Recommendation 9 (JCOMM-III)

MODIFICATIONS TO THE INTERNATIONAL MARITIME METEOROLOGICAL TAPE FORMAT AND MINIMUM QUALITY CONTROL STANDARD

THE JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY,

Noting:

(1) The *Manual on Marine Meteorological Services* (WMO-No. 558), Volume I, Appendix I.13 – Layout for the International Maritime Meteorological Tape, and Appendix I.15 – Minimum Quality Control Standards,

(2) The final report of the second session of the JCOMM Expert Team on Marine Climatology (JCOMM/MR-No. 50),

Considering:

(1) That the International Maritime Meteorological Tape (IMMT) format is the primary format for the exchange of marine climatological data, for both the Marine Climatological Summaries Scheme (MCSS) and the VOSClim,

(2) The importance of the Minimum Quality Control Standard (MQCS) to the quality of the data in the MCSS archives,

(3) The importance to the Global Collecting Centres of keeping both the IMMT and the MQCS up to date,

Recognizing the need for including information on the source of observations (electronic or paper logbook) in IMMT; as well as the need for taking account in MQCS of increased deck cargo height of modern cargo vessels,

Recommends:

(1) That the amendments to the *Manual on Marine Meteorological Services* (WMO-No. 558) and the *Guide to Marine Meteorological Services* (WMO-No. 471), as detailed in Annexes 1 and 2 to this recommendation be approved, and included in the appropriate appendices in the Manual and Guide;

(2) That the new version (IMMT-IV) of the IMMT format be implemented generally for all data collected as from 1 January 2011;

(3) That the new version of the Minimum Quality Control Standard (MQCS-VI) be also implemented generally for all data collected as from 1 January 2011;

Requests the Expert Team on Marine Climatology to continue to review the implementation and value of the revised format and quality control standard, to provide technical assistance to the Members/Member States concerned as required and to propose further amendments to the format and standard as necessary;

Requests the Secretary-General of WMO to provide appropriate technical advisory assistance to Members/Member States concerned, as required, in the implementation of the revised format and standard.

Annex 2 to Recommendation 9 (JCOMM-III)

AMENDMENTS TO THE *MANUAL ON MARINE METEOROLOGICAL SERVICES* (WMO-No. 558) AND THE *GUIDE TO MARINE METEOROLOGICAL SERVICES* (WMO-No. 471)

MINIMUM QUALITY CONTROL STANDARD (MQCS)
MQCS-VI (Version 6)

Notes:
(a) Highlighting marks changes with respect to MQCS-V.
(b) See the specifications for setting quality control Indicators Q_1 to Q_{29} at the end of this annex.
(c) Δ = space (ASCII 32).

Element	*Error*	*Action*
1	$i_T \neq 3 – 5, \Delta$	Correct manually otherwise 3
2	AAAA ≠ valid year	Correct manually otherwise reject
3	MM ≠ 01 - 12	Correct manually otherwise reject
4	YY ≠ valid day of month	Correct manually otherwise reject
5	GG ≠ 00 - 23	Correct manually otherwise reject
6	Qc ≠ 1, 3, 5, 7	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$
	$Q_c = \Delta$	$Q_{20} = 2$
7	$L_aL_aL_a \neq$ 000-900	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$
	$L_aL_aL_a = \Delta\Delta\Delta$	$Q_{20} = 2$
8	$L_oL_oL_oL_o \neq$ 0000-1800	Correct manually and $Q_{20} = 5$, otherwise $Q_{20} = 4$
	$L_oL_oL_oL_o = \Delta\Delta\Delta\Delta$	$Q_{20} = 2$
	$L_aL_aL_a = L_oL_oL_oL_o = \Delta\Delta\Delta(\Delta)$	Correct manually otherwise reject
Time sequence checks		
	Change in latitude > 0.7°/hr	Correct manually otherwise $Q_{20} = 3$
	Change in longitude > 0.7 °/hr when lat. 00–39.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude > 1.0 °/hr when lat. 40–49.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude > 1.4 °/hr when lat. 50–59.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude > 2.0 °/hr when lat. 60–69.9	Correct manually otherwise $Q_{20} = 3$
	Change in longitude > 2.7 °/hr when lat. 70–79.9	Correct manually otherwise $Q_{20} = 3$
9	Indicator ≠ 0–3, Δ	Correct manually, otherwise Δ
10	h ≠ 0–9	Correct manually and $Q_1 = 5$, otherwise $Q_1 = 4$
	h = Δ	$Q_1 = 9$
11	VV ≠ 90–99	Correct manually and $Q_2 = 5$, otherwise $Q_2 = 4$
	VV = ΔΔ	$Q_2 = 9$
12	N ≠ 0–9, Δ	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 4$
	$N < N_h$	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
13	dd ≠ 00–36, 99	Correct manually and $Q_4 = 5$, otherwise $Q_4 = 4$
	dd = ΔΔ	$Q_4 = 9$
	dd versus ff	
	dd = 00, ff ≠ 00	Correct manually and Q_4 or $Q_5 = 5$ otherwise $Q_4 = Q_5 = 2$
	dd ≠ 00, ff = 00	Correct manually and Q_4 or $Q_5 = 5$ otherwise $Q_4 = Q_5 = 2$
14	$i_w \neq 0, 1, 3, 4$	Correct manually, otherwise $Q_5 = Q_{29} = 4$
15	ff > 80 knots	Correct manually and $Q_5 = 5$, otherwise $Q_5 = 3$
	ff = ΔΔ	$Q_5 = 9$
16	$s_n \neq 0, 1$	Correct manually, otherwise $Q_6 = 4$
17	TTT = ΔΔΔ	$Q_6 = 9$
	If –25 > TTT >40 then when Lat. < 45.0	
	TTT < –25	$Q_6 = 4$
	TTT > 40	$Q_6 = 3$
	when Lat. ≥ 45.0	
	TTT < –25	$Q_6 = 3$
	TTT > 40	$Q_6 = 4$
TTT versus humidity parameters		
	TTT < WB (wet bulb)	Correct manually and $Q_6 = 5$, otherwise $Q_6=Q_{19}= 2$
	TTT < DP (dew point)	Correct manually and $Q_6 = Q_7 = 5$, otherwise $Q_6 = Q_7 = 2$
18	$s_t \neq 0, 1, 2, 5, 6, 7$	Correct manually, otherwise $Q_7 = 4$
19	DP > WB	Correct manually and $Q_7 = 5$, otherwise $Q_7=Q_{19} = 2$
	DP > TTT	Correct manually and $Q_7 = 5$, otherwise $Q_7 = Q_6 = 2$
	WB = DP = ΔΔΔ	$Q_7 = Q_{19} = 9$
20	930 > PPPP > 1050 hPa	Correct manually and $Q_8 = 5$, otherwise $Q_8 = 3$
	870 > PPPP > 1070 hPa	Correct manually and $Q_8 = 5$, otherwise $Q_8 = 4$
	PPPP = ΔΔΔΔ	$Q_8 = 9$
21	ww = 22–24, 26, 36–39, 48, 49, 56, 57, 66–79, 83–88	Correct manually and $Q_9 = 5$, otherwise $Q_9= 4$

Element	*Error*	*Action*
	93–94 and latitude <20°	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 3$
	if $i_x = 7$: $w_a w_a$ = 24–25, 35, 47–48, 54–56, 64–68, 70–78, 85–87 and latitude <20°	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 4$
22, 23	W_1 or W_2 = 7 and latitude <20°	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 4$
	$W_1 < W_2$	Correct manually and $Q_9 = 5$, otherwise $Q_9 = 2$
	$W_1 = W_2$ = ww = ΔΔΔΔ	$Q_9 = 9$
24–27	N = 0, and $N_h C_L C_M C_H \neq 0000$	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	N = Δ, and $N_h C_L C_M C_H \neq$ ΔΔΔΔ	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	N = 9, and not (N_h =9 and $C_L C_M C_H \neq$ ΔΔΔ	Correct manually and $Q_3 = 5$, otherwise $Q_3 = 2$
	N=Δ, and $N_h C_L C_M C_H$=ΔΔΔΔ	$Q_3 = 9$
28	$s_n \neq 0, 1$	Correct manually otherwise $Q_{10} = 4$
29	$T_W T_W T_W$ = ΔΔΔ	$Q_{10} = 9$
	if –2.0 > $T_w T_w T_w$ > 37.0 then when Lat. < 45.0	
	$T_W T_W T_W$ < –2.0	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 4$
	$T_w T_w T_w$ > 37.0	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 3$
	when Lat. ≥ 45.0	
	$T_W T_W T_W$ < –2.0	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 3$
	$T_W T_W T_W$ > 37.0	Control manually and $Q_{10} = 5$, otherwise $Q_{10} = 4$
30	Indicator ≠ 0–7, Δ	Correct manually, otherwise Δ
31	Indicator ≠ 0–9, Δ	Correct manually, otherwise Δ
32	20 < $P_w P_w$ < 30	$Q_{11} = 3$
	$P_W P_W$ ≥ 30 and ≠ 99	$Q_{11} = 4$
	$P_W P_W$ = ΔΔ	$Q_{11} = 9$
33	35< HwHw < 50	$Q_{12} = 3$
	$H_W H_W$ ≥ 50	$Q_{12} = 4$
	$H_W H_W$ = ΔΔ	$Q_{12} = 9$
34	$d_{w1} d_{w1} \neq$ 00–36, 99	Correct manually and $Q_{13} = 5$, otherwise $Q_{13} = 4$
	$swell_1 = swell_2$ = Δ	$Q_{13} = 9$
35	25 < $P_{w1} P_{w1}$ < 30	$Q_{13} = 3$
	$P_{w1} P_{w1}$ ≥ 30 and ≠ 99	$Q_{13} = 4$
36	35 < $H_{w1} H_{w1}$ < 50	$Q_{13} = 3$
	$H_{w1} H_{w1}$ ≥ 50	$Q_{13} = 4$
37	$I_s \neq$ 1–5, Δ	Correct manually, otherwise Δ
38	$E_s E_s \neq$ 00–99, ΔΔ	Correct manually, otherwise ΔΔ
39	$R_s \neq$ 0–4, Δ	Correct manually, otherwise Δ
40	Source ≠ 0–6	Correct manually, otherwise Δ
41	Platform ≠ 0–9	Correct manually, otherwise Δ
42	No call sign	Insert manually, mandatory entry
43	No country code	Insert manually
44	No Quality Control	
45	Q ≠ 0–6, 9	Correct manually, otherwise Δ
46	$i_x \neq$ 1–7	Correct manually, otherwise Δ
47	i_R = 0–2 and RRR = 000, ΔΔΔ	Correct manually, otherwise $Q_{14} = 4$
	i_R = 3 and RRR ≠ ΔΔΔ	Correct manually, otherwise $Q_{14} = 2$
	i_R = 4 and RRR ≠ ΔΔΔ	Correct manually, otherwise $Q_{14} = 2$
	$i_R \neq$ 0– 4	Correct manually, otherwise $Q_{14} = 4$
48	RRR ≠ 001–999 and iR = 1, 2	Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 2$
49	$t_R \neq$ 0–9, Δ	Correct manually and $Q_{14} = 5$, otherwise $Q_{14} = 4$
50	$s_w \neq$ 0, 1, 2, 5, 6, 7	Correct manually, otherwise $Q_{19} = 4$
51	WB < DP	Correct manually and $Q_{19} = 5$, otherwise $Q_{19}=Q_7=2$
	WB = ΔΔΔ	$Q_{19} = 9$
	WB > TTT	Correct manually and $Q_{19}= 5$, otherwise $Q_{19}=Q_6=2$
52	a ≠ 0–8	Correct manually and $Q_{15} = 5$, otherwise $Q_{15} = 4$
	a = 4 and ppp ≠ 000	Correct manually and Q_{15} or $Q_{16} = 5$, otherwise $Q_{15}=Q_{16}=2$
	a =1,2,3,6,7,8 and ppp=000	Correct manually and Q_{15} or $Q_{16} = 5$, otherwise $Q_{15}=Q_{16} = 2$
	a = Δ	$Q_{15} = 9$
53	250 ≥ ppp > 150	Correct manually and $Q_{16} = 5$, otherwise $Q_{16} = 3$
	ppp > 250	Correct manually and $Q_{16} = 5$ otherwise $Q_{16} = 4$
	ppp = ΔΔΔ	$Q_{16} = 9$
54	$D_s \neq$ 0–9	Correct manually and $Q_{17} = 5$, otherwise $Q_{17} = 4$
	D_s = Δ	$Q_{17} = 9$

Element	*Error*	*Action*
55	$V_s \neq$ 0–9	Correct manually and Q_{18} = 5, otherwise Q_{18} = 4
	V_s = Δ	Q_{18} = 9
56	$d_{w2}d_{w2} \neq$ 00–36, 99, ΔΔ	Correct manually and Q_{13} = 5, otherwise Q_{13} = 4
57	25 < $P_{w2}P_{w2}$ < 30	Q_{13} = 3
	$P_{w2}P_{w2} \geq$ 30 and ≠99	Q_{13} = 4
58	35 < $H_{w2}H_{w2}$ < 50	Q_{13} = 3
	$H_{w2}H_{w2} \geq$ 50	Q_{13} = 4
59	$c_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
60	$S_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
61	$b_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
62	$D_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
63	$z_i \neq$ 0–9, Δ	Correct manually, otherwise Δ
64	version ≠ 0–9, A, Δ	Correct manually, otherwise Δ
65	version ≠ 0–4, Δ	Correct manually, otherwise Δ
86	Minimum Quality Control Standard (MQCS) version identification	1= MQCS-I (Original version, Feb. 1989) CMM-X 2= MQCS-II (Version 2, March 1997) CMM-XII 3= MQCS-III (Version 3, April 2000) SGMC-VIII 4= MQCS-IV (Version 4, June 2001) JCOMM-I 5= MQCS-V (Version 5, July 2004) ETMC-I 6 = MQCS-VI (this version, to be agreed)
87	HDG ≠ 000–360	Correct manually and Q_{22} = 5, otherwise Q_{22} = 4
	HDG = ΔΔΔ	Q_{22} = 9
88	COG ≠ 000–360	Correct manually and Q_{23} = 5, otherwise Q_{23} = 4
	COG = ΔΔΔ	Q_{23} = 9
89	SOG ≠ 00–99	Correct manually and Q_{24} = 5, otherwise Q_{24} = 4
	SOG = ΔΔ	Q_{24} = 9
	SOG > 33	Correct manually and Q_{24} = 5, otherwise Q_{24} = 3
90	SLL ≠ 00–99	Correct manually and Q_{25} = 5, otherwise Q_{25} = 4
	SLL = ΔΔ	Q_{25} = 9
	SLL > 40	Correct manually and Q_{25} = 5, otherwise Q_{25} = 3
91	$s_L \neq$ 0,1	Correct manually and Q_{27} = 5, otherwise Q_{27} = 4
92	hh ≠ 00–99	Correct manually and Q_{27} = 5, otherwise Q_{27} = 4
	hh = ΔΔ	Q_{27} = 9
	hh >= 13	Correct manually and Q_{27} = 5, otherwise Q_{27} = 3
	hh < –01	Correct manually and Q_{27} = 5, otherwise Q_{27} = 4
93	RWD ≠ 000 – 360, 999	Correct manually and Q_{28} = 5, otherwise Q_{28} = 4
	RWD = ΔΔΔ	Q_{28} = 9
94	RWS ≠ 000–999	Correct manually and Q_{29} = 5, otherwise Q_{29} = 4
	RWS = ΔΔΔ	Q_{28} = 9
	RWS > 110 kts	Correct manually and Q_{29} = 5, otherwise Q_{29} = 3
RWD versus RWS		
	RWD = 000, RWS ≠ 000	Correct manually and Q_{28} or Q_{29} = 5, otherwise Q_{28} = Q_{29} = 2
	RWD ≠ 000, RWS = 000	Correct manually and Q_{28} or Q_{29} = 5, otherwise Q_{28} = Q_{29} = 2

Specifications for setting quality control Indicators Q_1 to Q_{29}

0	No quality control (QC) has been performed on this element
1	QC has been performed; element appears to be correct
2	QC has been performed; element appears to be inconsistent with other elements
3	QC has been performed; element appears to be doubtful
4	QC has been performed; element appears to be erroneous
5	The value has been changed as a result of QC
6	The original flag is set "1" (correct) and the value will be classified by MQCS as inconsistent, dubious, erroneous or missing
7	The original flag is set "5" (amended) and the value will be classified by MQCS as inconsistent, dubious, erroneous or missing
8	Reserve
9	The value of the element is missing