

COMMISSION FOR SYNOPTIC METEOROLOGY  
ABRIDGED FINAL REPORT OF THE FIFTH SESSION  
Geneva, 15 June – 3 July 1970  
WMO – No. 269.RP.86

4.10 Code form for synoptic surface observations

4.10.1 The Commission gave very careful consideration to the proposals made by the Working Group on Data Needs and Codes for a new code form for reports of surface synoptic observations. It agreed with the principles used as guidelines by the working group, which are given in Annex VI. It was clear, however, that the principles could not all be applied simultaneously in the development of a particular code form. For example, the provision of more detailed information and the removal of artificialities and sources of ambiguity are not always compatible with the principle that messages should be as concise as possible. It is a question therefore, of weighing the advantages and benefits of any form developed, as compared with the existing corresponding code form, against the extra cost and communications system loading that might result from any increase in the length of the messages. For this reason the Commission agreed that new SYNOP and SHIP code forms should be adopted in principle, only for implementation after Members had had an opportunity to test and evaluate them over a period of at least two years, but not later than 1 January 1975.

4.10.2 It was agreed that there would be considerable advantages in adopting one basic code form for all surface synoptic observations from manned land stations, ships and automatic stations. The code form proposed is considered to be sufficiently flexible to serve a great variety of purposes; by using groups beginning with indicator figures, actual messages will consist of only those groups which a particular station is equipped or required to report. Furthermore, when certain meteorological conditions exist the group or groups in which the relevant information would otherwise be reported may be omitted. The fact of, and reason for, an omission is

given by an indicator code figure in a mandatory group. The elements (and groups) that may be omitted in certain meteorological conditions are: wind when it is calm; present and past weather when, in the present case ww is coded as 00, 01, 02 or 03 and when simultaneously W is coded as 0, 1 or 2; rainfall in the six hours preceding the observation time when there has been none; type of clouds when there are no clouds.

4.10.3 Using this principle, messages in the new code form will be easy to decode and plot, will contain more detailed information but no ambiguities or artificialities, and yet, they will be, on a great many occasions, shorter than corresponding messages in FM 11.D. Tests carried out in the U.S.S.R. showed that the above criteria, applied to about 11,000 SYNOP and 1,000 SHIP reports, enabled:

- The wind group to be omitted from about 20 per cent of the reports (land stations only; seldom ships);
- The weather group to be omitted from more than 65 per cent of the reports (land and ship stations both);
- The rainfall group to be omitted from more than 90 per cent of the reports (land and ship stations both);
- The cloud group to be omitted from more than 30 per cent of the reports (land stations only; seldom ships).

While similar tests in other parts of the world will not necessarily give the same results there can be little doubt that adoption of the procedure will, to a large extent, offset the effects of the increased length of the complete code form. During the proposed tests of the new code form the effects of the procedure should be further studied.

4.10.4 There was some support for the view that an alternative group in the form 9TTT<sub>d</sub>T<sub>d</sub> should be included in the code form for testing purposes. The Commission felt, however, that this would not be necessary since the new code form will be tested against the present one which already contains the codes TT and T<sub>d</sub>T<sub>d</sub>.

4.10.5 With regard to the proposed tests the Commission agreed that the general aims of the tests should be as given in Part D of Annex XX.

4.10.6 The Commission adopted Recommendation 22 (CSM-V).

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Recommendation 22 (CSM-V) – CODE FORM FOR SYNOPTIC SURFACE OBSERVATIONS

THE COMMISSION FOR SYNOPTIC METEOROLOGY,  
NOTING:

- (1) Resolution 6 (CSM-II), indicating the principle that no major code changes shall be recommended unless they provide substantial advantages which should clearly be demonstrated,
- (2) Resolution 1 (CSM-IV), indicating principles for guidance in the determination of requirements and development of meteorological codes, and specific problems, all related to synoptic surface observations,
- (3) Resolution 16 (Cg-V), - World Weather Watch, describing the extension of conventional observing networks with, inter alia, automatic weather stations, and the equipment of GDPS centres with the most modern facilities, including high-speed computers,
- (4) GARP Special Report No. 1 – Report of Planning Conference on GARP (March 1970), describing plans for the First GARP Global Experiment in 1975/76,

CONSIDERING:

- (1) That automated data processing requires, for greater efficiency and economy, the use of non-ambiguous code forms which also do not contain plain language additions,
- (2) That the code forms should permit easy and economic coding of observations originating from automatic weather stations,
- (3) That the present SYNOP and SHIP code forms cannot accommodate in an efficient way changes of

the resolution of data or other modifications as the result of changes of requirements, unless the structure of the code form is entirely changed,

- (4) That studies of a possible revision of the present SYNOP and SHIP code forms, carried out since CSM-II (1958), have led to a new proposed code form which has substantial advantages, as can clearly be demonstrated,
- (5) That this new code form appears to be flexible enough to accommodate easily changes due to new requirements which may become evident in the next two decades or so,
- (6) That the practical consequences of a major change of SYNOP and SHIP code forms necessitate extensive preparations by national meteorological services during a period of several years between the date of the decision and the date of implementation,
- (7) That the period of preparation can be used for tests of the new code form with a view to making any necessary refinements before the implementation date,
- (8) That implementation of the new code form, well before the First GARP Global Experiment starts, is highly desirable,

#### RECOMMENDS:

- (1) That the code forms contained in Parts A, B and C of the annex\* to this recommendation be introduced for international use as from 1 January 1975, subject to modifications to be applied, if necessary, before 1 July 1973,
- (2) That Members be invited to test these code forms, using the points mentioned in Part D of the annex\* to this recommendation for guidance, and inform the Secretary-General of any comments and suggestions they may have before 1 October 1972.

\* See Annex XX.

Annex XX is available in another file.