

Report  
of the

Working Group on the Development of Marine  
Data Systems

Terms of Reference

To act as an advisory body to the Hydrography Committee as to how modern computer technology can best be used to support the Service Hydrographique in the scientific interpretation of oceanographic data.

Members

Dr. N. J. Campbell (Canada), Chairman  
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The Working Group on Marine Data Systems met on September 24th, 1969 to review and assess the results of four inventory questionnaires sent to Member Countries on

Serial Station Data  
Bathythermograph Data  
Multiple Probe Recorders  
Expendable Recording Bathythermographs.

Doc. C.M.1969/C:22 summarizes the replies from 12 countries. For some countries the replies represent a consolidation of opinions from several national institutions.

The opinions expressed by the answers to the questionnaire have led to the view that further efforts must be placed on the preparation of:

1. Inventories of oceanographic data collected by on-going observational programmes.

2. Summary of charts by one degree distribution, including track charts when available, of processed oceanographic data.

The latter are intended to supplement the present Administrative Report of the Hydrography Committee.

These proposals are intended to come into effect hopefully in 1970 with anticipated full participation of Member Countries by 1971 for the area delineated by the 10°S latitude, America, Africa and Europe to the 60°E longitude.

Forms for the inventories of data collected by the on-going oceanographic programmes will be furnished by WDC A to the most appropriate national and regional centres for their use within six months' time.

In view of the anticipated increase in the use of continuously recording devices the Working Group recommends that in the interim the following guidelines be considered for achieving an effective exchange of STD and X-BT data and, to meet the provision of inventories for the Service Hydrographique.

STD data should be in digital form, processed with the intention to achieve, as a minimum, an accuracy compatible with Nansen cast data. Data should be recorded at 2-3 meter depth intervals or at "flexure" points, the latter spaced such that linear interpolations will not deviate more than  $\pm 0.03^{\circ}\text{C}$  and 0.04 o/oo from the original record.

The Working Group suggests that if such resolution in depth spacing is not practicable, the minimum standard for encoding STD data be: For the upper 1200 meters no less than 18 depths selected to be representative of the major features of the mass structure and additional values at international standard depths; below 1200 meters - as many depths as deemed necessary.

Recognizing that processing and exchange of STD data are still in a developmental state, the Working Group further stresses the need that all such data be accompanied by descriptive material concerning the instrument, form of original data, processing technique(s) and nature of corrections applied.

X-BT data for exchange should also be expressed in digital form either at 3 meter intervals, to an accuracy of  $0.2^{\circ}\text{C}$ , for the entire depth of the trace or at "flexure" points determined in such a way that linear interpolations fall within  $\pm 0.2^{\circ}\text{C}$  of the original record.

The Working Group, noting the formats now used for existing mechanical and expendable BT data bases, recommends that the format proposed by the Oceanographic Data Centre of Germany (DOD) be considered as an additional and compatible format for the exchange of such data.

Recognizing the need for developing and maintaining an inventory of data from current meter stations, the Working Group proposes that Member Countries include a summary of such stations with their annual Administrative Report. The Working Group proposes to further consider this problem particularly with respect to summarizing the data.

The Working Group submits the following recommendations to the Hydrography Committee:

1. Each ICES Member Nation prepare an inventory of the types and numbers of observations and samples collected during each year with operational areas identified by Marsden squares or whenever feasible by track charts.
2. All Member Countries prepare an inventory of presently available national holdings of processed station and bathythermographic data to be expressed as charts showing the number of observations by one degree square and month and that this inventory be updated annually. The Working Group notes the utility of track charts for station data accessioned by data centres and urges that they be included as an inventory item whenever practicable.
3. World Data Centres/Oceanography prepare an annual inventory of processed oceanographic data, accessioned from declared national programmes, in the ICES area of interest.

The Working Group on Marine Data Systems proposes that the ICES representative on the IOC Working Group on International Data Exchange draw the attention of this Group to the need of establishing a basis for the exchange of information on the content of computer programmes related to data centre activities.