WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)
EXPERT TEAM ON MARINE CLIMATOLOGY

FIRST SESSION

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ETMC-I/Doc. 5.2
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ITEM 5.2

Original: ENGLISH

REVISIONS PROPOSED TO WMO-No. 47 BY THE SHIP OBSERVATIONS TEAM

(Submitted by SOT Task Team on Metadata for WMO-No. 47)

Summary and Purpose of Document

This document contains proposals by the Task Team on Metadata for WMO-No. 47 established by the second session of the Ship Observations Team (London, July 2003), regarding changes to the WMO ship catalogue (WMO-No. 47).

ACTION PROPOSED

The Expert Team on Marine Climatology is invited to:

(a) Carefully consider the proposed changes to WMO-No. 47;

(b) Make recommendations to be submitted to JCOMM-II, as appropriate.

Appendix: Proposed changes to WMO Publication No. 47

DISCUSSION

Introduction

1. The third and fourth sessions of the VOSClim Project (Southampton, January 2002) (London, July 2003) and the second session of the Ship Observations Team (SOT-II) (London, July 2003) recognized the need for further amendments to WMO-No. 47. SOT-II established a Task Team on Metadata for WMO-No. 47. The Task Team was requested to prepare a proposal to be submitted to the next session of the JCOMM Expert Team on Marine Climatology for its consideration. The Task Team was composed of the following members.

Graeme Ball (chair, Australia)
Ron Fordyce (Canada)
Pierre Blouch (France)
Julie Fletcher (New Zealand)
Elizabeth Kent (United Kingdom)
Sarah North (United Kingdom)
David McShane(USA) - replaced by Kathleen O'Neil

2. The document submitted by the Task Team is in Appendix A.

Action proposed

3. The Expert Team on Marine Climatology is invited to carefully review and consider the proposals by the Task Team and make recommendations to be submitted to JCOMM-II, as appropriate.

Appendix: 1

ETMC-I/Doc. 5.2, APPENDIX

Proposed changes to WMO Publication No. 47

Submitted by the SOT Task Team on Metadata for WMO-No. 47

Preamble

WMO Publication No. 47 (Pub47), the *International List of Selected, Supplementary and Auxiliary Ships*, contains details about the names, call signs, layout, and types of instrumentation and methods of observation used on VOS ships. It relies on the regular submission of metadata from National Meteorological Services operating VOS programmes, nominally on a quarterly basis.

Pub47 was formerly printed annually, but, since about 1999, has been available electronically on the WMO website. Unfortunately the electronic version has been updated very infrequently, much to the frustration of VOS operators, and was a topic for discussion at both VOSClim-IV and SOT-II (London, 2003). Whilst it is the timely availability of current Pub47 metadata that is of concern for VOS operators, there is also a need to maintain a digital archive of historical metadata for use with climate datasets to allow the identification and correction of spurious climate signals that may result from changes in VOS instrumentation.

Pub47 is an important tool for VOS operators as it:

1. Greatly assists in identifying the status of foreign ships.
2. Identifies which ships, through their omission from the list, can be targeted for possible VOS recruitment. As a consequence this avoids unnecessary visits by Port Meteorological Officers.
3. Assists when preparing to visit a foreign VOS vessel.
4. Identifies which ships can be targeted as possible deployment vessels for buoys and floats.

Accurate details about the method of observation and instrument type, instrument exposure, instrument calibration dates and ship layout, are vital if the objectives and desired accuracies of the VOS Climate Project (VOSClim) are to be achieved.

Introduction

This document was prepared by the *Task Team on Metadata for Pub47* (TT), established at SOT-II (London, 2003). It comprises eight parts for separate consideration by the ETMC. Annexes 1, 2, 3, 4 and 5 of this document contain specific details regarding the changes outlined in Parts 4, 5, 6, 7 and 8 respectively.

Broadly, the parts may be summarized as follows:

1. Proposal to streamline the process of approving coding changes to Pub47.
2. Proposal to define the requirements for inclusion in Pub47.
3. Proposal for the development of a dedicated ASAP metadata database.
4. Proposals to modify the content of existing tables and to improve the documentation, including the revision of code descriptions. These changes will not affect the existing format of Pub47.
5. Proposals to modify field definitions or, if the modifications are not supported, to delete fields. The modifications will not affect the existing format of Pub47, but the deletions will affect the format.
6. Proposals to add and delete fields. These changes will affect the existing format of Pub47.
7. Proposed new delimited format for transmitting Pub47.
8. Proposal to develop an XML standard for the future exchange of Pub47 metadata.

Summary of required actions, grouped by document part.

Part 1

1. Endorse the recommendation that SOT assume responsibility for making changes to existing code tables in Pub47.

Part 2

2. Consider the metadata requirements for fixed and mobile units and approve the recommendation to explicitly define the type of mobile platforms and rigs that are to be reported in Pub47.

Part 3

3. Consider the need for a separate ASAP metadata database.

Part 4

4. Approve changes to the existing codes and or definitions in the table 'Type of Vessel'.
5. Approve changes to the existing codes and or definitions in the table 'Type of Barometer'.
6. Approve changes to the existing codes and or definitions in table 'Thermometer and Hygrometer exposure' respectively.
7. Approve changes to the existing codes and or definitions, as well as the field description for table 'Type of Barograph'.
8. Approve changes to the existing codes and or definitions in the table 'Type of Meteorological Reporting Vessel'.
9. Approve changes to the existing codes and or definitions in the table 'Barometer Location'.
10. Approve recommendation to consolidate separate national route list into one consolidated list.
11. Approve changes to the existing codes and or definitions in the table 'Other Instruments'.
12. Approve changes to the existing codes and or definitions in the table 'Vessel Digital Image'.
13. Approve a change to the definition of 'Footnotes'.
14. Approve changes to the existing codes and or definitions in the table 'Temperature Scale'.
15. Approve changes to the existing codes and or definitions in the field 'Vessel Dimension'.

Part 5

16. Approve a change to the definition of the field for 'Teleprinter and Satellite' to 'Satellite system for transmitting observations', or otherwise delete the field.
17. Approve a change to the definition of cargo height from 'Average cargo height' to 'Maximum cargo height', or otherwise delete the field.

Part 6

18. Approve the addition of a new field and its corresponding table for 'Type of Anemometer'.
19. Approve the addition of a new field and its corresponding table for 'Scheduled frequency of observations'.
20. Approve the addition of a new field for the 'Side indicator of the anemometer from the centre line', and redefine **anDC** to only report the 'Distance of the (fixed) anemometer from the centre line'. The field **anDC** is currently used to report both of these metadata values.
21. Approve the deletion of the field and its corresponding table for 'Radiotelephony and Radiotelegraphy'.
22. Approve the addition of a new field for the 'Version' of Pub47 format.
23. Approve the addition of a new field for the 'Make and Model of Anemometer'.
24. Approve the addition of a new field for the 'Make and model of automatic weather station'.
25. Approve the addition of a new field for the 'Name and Version of AWS processing software'.
26. Approve the addition of a new field for the 'Name and Version of AWS console software'.

27. Approve the addition of a new field for the ‘Name and version of electronic logbook software’.
28. Approve the addition of a new field for the ‘Recruitment date of the current VOS participation’.
29. Approve the addition of a new field for the ‘De-recruitment date of the last VOS participation’.
30. Approve the addition of a new field for the ‘Last VOSClim recruitment date in the current period of VOS participation’.
31. Approve the addition of a new field for the ‘Last VOSClim de-recruitment date in the current period of VOS participation’.
32. Approve the addition of a new field for the ‘Country of Registration’. This field is currently reported as part of the name field when the country of registration is different to the country of recruitment.

Part 7

33. Approve the new format to transmit delimited files containing the Pub47 metadata. The new format is based on the adoption of all changes proposed contained in parts 4, 5 and 6.

Part 8

34. Approve the development of an XML standard for the future exchange of Pub47 metadata.

Discussion

Part 1

The TT, and VOS operators in general, are concerned about the long delays in approving changes to the coding and formatting of Pub47. The inadequacies of Pub47, combined with the delays in approving revisions to Pub47 as technologies and or systems change, have led to the misuse and over-use of footnotes as de-facto and non-searchable database fields. Some of the coding changes contained in Annex 1 were first raised with WMO four years ago.

The TT therefore recommends that SOT, which meets approximately every 18 months, should assume the responsibility to approve the changes to existing Pub47 code tables from the ETMC. SOT would continue to notify the ETMC of the proposed changes and would request their involvement in developing changes when necessary, but the responsibility for approving such changes would in future rest with the SOT, who are more closely involved in ship inspection activities.

Part 2

Some VOS operators have installed meteorological equipment onboard fixed offshore platforms, as well as mobile platforms and drilling rigs (such as semi-submersibles, jack-up rigs and Floating Production Storage and Offloading (FPSO) ships). Traditionally these operators have been submitting metadata for these platforms and rigs together with their Pub47 listings.

However, according to JCOMM-1 Recommendation 1, 'fixed-platforms (Oil rigs etc)' are now listed as being subject to the new, extensive, ODAS metadata requirements. It is unclear, though, whether the mobile platforms/rigs should be included in the ODAS metadata requirements - and bearing in mind that some of these rigs are ship-shaped it is also questioned whether their inclusion is appropriate. Moreover, there are some floating production platforms (i.e. semi-submersible rigs that have been converted into production units) that are likely to remain in a fixed location for several years but are nevertheless mobile and able to move to other locations.

As a compromise the TT therefore proposes that mobile installations such as jack up units, ship-shaped drill ships, semi-submersibles and FPSOs should be included in Pub47 (see proposed new **vssl** codes FP and MI in Annex 1), and that Fixed Platforms only (i.e. those that are permanently affixed to the sea bed) should be subject to the ODAS metadata requirements. However, it is recognised that this is not an ideal solution, and the ETMC is therefore requested to consider this issue and advise accordingly.

In line with this proposal, the TT recognises that some mobile installations report their observations using a WMO Number instead of a call sign (WMO Manual on Codes, para 12.1.3.4, which states that "the identification of a sea station shall be indicated by either the group D...D (call sign) or the group $A_1b_wn_bn_bn_b$"). The documentation for Pub47 will be amended to redefine the field for 'call sign' (**call**) to report call sign or WMO Number as appropriate.

Part 3

Ships of the VOS that participate in complementary programs such as SOOP or ASAP, are currently incorporated in Pub47, although there is no dedicated field to record this additional work - as a consequence, such activities are included by inference in the field 'other meteorological instruments' (**othl**). However it is not necessarily the case that all SOOP and ASAP ships are members of the VOS.

JCOMMOPS, because of its strong links to SOOPIP, already maintains a list of XBT SOOP ships with some limited metadata. However there is no equivalent list of ASAP ships – although an annual report of ASAP activity is complied by each national ASAP operator and included in a hardcopy report issued each year by JCOMM.

The TT therefore requests the ETMC to consider whether there is a need for a dedicated ASAP metadata database, possibly building on the metadata information currently contained in the ASAP annual report.

Part 4 (Supporting documentation at Annex 1)

Some of the current field codes in Pub47 are in need of review to take account of new types of instruments; to expand the choice of type of vessel; or to restrict the type of meteorological reporting vessels to selected, supplementary or auxiliary, without any concern for the type of vessel or, for USA recruited vessels, the country of registration.

There is also a need to provide documentation to explicitly define some of the required elements of metadata, such as ship's dimensions. Furthermore, there is a need to expand some code descriptions, or, in some cases, remove the ambiguity that exists in some descriptions. These changes will help to promote a consistent approach by VOS operators and Port Meteorological Officers to collecting, and more accurately describing, the metadata.

Although the use of footnotes in Pub47 can be somewhat cumbersome for those having to compile metadata listings, the TT generally supports their retention. However it is proposed that it should be made clear that they can be used to provide supplementary detail in free-form text, about any field where a selection is made from a code table, i.e. in addition to those fields where the code OT (other) is selected from a code table.

The TT also proposes to consolidate the existing separate national route lists into a single three-tiered list for common use by all countries. This follows the lead of SOOPIP, which operates with a consolidated list of XBT sampling lines. A consolidated list of routes will also benefit operators searching for a ship to participate in SOOP, ASAP or to deploy buoys or floats along a particular route or in an ocean area. Subject to the ETMC's approval in part 1 of this document for SOT to approve coding changes, the TT will develop a consolidated list of routes for endorsement at SOT-III.

The TT also proposes that if a ship has two instruments to measure a parameter, the primary instrument will be designated as 'instrument 1' and the secondary instrument will be designated as 'instrument 2'. In the case of air temperature and humidity, the Observing Officer selects the portside or starboard-side instrument depending on the prevailing wind direction; hence there is no primary or secondary instrument, and it is immaterial which is recorded against instrument 1. However, if a ship usually reports bucket SST, but reverts to engine intake in bad weather, then the bucket is recorded as 'SST method 1' and the engine intake as 'SST method 2'. Similarly if a marine screen encloses both a mercury dry bulb thermometer and an electrical resistance thermometer, the method generally used should be reported as thermometer type no. 1

Part 5 (Supporting documentation at Annex 2)

The TT proposes that the field for 'Teleprinter and Satellite' (**prST**), be redefined to the "Satellite system for transmitting observations", noting:

1. The table for prST is incomplete in respect of the range of Inmarsat facilities available to ships. At the same time it is superfluous to record the availability of an Inmarsat C facility when nearly all ocean-going ships are required by the SOLAS Convention to have this facility.
2. The field provides no tangible means to contact a ship; hence its purpose is unclear. Websites such as Inmarsat <www.inmarsat.com> and the International Telecommunications Union (ITU) <www.itu.int/cgi-bin/htsh/mars/ship_search.sh> maintain a complete and current list of ship's Inmarsat numbers, which also obviates the need to include specific contact numbers in Pub47.
3. The table includes a range of other satellites, e.g. GPS and Argos, however the purpose of recording these facilities is unclear.

If the redefinition is not approved then the field **prST** should be deleted.

The 'average cargo height' (**chtvsslD**) can vary widely from one voyage to another voyage, and from one route to another route. To record one average value against a ship is therefore considered to be misleading and meaningless. Ships participating in VOSClim record the maximum cargo height in IMMT-2 format at each observation, which is considered to be more useful for modelling purposes. The TT therefore proposes that **chtvsslD** should be redefined to the 'maximum cargo height', described as the maximum height of the deck cargo above the maximum Summer load line. This value can usually be obtained from the ship's General Arrangement Plan or from the ship's stability information. Schematic drawings may need to be developed by the TT to assist the operators in reporting this, and the other ship dimension fields. If the proposed redefinition of **chtvsslD** is not approved then the element 'should be deleted, as it is not usually possible to define an average cargo height.

Part 6 (Supporting documentation at Annex 3)

The communications table for 'Radiotelephony and Radiotelegraphy' (**phGr**) has become out-dated and is no longer considered relevant. It is recommended that this field should be removed.

It is proposed to add fields to record the dates of VOS and VOSClim participation; the version of the metadata format to aid database ingestion; the type of anemometer, which will be selected from a new table; and the model of the anemometer. These additions for anemometer will bring conformity with the recording method for other instruments, e.g. barometer and thermometer.

Field **anDC** currently stores two separate but related metadata values, i.e. the distance of the anemometer from the centre line as well as a side indicator of the anemometer from the centre line. The TT proposes to add a new field **anSC** for the side indicator and redefine **anDC** to only report the distance from the centre line for fixed anemometers. The current method of reporting and storing these metadata values is considered to be of poor design, and makes the extraction of, and the use of the metadata by end-users cumbersome and difficult.

New fields are also proposed to record the name and version of Electronic Logbook Software, the type and version of Automatic Weather Station, and the version(s) of software used by the Automatic Weather Station. Some VOS operators have typically recorded these important details as footnotes.

The TT also proposes that the 'Country of Registration' (**reg**), which was previously appended in parentheses to the **name** field when the Country of Registration was different to the country of recruitment, should be reported as a separate field using the ISO country code for all ships.

Part 7 (Supporting documentation at Annex 4)

Annex 3 contains the proposed semi-colon delimited file format for transmitting the Pub47 metadata. This is based on the adoption of all recommendations contained in parts 4, 5 and 6. The annex also includes, where considered necessary, more explicitly defined field name descriptions to aid the gathering of the metadata.

Part 8 (supporting documentation at Annex 5)

The current method of metadata transfer, via a semi-colon delimited text file, is efficient in terms of file size, but is not easy to read; is very inflexible; and fails to take advantage of alternative data transfer methods that are now available. Furthermore, each VOS operator is responsible for creating, and subsequently maintaining their own routines to generate the correctly formatted Pub47 metadata reports. This has contributed to some countries submitting their metadata in an earlier version of the Pub47 format, and will inevitably compound the database ingestion processes.

Extensible Markup Language (XML) is a simple, very flexible text format derived from SGML (ISO 8879). Originally designed to meet the challenges of large-scale electronic publishing, XML is playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere. Importantly, a schema can be developed, and be maintained online, to specify the structure of the XML file, and utilities are available to transform an ODBC database into XML.

The TT therefore seeks the support of the ETMC to pursue the development of an XML standard for the future exchange of Pub47 metadata.

Coincident with the introduction of XML for data transfer, would be the adoption of the ANSI standard date format (yyyymmdd) for all existing and future Pub47 date fields transmitted in XML.

The use of XML as the medium for transferring the metadata would not be at the expense of the current semi-colon delimited file, which would be retained in parallel until such time that the XML transfer method was used, without exception, by all VOS operators.

Annex 1 **Code changes to existing tables**

(1) vssl – Vessel type

BA	1	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	2	Container ships, including open and closed container ships and refrigerated container ships
DR	*	Dredgers including bucket, hopper, grab and suction dredgers
FE	3	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 units, semi-submersibles
MS	*	Military ships
OW	*	Ocean Weather Ship (dedicated weather ship)
PI	#	Pipe Layers
PS	4	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	5	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	6	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	7	Yachts and pleasure craft
OT	*	Other (specify in footnote)

Notes for Table 'vssl'

***** Code unchanged but possible expansion of the description

\# New addition to table

1 Previously code B

2 Existing code **CS** is amended to include both open and closed container ships that have similar profiles. To avoid confusion previous code **CC** (Closed Container) is therefore deleted from the list

3 Previously code F

4 This proposed addition to table replaces **PV** for Passenger Vessel and **PL** for passenger liner in order to avoid confusion regarding the variety of passenger ships and liners in service.

5 This proposed addition to table replaces previous code **BS** (banana ships), which represented only one particular type of refrigerated cargo ship

6 Previously code T

7 Previously code Y

Note 1 Code **IF** (inshore fishing vessel) is deleted as it is considered unnecessary to define where fishing is carried out, and because this type of fishing vessel is already adequately covered by codes **FV** and **TR**

(2) barm - Barometer type

AN	*	Aneroid barometer (issued by Port Meteorological Officer or Meteorological Agency)
DA	*	Digital 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)

Notes for Table ‘barm’

* Code and description are unchanged

\# New addition to table

(3) thmE and hygE – Thermometer and hygrometer exposure

A	*	Aspirated (Assmann type)
S	@	Screen (non ventilated, i.e. natural ventilation)
SG	*	Ship's sling
SL	*	Sling
SN	@	Ship's screen (property of the ship)
US	*	Unscreened
VS	@	Screen (ventilated, i.e. assisted ventilation)
W	*	Whirling psychrometer

Notes for Tables ‘thmE’ and ‘hygE’

* Code and description are unchanged

@ Amended description

(4) barg – Type of barograph, or method of obtaining pressure tendency

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)

Notes for Table 'barg'

*	Code and description are unchanged
#	New addition to table
Note 1	Change to table description

(5) vsslM – Type of meteorological reporting vessel

10	*	Selected
40	*	Supplementary
70	*	Auxiliary
OT	$	Other (specify in footnote)

Notes for Table 'vsslM'

*	Code and description are unchanged
$	Formerly 99. Changed for consistency with other tables
Note 1	Codes 20, 21, 22, 60, 61, 80 and 81; which essentially refer to vessel type, are deleted
Note 2	The USA has confirmed that codes 88-90 are no longer required and can be deleted

(6) brmL – Barometer location

CR	*	Chart room
PW	#	Pressurised wheelhouse
WH	@	Wheelhouse, not pressurised
OT	*	Other (specify in footnote)

Notes for Table 'brmL'

*	Code and description are unchanged
#	New addition to table
@	Amended description

(7) rte – Routes

Consolidate the existing and separate national routes lists into a single three-tiered list, viz:

1. International / continental / national
2. Area of Operation
3. Specific country to country routes

The consolidated list of ships' routes will be presented at SOT-III. Subject to its endorsement at SOT-III, the consolidated list will be provided for inclusion in the revised version of Pub47.

(8) othI – Other meteorological/oceanographic instruments

BAT	*	Bathythermometer
BT	*	Bathythermograph (towed)
FLM	#	Fluorometer
HA	#	Hand held anemometer
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
SON	#	Sonic anemometer
TSD	*	Temperature/salinity/depth probe
TUR	#	Turbidity sensor
W	*	Radiowind or radarwind equipment
XBT	*	Expendable bathythermograph
OT	*	Other (specify in footnote)

Notes for Table 'othI'

*****	Code and description are unchanged
#	New addition to table.
Note	HA and SON will be unnecessary if new Table 'anmT' and the field 'anmM' are approved.

(9) vsslP – Vessel Digital Image

AV	@	Available in separate digital file. The file naming convention is: 00 – IMO Number – photo_description – Date (ANSI format, i.e. yyyymmdd), e.g. 007417868aerial_starboard_profile_from_stern20030717.jpg
NA	*	Not available
PA	*	Photograph available, but not yet scanned and placed in separate digital file

Notes for Table 'vsslP'

* Code and description are unchanged

@ Amended description to include a revised style file naming convention (based upon VOSClim descriptions)

(10) Footnotes

fieldAbbrev (1-10)	Code name of the field to which the footnote, in the equivalently positioned footID, applies. It is used to convey: (1) additional detail whenever the code OT is selected from a code table, or (2) to provide additional comment about ANY field that is selected from a table. e.g. thmE.
footID (1-10)	Supplementary detail in free-form text, pertaining to the field specified in the equivalently positioned fieldAbbrev. e.g. plastic screen

Notes for footnotes Expanded descriptions

(11) tscale – General temperature reporting practice

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)

Notes for Table 'tscale'

* Code and description are unchanged

$ Formerly 8. Changed for consistency with other tables.

(12) vsslD – Vessel dimension

lenvsslD	Overall length of the ship, ignoring bulbous bow length
brdvsslD	Moulded breadth. The greatest breadth amidships
frbvsslD	Freeboard. The average height of the upper deck above the maximum Summer load line
dftvsslD	Draught. The average depth of the keel below the maximum Summer load line
chtvsslD	Cargo height. The maximum height above the maximum Summer load line. Refer to Part 5

Note for vsslD Expanded descriptions

Annex 2 **Fields recommended for redefinition**

prSt The TT requests the clarification of the requirements of this field from the ETMC, as it's value and use is unclear. The TT recommends that his field should be redefined as the "Satellite system for transmitting observations".

If the redefinition is not approved then the field should be deleted.

chtvsslD Average cargo height (an element of vsslD). This dimension can vary widely from voyage to voyage, and from route to route. To record one average value is misleading and meaningless. Vessels participating in VOSClim record the maximum cargo height in IMMT-2 format at each observation, which is considered to be more useful for modelling purposes. The TT proposes that this field should be redefined to the 'maximum cargo height', which is described as the maximum height of the deck cargo above the maximum Summer load line.

If this redefinition is not approved then the field should be deleted.

Annex 3 **Formatting changes to Pub47**

New field with associated code table

(1) anmT – Type of anemometer

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).

Notes for Table 'anmT

Note This table and the proposed field anmM (Make and model of anemometer) will replace the current dual-purpose field 'anmI – Anemometer Instrument Type'. These changes will enable anemometer metadata to be reported in a similar manner to other instrument types, e.g. barometer and thermometer.

(2) freq – scheduled observing frequency

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

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

P	Port
S	Starboard

Field recommended for deletion

phGr Communication codes are out-dated and no longer considered useful.

New fields

ver	Version of the Pub47 format.
anmM	Make and model of the anemometer.
awsM	Make and model of the Automatic Weather Station.
awsP	Name and version of the Automatic Weather Station processing software.
awsC	Name and version of the Automatic Weather Station data entry/display software.
logE	Name and version of the electronic logbook software.
vosR	Recruitment date of the current VOS participation.
vosD	De-recruitment date of the last VOS participation (applicable only if the vessel has been re-recruited).
vclmR	Last VOSClim recruitment date within the current period of VOS participation.
vclmD	Last VOSClim de-recruitment date within the current period of VOS participation .
reg	Country of Registration.

Annex 4 Proposed new delimited format for transmitting Pub47

Table reference number.

Order	Code name	Explanation	Table	Format	Example
1	rcnty;	Recruiting country.	####		
2	ver;	Version of Pub47 format.			03
3	name;	Ship's name.			
4	reg;	Country of registration.	####		
5	call;	Call sign or WMO Number. Some sea stations are identified by a WMO Number instead of a call sign.			
6	IMOn;	IMO Number. Unique identifying number assigned by Lloyd's Register to the hull of the ship.			
7	vssl;	Vessel type.	####		
8	vsslP;	Vessel digital image.	####		
9	lenvsslD;	Length overall of the ship, ignoring bulbous bow.		0.0 m	
10	brdvsslD;	Moulded breadth. The greatest breadth amidships.		0.0 m	
11	frbvsslD;	Freeboard. The average height of the upper deck above the maximum Summer load line.		0.0 m	
12	drfvsslD;	Draught. The average depth of the keel below the maximum Summer load line.		0.0 m	
13	chtvsslD;	Cargo height. Maximum height above the maximum Summer load line.		0.0 m	
14	brdg;	Distance of the bridge from the bow.		0.0 m	
15	rte;	Route No.1.	####		
16	rte;	Route No.2.	####		
17	rte;	Route No.3.	####		
18	rte;	Route No.4.	####		
19	rte;	Route No.5.	####		
20	rte;	Route No.6.	####		
21	rte;	Route No.7	####		
22	rte;	Route No.8.	####		
23	rte;	Route No.9.	####		

24	rte;	Route No.10.	####		
25	vosR;	Recruitment date of the current VOS participation.		ddmmyyyy	
26	vosD;	De-recruitment date of the last VOS participation (report only if the vessel has been re-recruited).		ddmmyyyy	
27	vclmR;	Last VOSClim recruitment date if within the current period of VOS participation.		ddmmyyyy	
28	vclmD;	Last VOSClim de-recruitment date if within the current period of VOS participation.		ddmmyyyy	
29	vsslM;	Type of meteorological reporting ship.	####		
30	atm;	General observing practice.	####		
31	freq;	Scheduled observing frequency.	####		
32	prST;	Satellite system for transmitting reports.			INMARSAT-C
33	logE;	Name and version of the electronic logbook software.			TurboWin 2.12
34	wwH;	Visual wind/wave observing height.		0.0 m	
35	anmU;	General wind observing practice.	####		
36	blc;	Baseline check of the automatic weather station.	####		
37	awsM;	Make and model of the automatic weather station.			Vaisala Milos 500
38	awsP;	Name and version of the automatic weather station processing software.			Yourlink 1.03.20
39	awsC;	Name and version of the automatic weather station data entry/display software.			Milos 500 2.56
40	barm;	Primary barometer type.	####		
41	barm;	Secondary barometer type.	####		
42	bMS;	Make and model of the primary barometer.			Vaisala PTB220B
43	bMS;	Make and model of the secondary barometer.			
44	brmH;	Height of the primary barometer above the maximum Summer load line.		0.0 m	
45	brmH;	Height of the secondary barometer above the maximum Summer load line.		0.0 m	
46	brmL;	Location of the primary barometer.	####		
47	brmL;	Location of the secondary barometer.	####		
48	brmU;	Pressure units of the primary barometer.			hPa
49	brmU;	Pressure units of the secondary barometer.			
50	brmC;	Most recent calibration date of the primary barometer.		ddmmyyyy	
51	brmC;	Most recent calibration date of the secondary barometer.		ddmmyyyy	
52	thrm;	Dry bulb thermometer type No.1.	####		

53	thrm;	Dry bulb thermometer type No.2.	####		

54	thMS;	Make and model of the dry bulb thermometer No.1.			Rosemount ST401
55	thMS;	Make and model of the dry bulb thermometer No.2.			
56	thmE;	Exposure of the dry bulb thermometer No.1.	####		
57	thmE;	Exposure of the dry bulb thermometer No.2.	####		
58	thmL;	Location of the dry bulb thermometer No.1 and hgyrometer No.1.	####		
59	thmL;	Location of the dry bulb thermometer No.2 and hgyrometer No.2.	####		
60	thmH;	Height of the dry bulb thermometer No.1 and hygrometer No.1 above the maximum Summer load line.		0.0 m	
61	thmH;	Height of the dry bulb thermometer No.2 and hygrometer No.2 above the maximum Summer load line.		0.0 m	
62	tscale;	General reporting practice for dry bulb thermometer No.1 and hygrometer No.1.	####		
63	tscale;	General reporting practice for dry bulb thermometer No.2 and hygrometer No.2.	####		
64	hygr;	Hygrometer type No.1.	####		
65	hygr;	Hygrometer type No.2.	####		
66	hgrE;	Exposure of the hygrometer No.1.	####		
67	hgrE;	Exposure of the hygrometer No.2.	####		
68	sstM;	Primary method of obtaining the sea surface temperature.	####		
69	sstM;	Secondary method of obtaining the sea surface temperature.	####		
70	sstD;	Depth of the primary sea surface temperature observation below the maximum Summer load line.		0.0 m	
71	sstD;	Depth of the secondary sea surface temperature observation below the maximum Summer load line.		0.0 m	
72	barg;	Primary barograph type, or method of determining pressure tendency.	####		
73	barg;	Secondary barograph type, or method of determining pressure tendency.	####		
74	anmT;	Primary anemometer type.	####		
75	anmT;	Secondary anemometer type.	####		
76	anmM;	Make and model of the primary anemometer.			Vaisala WAV151 & WAA151
77	anmM;	Make and model of the secondary anemometer.			
78	anmL;	Location of the primary anemometer.	####		
79	anmL;	Location of the secondary anemometer.	####		

80	anDB;	Distance of the primary (fixed) anemometer from the bow.		0.0 m	
81	anDB;	Distance of the secondary (fixed) anemometer from the bow.		0.0 m	

82	anDC;	Distance of the primary (fixed) anemometer from the centre line.		0.0 m	
83	anSC;	Side indicator of the primary (fixed) anemometer from the centre line, if appropriate.	####		
84	anDC;	Distance of the secondary (fixed) anemometer from the centre line.		0.0 m	
85	anSC;	Side indicator of the secondary (fixed) anemometer from the centre line, if appropriate.	####		
86	anHL;	Height of the primary (fixed) anemometer above the maximum Summer load line.		0.0 m	
87	anHL;	Height of the secondary (fixed) anemometer above the maximum Summer load line.		0.0 m	
88	anHD;	Height of the primary (fixed) anemometer above the deck on which it is installed.		0.0 m	
89	anHD;	Height of the secondary (fixed) anemometer above the deck on which it is installed.		0.0 m	
90	anmC;	Most recent calibration date of the primary anemometer.		ddmmyyyy	
91	anmC;	Most recent calibration date of the secondary anemometer.		ddmmyyyy	
92	othI;	Other meteorological/oceanographic instrument No.1.	####		
93	othI;	Other meteorological/oceanographic instrument No.2.	####		
94	othI;	Other meteorological/oceanographic instrument No.3.	####		
95	othI;	Other meteorological/oceanographic instrument No.4.	####		
96	othI;	Other meteorological/oceanographic instrument No.5.	####		
97	othI;	Other meteorological/oceanographic instrument No.6.	####		
98	chgd;	Last date of change of any Pub47 metadata.		ddmmyyyy	
99	fieldabbrev;	Code name of the field to which footnote No.1 applies.	####		vssl
100	fieldabbrev;	Code name of the field to which footnote No.2 applies.	####		thmE
101	fieldabbrev;	Code name of the field to which footnote No.3 applies.	####		
102	fieldabbrev;	Code name of the field to which footnote No.4 applies.	####		
103	fieldabbrev;	Code name of the field to which footnote No.5 applies.	####		
104	fieldabbrev;	Code name of the field to which footnote No.6 applies.	####		
105	fieldabbrev;	Code name of the field to which footnote No.7 applies.	####		
106	fieldabbrev;	Code name of the field to which footnote No.8 applies.	####		

107	fieldabbrev;	Code name of the field to which footnote No.9 applies.	####		
108	fieldabbrev;	Code name of the field to which footnote No.10 applies.	####		

109	footID;	Footnote No.1 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			Ice strengthened
110	footID;	Footnote No.2 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			Plastic screen
111	footID;	Footnote No.3 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
112	footID;	Footnote No.4 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
113	footID;	Footnote No.5 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
114	footID;	Footnote No.6 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
115	footID;	Footnote No.7 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
116	footID;	Footnote No.8 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
117	footID;	Footnote No.9 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			
118	footID;	Footnote No.10 (Mandatory free-form detail whenever code OT is reported. Optional for other codes).			

Annex 5 Draft XML transfer standard for transmitting Pub47

This draft XML structure is based on the acceptance of all proposals in parts 4, 5 and 6 of this document.

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		</digital_image>
		<dimensions>
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			<brdvsslD/>
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			<frbvsslD/>
			<chtvsslD/>
			<brdg/>
		</dimensions>
		<operations>
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		</operations>
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			<vosD/>
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			<vclmD/>
		</vos_service>
		<met_prgm>
			<vsslM footnote=""/>
			<atm footnote=""/>
			<freq footnote=""/>
			<logE/>
			<prST/>
			<wwH/>
			<anmU footnote=""/>
			<blc footnote=""/>
		</met_prgm>
		<instrumentation>
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				<awsM/>
				<awsP/>
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				<bMS/>
				<brmH/>
				<brmL footnote=""/>
				<brmU/>
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			</barometer>
```

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                                <thmH/>
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                                <hygE footnote=""/>
                        </hygrometer>
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                                <sstD/>
                        </sea_temp>
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                        </barograph>
                        <anemometer Id="">
                                <anmT footnote=""/>
                                <anmM/>
                                <anmL footnote=""/>
                                <anDB/>
                                <anDC/>
                                <anSC footnote=""/>
                                <anHL/>
                                <anHD/>
                                <anmC/>
                        </anemometer>
                        <other>
                                <othI Id="" footnote=""/>
                        </other>
                </instrumentation>
                <chgd/>
        </pub47record>
</pub47dataset>
```