankers including oil product tankers, chemical tankers and crude oil tankers (including VLCC's and ULCC's).  |
| LV          | Light vessels.   |
| MI          | Mobile installations, including mobile offshore drill ships, jack-up rigs, semi-submersibles.  |
| MS          | Military ships.  |
| OW          | Ocean Weather Ships (dedicated weather ship).  |
| PI          | Pipe Layers.   |
| PS          | Passenger ships and Cruise liners.   |
| RF          | Ro Ro ferries (carrying passengers and laden vehicles).  |
| RR          | Ro Ro cargo ships for carriage of road and/or rail vehicles and cargo, including containerised cargo.  |
| RS          | Refrigerated cargo ships including banana ships.   |
| RV          | Research Vessels, including oceanographic, meteorological and hydrographic research ships and seismographic research ships.  |
| SA          | Large sailing vessels, including sail training vessels.  |
| SV          | Support vessels including offshore support vessels, offshore supply vessels, stand-by vessels, pipe carriers, anchor handling vessels, buoy tenders (including coastguard vessels engaged solely on buoy tending duties), diving support vessels, etc. |
| TR          | Trawler fishing vessels.   |
| TU          | Tugs, including fire-fighting tugs, salvage tugs, pusher tugs, pilot vessels, tenders etc.   |
| VC          | Vehicle Carriers: dedicated multi deck ships for the carriage of new unladen road vehicles.  |
| YA          | Yachts and pleasure craft.   |
| OT          | Other (specify in footnote).   |

## vssIM

## Type of meteorological reporting ship.

| Code | Description  |
|------|--|
| 10   | <p>Selected</p> <p><b>Definition:</b> A mobile ship station equipped with sufficient certified meteorological instruments for making observations, transmits regular weather reports and enters the observations in a meteorological logbook. A Selected ship should have at least a barometer, a thermometer to measure SST, a psychrometer (for AT and humidity), a barograph and possibly an anemometer.</p>  |
| 15   | <p>Selected (AWS)</p> <p><b>Definition:</b> an AWS system equipped with certified meteorological instruments to measure at least at least air pressure, pressure change, temperature and humidity. Optional sensors would include wind speed and direction and sea temperature measurement. The AWS may or may not have the facility for manual input of the visual elements, and transmit reports at least three hourly or more frequently. The AWS should have the facility to log the data.</p>   |
| 30   | <p>VOSClim – VOS Climate</p> <p><b>Definition:</b> A mobile ship station equipped with sufficient certified meteorological instruments for making observations, transmits regular and timely weather reports, enters the observations in an IMMT compliant electronic logbook including the extra VOSClim delayed-mode groups, and has a proven record of providing high quality observations. The ship should have at least a barometer, a thermometer to measure SST, a psychrometer (for AT and humidity), a barograph and possibly an anemometer. The ship should be inspected at less that six month intervals.</p> |
| 35   | <p>VOSClim (AWS) – VOS Climate (AWS)</p> <p><b>Definition</b> An AWS system equipped with certified meteorological instruments to measure at least air pressure, pressure change, temperature and humidity. Optional sensors would include wind speed and direction and sea temperature measurement. The AWS may have a facility for manual input of the visual elements, and transmit reports at least three hourly or more frequently. The AWS must have the facility to log the data including the additional IMMT delayed-mode VOSClim groups. The ship should be inspected at less that six month intervals.</p>    |
| 40   | <p>Supplementary</p> <p><b>Definition:</b> A mobile ship station equipped with a limited number of certified meteorological instruments for making observations. It transmits regular weather reports and enters the observations in a meteorological logbook.</p>   |
| 45   | <p>Supplementary (AWS)</p> <p><b>Definition:</b> an AWS system equipped with a limited number of certified meteorological instruments that reports regularly. The AWS should at least measure air pressure.</p>  |
| 70   | <p>Auxiliary</p> <p><b>Definition:</b> A mobile ship station normally without certified meteorological instruments, which transmits in a reduced code form or in plain language, either on a routine basis or on request, in certain areas and under certain conditions.</p>   |
| 75   | <p>Auxiliary (AWS)</p> <p><b>Definition:</b> an AWS system using non-certified meteorological instruments and reporting regularly. The AWS should at least measure air pressure.</p>   |
| 80   | <p>Ancillary</p> <p><b>Definition:</b> A mobile ship station using non-certified meteorological instruments and reporting regularly but which is not recruited by a Member.</p>  |
| 85   | <p>Ancillary (AWS)</p> <p><b>Definition:</b> An AWS system using non-certified meteorological instruments and reporting regularly but which is not recruited by a Member.</p>  |
| OT   | Other (specify in footnote).   |

2203

vssIP                      Vessel digital image.

| Code | Description                                      |
|------|--|
| AV   | Available in separate digital file (see Note 2). |
| NA   | Not available.                                   |
| PA   | Photo available but not yet scanned.             |

**Note 1**                      See Annex 6 for the recommended VOS and VOSClm minimum suite of digital images and drawings

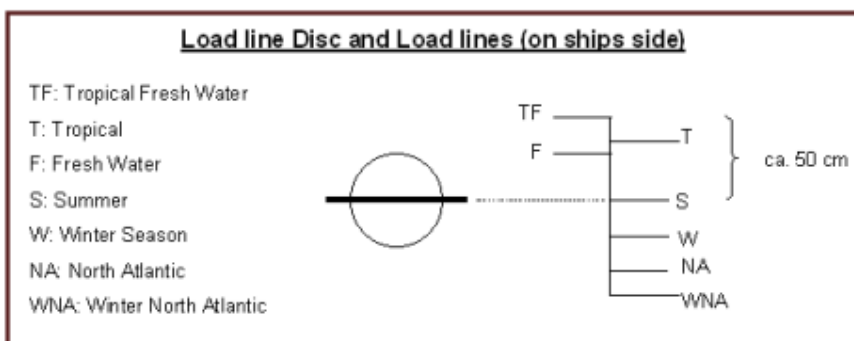
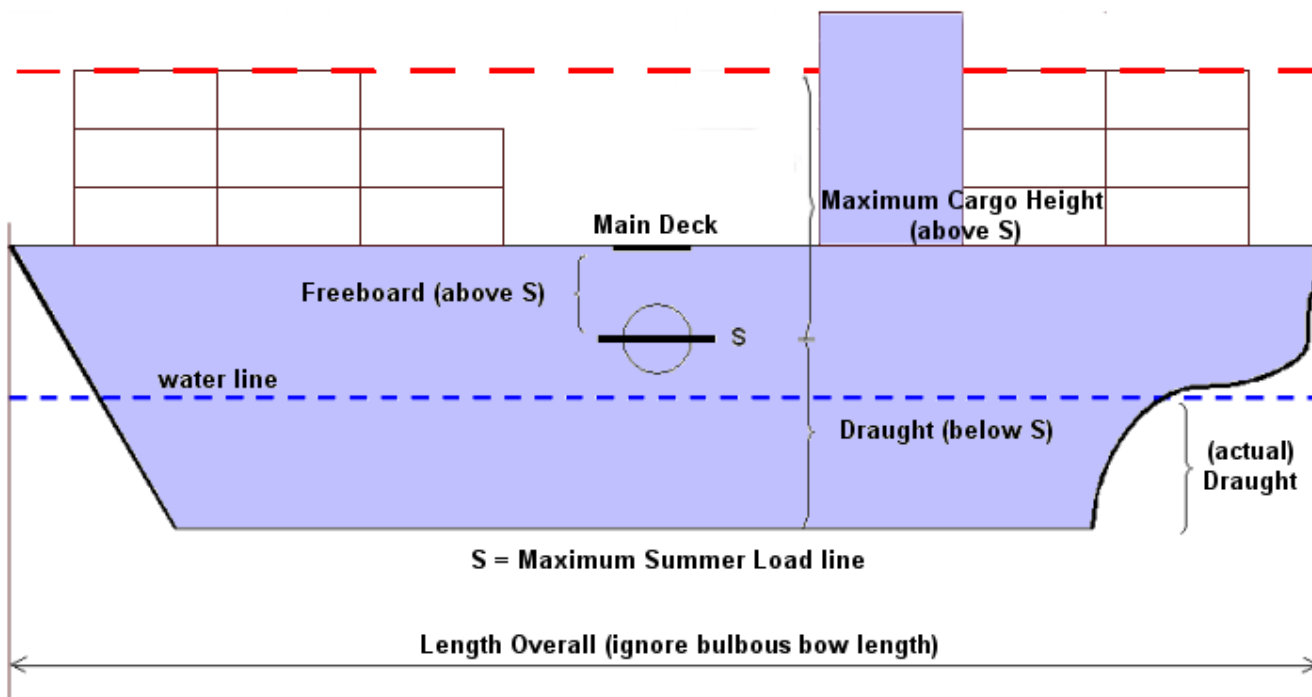
**Note 2**                      Digital image file-naming convention:  
"00" & "IMO Number" & "image\_description" & "date", where the date format shall be YYYYMMDD, e.g. 007417868aerial\_starboard\_profile\_from\_stern20030717.jpg

DRAFT

# WMO-No. 47

## Metadata Format Version 04

### Ship's Layout Diagram



## WMO-No. 47

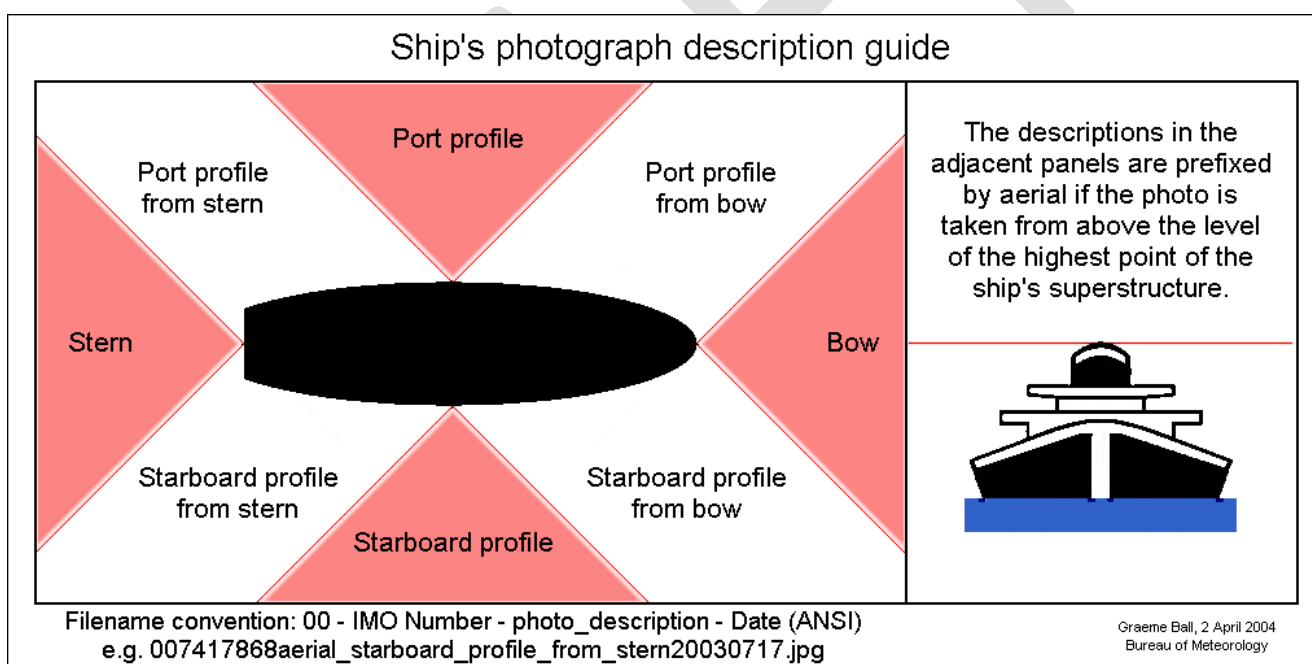
### Metadata Format Version 04

### Vessel Digital Images (Code Table 2203)

#### 1. Recommended minimum suite of digital images/photographs

| Description   | VOSCLim | Sel / Supp / Aux |
|---|---------|------------------|
| Exposure of screen(s) showing the location of any adjacent obstructions, over-hangings, etc | Yes     | Yes              |
| Exposure of anemometer (if applicable)  | Yes     | Yes              |
| Exposure of other meteorological instruments  | Yes     | Optional         |
| Ship's profile – quayside or at sea if possible   | Yes     | Yes              |
| Deck cargo stowage (if applicable)  | Yes     | Optional         |

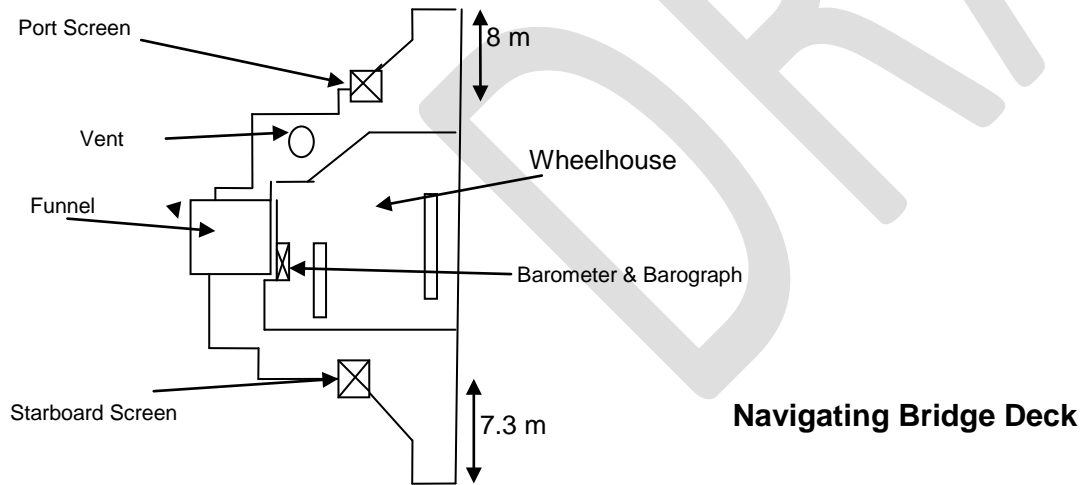
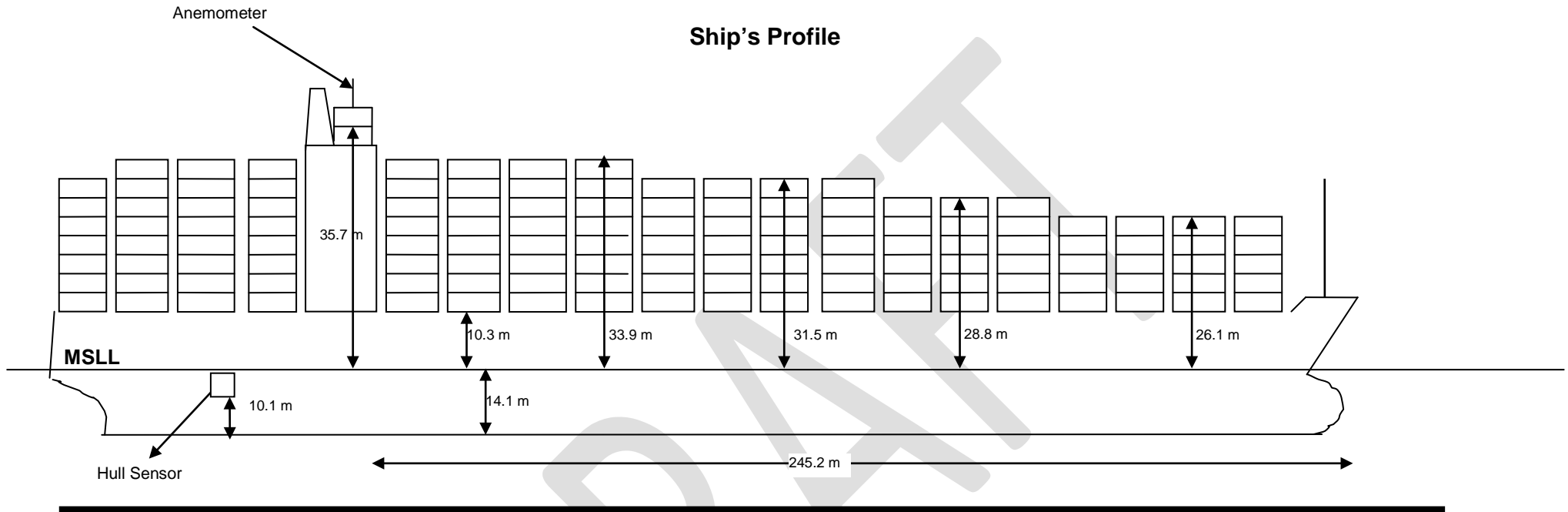
#### 2. Suggested descriptions of profile photographs



#### 3. Suggested drawings/sketches

| Description   | VOSCLim | Sel / Supp / Aux |
|---|---------|------------------|
| Ship's general profile – basic sketch showing instrument location and dimensions    | Yes     | Optional         |
| Navigational Bridge Deck/wheelhouse plan – basic sketch showing instrument location | Yes     | Optional         |
| General Arrangement Plan or drawing   | Yes     | Optional         |

#### 4. Sample sketches



DRAFT

This page left intentionally blank



DRAFT