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PRELIMINARY EVALUATION OF THE IGOSS PILOT PROJECT DURING "OVERFLOW 73"

submitted by

the Federal Republic of Germany*

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SC.73/Conf. 215/INF. 6

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I. Introduction:

An IGOSS Pilot Project was instigated at very short notice with the aim of providing actual products for the members of the expedition. The initiators of the Pilot Project understand that it is not the function of IGOSS to provide occasional expeditions with real-time charts. However, it is one of IGOSS's tasks to place its facilities (data exchange, processing centres, etc.) at one's disposal.

The international Overflow '73 ICES-Expedition provided a suitable opportunity to determine how far the facilities which IGOSS provides today, can be used to produce real-time charts, because there was the possibility that sufficient bathy reports would be available - especially if all the vessels would participate in the IGOSS Project.

The following is a short synopsis and resumé of our experiences during this Pilot Project.

II. Input

1. Data Input

During the period 5th August to 17th September, 1973, the DHI as Processing Centre, received a total of 547 bathy reports, of which 320 came over the coastal radio station Norddeich Radio direct, and 227 over GTS. The temporal distribution (date of measurement) and the geographical distribution are shown in Figs. 1 and 2.

In addition to the bathy reports, a total of 3610 (daily average about 100) meteorological routine observations from weather ships, fishing vessels, and merchant ships were evaluated for the SST charts during the period 9th August to 13th September, 1973.

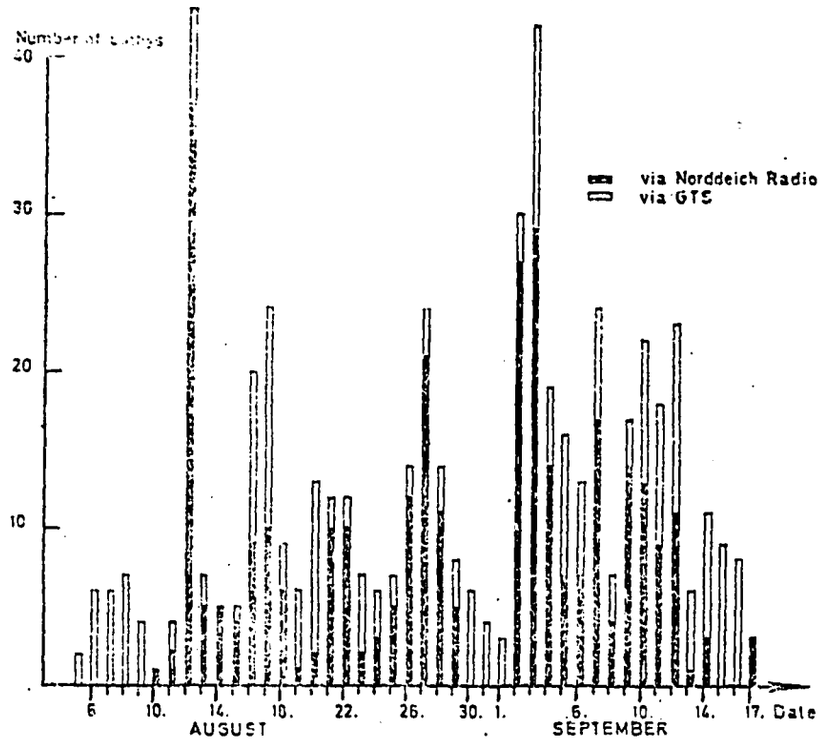


Fig. 1 Temporal distribution of IGOSS data

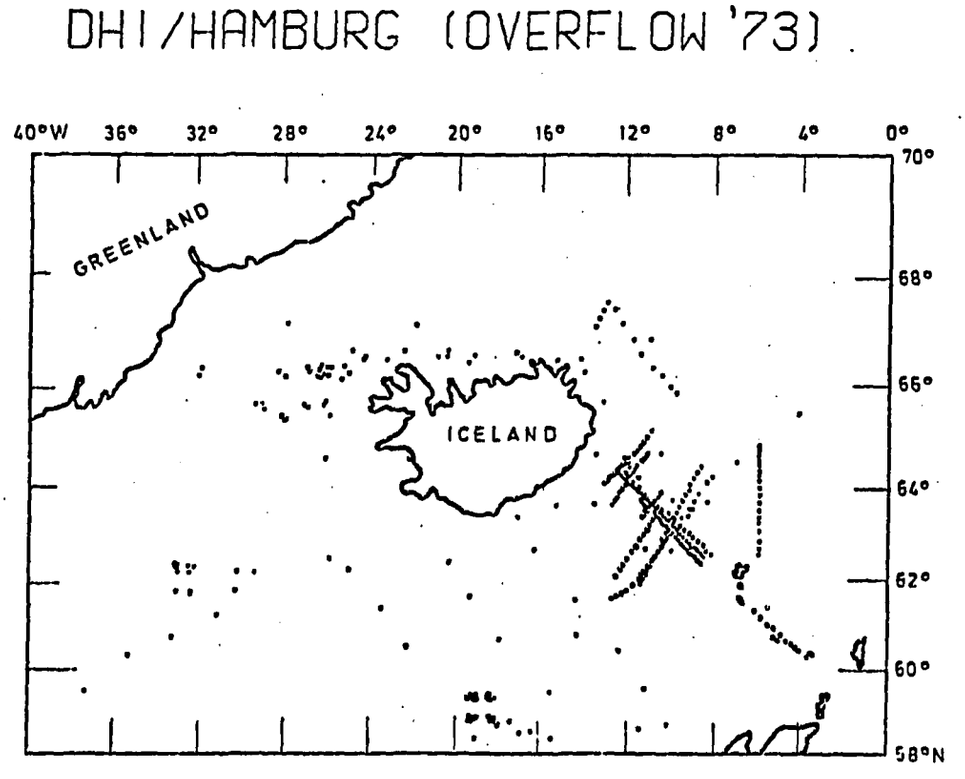


Fig. 2 GEOGR. DISTRIBUTION OF IGOSS-DATA

2. Time delay of data received

For an estimation of the possibility of processing up-to-date products it is necessary to have an indication of the time delay ΔT - that is, the difference in time between the actual measurement and the reception of the data by the Data Processing Centre.

In Fig. 3 the frequency distribution of the time delay ΔT is shown for the data received in the Data Processing Centre from the coastal station Norddeich Radio direct. Fig. 4 is an analogical illustration for the data received via GTS. In order to obtain a better statistical picture, not only reports from the area around Iceland but all reports received by GTS are included in Fig. 4.

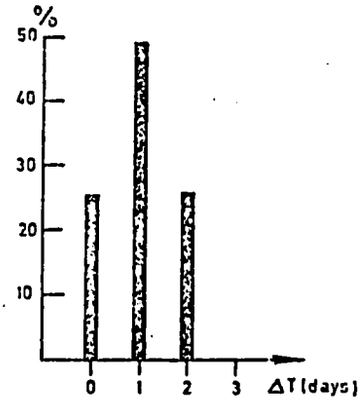


Fig. 3

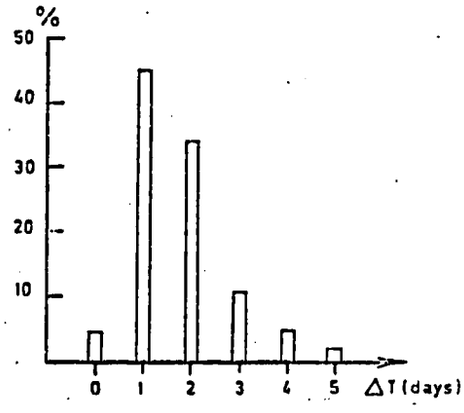


Fig. 4

Frequency distribution of time delay ΔT for Bathy reports received via Norddeich Radio (Fig.3) and via GTS (Fig.4)

It can be clearly seen from the figures that 100% of the data, which came via Norddeich Radio, were available for an evaluation two days after measurement and, on average, the data via GTS took about another day extra.

The data from the meteorological routine observations, as a rule, were accessible to the Data Processing Centre after about one day's delay.

III Output

1. Products

At the beginning of the action it was not fundamentally clear

which type of sub-surface information charts could be produced from the bathy reports received, as this depended very decisively upon the geographical and temporal distribution of the reports. Merely the production of SST charts was ensured, because it was evident from previous investigations that sufficient reports would be available.

A total of 15 products were produced which were transmitted by facsimile at the times announced; among these were:-

11 SST charts
15 Temperature Sections
and 1 Chart of depths of 2°C and 7°C Isotherms.

From the bathys measured and transmitted between 10th August, and 10th September, 1973, 61% were evaluated in Sub-surface Information charts (54% especially for temperature sections). The reason that 39% of the bathys could not be evaluated in Sub-surface Information charts was mostly due to insufficient geographical and/or temporal distribution of the reports. This was particularly noticable in the area between Iceland and Greenland. About 14% of the total number of reports came from this area. A further 14% of the reports originated from OWS "A" and OWS "I" and they could not be included with the rest of the measurements because of the great spatial distances.

As well as meteorological routine observations, the surface temperatures of the bathy reports were also used for compilation of the SST charts, so that - with an average interval of 4 days per chart - about 450 surface temperatures were available. Moreover, during the processing of the SST charts, the following facsimile charts were taken into consideration:

(a) 5-day mean SST chart, Bracknell (AXXX EGRR)
(b) 5-day mean SST chart, Sea Ice Chart, Bracknell (SXNT EGRR)
(c) SST and ICE Analysis, Fleet Weather and Oceanographic Centre, Northwood
(d) 7-day mean, SST chart, Offenbach/Main

The meteorological routine observations were concentrated to

a great extent upon the area Faeroes-Iceland-Greenland, for that reason the tendency or the curves of the isotherms were taken from the above-mentioned charts for the northerly and southerly parts of the SST charts. This is always indicated by a broken line. All 15 Products are enclosed in the Annex.

2. Averaging interval and time lag of facsimile transmission

Temperatur sections could be prepared from data collected within a time period of 1 to 9 days, on average 3.7 days.

The chart of 2°C and 7°C isotherms was taken from data collected over 18 days i.e. one must collect the data over 3-4 days or 18 days until sufficent material for an illustration is available. The frequency distribution for the average intervals is shown in Fig. 5.

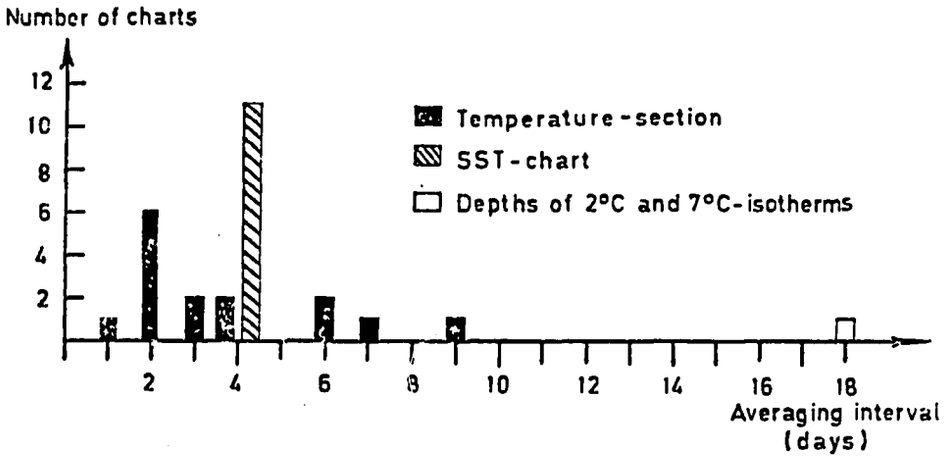


Fig. 5 Frequency distribution of averaging intervals

The difference in time between the day of the last measurement and the day of the facsimile transmission of a sub-surface information chart ranges between 2 days and 12 days - on average 7 days. (Two exceptions were time lags of 22 and 29 days) The reason for this time lag was due to delay in bathy transmission, the time taken to produce the sub-surface information chart and, finally, the fact that transmission was possible only every two days.

The time lag between the day of the last measurement and the day of the transmission of the SST chart was always two days.

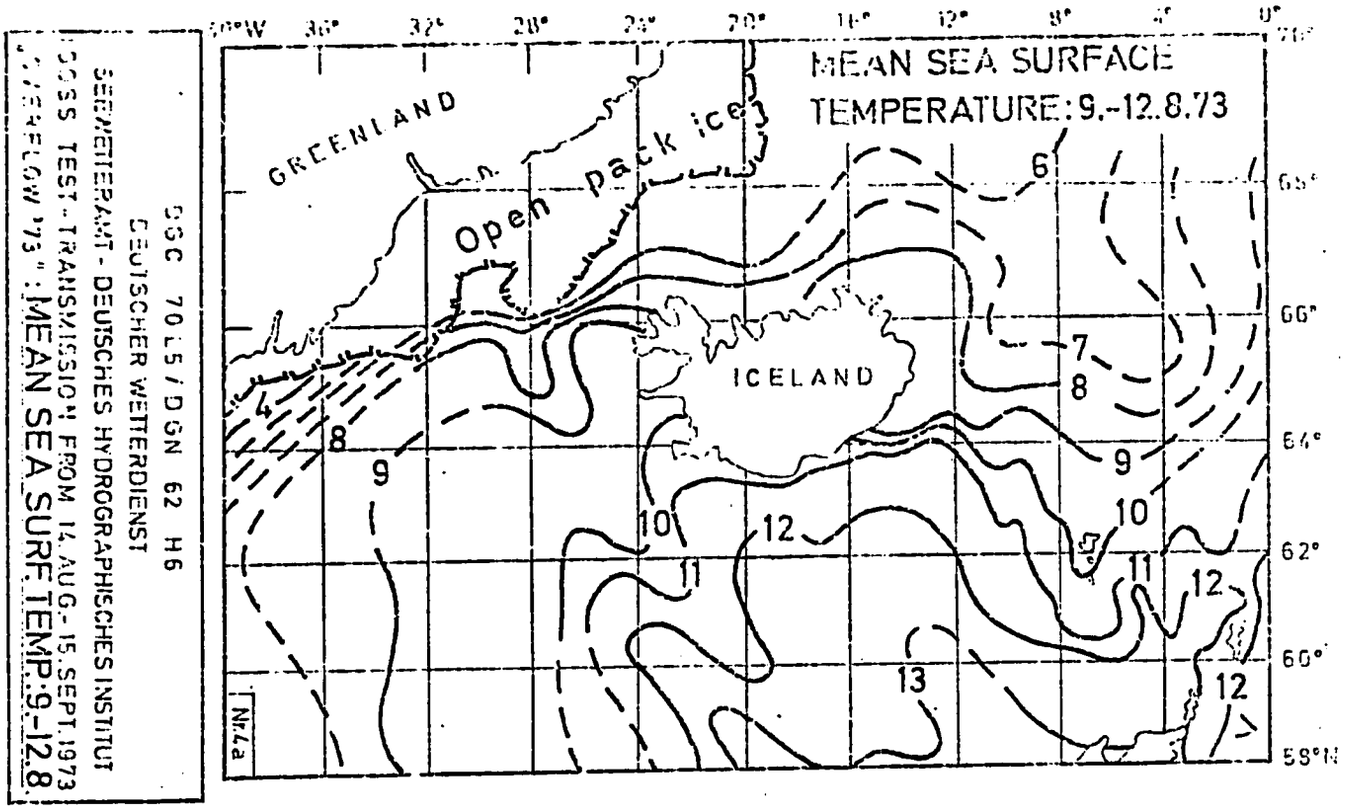
IV Summary and closing remarks

The Pilot Project has shown that it is possible to produce Sub-surface Information charts, and that it is necessary to take into account the meteorological routine observations for compilation of SST charts. It has also revealed that the time lag between measurement and transmission is much too long, and therefore one cannot really consider the charts to be up-to-date. On the other hand, experience of this Pilot Project has made it quite clear that it is almost impossible to have a time lag of less than 3 to 4 days.

In any case two points must be considered in future projects of this type.

(1) The requirements of the members of the expedition and the possibilities of producing charts (especially with reference to the time lag of the charts) must be better co-ordinated.

(2) To ensure an optimum of spatial and temporal distribution of the measurements in the area concerned, the Data Processing Centre should be able to communicate with the observing research vessels direct.


MEAN SEA SURFACE
TEMPERATURE: 9.-12.8.73
GREENLAND
Open pack ice
ICELAND
Nr4a
DGC 70 L5 / DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
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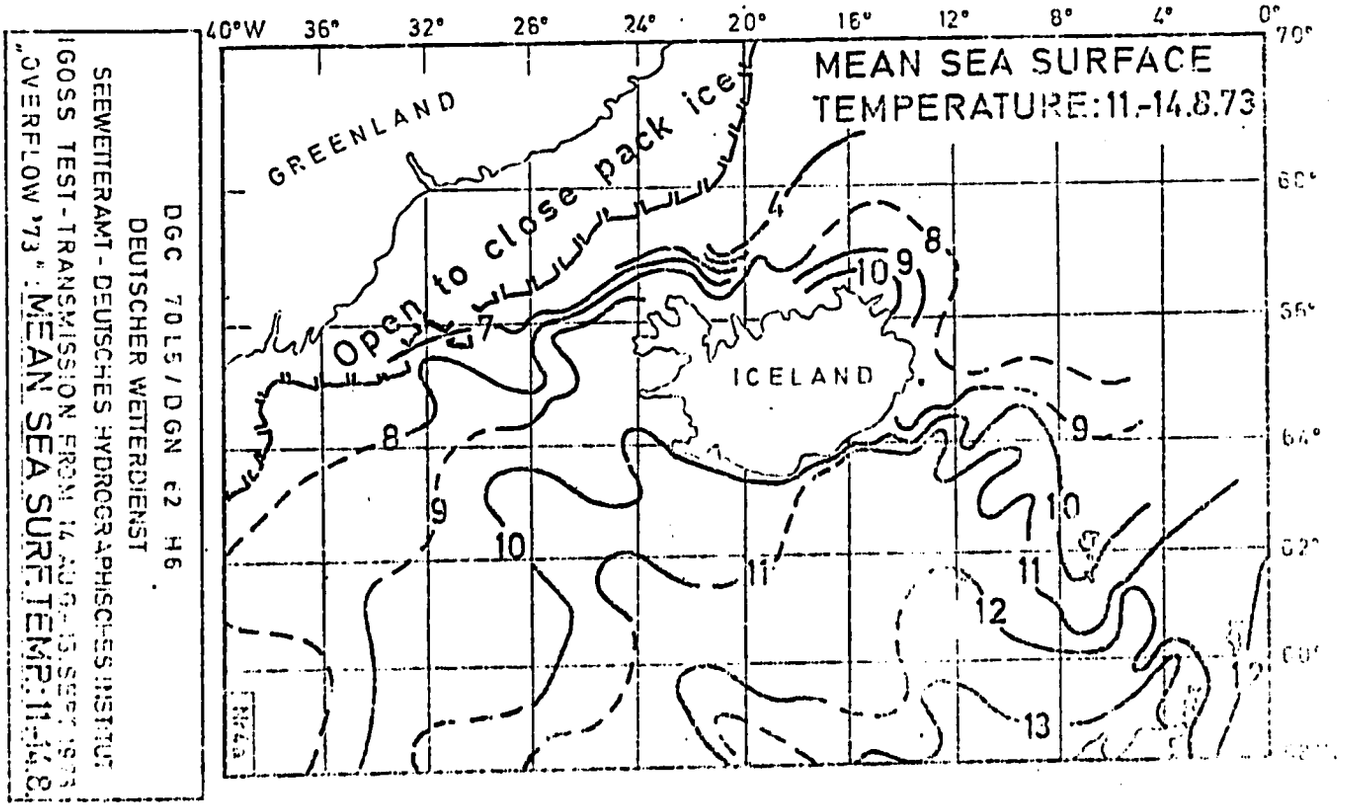
MEAN SEA SURFACE
TEMPERATURE: 11.-14.8.73
GREENLAND
Open to close pack ice
ICELAND
Nr4a
DGC 70 L5 / DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
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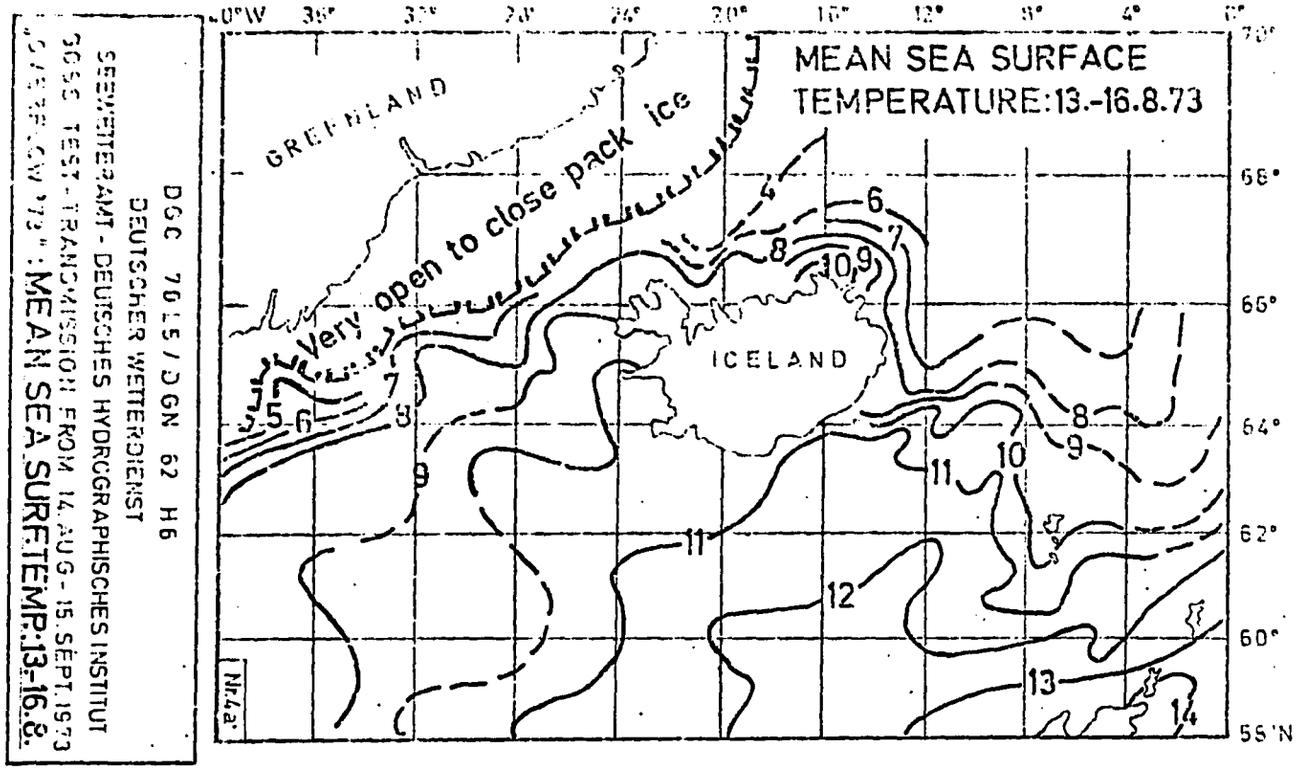
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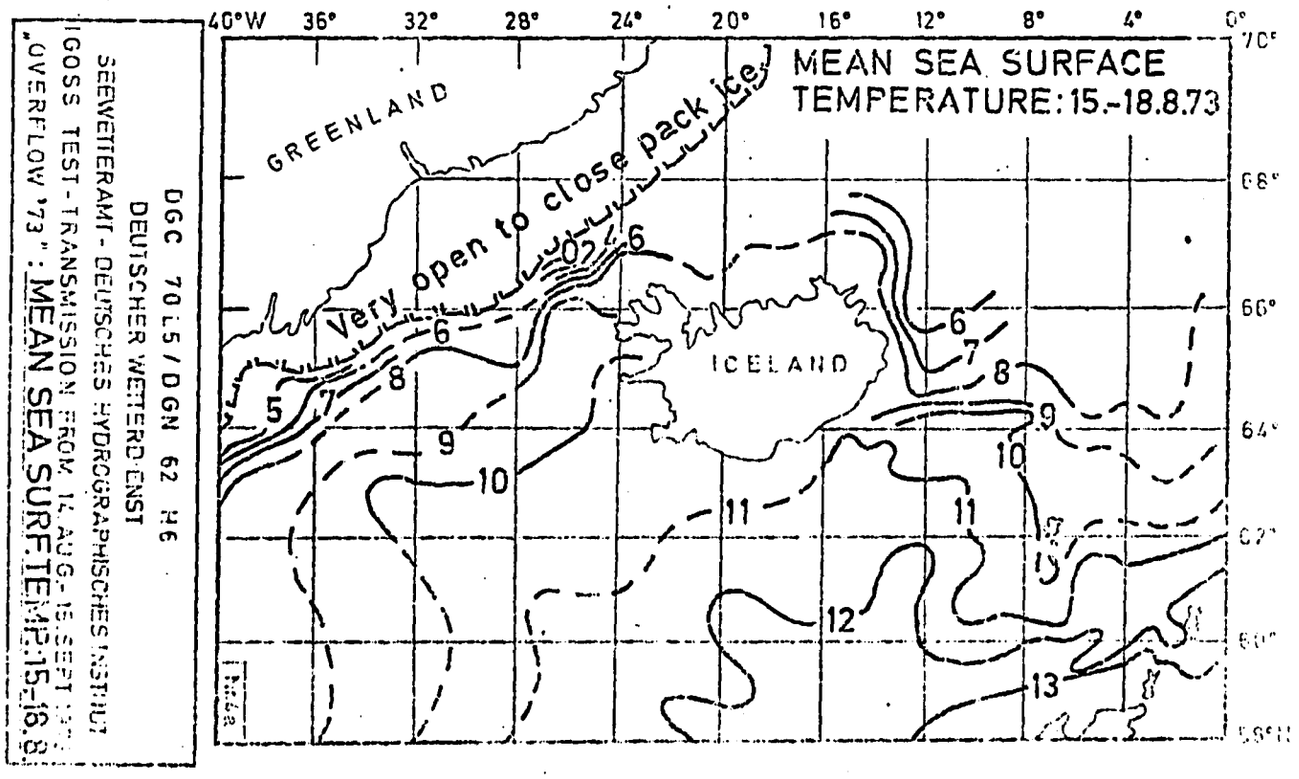
"OVERFLOW '73" : MEAN SEA SURF.TEMP.13-16.8.
MEAN SEA SURFACE
TEMPERATURE:13.-16.8.73
GREENLAND
ICELAND
Very open to close pack ice
40°W 36° 32° 28° 24° 20° 16° 12° 8° 4° 0°
70°
68°
66°
64°
62°
60°
55°N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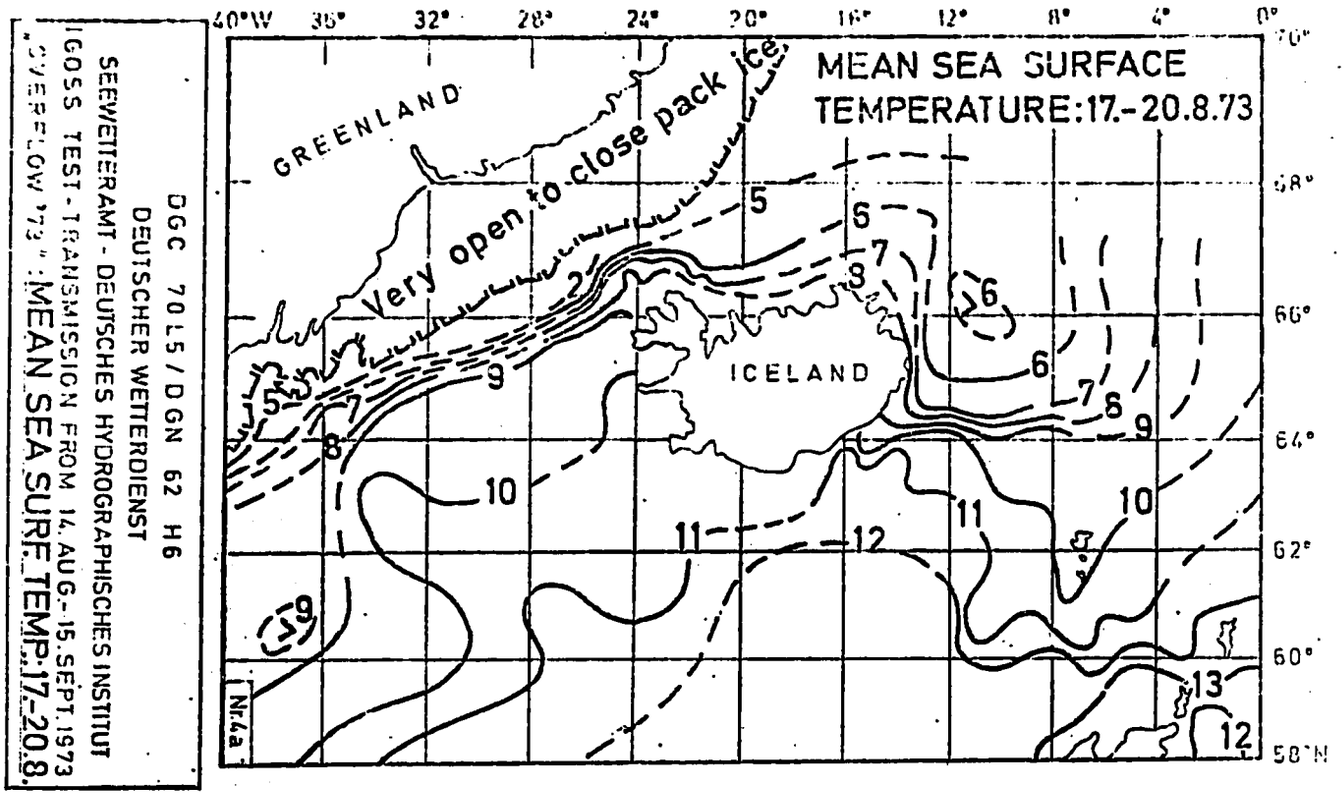
GOSS TEST-TRANSMISSION FROM 14.AUG-15.SEPT.1973
"OVERFLOW '73" : MEAN SEA SURF.TEMP.15-16.8.
MEAN SEA SURFACE
TEMPERATURE:15.-18.8.73
GREENLAND
ICELAND
Very open to close pack ice
40°W 36° 32° 28° 24° 20° 16° 12° 8° 4° 0°
70°
68°
66°
64°
62°
60°
55°N


MEAN SEA SURFACE TEMPERATURE:17.-20.8.73
GREENLAND
ICELAND
Very open to close pack ice
40°W 36° 32° 28° 24° 20° 16° 12° 8° 4° 0°
70°
68°
66°
64°
62°
60°
58°N
Nr.4a
DGC 70L5/DGN 62 H6
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
DEUTSCHER WETTERDIENST
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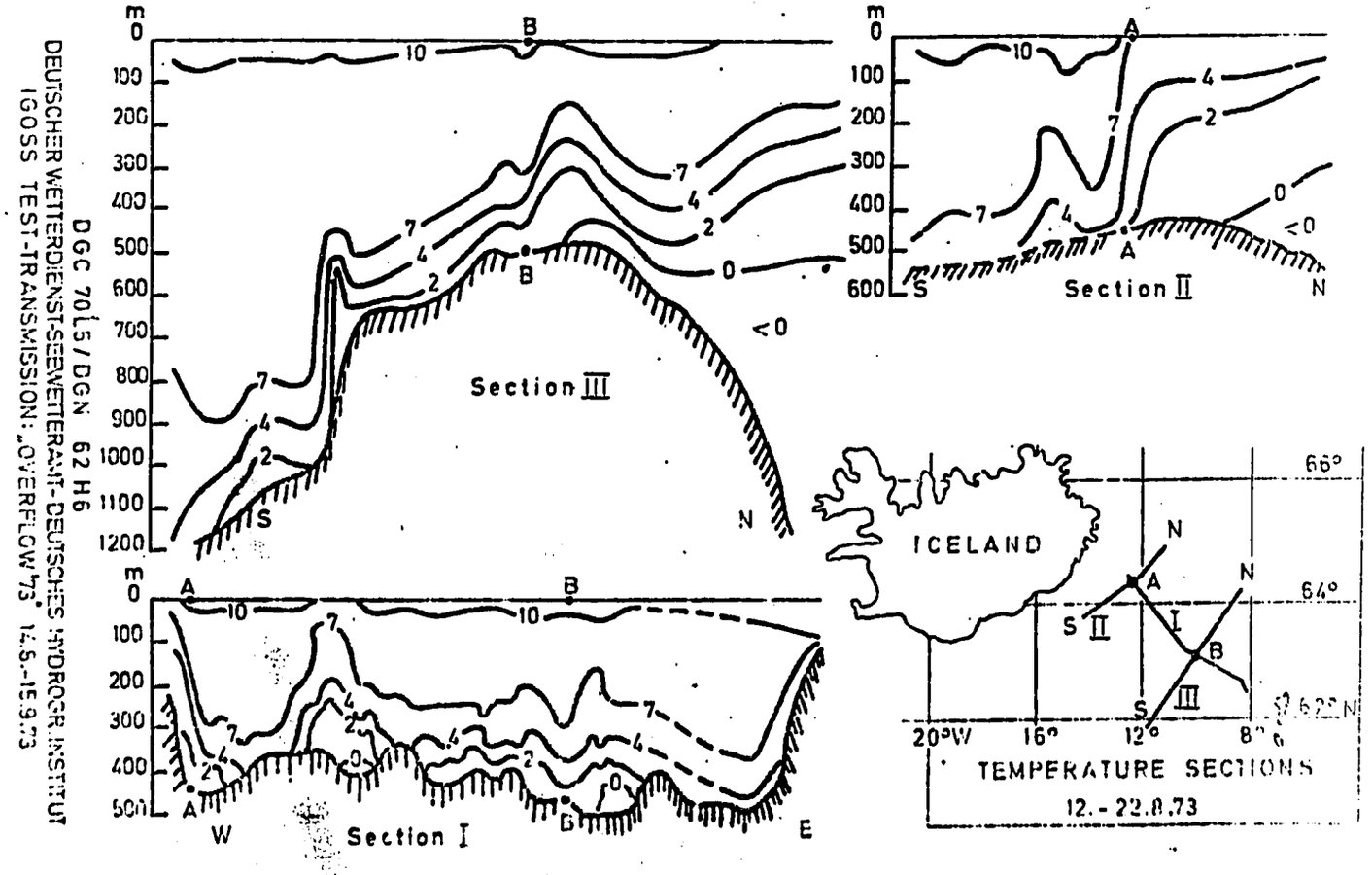
"OVERFLOW '73" : MEAN SEA SURF. TEMP. 17.-20.8.


Section III
Section II
Section I
ICELAND
TEMPERATURE SECTIONS
12.-22.8.73
DGC 70L5/DGN 62 H6
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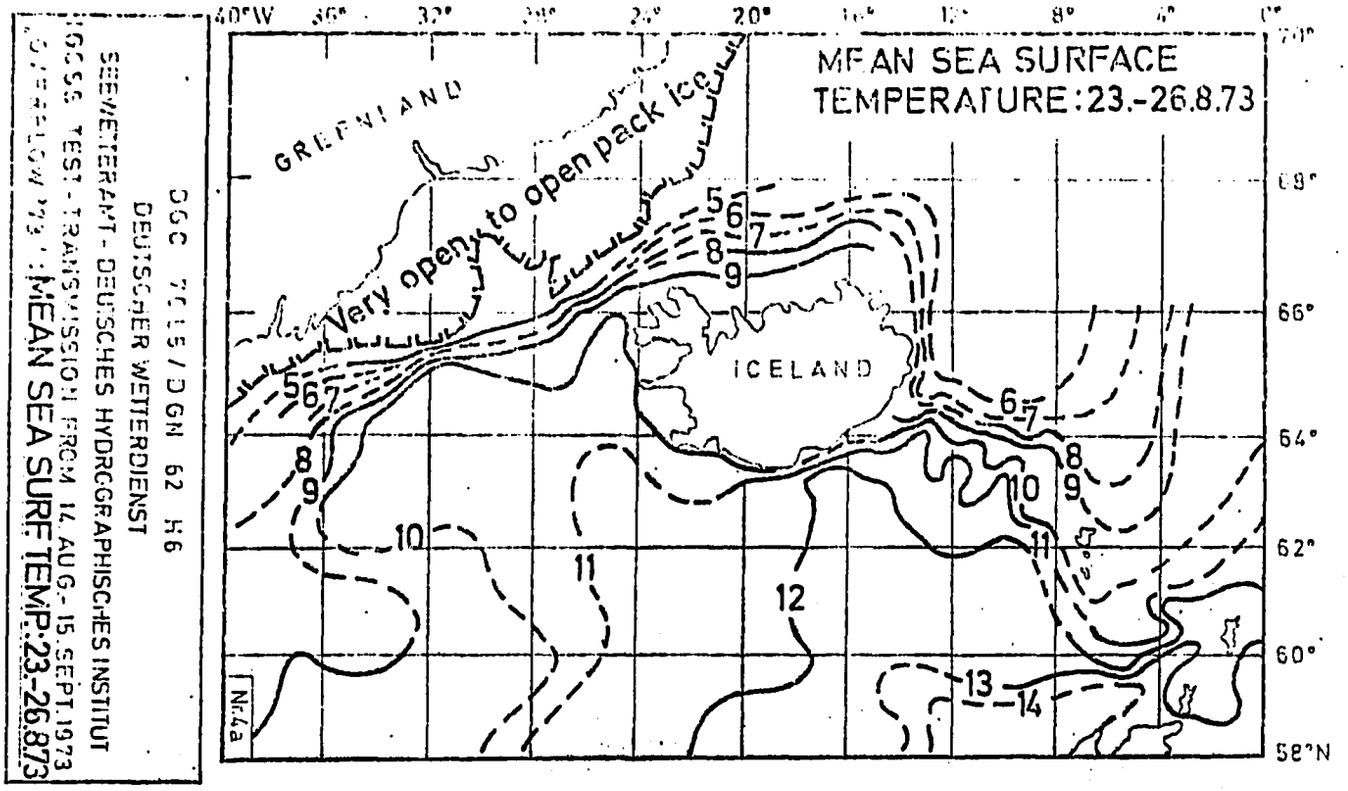
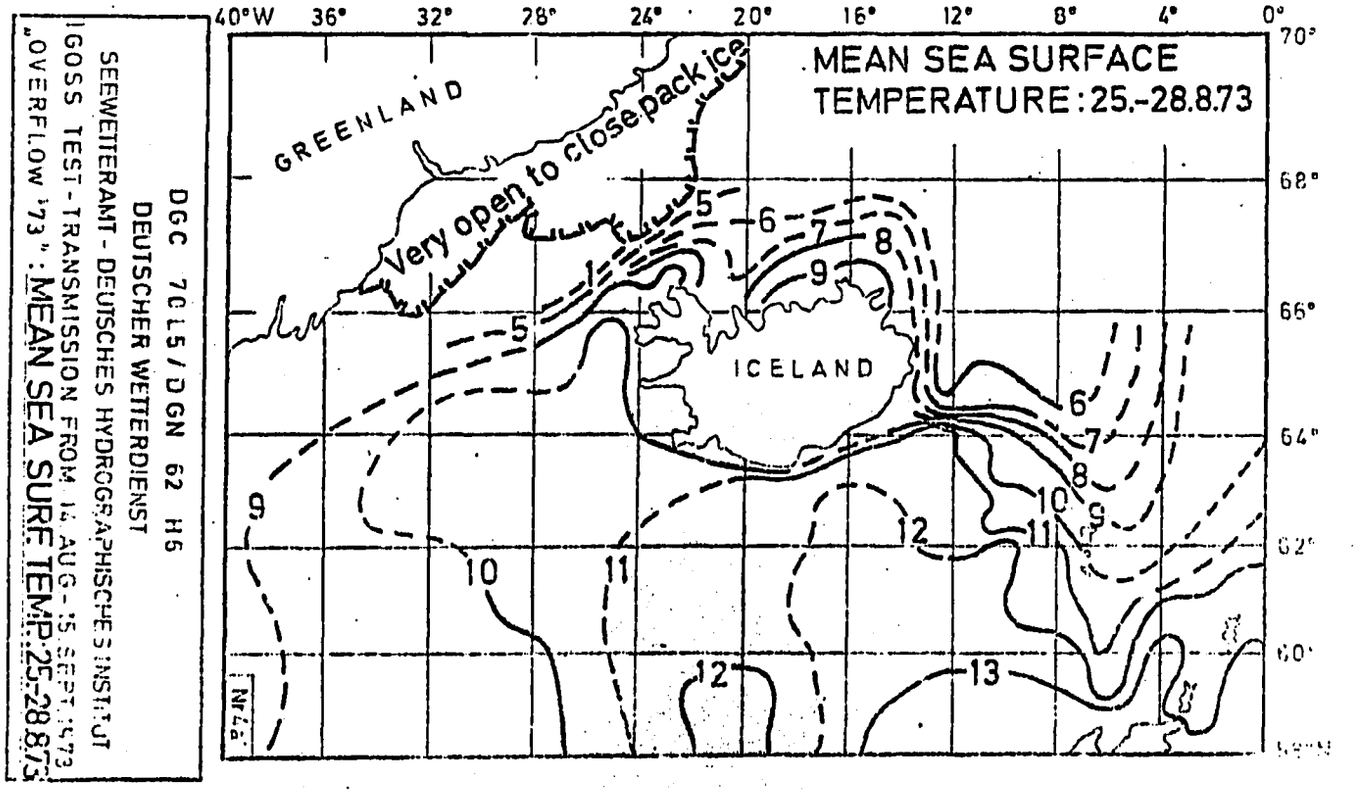
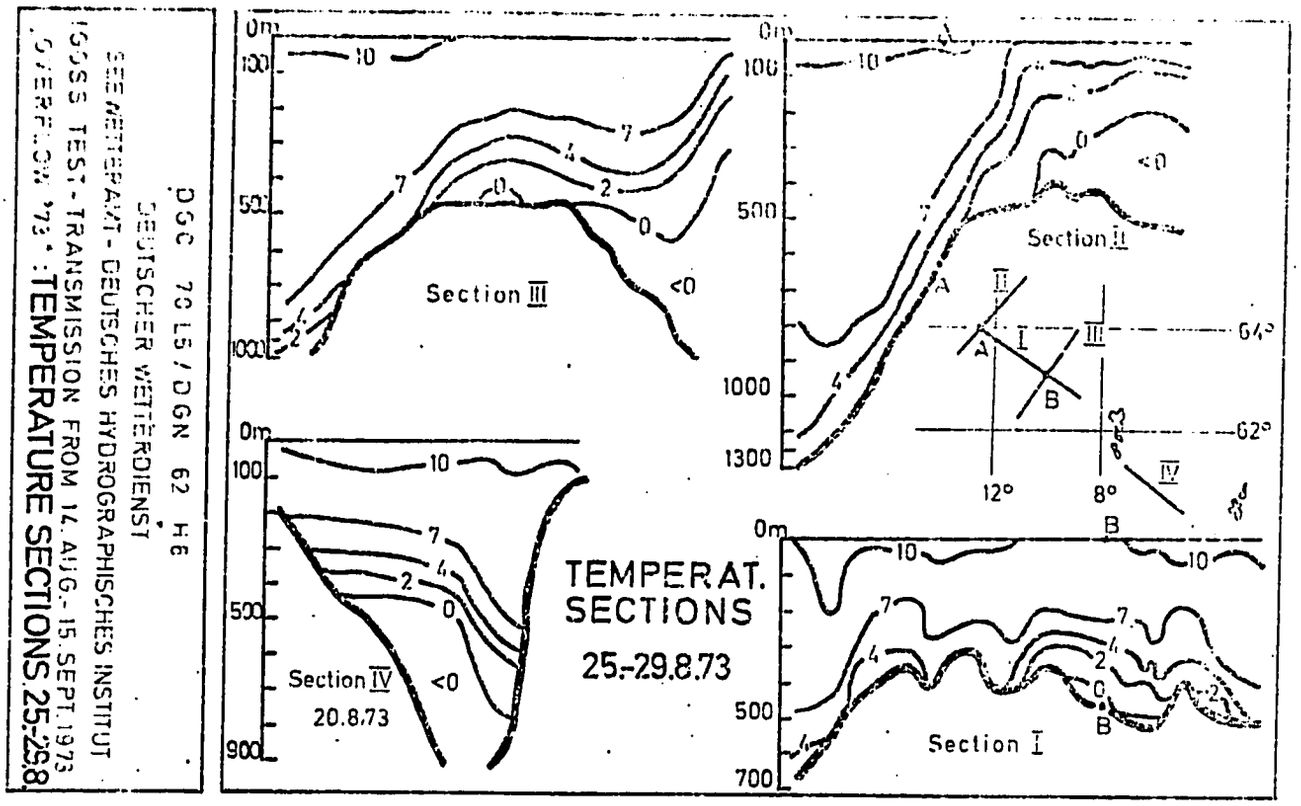

MEAN SEA SURFACE
TEMPERATURE: 23.-26.8.73
GREENLAND
ICELAND
Very open to open pack ice
Nr.4a
DGC 7015/DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
GOSS TEST - TRANSMISSION FROM 14 AUG. - 15 SEPT. 1973
"OVERFLOW '73": MEAN SEA SURF. TEMP: 23.-26.8.73


MEAN SEA SURFACE
TEMPERATURE: 25.-28.8.73
GREENLAND
ICELAND
Very open to close pack ice
Nr.4a
DGC 7015/DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
GOSS TEST - TRANSMISSION FROM 14 AUG. - 15 SEPT. 1973
"OVERFLOW '73": MEAN SEA SURF. TEMP: 25.-28.8.73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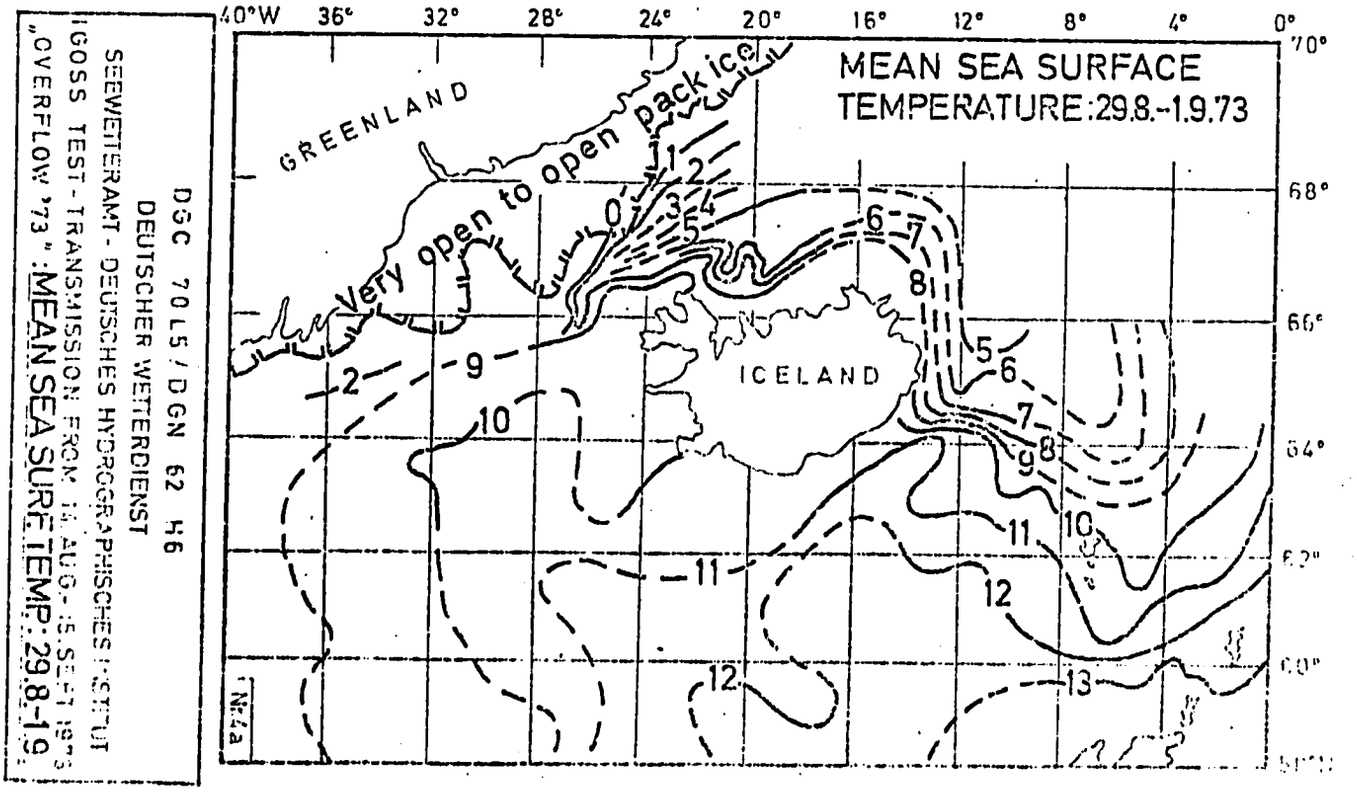
SEEWETTERAMT - DEUTSCHER WETTERDIENST
IGOSS TEST - TRANSMISSION FROM 14. AUG. - 15. SEPT. 1973
„OVERFLOW '73" : TEMPERATURE SECTIONS 25.-29.8.
TEMPERAT. SECTIONS
25.-29.8.73
Section III
Section II
Section IV
20.8.73
Section I
A
B
I
II
III
IV
64°
62°
12°
8°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SEEWETTERAMT - DEUTSCHER WETTERDIENST
IGOSS TEST - TRANSMISSION FROM 14. AUG. - 15. SEPT. 1973
„OVERFLOW '73" : MEAN SEA SURF. TEMP. 29.8.-1.9.
MEAN SEA SURFACE TEMPERATURE: 29.8.-1.9.73
GREENLAND
ICELAND
Very open to open pack ice
40°W
36°
32°
28°
24°
20°
16°
12°
8°
4°
0°
70°
68°
66°
64°
62°
60°
Nr. 4a

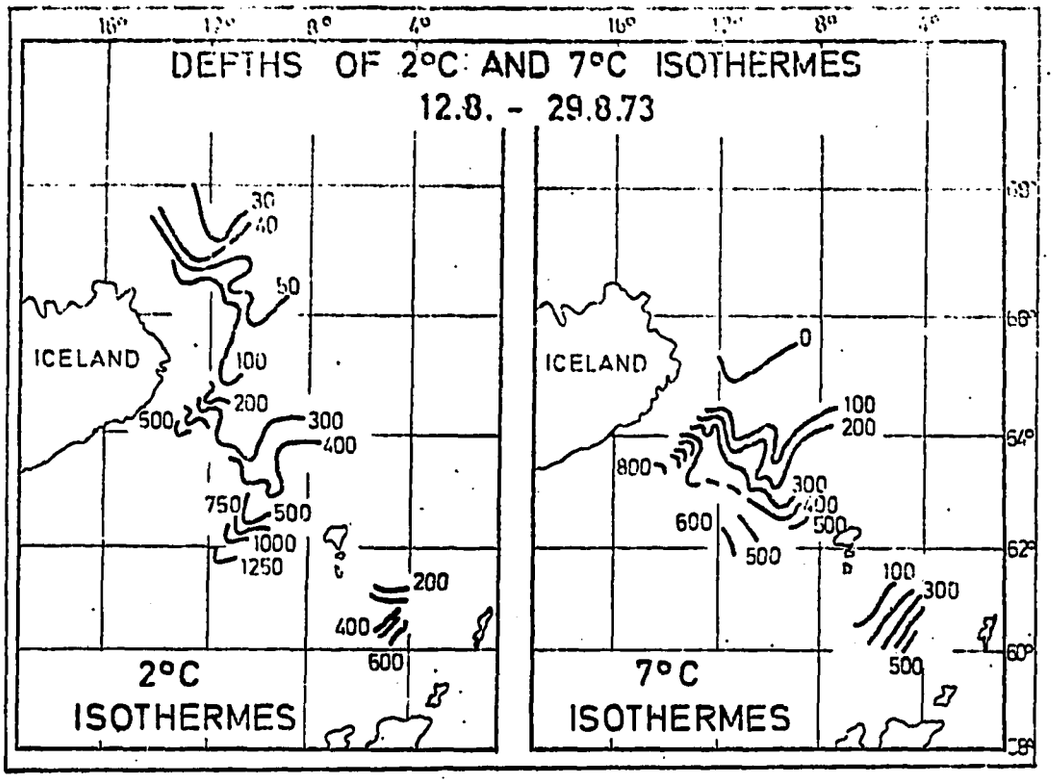
DGC 70 L5 / DGN 62 H6

SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT

DEUTSCHER WETTERDIENST

IGOSS TEST-TRANSMISSION FROM 14. AUG.-15. SEPT. 1973

OVERFLOW '73: 2°C AND 7°C ISOTHERMES: 12.-29.8.



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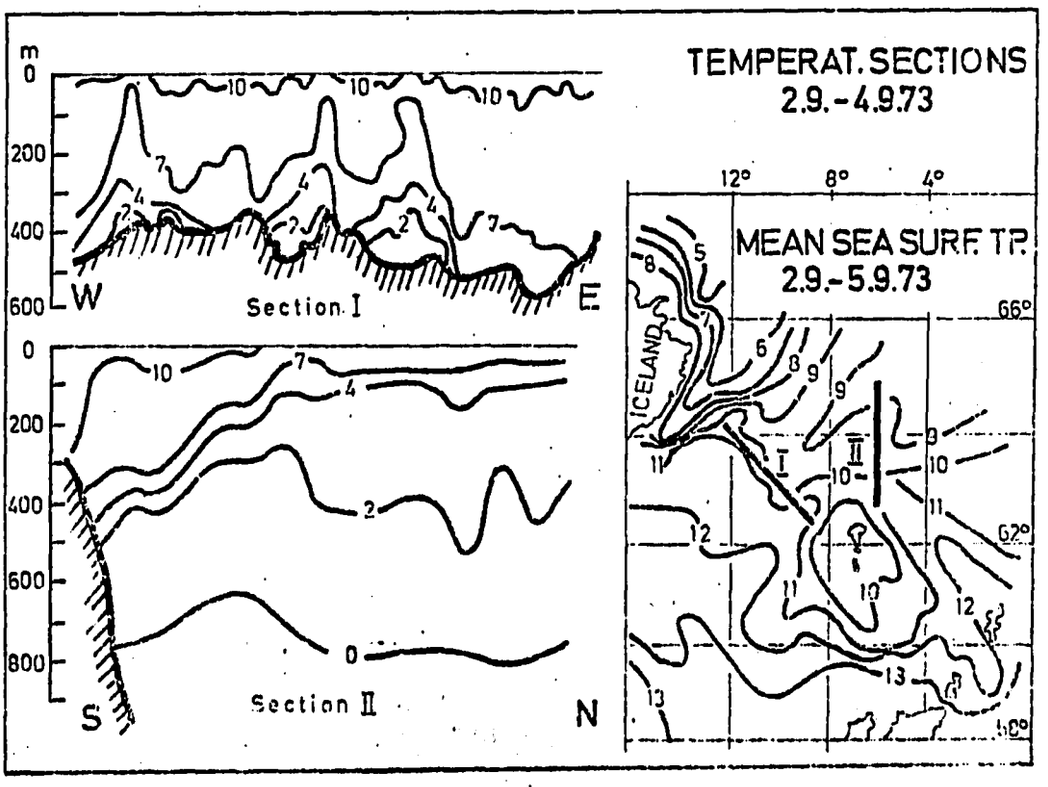
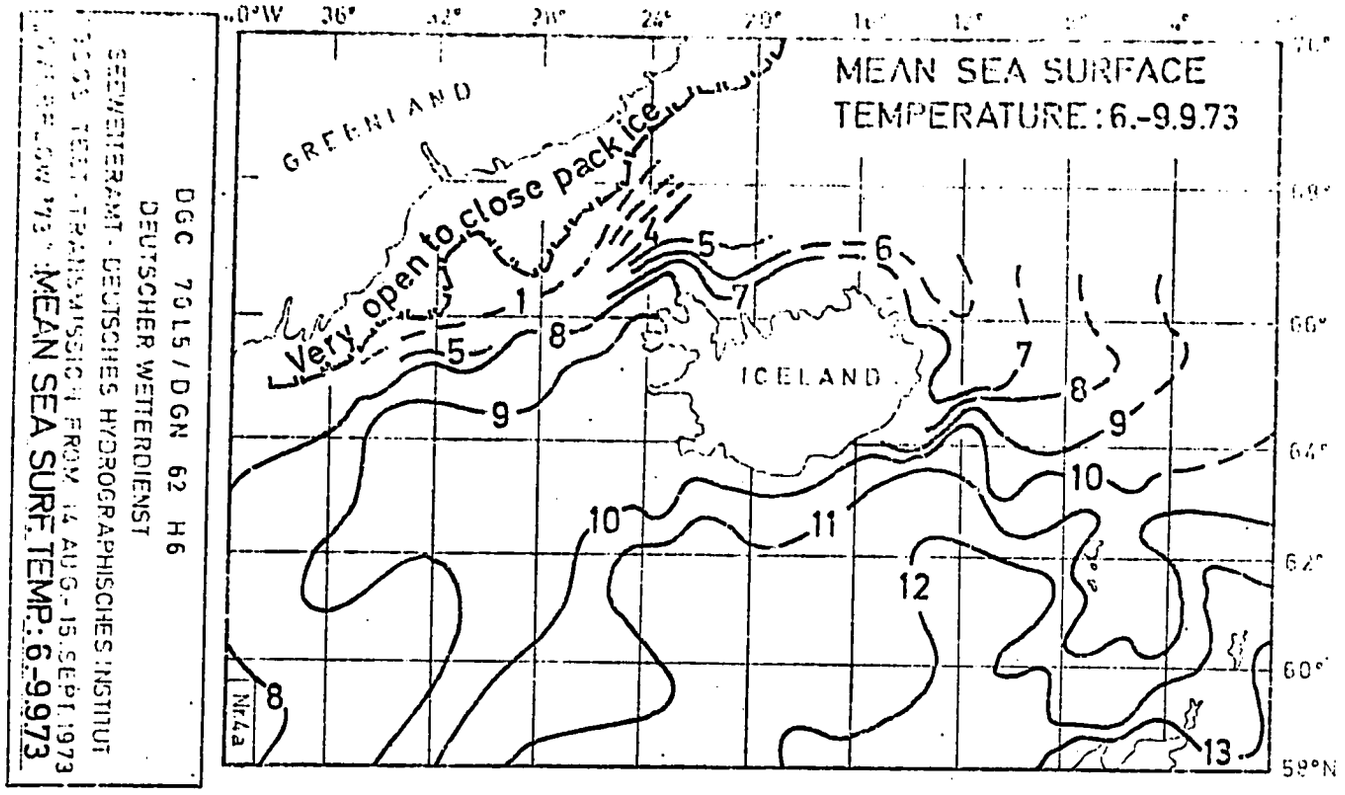
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT

DEUTSCHER WETTERDIENST

IGOSS TEST-TRANSMISSION FROM 14. AUG.-15. SEPT. 1973

OVERFLOW '73: SST and TEMPERATURE SECT.




MEAN SEA SURFACE
TEMPERATURE: 6.-9.9.73
GREENLAND
ICELAND
Very open to close pack ice
DGC 70 L5 / DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
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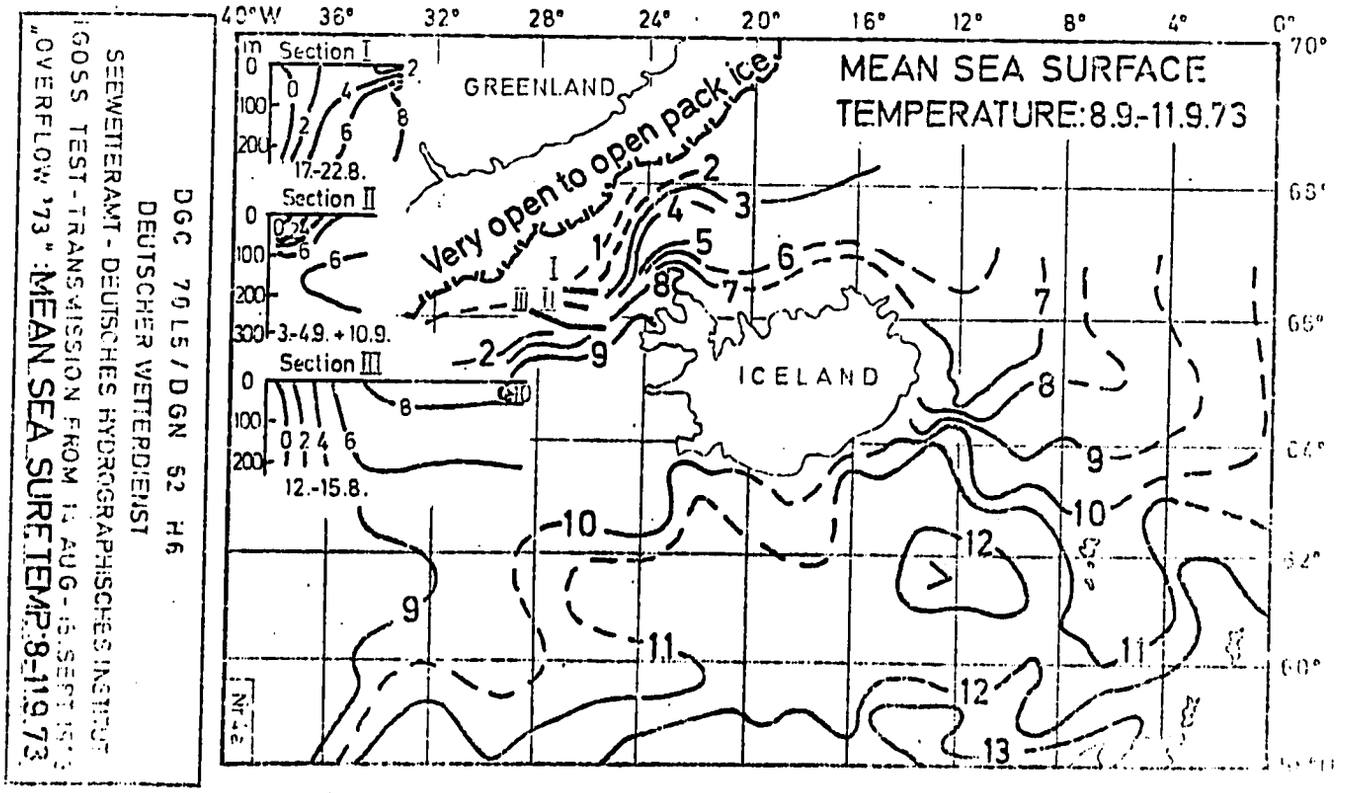
MEAN SEA SURFACE
TEMPERATURE: 8.9.-11.9.73
GREENLAND
ICELAND
Very open to open pack ice
Section I
17.-22.8.
Section II
3.-4.9. + 10.9.
Section III
12.-15.8.
DGC 70 L5 / DGN 62 H6
DEUTSCHER WETTERDIENST
SEEWETTERAMT - DEUTSCHES HYDROGRAPHISCHES INSTITUT
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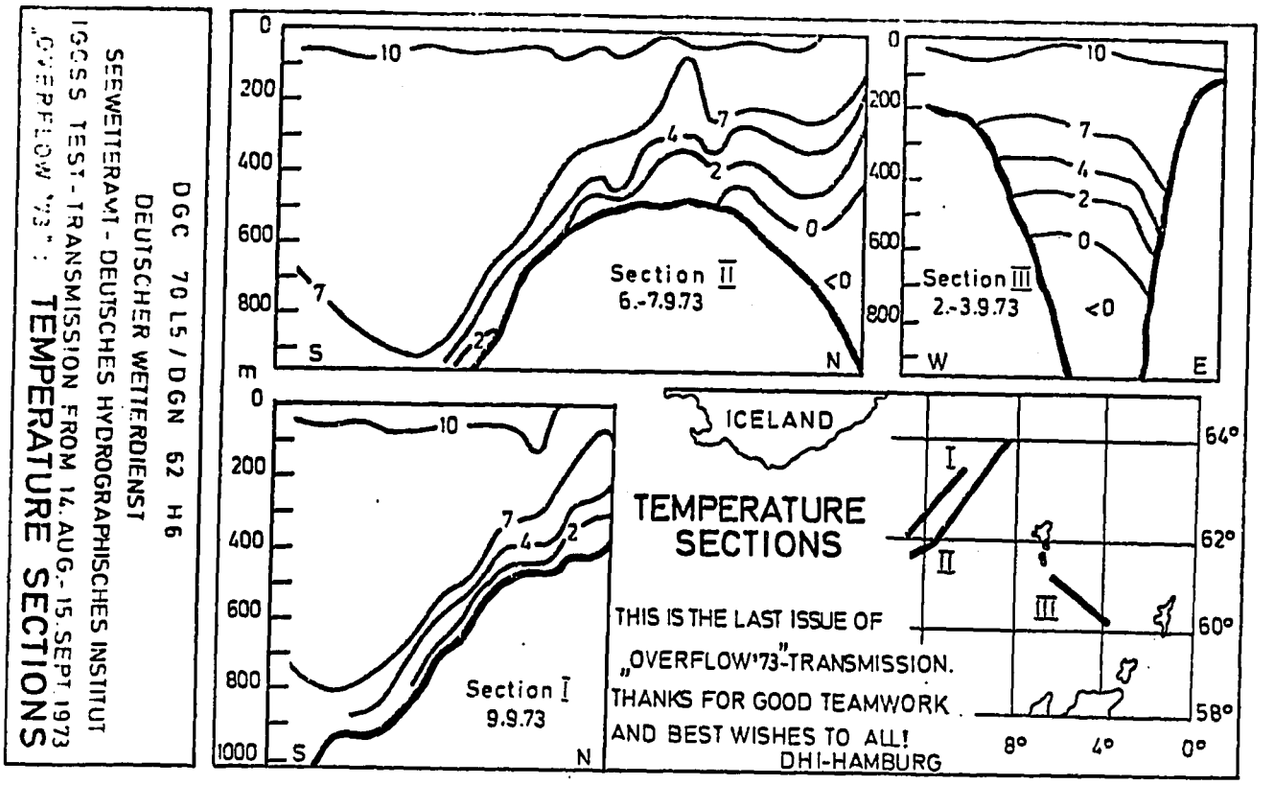
"OVERFLOW '73" MEAN SEA SURF. TEMP: 8.-11.9.73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IGOSS TEST-TRANSMISSION FROM 14.AUG.- 15.SEPT.1973
„OVERFLOW '73"
TEMPERATURE SECTIONS
Section II
6.-7.9.73
Section III
2.-3.9.73
Section I
9.9.73
ICELAND
TEMPERATURE SECTIONS
THIS IS THE LAST ISSUE OF
„OVERFLOW'73"-TRANSMISSION.
THANKS FOR GOOD TEAMWORK
AND BEST WISHES TO ALL!
DHI-HAMBURG