

Report on the International E-Logbook Inter-Comparison for the SOT Task Team on Instrument Standards

1. Background

At SOT-IV, Geneva, April 2007, the ETMC recommended that the Task Team on Instrument Standards should compare the output from the different types of electronic logbook software and report on the findings. Refer SOT-IV Final Report Items I-2.1.13 and IV-3.5.7.

2. Objective

The objective of the inter-comparison was to compare the BBXX output from different types and versions of Electronic logbook software in common use, using identical test datasets.

The inter-comparison, as well as comparing the BBXX output, also checked the coding, computational algorithms, and the effectiveness of the in-built quality control mechanisms to reject 'bad' data.

3. The Inter-Comparison

In February 2008, three sets of metadata and associated raw observation data were created and sent to volunteers to use to compile observations using the various types of E-Logbook. The resultant coded BBXX observations were then compared and a report on the findings including summary and recommendations was produced on 14 August 2008. **Annex A.**

4. Feedback from E-Logbook Manufacturers

The 'E-Logbook Inter-Comparison Results' report was sent to the three E-logbook manufacturers (KNMI for TurboWin, JMA for OBSJMA and NOAA for SEAS) and the members of TT on Instrument Standards, on 2 September 2008, seeking feedback on how the Recommendations might be implemented. The manufacturers' responses are summarized in **Annex B.** Discussion centred on the recommendations made in the report, but widened to examine practices regarding the coding of swell and look at whether groups with no data could be omitted from transmission to save communications costs. A check was also made to find out whether the three E-logbook types checked for position errors, and it was found that both TurboWin and SEAs checks successive positions and queries the entry if the ship has moved an abnormal distance, while both TurboWin and OBSJMA query positions reported 'over land'.

5. Swell Coding

In the feedback that followed the circulation of the Inter-Comparison Report, there was considerable discussion about the coding of swell, in particular the need to differentiate between swell not observed (ie no data) and no swell (calm sea). The Inter-Comparison revealed that the 3 E-logbook types coded these differently. For example, 'no swell' entered in SEAS, produces an output of 3//// 4//// 5////, while OBSJMA omits groups 3, 4 and 5 in the case of 'no swell' or 'no observation of swell'. TurboWin codes 3000 4//// 5////. There was also discussion about the need to transmit groups containing no data,

with a strong plea to reduce the number of groups transmitted to save on communications costs.

In an effort to force consistency across all E-logbook types, and (1) considering the interpretation by some participants in the comparison regarding the coding for FM13 in the WMO Manual on Codes No.306, and (2) a desire to reduce transmission costs by omitting groups with no useful data, the Task Team proposes five recommendations regarding the coding of swell. These are described in full under **6.Recommendations No. 3** below.

6. Recommendations

The Task Team proposes that Recommendations numbers 1, 2, 4, 5 and 6 from the original report be accepted, and that Recommendation No.3 regarding swell be extended to cover all swell coding options as described below.

1. That all E-Logbook software report Dewpoint to one decimal place.
2. That the algorithm for calculating dewpoint be standardised between E-Logbooks.
3. Swell coding:
 - (1) When swell 'not determined' = 3//// 4//// 5////. Recommendation is to omit the 3, 4 and 5 groups in the coded observation.
 - (2) When 'no swell' ie calm sea = 30000 40000 50000. Recommendation is to code 30000 and omit the 4 and 5 groups in the coded observation. By inference, if the 3 group is reported as 30000 then the 4 and 5 groups **must** be 40000 and 50000 respectively, in which case they provide no useful additional information.
 - (3a) When confused swell (plus confused height and period) = 399/// 4//// 5////. Recommendation is to omit the 5 group in the coded observation.
 - (3b) When confused swell (height and period estimated) = 399// 4xxxx 5////. Recommendation is to omit the 5 group in the coded observation. Note: x = valid data
 - (4) Coding of 1 swell = 3xx// 4xxxx 5////. Recommendation is to omit the 5 group in the coded observation. Note: x = valid data
 - (5) Coding 2 swells = 3xxxx 4xxxx 5xxxx. Recommendation is to code all groups. Note: x = valid data
4. That TurboWin and SEAS software implement a QC check to correlate the reported wind speed with wind wave height.
5. That all E-Logbook software provide more on-screen information to aid in the selection of the correct code figures for Visibility (VV) and Height of base of

lowest cloud (h) when the ranges and heights are at the boundaries of the levels. Refer to WMO manual on Codes (WMO No 306) FM13-XII Ext. SHIP. For VV refer to WMO code table 4377 and note that if the distance of visibility is between two of the distances given, the code figure for the smaller distance shall be reported. For h refer to WMO code table 1600 and note that a height exactly equal to one of the values at the ends of the ranges shall be coded in the higher range.

6. That SEAS and TurboWin prompt for the entry of ship speed if it is not entered.

ANNEX B

E-Logbook Manufacturers Responses

10/09/08 KNMI - comments about correlation of Wind Speed, wave height and ship position – a warning may not always valid if ship in eg lee conditions

11/09/08 JMA – OBSJMA can calculate MSL manually. Position – can't check for position sequence, but checks for and rejects positions over land

12/09/08 NOAA – SEAS checks for position errors – compares successive positions and flags a huge distance to alert to position errors

12/09/08 KNMI – Likes Graeme Ball's suggested redesign of swell pages for TurboWin. Comments about 'no swell' 3 group = 30000. Climate community had in the past advised KNMI that they wanted to see 40000 and 50000 to show zero period and zero height.

12/09/08 Graeme Ball – no swell coding reply to KNMI. Requests information on how calm sea is coded in all E-logbooks.

17/09/08 Sarah North - comments on KNMI's wind speed and wind wave correlation warning message – re lee conditions etc.

17/09/08 Gustavo Goni – Says should be easy to get SEAS to report Dewpoint to 10ths. SEAS Wind Speed entry is in knots – he questions whether there should be a check box warning to show entry is in knots.

19/09/08 Sarah North - Do other countries use E-logbooks on rigs? Wants groups with no data (eg 5////) omitted to save communications costs

23/09/08 KNMI – Is adding a warning message re wind/wave correlation. Will be in TurboWin ver4.5

24/09/08 NOAA – Using SEAS and reporting zero swell or calm, SEAS outputs 3//// 4//// 5////.

SEAs can be used for fixed stations, but position needs to be entered at every Ob, and course and speed entered as stationary. Air Pressure can only be entered as MSL. WSD is at station height (like a ship), the actual observing height is contained in the SEAs setup data which forms part of the SEAS archive. There is no specific 'land' setup, just a ship set up.

3, 10 and 29 Oct 2008 – JMA – OBSJMA used for ship data only (no land applications). JMA omits groups 3, 4 and 5 in the case of no swell, or no observation of swell. A screen dump example of 'no swell' selected showed an output which omitted groups 3, 4 and 5.