

Report

of the Sub-Committee for Telegraphic Communication of
Oceanographic Observations

The Sub-Committee met at the Danish Meteorological Institute the 27th and 28th September 1966.

Present were Dr. J. Eggvin (Chairman), Norway, Mr. H. Thomsen, Denmark and Dr. S. Malmberg, substitute for Dr. U. Stefansson, Iceland. Mr. P. Myrland, Norway took part in the discussion especially concerning revision of the ICES telecommunication code.

The Chairman opened the meeting and pointed out the growing interest and need for synoptic oceanography as being a good tool for gaining a better understanding of marine conditions and for harvesting the sea, as this study has emphasized.

From the Sub-Committee report 1965 to the Hydrographical Committee may be cited:

(C.M. 1965 Hy 8 completed) "The Sub-Committee met on Wednesday, October 5th and proposed that the planned Pilot Programme, to test the telecommunication of oceanographic observations, should be carried out in January-March 1966 provided that sufficient material from the ICES countries would be available.

It was further suggested that different oceanographic codes should be studied by the Working Group for eventual amendments of the ICES telecommunication code. - "

The Council passed the following resolution proposed by the Hydrographical Committee.

(C.Res. 1965/2:8) "The Hydrographical Committee being aware that, as the planned Pilot Programme to test the telegraphic communication of oceanographic observations to supply the fisheries with appropriate information on the changing oceanic conditions, could not be carried out in January-March 1965 because of lacking manpower, recommends that when all the necessary technical preparation - including the possible changes in the code and the establishment of working contacts with meteorological offices have been carried out by the Sub-Committee for the execution of the said Pilot Programme in January-March 1966, the Sub-Committee will arrange a meeting of two days in Bergen in June 1966, on national expense, to evaluate the gained experiences and that the systematic use of such hydrographic service programmes in the ICES area for the benefit of fisheries should be carried out in close collaboration with WMO, to which end WMO should be invited to send an observer to the future Statutory Meetings of ICES".

The Fisheries Directorate, Marine Research Institute, Bergen was entrusted to run the project. During some preceding years oceanographic material of different kinds have at times been used at the Institute for intensive studies of fishery oceanographic conditions in order to get better knowledge about the causal connection between different oceanographic and meteorological parameters and the abundance and migration of fish. Experiments in processing synoptic oceanographic material including the use of ICES telecommunication code had been carried out both at the institute and on board the research vessels, and experimental forecast had been made.

The area of investigation as regards the pilot project should be the North Sea, the Skagerrak, the Kattegat, parts of the Norwegian Sea and the Barents Sea and the north-eastern part of the North-Atlantic to 25°WL.

The material should be processed and issued every 10 days during the pilot period, 1. Jan.- 31. March 1966.

By approaching the Meteorological Institutes in Bergen and Oslo it was arranged that their "selected ships" telegraphed the surface temperature with an accuracy of 1/10°C instead of usually 1/2° during the pilot period. The latter Institute was also kind enough to transmit the oceanographic charts and diagrams by faximile.

The oceanographic material originated from research vessels, light ships, weather ships, fixed oceanographic stations, from passenger ships with sea-surface thermographs and with facilities for surface salinity sampling. In addition surface temperatures taken on board "selected ships" were received through meteorological institutes. Towards the end of the project observations were also received from a few navy ships (Norwegian).

The observations flowed in to the provisional regional centre by telegraph, telex, radiotelephone, airmail etc. It was interesting to note the successively increasing amount of observations.

9 countries participated in the project: Denmark, England, Germany, Holland, Iceland, Norway, Scotland, the Soviet Union and Sweden.

Surface temperature charts with anomalies and vertical ^{temperature} curves from some key-positions were issued about every 10 days after 1st January. When material was available information on salinity distribution, and as an experiment also sections of current, salinity and temperature were also given. The charts etc. were transmitted by faximile 1 to 3 days after the end of the 10 days research period and then copies of the charts, diagrams and sections with comments were distributed by airmail to all interested parties. Altogether 51 individual charts and sections were issued during the pilot period and in addition 5 issued in December 1965. These and the comments are printed in C.M. 1966 Hydrographical Committee No. 17 (43 pp.) which is on the table.

The faximile charts were received in countries around the North Sea and in Finland and Iceland.

Permanent synoptic oceanographic system.

Taking into account the results obtained during the pilot project the Sub-Committee felt that a regional collecting, processing and dissemination centre should be organized on permanent basis to the benefit of fisheries and science. Analyses of the data received should be made by oceanographers at a designated centre.

The area of investigation could eventually be widened f. inst. in the North Atlantic from 25°W to 35°W which coincide with the western border of WMO's Region Europe.

To the oceanographic data sources mentioned could be added observations from:

- 1 Telemetering buoys
- 2 Airborne Radiation thermometer
- 3 Navy ships
- 4 Fishing boats

Observations from fishing boats in "sparse areas" would be very valuable. There is reason to believe that fishing boats would install faximil receiver when a regional analysing centre is established. In Japan oceanographic and fishery conditions are forecasted by means of faximile and more than 600 fishing boats are equipped with faximile receiver. The material used by the analysing centre originates from the same fishing boats.

The man power in a possible ICES collecting, processing and dissemination centre should be 2 oceanographers 2 technical assistants, 1 secretary.

The cost would i.a. depend upon where the centre would be located. If it f. inst. was placed in Bergen, and supposing offices were free of charge the cost per year would be about 11,600 £ and instruments etc. 4,400 £ to start with. If the centre is placed elsewhere the figures will have to be revised according to the price level.

During the pilot project it was felt that some people had difficulties in using the ICES telecommunication code. The Sub-Committee has looked into the problem and a revised edition will be presented to the Hydrographical Committee before the end of this session.

J. Eggvin

Appendix I
to the Report of the ICES Sub-Committee for
Telegraphic Communication of Oceanographic Observations

Letters concerning the Pilot project on Telegraphic Communication of Oceanographic Observations, arranged by the International Council for the Exploration of the Sea and carried out by the Directorate of Fisheries, Institute of Marine Research, Bergen, 1 January - 31 March 1966.

One letter is addressed to the Norwegian Meteorological Institute, the others to the chairman of the ICES Sub-Committee for Telegraphic Communication of Oceanographic Observations.

From Institute of Marine Research, Helsinki, Finland, 28. January 1966,
Professor Ilmo Hela, Chairman of ICES Hydrographic Committee:

"It should interest you to know that your synoptic charts are received here in Finland without any difficulties, as you can see from the attached copy. For obvious reasons we do not make use of your fine charts, however, your success may bring about the introduction of similar effort in the area of the Baltic Sea.

I have every reason to congratulate you to your great success."

From Mr. Frede Hermann, Head of the Hydrographic Section, Danmarks Fiskeri- og Havundersøgelse, Charlottenlund, Danmark, 28. January 1966:

"Thank you for the synoptic temperature chart which I received first by facsimile transmission from the Norwegian Meteorological Institute, and later by mail.

May I give you my compliments for your quick and thorough work and the interesting results."

From Mr. A. Bahling, Deutscher Wetterdienst, Zentralamt, Offenbach (Main) Germany, 9. February 1966. (To the Norwegian Meteorological Institute.):

"the most satisfying intercept of the oceanographic charts which have been broadcast several times now by your station Oslo-Meteo. Meanwhile, however, I have been informed by the Seewetteramt in Hamburg that our meteorologists there are very much interested in the regular availability of these

charts and that they would be pleased, if reception could be continued."

From Director John F. Ropek, U.S. Naval Oceanographic Office, Washington, D.C., U.S.A., 11. February 1966:

"The charts are excellent examples of the variability of oceanographic conditions in the North Sea area, and will contribute measurably to our capability for predicting ice formation and its degree of severity.

The U.S. Naval Oceanographic Office welcomes future information of this nature."

From Mr. Kenneth T. Morse, Hudson Laboratories of Columbia University, Dobbs Ferry, N.Y., U.S.A., 17. March 1966:

"We are impressed by the scope and excellence of this undertaking and recognize the interest that it holds for members of our scientific staff. May we be added to the distribution list for forthcoming issues of these charts? If copies of the charts are available, beginning with that of the first half of December, 1965, we would appreciate receiving these also."

From captain W.E. Hubert, U.S. Fleet Numerical Weather Facility, Monterey, California, USA, 18. March 1966:

"We are pleased to see that you have been able to carry out the project with a small staff and resources. We have made considerable use of your charts. Taking into consideration the coarseness of our hemispheric analysis grid, there is a close correlation between yours and our analyses."

From director-general N.B. Marshall, Meteorological Office, Bracknell, Berkshire, England, 31. March 1966:

"We in the Marine Branch of the Meteorological Office have found your broadcasts of considerable value in our preparation of ice charts, both those based on 10-day means and those, up-dated, which we transmit by Radio fax day by day. We have, indeed, incorporated your isothermal picture of the Norwegian and North Seas into our hemispherical map. The Synoptic Climatology Branch which is responsible for the issue of the monthly forecasts, too, has found your output very useful, particularly the anomaly charts and the B/T profiles. We have both admired the attention to detail and the quality of the transmissions which have been consistently first class. As you may know we have passed on copies of the charts to the MAFF Fisheries Laboratory at Lowestoft and also to the Royal Navy."

From Rijksmuseum van Natuurlijke Historie, Leiden, Holland, 1. April 1966:

"Only a few words to thank you for the excellent way in which you have solved the task of giving orientation about the conditions in the sea off the Norwegian coast during the winter.

Professor Brongersma was very satisfied and has asked me to forward his best thanks. Otherwise I must congratulate you for the enterprise. Such a quick issuing of the synopsis is very impressive."

From Arthur J. Lee, Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England, 4. April 1966:

"From a fisheries point of view the charts have up to now not yielded information of direct use to our fishermen. From a scientific point of view we have found the charts interesting and consider that a series of such charts produced over a number of years would tell us a lot about the mechanism causing year to year changes in the hydrographic conditions in the North Sea. But for this purpose we would not need the charts to be produced rapidly and would be prepared to accept a delay of a month or so.

To my mind the most valuable result of your pilot scheme has been to show that it is possible to use radiocommunications to compile oceanographic charts quickly. From a U.K. point of view the extension of the scheme to include bottom temperatures and the vertical temperature distribution in the Barents Sea and around Iceland should be considered as these are areas of greater interest to our fishermen."

From secretary-general Hans Tambs-Lyche, Bureau du Conseil International pour l'Exploration de la Mer, Charlottenlund, Danmark, 12. April 1966:

"It was really a pity that the work had to stop now. I hope that somehow it can be possible to get a permanent arrangement.

During our meeting on Service Hydrographique last week, this initiative was also mentioned, and even though nothing could be decided - your own committee must first give comments - the importance of this work was underlined. When I get the report in its final form from the committee, I shall send you a summary for orientation."

From the Norwegian Meteorological Institute, Blindern, Oslo, 20. April 1966:

"The radio facsimiles have been transmitted without difficulties, and if you wish, we can carry out such transmissions in the future too.

The temperature charts were available for the meteorologists, and such charts are doubtlessly useful for them, especially for the forecasting of fog."

From Mr. Finn Spinnanger, The Meteorological Institute in Bergen, 9 September 1966:

"We wish to express our thanks for the oceanographic charts, showing sea surface temperatures, which we got from you during the last winter. The charts were of great use for the weather service in different ways. This concerns for instance the forecasting of fog along the coast and on the banks, where the actual isotherms come in useful.

When considering the development of showers in special weather situations, the temperature anomalies were useful for us.

We hope that the Institute of Marine Research will get the opportunity of continuing the distribution of such charts, and if the anomaly charts at the same time could be extended to the coasts of Trøndelag and Nordland, it would be of good help for the weather forecasting in an area which now brings us difficulties."

From Dr. R. Dorrestein, Koninklijk Nederlands Meteorologisch Instituut, De Bilt, Holland, 27. May 1966:

"More than six weeks after the determination of the "Pilot Project" I still have to convey to you and your collaborators my congratulations for the undoubtedly successful results achieved, and to express my appreciation for the large amount of work done by your Institute for this project. As you will have heard from Mr. Ljøen, everybody present in Charlottenlund at the end of March during the I.C.E.S. meeting on the Service Hydrographique was enthusiastic about the project.

Our fisheries research people in IJmuiden and we at K.N.M.I. are convinced that such an activity should be very fruitful for the fishing industry but, as it turns out, other professions are interested as well.

My Director-in-Chief, Prof. W. Bleeker, who became aware of the pilot project while it was in progress, has looked at the successive charts and comments with growing interest, and has pointed out the importance of such charts, especially those of surface temperature, for synoptic meteorology in connection with "meso analysis" and forecasts of fog, clouds, etc., and also for climatology.

Moreover, representatives of the Hydrographic Department of the Royal Netherlands Navy have expressed their interest in the charts in regard to their applications in the military field. They saw possibilities in the near future for close cooperation between fisheries and military interests in this field of "synoptic oceanography."

In view of all this it appears evident that fairly soon a way must be found to establish a "synoptic oceanographic service" on a permanent basis, say for the same sea area as that of the terminated pilot project to begin with. However, it is not appropriate to philosophise further on this here."

From Mr. O. Aasen, Institute of Marine Research, Bergen, 16 September 1966:

"Until now the charts have naturally been of greatest interest to oceanographers and meteorologists. It seems, however, evident that regular issues of temperature charts of this kind also are of a very great fishery-biological interest.

There is reason to hope that this service will be built out permanently for the future, and that fishery-statistical data can be collected and published in a similar manner."
