Product Information Document (PIDoc)

SeaDataCloud Temperature and Salinity Climatology for the Arctic Ocean (Version 2)

SDC_ARC_CLIM_TS_V2

HORIZON *2020*

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SeaDataCloud - Further developing the pan-European infrastructure for marine and ocean data management

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Product Name

SDC_ARC_CLIM_TS_V2

Extended name

SeaDataCloud Temperature and Salinity Climatologies for the Arctic Ocean (Version 2)

Product DOI

Short description

The SeaDataCloud Temperature and Salinity climatologies for the period 1955-2019 have been processed using an integrated dataset obtained from SeaDataCloud historical Data Collection of the Arctic Ocean https://doi.org/10.12770/a8c98400-a647-4fee-bf65-ac2dad9d1122) and the World Ocean Database 2018. Seasonal climatological fields are provided for the whole time period 1955-2019, six decades (1955-1964/1965-1974/1975-1984/1985-1994/1995-2004/2005-2014) and a pentad 2015-2019. The climatology has been computed with DIVAnd software, version 2.6.6.

Authors

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Dissemination

Public

Copyright terms

How to Cite

History

Version	Authors	Date	Comments
1	Helge Sagen	15.10.2020	Draft
1.1	Helge Sagen	04.12.2020	Draft update
1.2	Helge Sagen	26.04.2021	Draft update
	Volodymyr Myroshnychenko	27.04.2021	review
1.3	Helge Sagen	27.04.2021	Reviewed version
	Simona Simoncelli	29.04.2021	final check

1.4	Helge Sagen	03.05.2021	Revised final version
1.5	Helge Sagen	06.05.21	Minor corrections

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Abstract

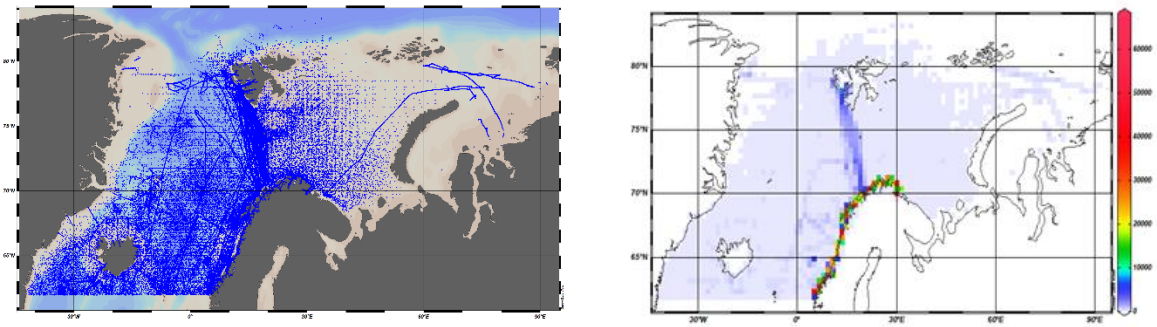
The SeaDataCloud Temperature and Salinity seasonal climatologies have been processed from the historical Data Collection of the Arctic Ocean (from 56°N to 83°N and from 45°W to 70°E) including temperature and salinity in situ data of the water column for the period 1955 -2019. Seasonal climatological fields are provided for the whole time period 1955-2019, six decades (1955-1964/1965-1974/1975-1984/1985-1994/1995-2004/2005-2014) and a pentad 2015-2019. A subset of the World Ocean Database 2018 (WOD18, https://www.nodc.noaa.gov/OC5/WOD/pr_wod.html) dataset has been integrated as external data-source to improve data availability for analysis. The climatology has been computed with DIVAnd software, version 2.6.6.

1. Data

1.1. General description of the input data set

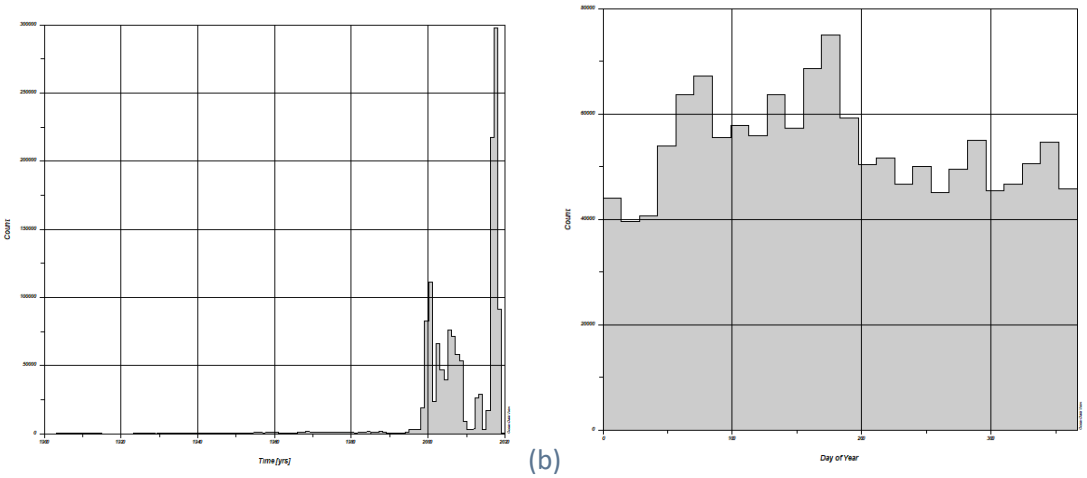
The main component of the input data set is the SDC_ARC_DATA_TS_V2 product containing the Arctic Ocean - Temperature and salinity Historical Data Collection SeaDataCloud V2 and released in April 2020 (https://doi.org/10.12770/a8c98400-a647-4fee-bf65-ac2dad9d1122). The Product Information Document (PIDoc) (11) describes in detail the Temperature and Salinity Historical data collection and the quality control performed on the dataset.

The non-restricted dataset consists of 1392366 stations including ferry box data that is registered as one station per observation in the trajectory.



(a) (b)

Figure 1: All 1392366 stations for the Arctic Ocean SDC_ARC_DATA_TS_V2: (a) data distribution map; (b) data density plot showing where the largest number of data have been sampled.

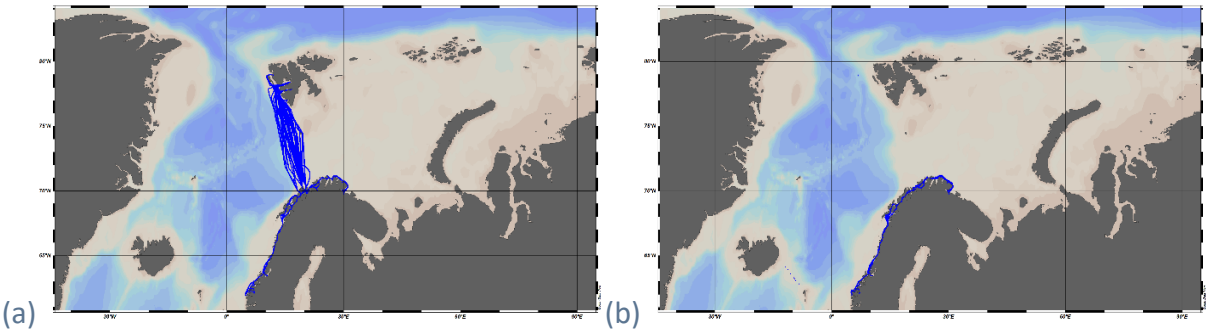


(a) (b)

Figure 2: Time distribution of SDC_ARC_DATA_TS_V2: (a) time distribution; (b) seasonal distribution

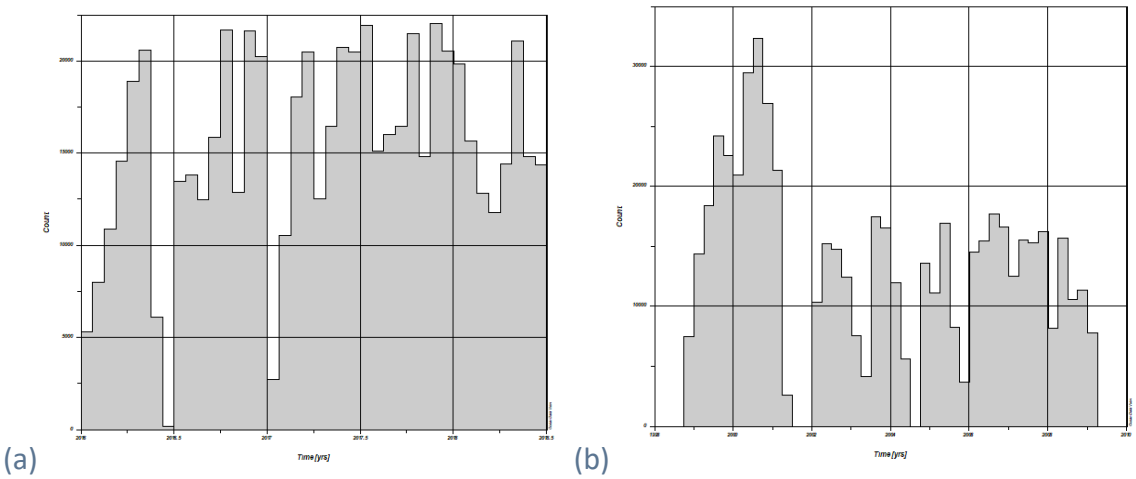
Time distribution of ferry box stations is shown in Figure 3 for NIVA and IMR data, in total 1.179.183 stations out of 1.392.366. The peaks in number of observations is due to ferry box data and glider data with a lot of observations/stations in one depth.

The seasonal distribution of the ferry box data is shown in Figure 5.



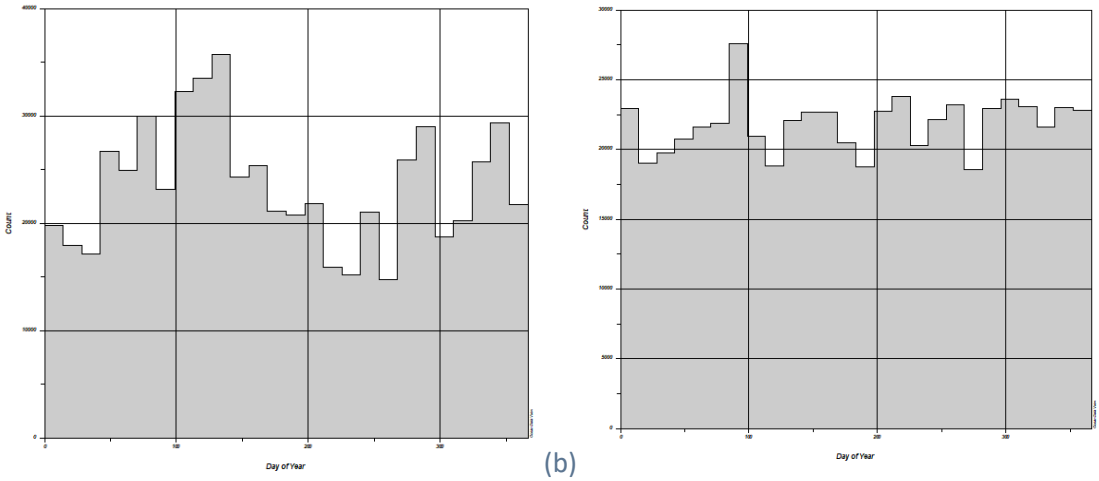
(a) (b)

Figure 3 Ferry box data a) 611624 stations from NIVA; b) 567559 stations from IMR.



(a) (b)

Figure 4: Time distribution a) NIVA ferry box stations, b) IMR ferry box stations in above distribution



(a) (b)

Figure 5: Seasonal distribution for a) NIVA ferry box stations, b) IMR ferry box stations in above distribution

The WOD18 data selected for the analysis time period 1955-2019 are plotted in Figure 6. The data have gone through a duplication check and only the unique data from the WOD18 selection have been merged with the SDC_ARC_DATA_TS_V2 data. The WOD18 selection contained data from the Baltic region and those data have been removed.

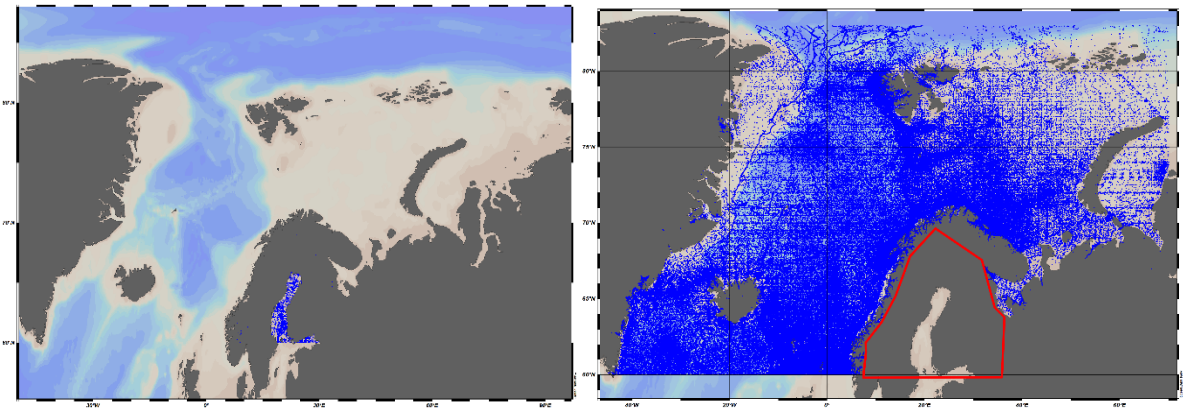


Figure 6 (left panel) WOD18 Baltic stations, 36962 stations; (right panel) WOD18 550916 stations.

A summary of the merged dataset content from SDC_ARC_DATA_TS_V2 and WOD18 is reported in Table 1. There are no restricted datasets in SDC_ARC_DATA_TS_V2, only unrestricted and SeaDataNet license.

Source	Stations	TSG data	Profiles
SDC V2	1.392.366	1.179.183	**213.183**
WOD 18	550.916	0	**550.916**
Merged	1.943.282	1.179.183	764.099

Table 1: Number of stations, profiles and TSG data contained in the merged data collection used for the analysis.

The spatial distribution of the SDC_ARC_DATA_TS_V2 dataset split into 6 decades: 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, 2005-2014, and the pentad 2015-2019, is shown in Figure 7. The dataset presents a great number of observations of only one depth measurement per location.

The analysis of monthly (Figure 8) and seasonal (Figure 10) temperature distribution for SDC_ARC_DATA_TS_V2 dataset in the time period 1955-2019 shows a significant increase in data availability through the decades. The monthly distribution indicates a denser coverage during the summer months, the winter months having the smallest number of data. The distribution increases significantly after the 90s.

The Figure 9 shows many data points introduced in the three last time periods due to ferry box data that are characterized by one measurement at one depth, listed as one station. The number of stations thereby increases a lot, but the number of measurements does not.

The increase in profile data from SDC_ARC_DATA_TS_V1 to SDC_ARC_DATA_TS_V2 is not significant in the first four decades. Only in the two last decades we see some increase, but less than 100 profiles each month. The decrease of data points is mainly due the categorisation of ferry box data and data with single measurements. The statistics for SDC_ARC_DATA_TS_V2 is more correct regarding profiles and single depth stations, **Erreur ! Source du renvoi introuvable.**.

Figure 11 shows the seasonal data distribution including the single depth measurements and ferry box data, which increase a lot the number of stations in the last three decades.

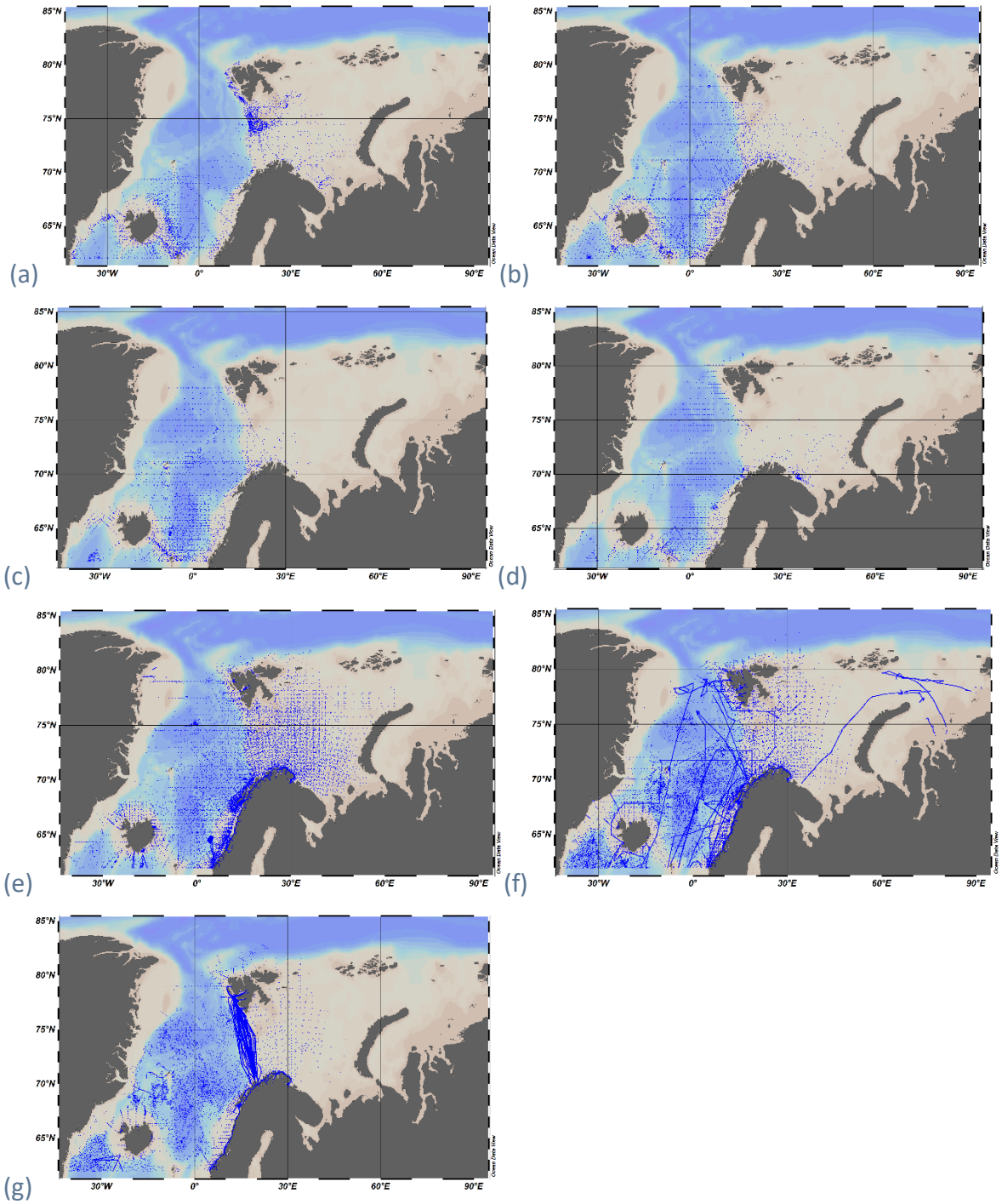


Figure 7: SDC_ARC_DATA_TS_V2 spatial distribution of the 6 decades and one pentad: a) 6640 stations 1955-1964; b) 9722 stations 1965-1974; c) 9433 stations 1975-1984; d) 6939 stations 1985-1994; e) 393465 stations 1995-2004; f) 336962 stations 2005-2014; g) 623712 stations 2015-2019. 5493 stations in the dataset are before 1955 and are not included in the analysis.

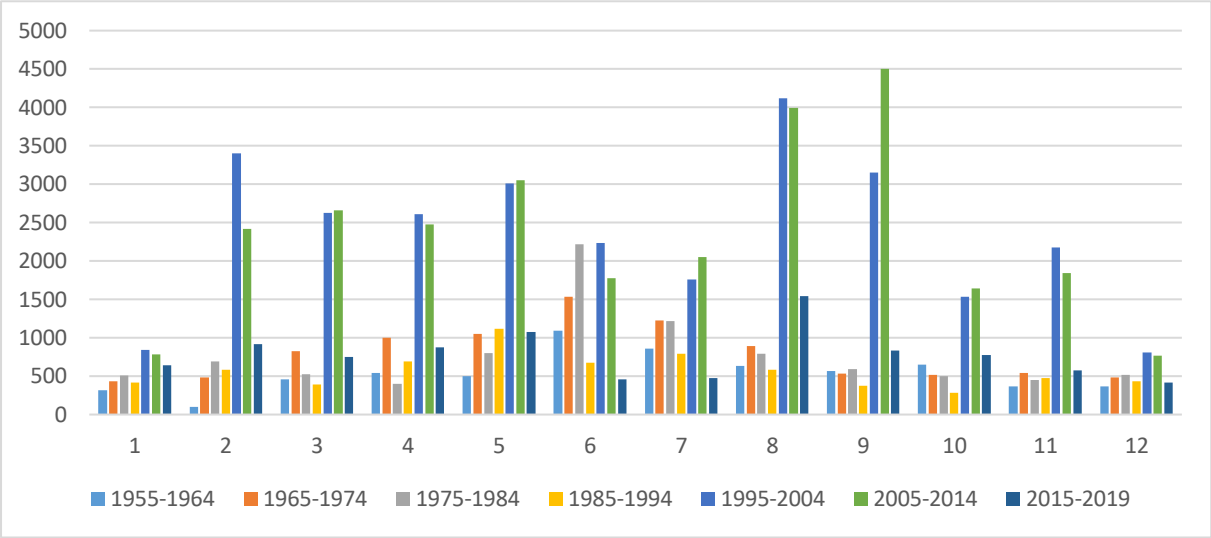


Figure 8: SDC_ARC_DATA_TS_V2 Monthly distribution by decades for profile data

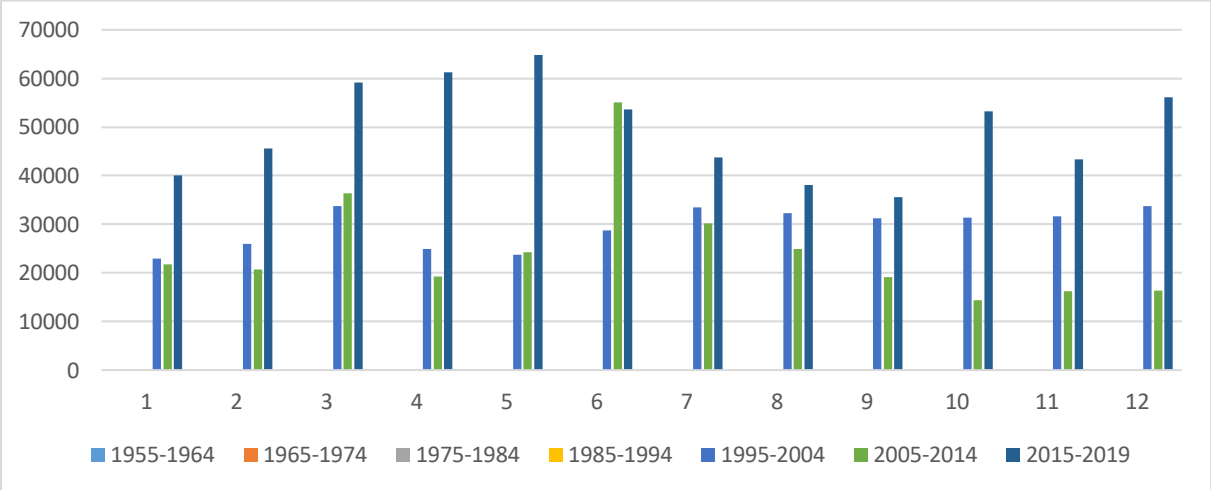


Figure 9: Monthly distribution by decades of ferry box data and data with only one single measured depth.

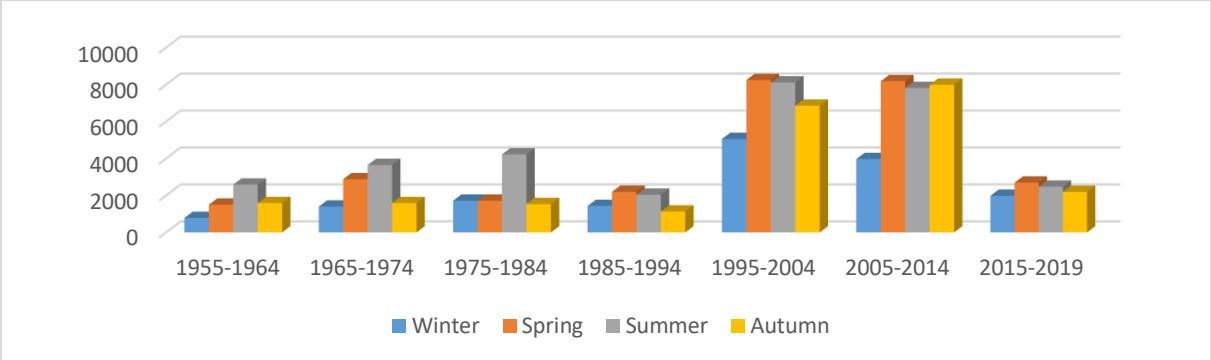


Figure 10: Seasonal distribution by decades for profile data in SDC_ARC_DATA_TS_V2

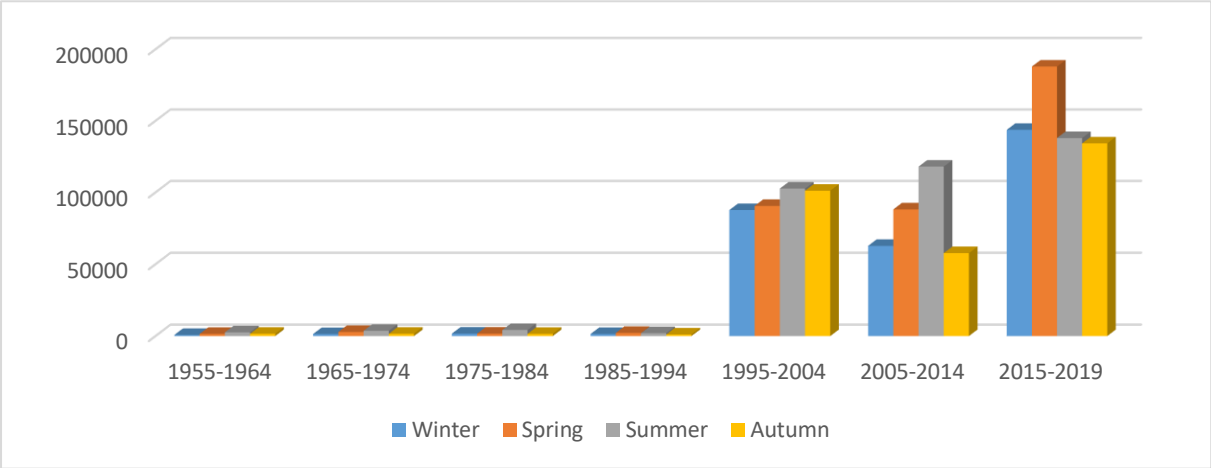
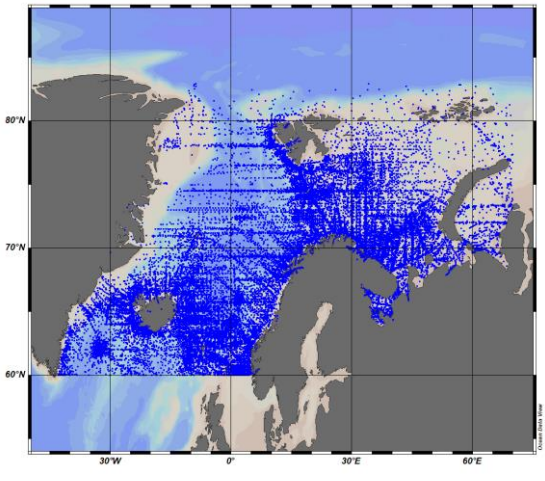


Figure 11: Seasonal distribution by decades of all data in SDC_ARC_DATA_TS_V2.

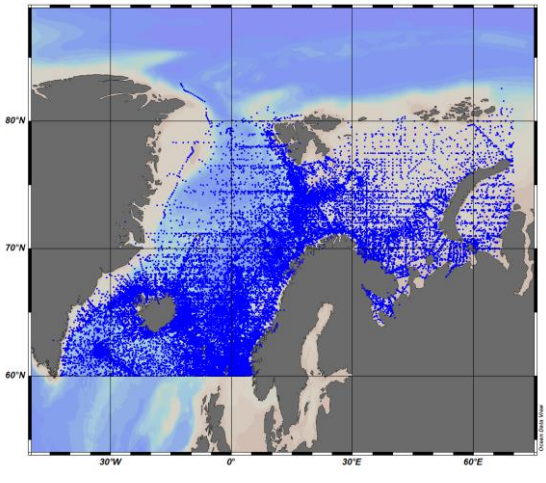
1.2. Integration of external data set

The World Ocean Database 2018, WOD18 OSDS and PFLS datasets were extracted with WODselect and six compressed files were downloaded. The files were imported into ODV software version 5.3.5 [7]. In ODV the WOD18 data were exported to a spreadsheet files divided into decades, 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, 2005-2014 and one pentad 2015-2019. WOD18 data were then checked using the IMR duplicates removal tool, which separates the dataset into three categories: no duplicates, possible duplicates and true duplicates.

(a)



(b)



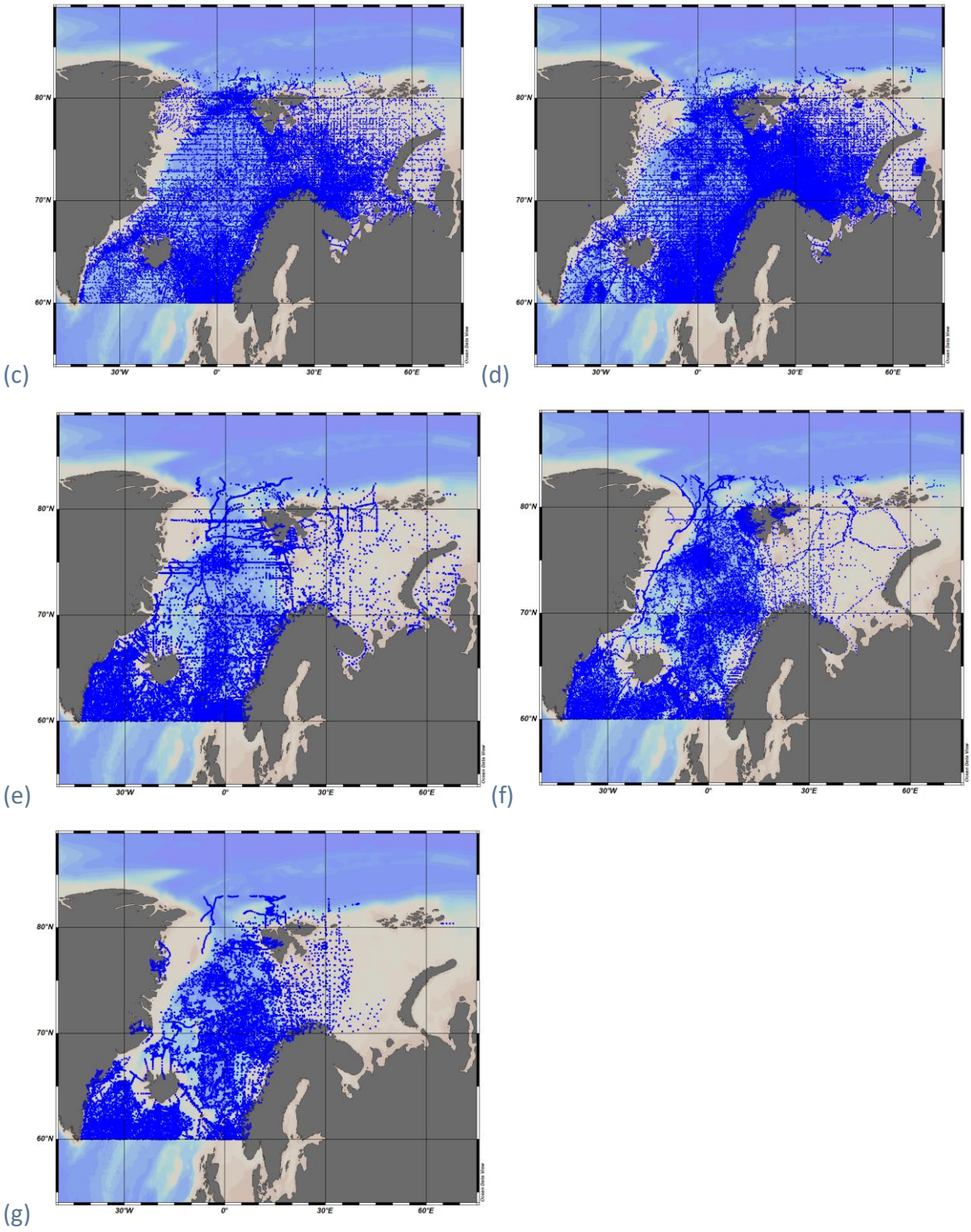


Figure 12: Spatial distribution of WOD18 data (550916 stations) after duplicate removal: a) 78424 stations 1955-1964; b) 75533 stations 1965-1974; c) 100618 stations 1975-1984; d) 151630 stations 1985-1994; e) 36829 stations 1995-2004; f) 76834 stations 2005-2014; g) 31048 stations 2015-2019.

The decadal files were first tested for internal duplicates within SDC dataset and within WOD18 dataset. The SDC dataset has a richer set of metadata in the station headers than the WOD18 dataset. To keep the richest set of metadata the SDN data were used as the starting dataset in which WOD 18 data were imported using ODV as merging software. The WOD 18

metadata were mapped into the SDN metadata as follows (Table 2). Due to the way the DIVAnd 2.6.6 is producing internal files the metadata LOCAL_CDI_ID and EDMO_code needs to be filled with an appropriate data. Since these metadata do not exist in WOD it was chosen to use “WOD Unique cast” as EDMO_code and “WOD Cruise Identifier” as LOCAL_CDI_ID. It is recognized that this is not correct but is a workaround to make DIVAnd to handle the WOD18 data together in one data file.

WOD18 metadata fields	**ODV metadata fields**
WOD Unique Cast	EDMO_code
WOD Cruise Identifier	LOCAL_CDI_ID
Platform	Instrument Info
Project	Project name
Originator’s cruise	Alternative cruise name
Originators’s Station	Alternative station name
Originator’s station Number	Station name
Investigator	Originator
Institution	Data set name
Source	Data distributor
Instruments	Instrument/gear type
Methods	Measuring area type
pH scale	Category
Depth Correction Info	Depth reference
Depth	Depth
Temperature	ITIS 90 water temperature
Salinity	Water body salinity

Table 2: Metadata mapping between WOD18 and SDC_ARC_DATA_TS_V2.

The spatial data distribution of the merged dataset is provided in Figure 13.

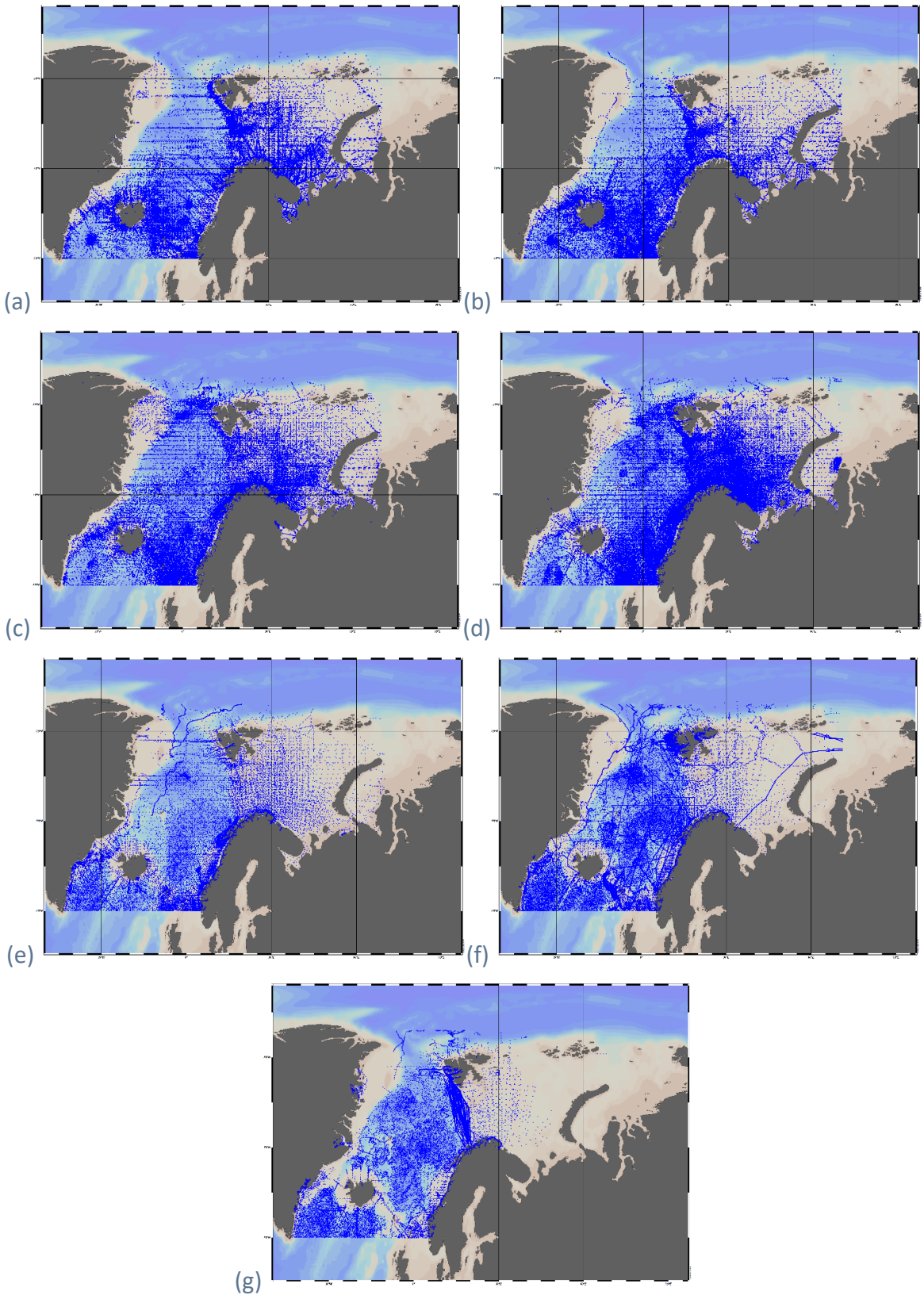


Figure 13: Merged dataset SDC and WOD18 (1943282 stations) after duplicates removal: a) 85064 (6640+78424) stations 1955-1964; b) 85255 (9722+75533) stations 1965-1974; c) 110051 (9433+100618) stations 1975-1984; d) 158569 (6939+151630) stations 1985-1994; e) 430294 (393465+36829) stations 1995-2004; f) 413796 (336962+76834) stations 2005-2014; g) 654760 (623712+31048) stations 2015-2019. 5493 stations in the dataset are before 1955 and are not included in the analysis.

The integration of WOD18 data into the SDN data improved the profile data available for analysis significantly for most decades: approximate 10 times increase in first 4 decades in period 1955-1994. The large number of stations in the last 2 decades and the pentad is due to the large number of single datapoints in one depth reported as one station.

2. Methodology

2.1. Data Quality Control

The input datasets underwent quality control (QC) according to procedures used by the respective producers. The QC procedures applied to SDC dataset is described in detail in (2).

2.2. DIVA implementation and settings

The computation of the Arctic Ocean Temperature and Salinity climatic fields was performed with DIVAnd version 2.6.6 (10).

The studied area is the Arctic Ocean, starting at 62°N of the North Atlantic Ocean and ending at 83°N. On the western part the longitude limit is 45°W and on the eastern part the longitude limit is 70°E.

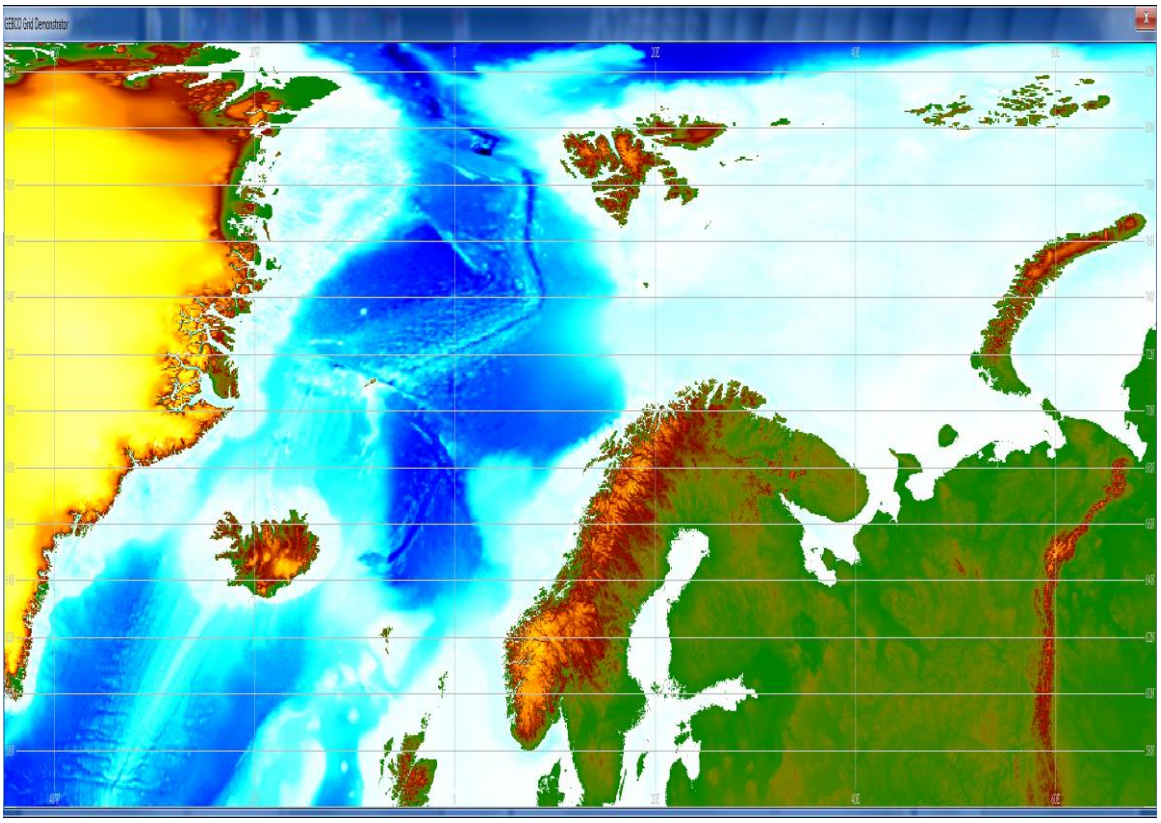


Figure 14: The GEBCO bathymetry for the Arctic Ocean area.

The analysis has been performed for the time period 1955-2019. The seasonal runs are defined as winter for months 12-02, spring: 03-05, summer: 06-08 and autumn: 09-11. The data has been divided into 6 decades; 1955-1964, 1965-1974, 1975-1984, 1995-2004 and 2005-2014 and one pentad 2015-2019.

The analysis has been performed at the horizontal grid resolution of 0.125°.

The vertical levels have been defined equal to the WOA2018 (6) down to 2000 m corresponding to 67 levels at depths; 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1050, 1100, 1150, 1200, 1250, 1300, 1350, 1400, 1450, 1500, 1550, 1600, 1650, 1700, 1750, 1800, 1850, 1900, 1950, 2000 m.

A land-sea mask has been created to exclude the Baltic region from the analysis domain.

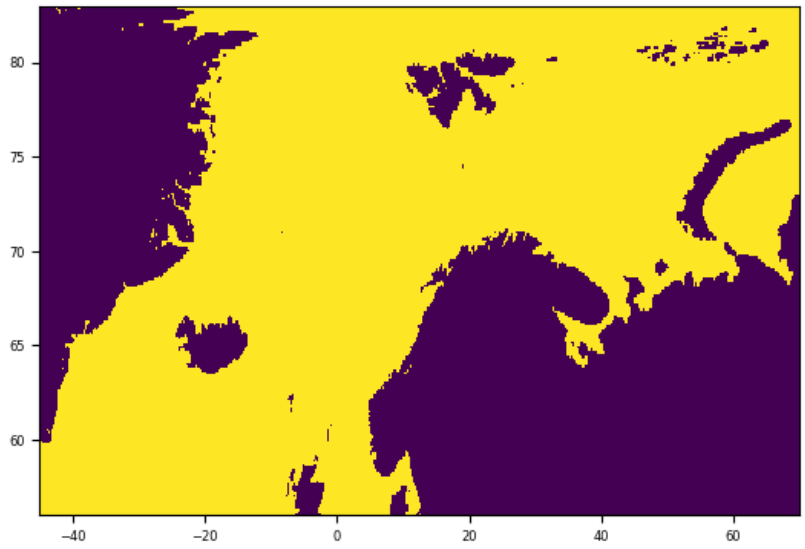


Figure 15 Mask used to remove data from the Baltic region

2.3. Background field

Temperature (Figure 16) and salinity (Figure 17) background field were computed considering all data over the time period 1955-2019, split in the same four seasons used in the analysis, 12-02, 03-05, 06-08, 09-11. DIVAnd was used to create the background field using the settings in Table 3.

Divand settings		
Lenx	200km	
Leny	200km	
Epsilon2	0.5	
Fitcorrlen	false	
Niter_e	2	

MEMTOFIT	250	
Xori	-45	dx 0.125°
Yori	56	dy 0.125°
Vertical levels	67	[2000:50:500][475:25:100][95:5:0]

Table 3: Settings for running DIVAnd software for background field

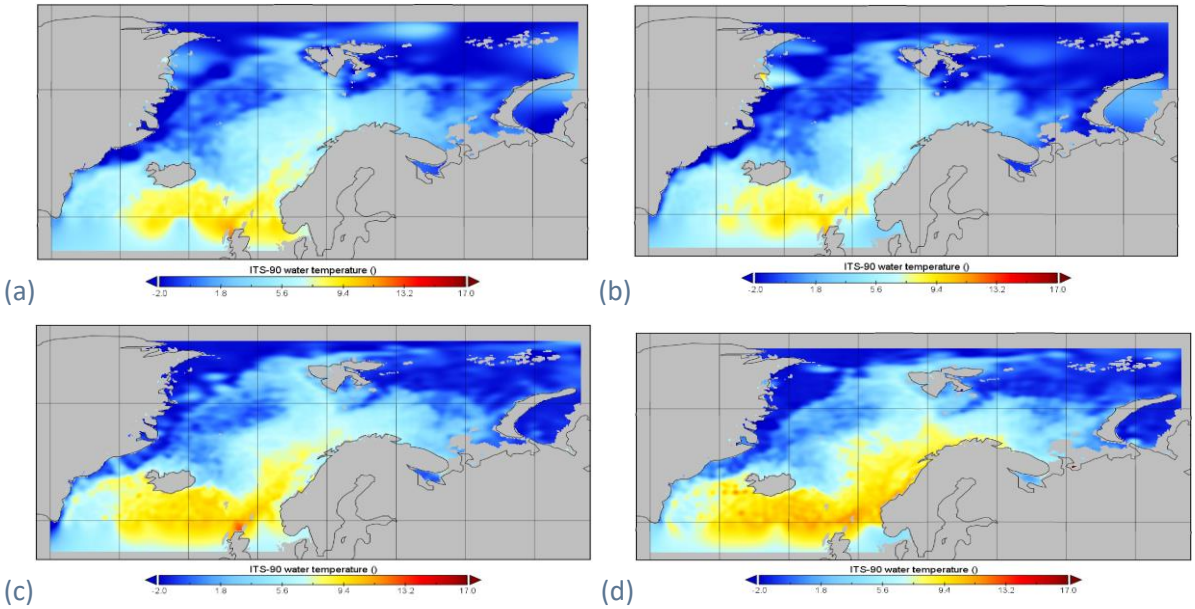


Figure 16: Seasonal temperature background field 1955-2019 at 50m: a) Winter 12-02; b) Spring 03-05; c) Summer 06-08; d) Autumn 09-11

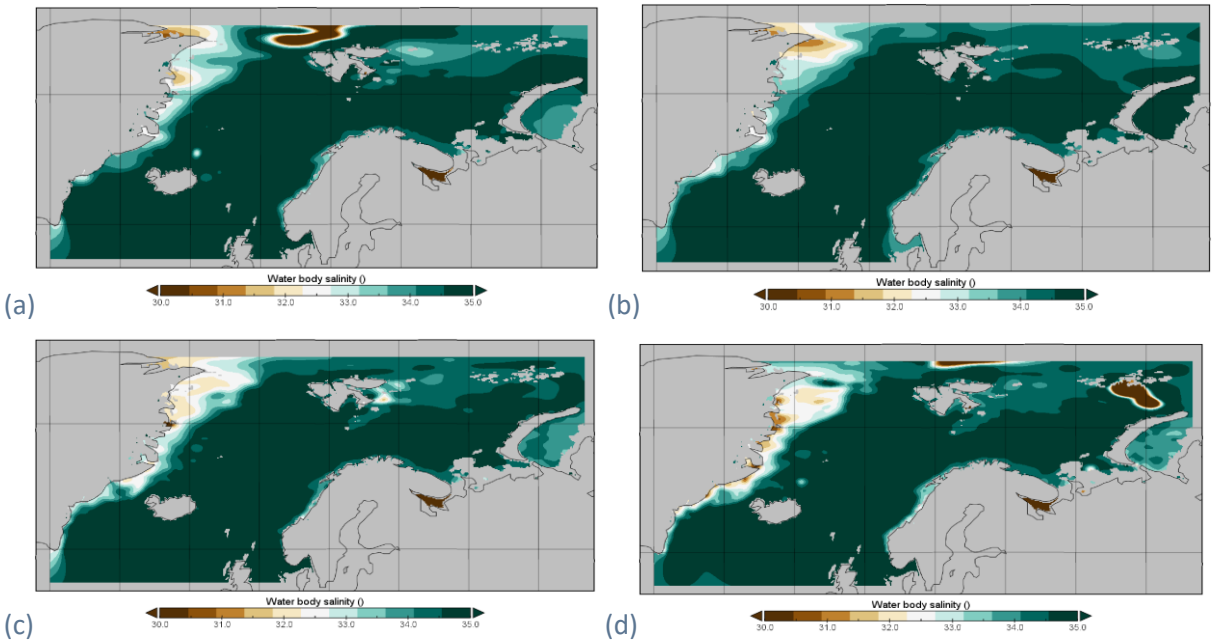


Figure 17: Seasonal salinity background field 1955-2019 at 50m; a) Winter 12-02; b) Spring 03-05; c) Summer 06-08; d) Autumn 09-11

3. Climatology

The seasonal temperature and salinity fields computed over the whole time period 1955-2019, 6 decades and one pentad, are presented. L1 fields, having the 0.3 threshold masking from the error analysis, are displayed.

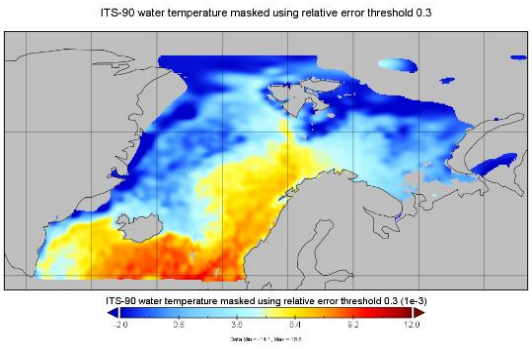
The analysed fields are consistent with the structure of temperature fields in the studied area, known from scientific publications.

All DIVAnd settings are described in the below table.

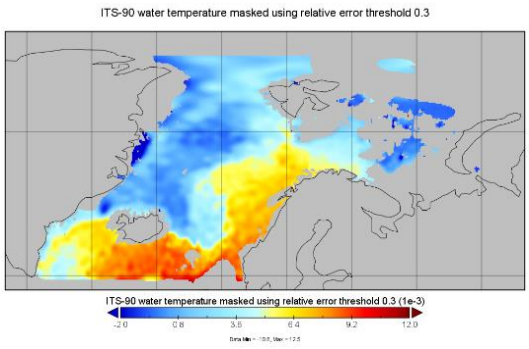
Divand settings		
Lenx	100km	
Leny	100km	
Lenz	25m	
Epsilon2	0.6	
Fitcorrlen	false	
Niter_e	2	
MEMTOFIT	250	
Xori	-45	dx 0.125°
Yori	56	dy 0.125°
Vertical levels	67	[2000:50:500][475:25:100][95:5:0]

Table 4: Settings for running DIVAnd software for analysis fields.

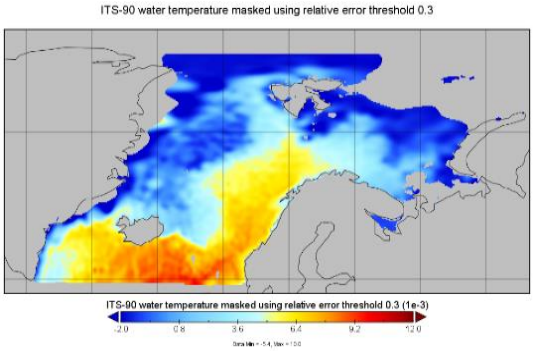
3.1. Temperature



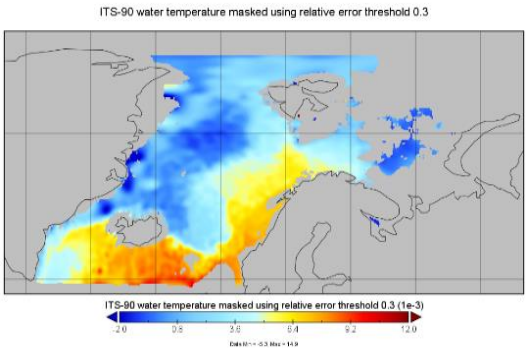
(a) Winter at 50m



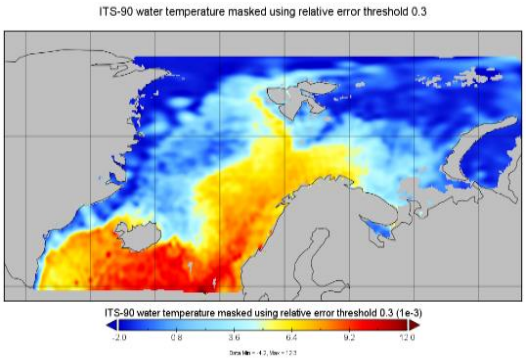
(b) Winter at 200m



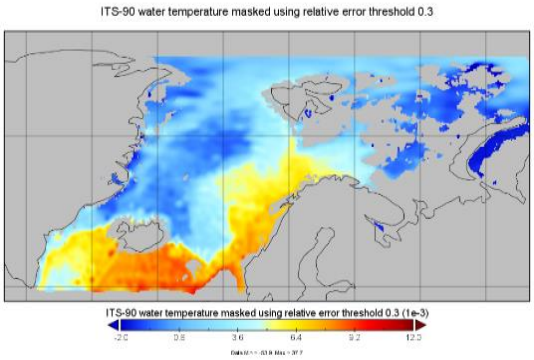
(c) Spring at 50m



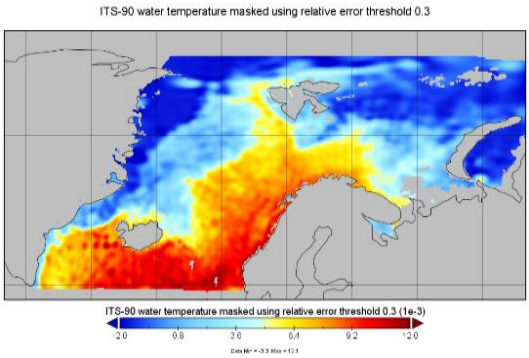
(d) Spring at 200m



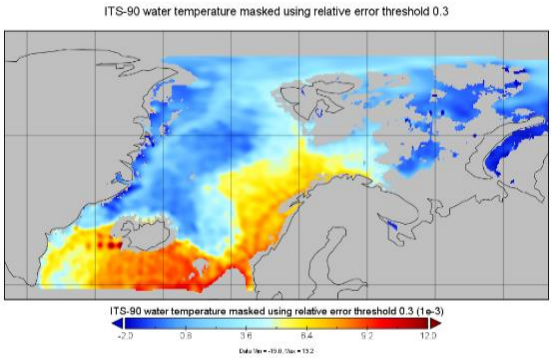
(e) Summer at 50m



(f) Summer at 200m

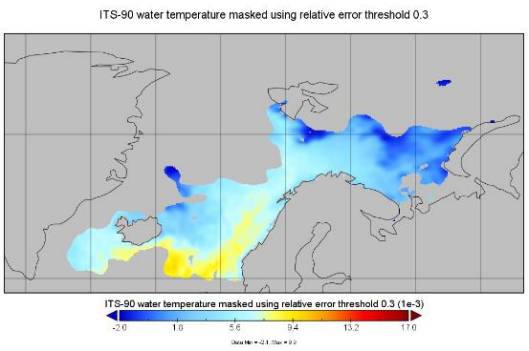


(g) Autumn at 50m

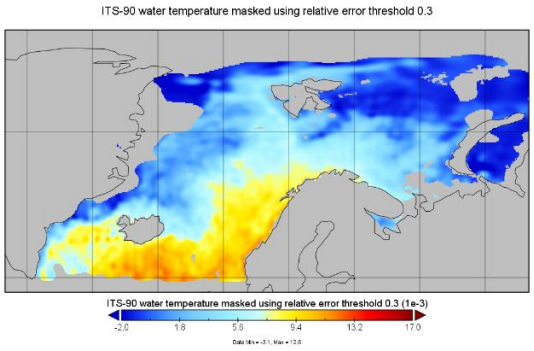


(h) Autumn at 200m

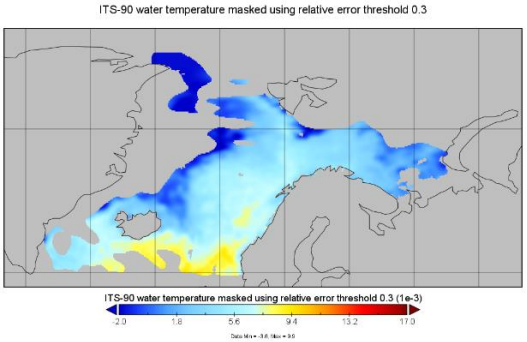
Figure 18: Seasonal temperature fields at 50m and 200m computed over the time period 1955-2019



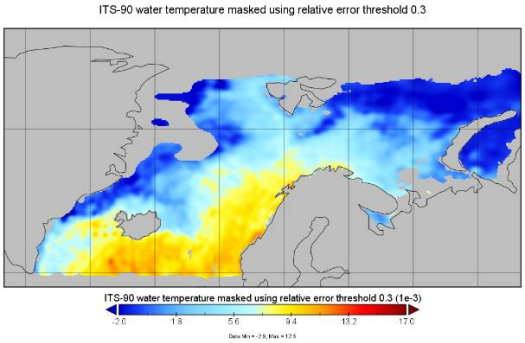
(a) 1955-1964 Winter



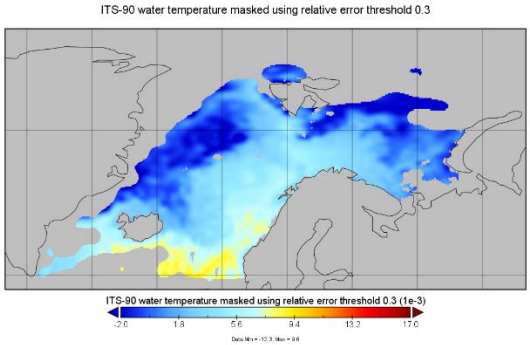
(b) 1955-1964 Autumn



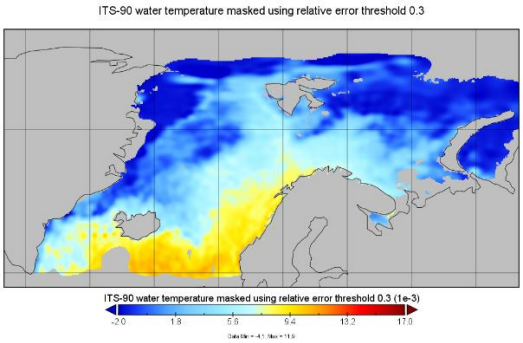
(c) 1965-1974 Winter



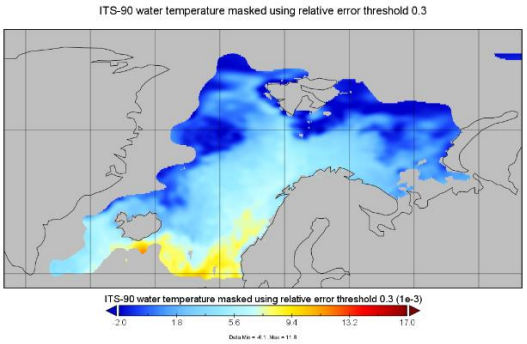
(d) 1965-1974 Autumn



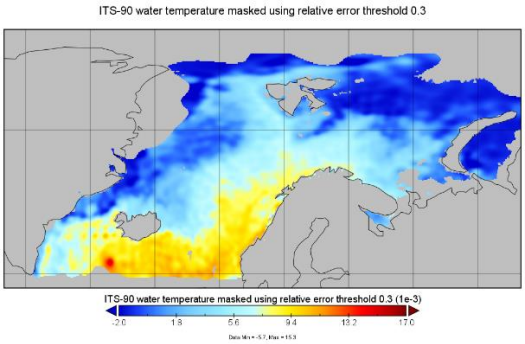
(e) 1975-1984 Winter



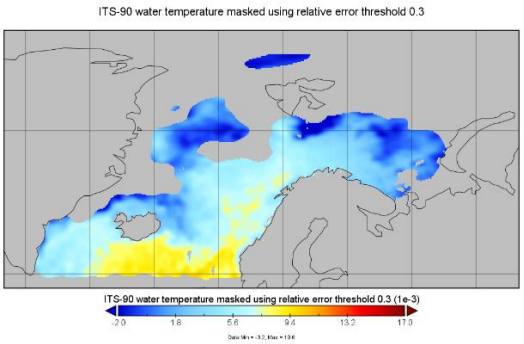
(f) 1975-1984 Autumn



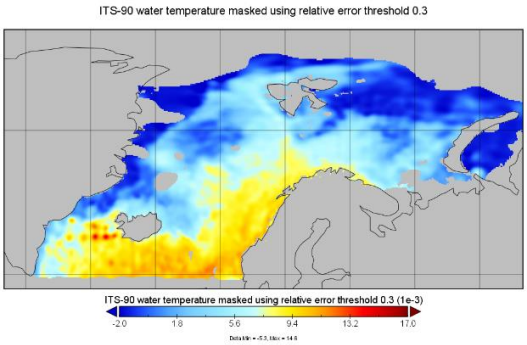
(g) 1985-1994 Winter



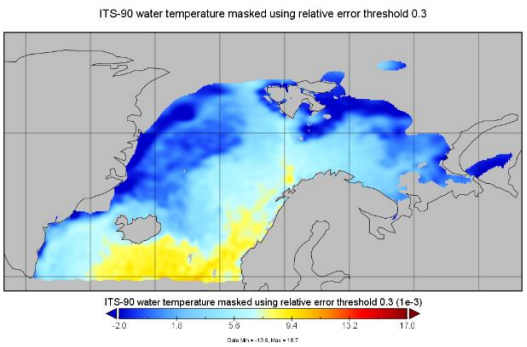
(h) 1985-1994 Winter



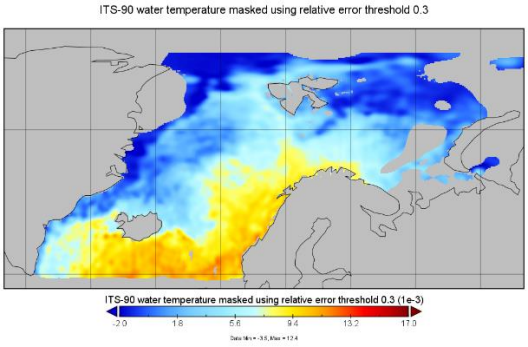
(i) 1995-2004 Winter



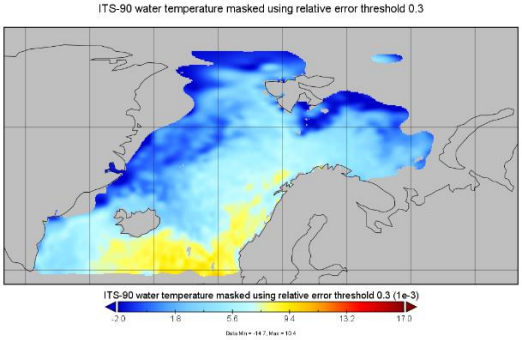
(j) 1995-2004 Autumn



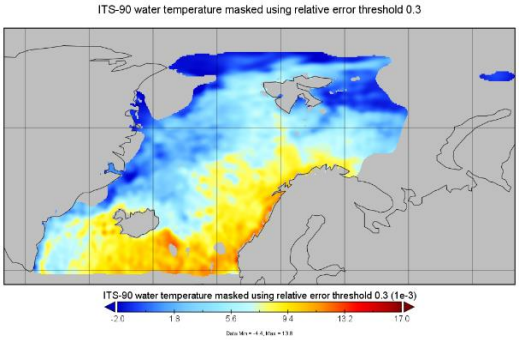
(k) 2005-2014 Winter



(l) 2005-2014 Autumn



(m) 2015-2019 Winter

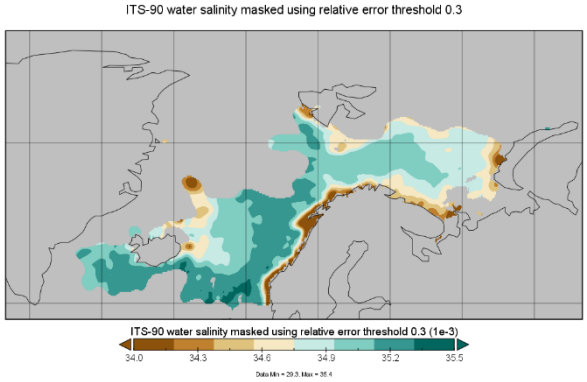


(n) 2015-2019 Autumn

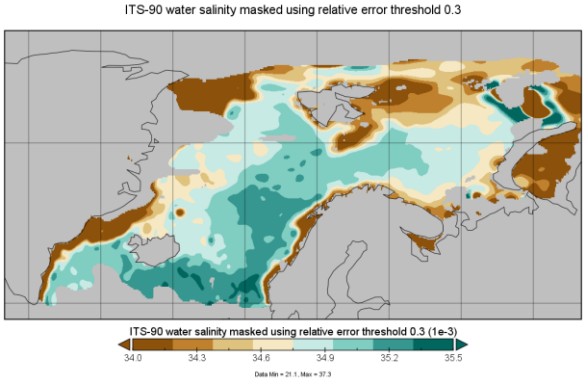
Figure 19: Decadal temperature fields in Winter (left panels) and in Autumn (right panels) at 50m depth.

3.2. Salinity

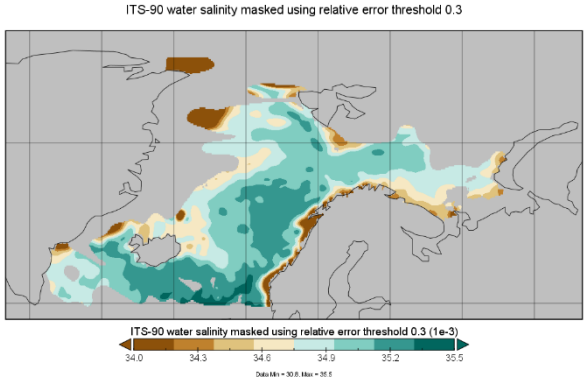
Salinity is scaled from 34.0 to 35.5 in Figure 20, all values below 34.0 are in dark brown.



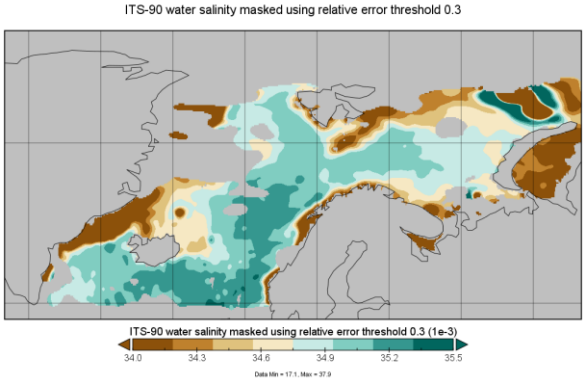
a) 1955-1964 Winter



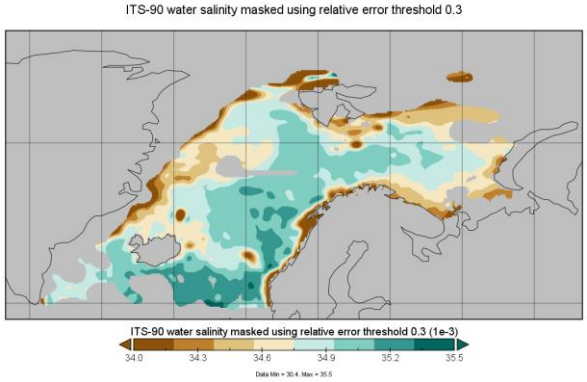
b) 1955-1964 Autumn



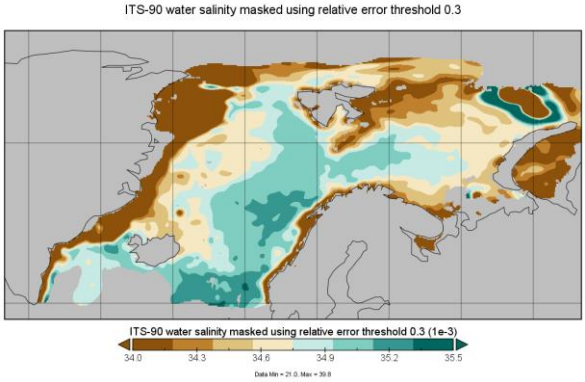
c) 1965-1974 Winter



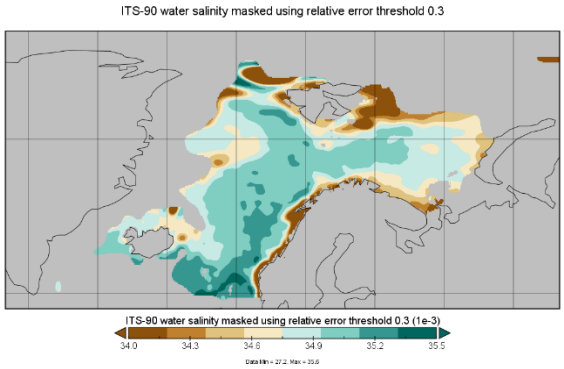
d) 1965-1974 Autumn



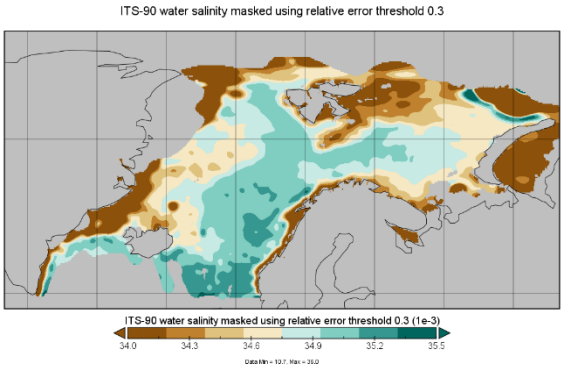
e) 1975-1984 Winter



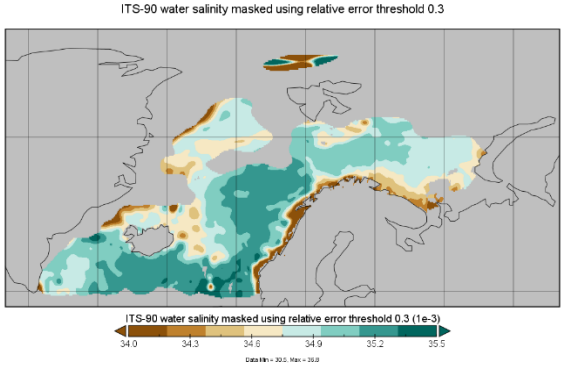
f) 1975-1984 Autumn



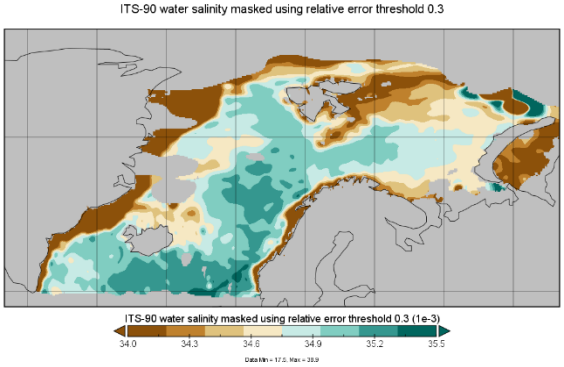
g) 1985-1994 Winter



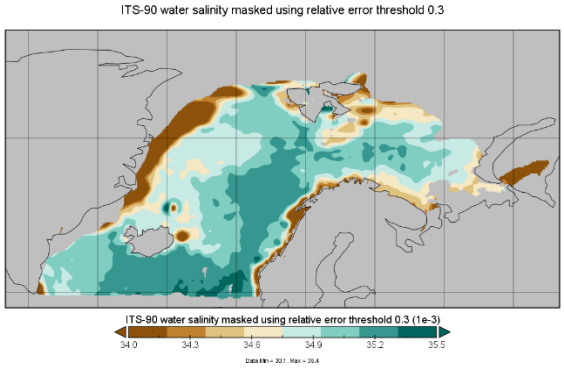
h) 1985-1994 Autumn



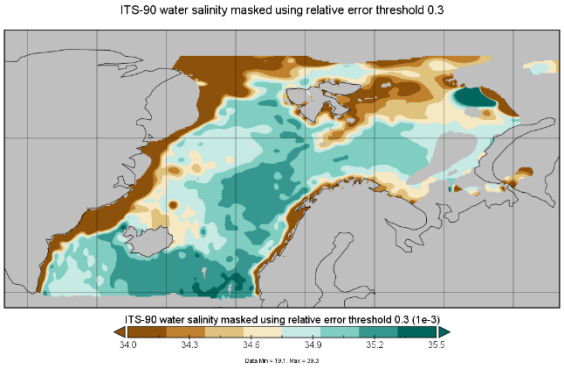
i) 1995-2004 Winter



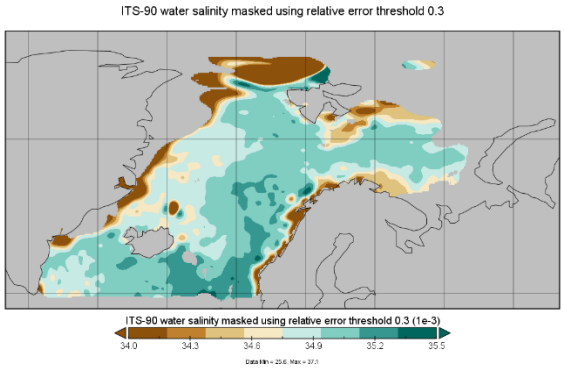
j) 1995-2004 Autumn



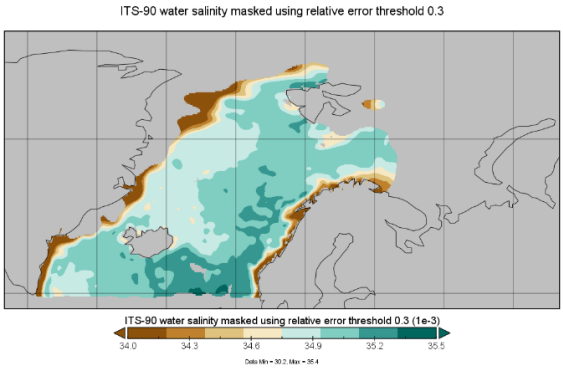
k) 2005-2014 Winter



l) 2005-2014 Autumn



m) 2015-2019 Winter



n) 2015-2019 Autumn

Figure 20: Decadal salinity fields in Winter (left panels) and in Autumn (right panels) at 50m depth

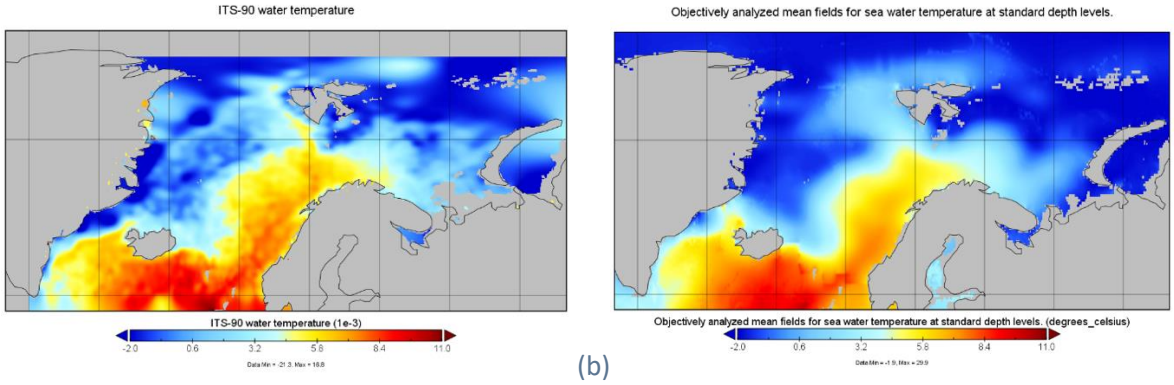
4. Consistency analysis

A consistency analysis was performed against the well-known and widely used product of the NOAA NODC Ocean Climate Laboratory – the World Ocean Atlas (6). The latest version of the World Ocean Atlas was released in September 2018 (WOA18). Seasonal and monthly climatological fields of temperature and salinity (objectively analysed mean) are available at resolution 1/4° for 6 decades: 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, and 2005-2017. The comparison is done between different decades and different seasons. The SDC_ARC_CLIM_TS_V2 and WOA18 has 1-month difference in the definition of seasons, where SDC_ARC_CLIM_TS_V2 is one month ahead of WOA18, Winter: December- February versus January – March. Comparison of SDC_ARC_CLIM_TS_V2 and WOA18 was performed for following field:

- temperature at depth 50 and 200 meters from Winter 1955 to 1964
- temperature at depth 50 and 200 meters from Spring 1965 to 1974
- temperature at depth 50 and 200 meters from Summer 1975 to 1984
- temperature at depth 50 and 200 meters from Autumn 1985 to 1994
- salinity at depth 50 and 200 meters from Winter 1995 to 2004
- salinity at depth 50 and 200 meters from Spring 2005 to 2014/2017

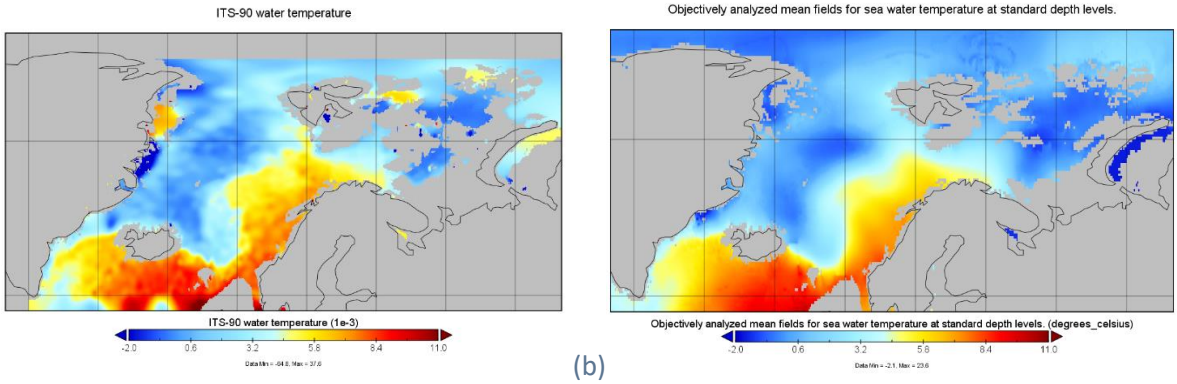
Overall, the resemblance between SDC_ARC_CLIM_TS_V2 and WOA18 fields is quite good. Some differences are visible in the SDC Temperature climatology along the Greenland coast and in the northern part of the Barents Sea that are not present in the WOA18 in the first decade 1955-1964.

The WOA18 fields are smoother due to the lower spatial resolution than SDC fields, which show much more details of the spatial distribution of temperature and salinity fields



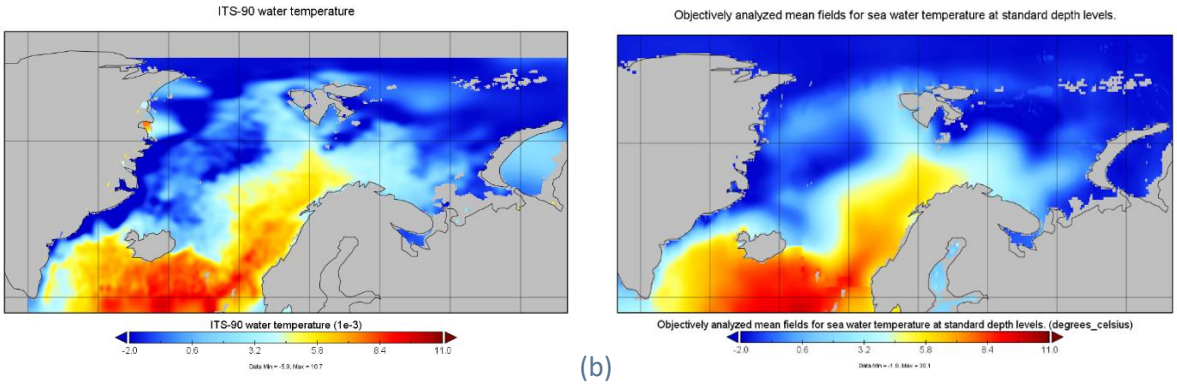
(a) (b)

Figure 21: Winter temperature at depth 50m for the decade 1955-1964: a) SDC_ARC_CLIM_TS_V2; b) WOA18



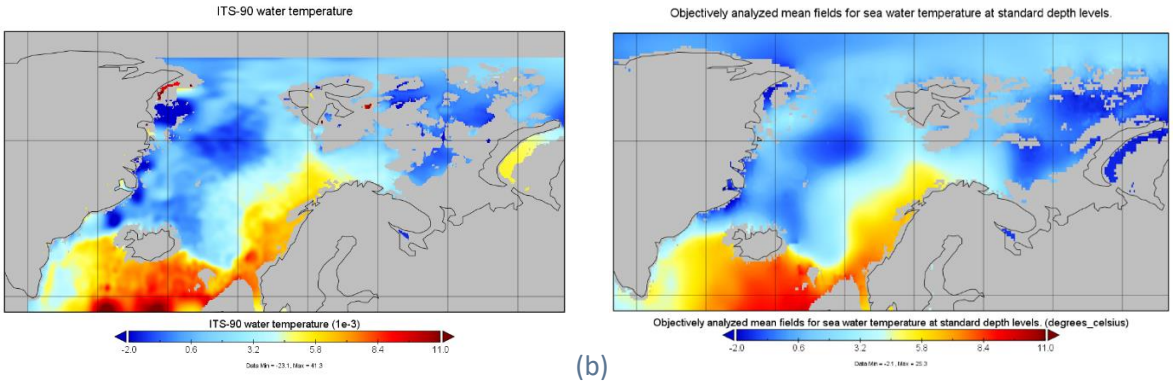
(a) (b)

Figure 22: Winter temperature at depth 200m for the decade 1955-1964: a) SDC_ARC_CLIM_TS_V2; b) WOA18



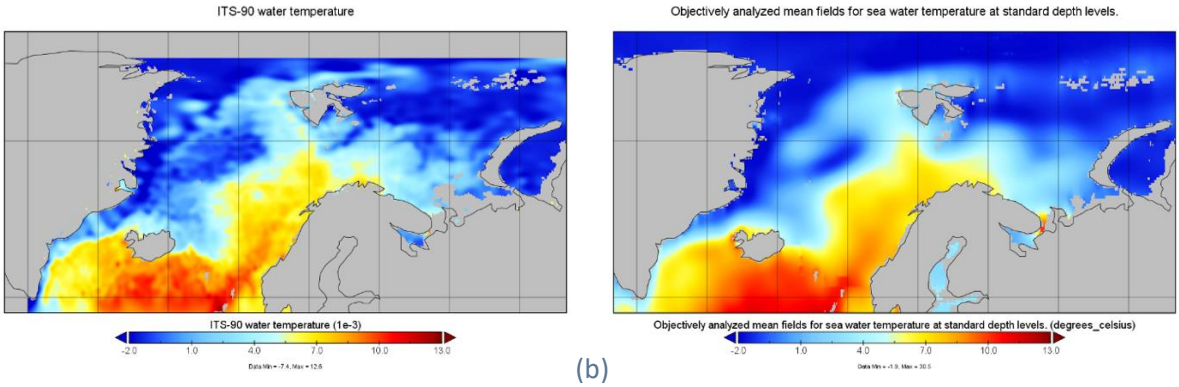
(a) (b)

Figure 23: Spring temperature at depth 50m for the decade 1965-1974: a) SDC_ARC_CLIM_TS_V2; b) WOA18



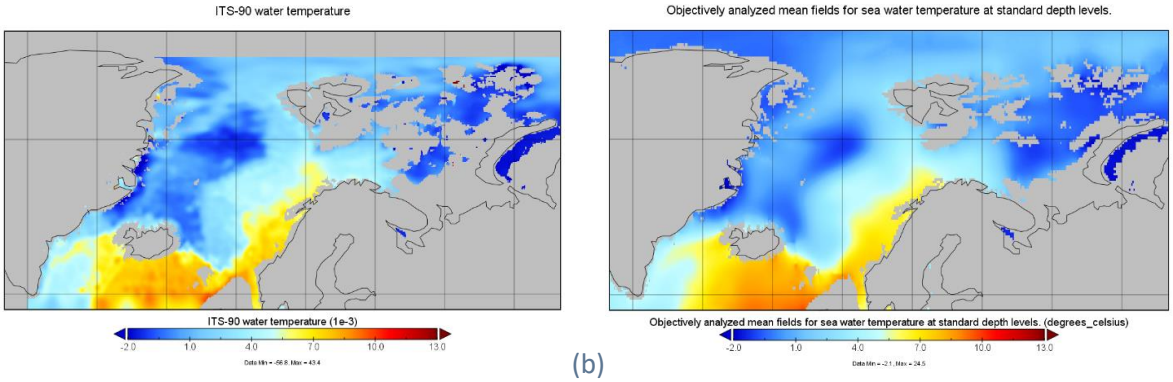
(a) (b)

Figure 24: Spring temperature at depth 200m for the decade 1965-1974: a) SDC_ARC_CLIM_TS_V2; b) WOA18



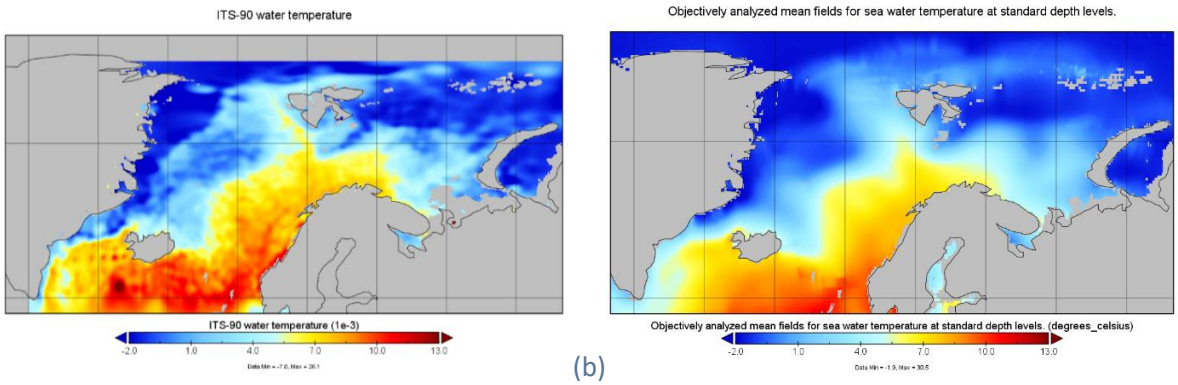
(a) (b)

Figure 25: Summer temperature at depth 50m for the decade 1965-1974: a) SDC_ARC_CLIM_TS_V2; b) WOA18



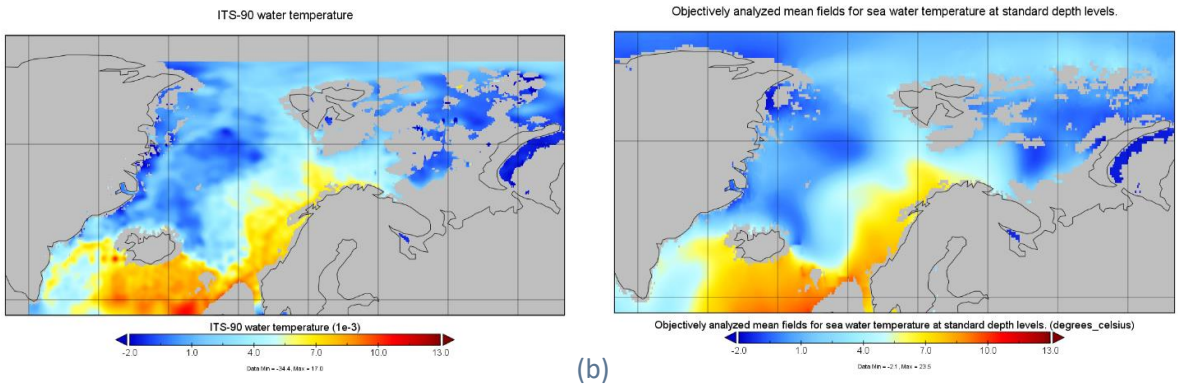
(a) (b)

Figure 26: Summer temperature at 200m for the decade 1975-1984: a) SDC_ARC_CLIM_TS_V2; b) WOA18



(a) (b)

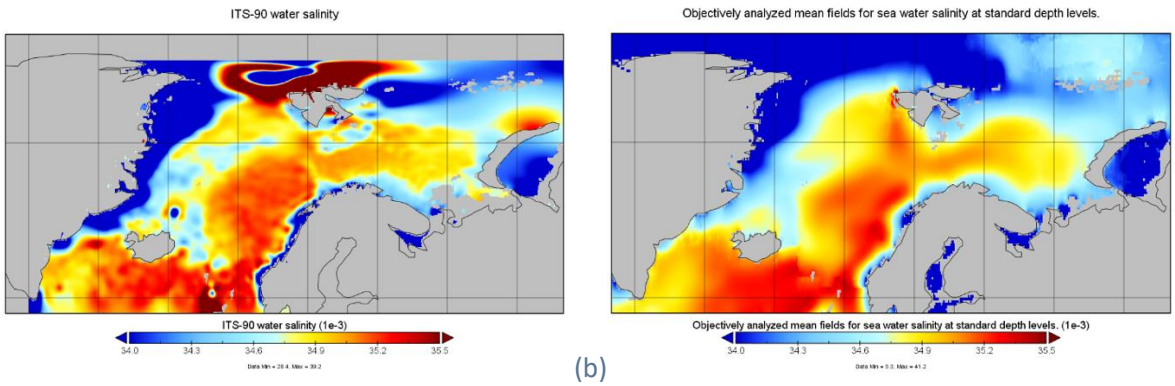
Figure 27: Autumn temperature at depth 50m for the decade 1985-1994: a) SDC_ARC_CLIM_TS_V2; b) WOA18



(a) (b)

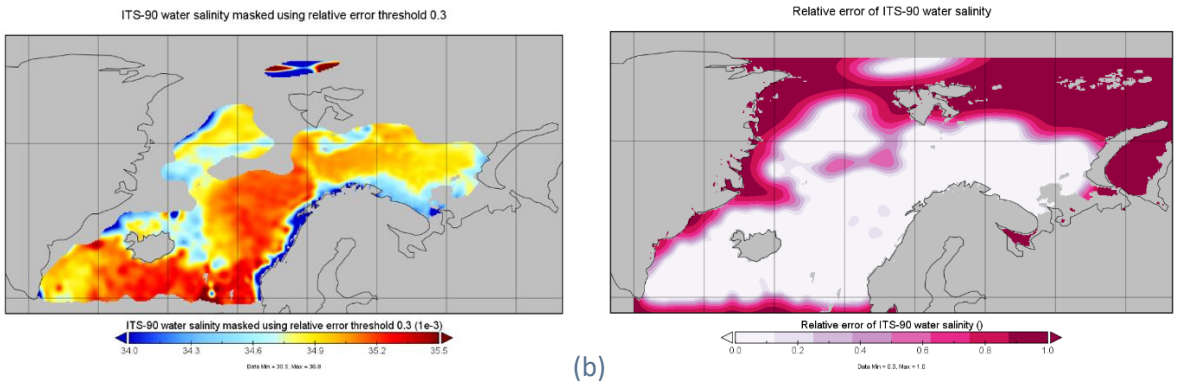
Figure 28: Autumn temperature at 200m for the decade 1985-1994: a) SDC_ARC_CLIM_TS_V2; b) WOA18

The comparison of salinity fields shows differences in the northern part of the domain. This is partly related to the lack of data and a few data flagged as good. Further investigation is needed to verify that.



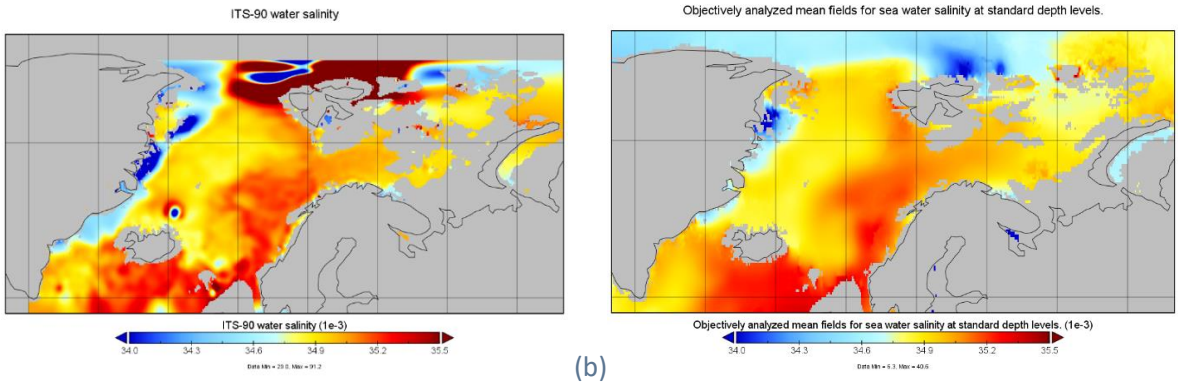
(a) (b)

Figure 29: Winter salinity at 50m for the decade 1995-2004: a) SDC_ARC_CLIM_TS_V2; b) WOA18.



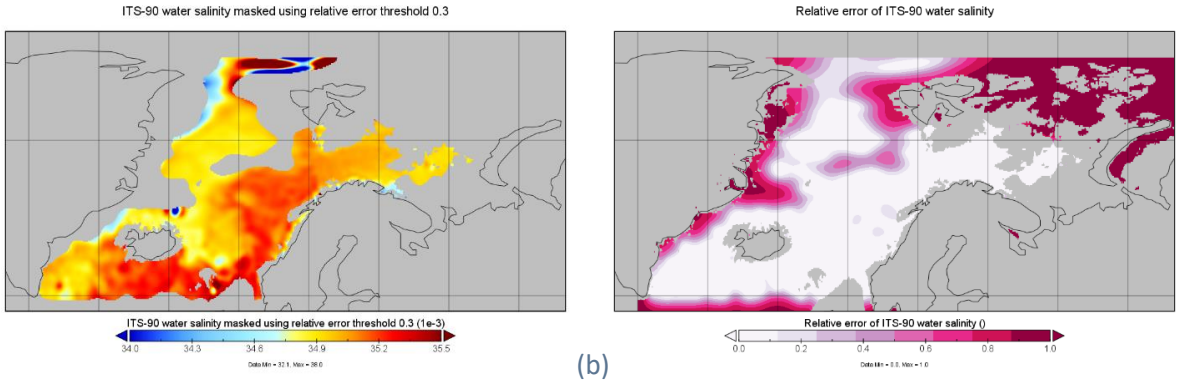
(a) (b)

Figure 30: a) SDC_ARC_CLIM_TS_V2 Winter Salinity for the decade 1995-2004 at depth 50m and, b) the corresponding Error field.



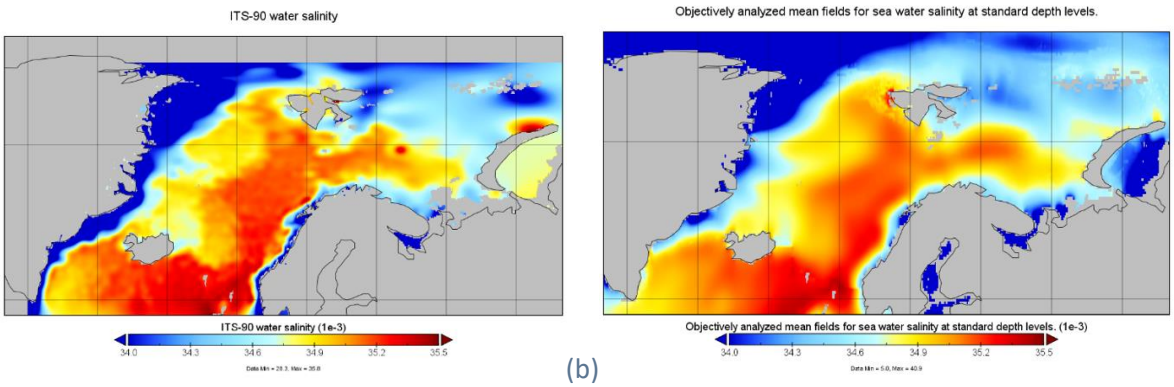
(a) (b)

Figure 31: Winter salinity at depth 200m for the decade 1995-2004: a) SDC_ARC_CLIM_TS_V2, b) WOA18.



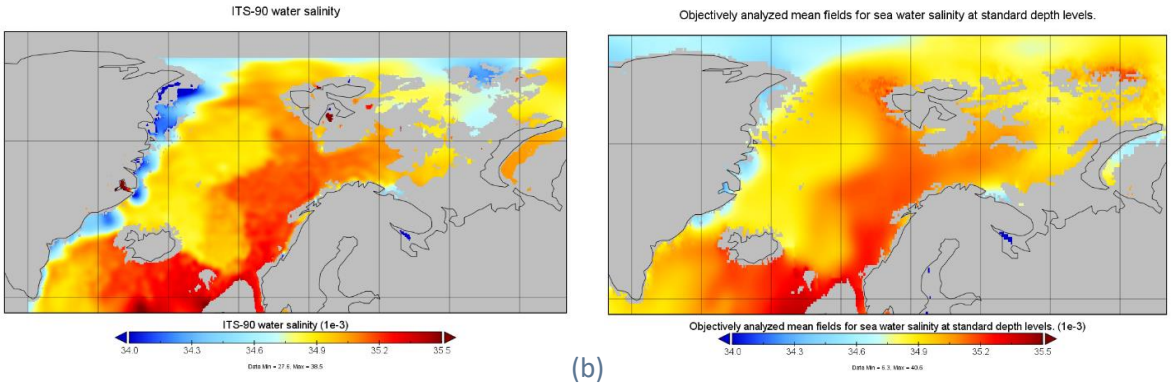
(a) (b)

Figure 32: a) SDC_ARC_CLIM_TS_V2 Winter Salinity for the decade 1995-2004 at depth 200m and, b) the corresponding Error field.



(a) (b)

Figure 33: Spring salinity at depth 50m: a) SDC_ARC_CLIM_TS_V2 covers the time period 2005-2014, b) WOA18 covers the time period 2005-2017



(a) (b)

Figure 34: Spring salinity at depth 200m: a) SDC_ARC_CLIM_TS_V2 covers the time period 2005-2014, b) WOA18 covers the time period 2005-2017

Some anomalies can still be detected at certain levels. A refinement of quality check will be performed for the next release, in order to check WOD18 data as done for SeaDataCloud data collections and assure data quality consistency. A posteriori validation of SDC_ARC_CLIM_TS_V2 using the residuals will also exclude some anomalous data which produce anomalous features as in Figure 29**Erreur ! Source du renvoi introuvable.**a and Figure 31a.

5. Technical Specifications

The product is delivered in 4 files in NetCDF format. Each file contains four 4d arrays (3 space dimensions + 1 time dimension) named according to the following rule:

- *Parameter_Name* – 4d array for a parameter,
- *Parameter_Name_L1* – … parameter masked using relative error threshold 0.3,
- *Parameter_Name_L2* – … parameter masked using relative error threshold 0.5,
- *Parameter_Name_relerr* – relative error of parameter.

Content of NetCDF files:

1. **SDC_ARC_CLIM_T_1955_2019_2_0125_s.nc** Temperature seasonal climatological fields covering the time period 1955-2019 at 0.125x0.125 degrees of resolution
2. **SDC_ARC_CLIM_S_1955_2019_2_0125_s.s.nc** Salinity seasonal climatological fields covering the time period 1955-2019 at 0.125x0.125 degrees of resolution
3. **SDC_ARC_CLIM_T_1955_2019_2_decades_0125_s.nc** Temperature seasonal climatological fields for time periods: 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, 2005-2014, 1955-2014, 2015-2019.
4. **SDC_ARC_CLIM_S_1955_2019_2_decades_0125_s.nc** Salinity seasonal climatological fields for time periods: 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, 2005-2014, 1955-2014, 2015-2019.
5. **SDC_ARC_CLIM_T_1955_2019_2_background_0125_s.nc** Temperature seasonal climatological background fields covering the time period 1955-2019 at 0.125x0.125 degrees of resolution
6. **SDC_ARC_CLIM_S_1955_2019_2_background_0125_s.nc** Salinity seasonal climatological background fields covering the time period 1955-2019 at 0.125x0.125 degrees of resolution

Every NetCDF file written by DIVAnd 2.6.6, along with the field's attributes, contains a set of attributes describing the product:

- Convention used in the file
- Name of the project
- Name of institution responsible for the product
- Contact email of the group that has produced the product
- Data access and Web visualisation
- Product id
- Author of the product
- Acknowledgement
- Date of the product
- Title of the product
- File name of the product
- Source of observations
- Comments

.

6. Annex 1 - Naming convention for SeaDataCloud climatologies

File naming conventions: [PRO]_[REG]_[PROD]_[V]_[YYYY1]_[YYYY2]_[T], where:

1. [PRO] - project
2. [REG] - region
3. [PROD] - product
4. [V] - variable
5. [YYYY1]_[YYYY2] - time coverage
6. [S] - spatial resolution
7. [T] - temporal resolution (m=monthly, s=seasonal, a=annual)

Project	Region	Product	Var	Time Coverage	Hor-Res	Time Res	Full Name
SDC	ARC	CLIM	T	1955-2019	0.125	s	SDC_ARC_CLIM_T_1955_2019_0125_s
SDC	ARC	CLIM	S	1955-2019	0.125	s	SDC_ARC_CLIM_S_1955_2019_0125_s
SDC	ARC	CLIM	T	1955-2019	0.125	s	SDC_ARC_CLIM_T_1955_2019_0125_s_background
SDC	ARC	CLIM	S	1955-2019	0.125	s	SDC_ARC_CLIM_S_1955_2019_0125_s_background
SDC	ARC	CLIM	T	1955-1964 1965-1974 1975-1984 1985-1994 1995-2004 2005-2014 2015-2019	0.125	s	SDC_ARC_CLIM_T_1955_2019_decades_0125_s
SDC	ARC	CLIM	S	1955-1964 1965-1974 1975-1984 1985-1994 1995-2004 2005-2014 2015-2019	0.125	s	SDC_ARC_CLIM_S_1955_2019_decades_0125_s

7. References

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2. Sagen Helge, Østensen Øivind, Simoncelli Simona (2018). SeaDataCloud Temperature and Salinity Historical Data Collection for the Arctic V1 (Version 1). Product Information Document (PIDoc). https://doi.org/10.13155/57183
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8. List of acronyms

Acronym	Definition
ARC	Arctic Ocean
BAL	Baltic Sea
BLS	Black Sea
CDI	Common Data Index
CLIM	Climatology
CMEMS	Copernicus Marine Environment Monitoring Service
DATA	Aggregated Dataset
DIVA	Data-Interpolating Variational Analysis (software)
DOI	Digital Object Identifier
EC	European Commission
EDMO	European Directory of Marine Organisations (SeaDataNet catalogue)
GLO	GLobal Ocean
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange (IOC)
MED	Mediterranean Sea
NAT	North Atlantic Ocean
NWS	North West Shelf
ODV	Ocean Data View Software
QC	Quality Checks
QF	Quality Flags
SDC	SeaDataCloud
SDN	SeaDataNet
TS	Temperature and Salinity
WOA	World Ocean Atlas
WP	Work Package