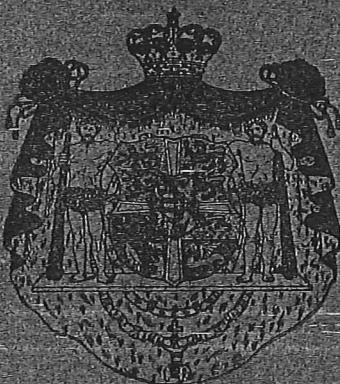


PUBLIKATIONER
FRA
DET DANSKE METEOROLOGISKE INSTITUT
VED C. RYDER, DIREKTØR
AARBØGER

NAUTISK METEOROLOGISK AARBOG

NAUTICAL METEOROLOGICAL ANNUAL

1915



KJØBENHAVN
I KOMMISSION HOS G. E. C. GAD

DANMARKS TEKNISKE BIBLIOTEK

Pctoloo356

300002093069

Isforholdene i de danske Faryande i Vinteren 1914—1915.

Bearbejdet af Kaptajn C. I. H. Speerschneider.

Oplysningerne om Isforholdene i den forløbne Vinter er indsamlede og bearbejdede paa lignende Maade som tidligere.

Tabel I viser Middeltemperaturen og Afgigelserne fra Normalen paa 7 Steder i Landet. Det fremgaar af Tabellen, at med Undtagelse af Skagen og Kjøbenhavn i Januar var Afgigelserne fra Normalen positive i December, Januar og Februar. I Marts var Afgigelserne overalt negative.

December 1914. Middellufttrykket*) var ved Skagen 752,8 mm, i Kjøbenhavn 755,1 mm, eller henholdsvis 5,6 og 4,7 mm lavere end normalt. Vindretningen var meget hyppig sydvestlig eller sydlig, medens Vinde fra Vest og Nordvest forekom betydelig sjældnere end normalt. Middeltemperaturen var de fleste Steder i Landet c. $2\frac{1}{2}$ — 3° højere end normalt. Paa Fyrskibene, hvor Thermometret aflæses 6 Gange i Døgnet, var den laveste aflæste Temperatur $\div 1,1^{\circ}$ (Skagens Rev og Lappegrund).

Januar 1915. Middellufttrykket var saavel ved Skagen som i Kjøbenhavn 751,0 mm, eller henholdsvis 9,6 og 11,1 mm lavere end normalt. Vindretningen var overvejende Øst. Middeltemperaturen var de fleste Steder i Landet omrent $\frac{1}{4}^{\circ}$ højere end normalt. Paa Fyrskibene var den lavest aflæste Temperatur $\div 7,5^{\circ}$ (Lappegrund).

Februar. Middellufttrykket var ved Skagen 756,0 mm, i Kjøbenhavn 757,4 mm, eller henholdsvis 4,1 og 3,7 mm lavere end normalt. Vindretningen var overvejende omkring Syd og Sydost. Middeltemperaturen

*) reduceret til 0° C., Havets Overflade og Tyngden ved 45° Br.

The state of the ice in Danish waters during the winter 1914—1915.

Prepared by Commander C. I. H. Speerschneider.

The information concerning the state of the ice during the past winter has been gathered in a similar manner as formerly.

Table I shows the mean temperature of the air and the variations from the normal state at 7 different stations. It will be seen that the variations were all positive during December, January and February except at the Scaw and Copenhagen in January, whereas in March the variations were all negative.

December 1914. The mean pressure of the air*) at the Scaw was 752,8 mm and in Copenhagen 755,1 mm or respectively 5,6 and 4,7 mm below the normal. The direction of the wind was very often south west or south while winds from the west and north-west occurred considerably less frequent than usual. At most of the stations the mean temperature was about $2\frac{1}{2}$ to 3° above the normal. On the light ships, where the thermometer is read 6 times in the 24 hours, the lowest temperature recorded was $\div 1,1^{\circ}$ (Skagens Rev and Lappegrund).

January 1915. The mean pressure of the air was the same at the Scaw as in Copenhagen that is 751,0 mm or respectively 9,6 and 11,1 mm below the normal. Easterly winds were prevailing. At most of the stations the mean temperature was about $\frac{1}{4}^{\circ}$ above the normal. On the light ships the lowest temperature recorded was $\div 7,5^{\circ}$ (Lappegrund).

February. The mean pressure of the air at the Scaw was 756,0 mm and in Copenhagen 757,4 mm or respectively 4,1 and 3,7 mm below the normal. Winds from the south and south-east were prodomi-

*) reduced to 0° , to the level of the sea and to the gravity at latitude 45° .

var de fleste Steder ca. $\frac{3}{4}$ — $1\frac{1}{2}^{\circ}$ højere end normalt Paa Fyrskibene var den lavest aflæste Temperatur $\div 5,6^{\circ}$ (Gjedser Rev.).

Marts. Middellufttrykket var ved Skagen 757,7 mm, i Kjøbenhavn 758,1 mm, eller henholdsvis 0,5 og 1,0 mm lavere end normalt. Vindretningen var overvejende omkring Vest og Nordvest. Middeltemperaturen blev de fleste Steder ca. $\frac{1}{2}$ — $1\frac{1}{2}^{\circ}$ lavere end normalt. Paa Fyrskibene var den lavest aflæste Temperatur $\div 5,9$ (Lappegrunden).

Tabel II viser Vinterens Frostdage. I November og December var der kun enkelte Frostdage. Efter Nytaar til Slutningen af Marts faldt 7 mindre Frostperioder, heraf de to længste i Slutningen af Januar og i Begyndelsen af Marts.

Af Stationerne havde Randers for hele Vinteren den største Kuldesum (92,1), Samsø den mindste (37,6).

Tabel III viser Vandets Overfladetemperatur og Saltholdighed i Løbet af Vinteren, Middeltal er anført for hvert Tidsdøgn. I Begyndelsen af Februar havde Vandet i Limfjorden og i Læsø Rende sin laveste Temperatur. Midt i Februar var Vandet i Lille Bælt og Syd for Fyn koldest, og i Begyndelsen af Marts, i den anden mere udprægede Frostperiode, var Vandets Temperatur lavest i Kattegat og i Sundet helt ned til Gedser. Omkring Bornholm var Temperaturen, som sædvanlig, først lavest midt i Marts.

Saltholdigheden var gennemgaende lavest i sidste Halvdel af Februar; enkelte Steder ogsaa i Begyndelsen af Marts, men herefter steg Saltholdigheden stærkt. Omkring Bornholm var der, efter Regelen, ikke megen Variation i Saltholdigheden.

I Tabel IV er opført Resultaterne af de rundt om ved Kysterne o. fl. Steder anstillede daglige Iagttagelser over Isforholdene og disses Indflydelse paa Besejlingsforholdene. Naar en i Tabel V anført Lokalitet er udeladt i Tabel IV i en eller flere Maaneder, har der ingen Is været paa det paagældende Sted. I Tabel V er alle de Steder anført, hvorfra der anstilles Observationer.

nant. At most of the stations the mean temperature was about $\frac{3}{4}$ to $1\frac{1}{2}^{\circ}$ above the normal. On the light ships the lowest temperature recorded was $\div 5,6^{\circ}$ (Gjedser Rev.).

Marts. The mean pressure of the air at the Scaw was 757,7 mm and in Copenhagen 758,1 mm or respectively 0,5 and 1,0 mm below the normal. Winds from the west and north-west were predominant. At most of the stations the mean temperature was about $\frac{1}{2}$ to $1\frac{1}{2}^{\circ}$ below the normal. On the light ships the lowest temperature recorded was $\div 5,9^{\circ}$ (Lappegrunden).

Table II gives the occurence of frosty days during the winter. In November and December only a few frosty days occurred. Between the New Year and the end of March 7 short frosty periods occurred of which the two longest happened respectively during the end of January and the beginning of March.

Of all the stations Randers had the largest amount of cold (92,1), Samsö the smallest (37,6).

Table III gives a general view of the temperature and salinity of the surface water during the winter, the mean value being quoted for each decade. In the Limfjord and the Læsø Rende the water attained its lowest temperature during the beginning of February, while the water in the Little Belt and South of Fyn was coldest about the middle of February, and in the Kattegat and the Sound as far as to Gedser the water did not reach its minimum temperature until the beginning of March during the latter of the more pronounced frosty periods. Under Bornholm the temperature was — as usual — lowest about the middle of March.

Generally the salinity was lowest during the latter half of February for some stations also in the beginning of March but after that the salinity increased rapidly. Under Bornholm the variation of the salinity was — as usual — rather small.

Table IV contains the results of the daily observations at the various stations concerning the state of the ice and its influence on navigation. The non-appearance in table IV for one month or more of one of the stations mentioned in table V means, that no ice has been observed at that station during the time in question. Table V gives the names of all the stations, at which observations are taken.

For at hjælpe til en ensartet Bedømmelse er Is-forholdene udtrykt ved Bogstaver, som har følgende Betydning:

Isfrit	A	Svær Driv-Is	F
Løs Sjap- og Kvadde-Is	B	Pak-Is	I
Sammenpakket Sjap- og		Skrue-Is	H
Kvadde-Is.....	E	Tynd Fast-Is.....	D
Spredt Driv-Is	C	Svær Fast-Is.....	G
Driv-Is	K		

Til nærmere Forklaring paa disse Benævnelser tjener følgende Beskrivelse:

- B. *Sjap-Is* kaldes den Masse, der dannes af Sne og Vand eller af smaa Ispartikler, saalænge den ikke er frosset sammen endnu. *Kvadder-Is* kaldes de smaa, i Reglen afrundede Isflader eller Isklumper, som kan optræde for sig, førte sammen af Vind og Sø, men som hyppig træffes i Forbindelse med *Sjap-Is*.
- E. *Sammenpakket Sjap- og Kvadde-Is* er *Sjap-Is* eller *Kvadde-Is* eller begge Dele i Forening, som paa Grund af Kuling eller Strøm, eller mulig Hindring for Isens Bevægelse, er pakket sammen i en grød-lignende Masse af antagelig Tykkelse.
- C. *Spredt Driv-Is*. Isflager eller Iskodser, som med større Mellemrum er spredte over Farvandet, og som er i Drift.
- K. *Driv-Is*. Isflager eller Iskodser i mere samlede Masser, som er i Drift.
- F. *Svær-Driv-Is*. Svære Isflager eller Iskodser i samlede Masser, som er i Drift.
- I. *Pak-Is*. Svære Iskodser, som af Kuling eller Strøm, eller, hvad oftest er Tilfældet, paa Grund af Indsnævring af Farvandet, er pakke sammen til en svær tæt Masse.
- H. *Skrue-Is*. Is, som skruer.
- D. *Tynd Fast-Is*. En sammenfrosset, landfast Isflade af mindre Styrke.
- G. *Svær Fast-Is*. En sammenfrosset, landfast Isflade af betydelig Styrke.

Besejlingsforholdene er udtrykt ved Bogstaver, som har følgende Betydning:

Skibsfarten uhindret	N
» vanskelig for Sejlskibe	O
» vanskelig; for Sejlskibe kun mulig med Bugserhjælp	P

In order to further uniformity of judgement, the state of the ice is indicated by letters having the following signification.

Free of ice	A	Heavy drift ice	F
Brash and pancake ice	B	Pack	I
Packed brash and pan-		Screw ice	H
cake ice	E	Thin fixed ice	D
Open ice	C	Heavy fixed ice	G
Drift ice	K		

The following description gives a more precise explanation of the designations above:

- B. *Brash ice* is a mass consisting of snow and water or of very small pieces of ice not yet frozen together. *Pancake ice* consists of small, generally round ice flakes or ice lumps. It may appear alone, brought together by the wind or the sea, but it often appears in connection with *brash ice*.
- E. *Packed brash and pancake ice* is brash ice or pancake ice or both at the same time, which has been packed together in a turbid mass of considerable thickness either by the wind or the current or by some obstruction to the free drift of the ice.
- C. *Open ice* is drifting ice flakes or hummock ice scattered over the water at greater intervals.
- K. *Drift ice* is drifting ice flakes or hummock ice in more collected masses.
- F. *Heavy drift ice* is drifting heavy ice floes or hummock ice in close masses.
- I. *Pack* means heavy ice floes, which have been packed together in heavy dense masses either by the wind, or the current or — as is generally the case — by a narrowing of the waters.
- H. *Screw ice* means ice that is screwing or nipping.
- D. *Thin fixed ice* means thin land ice.
- G. *Heavy fixed ice* means heavy land ice.

The conditions for navigation are indicated by letters having the following signification.

Navigation unimpeded	N
» difficult for sailing vessels	O
» difficult, impossible for sailing ves-	
sels without tug-boat	P

Skibsfarten lukket for Sejlskibe	Q
» kun mulig for kraftige Dampere. R	
» kun mulig med Isbryderhjælp . S	
» helt lukket	T
Rende holdes aaben med Isbryder	U

Navigation closed for sailing vessels.....	Q
» only possible for powerful steamers	R
» impossible without the assistance of icebreaker	S
» quite closed.....	T
Channel kept open by means of ice breaker	U

Tabel V er Sammendrag af Tabel IV, men er tillige Fortegnelse over alle Observationsstederne. For hvert Sted er anført, hvormange Dage der har været Is af de forskellige Arter, og hvormange Dage Skibs-farten har været påavirket deraf. Endvidere findes Rubrikker for det samlede Dageantal med Is samt for Tiderne for første og sidste Ismelding. Det maa dog erindres, at Stedet i Mellemtiden godt kan have været isfrit selv i længere Tid.

I sidste Rubrik er der for enkelte Pladser anført den største Tykkelse i cm, som Isen har naaet.

Table V is a summary of Table IV but also a list of all the stations. For each station is put down the number of days with ice of the various descriptions and the number of days, on which navigation has been affected by the ice. Further rubrics will be found giving the total number of days with ice, and the dates of the first and the last report of ice. However, it must be noted, that in the interval the station may very well have been free of ice, even for a longer period.

In the last column is given — for some of the stations — the greatest thickness in cm, which the ice has attained.

Kort Oversigt over Isforholdene i de forskellige Farvande.

Jyllands Vestkyst var isfri hele Vinteren. I Graadyb var der lidt Drivis paa ganske enkelte Dage, ogsaa i Ringkjøbing Fjord var der kun meget lidt Is.

I **Limfjorden** laa kun Is i et Par Uger i beskyttede Bredninger og Bugter samt mellem Løgstør og Nibe. Skive Fjord dannede dog en Undtagelse, thi her laa Isen ca. 10 Uger. Isen var dog ikke svær; thi kun en halv Snes Dage var der lukket for Sejlskibe.

Kattegat var isfrit. Af Fjordene havde Mariager- og Randers Fjorde Is i 5 à 6 Uger; Horsens- og Odense Fjorde kun i 2 Uger. Isen var meget let at forcere. Kun i 4 Dage i Begyndelsen af Februar var der ved Mariager Vanskeligheder for Dampske.

Sundet og dets Havne vare aldeles isfri.

Store Bælt var isfrit. Kun i Nakskov Fjord laa der et Par Uger lidt Is, der 2 Dage i Begyndelsen af Februar stoppede Sejlskibsfarten.

Brief summary of the state of the ice in the various waters.

The West coast of Jutland was free of ice throughout the winter. In Graadyb a little drift ice appeared now and then but only for a day; in Ringkjøbing Fjord there was only very little ice.

Limfjorden had ice for a few weeks in the sheltered bays and between Løgstør and Nibe. Only in Skive Fjord the ice remained for about 10 weeks. The ice, however, was not heavy, and it was only during about 10 days that the Fjord was closed for sailing vessels.

Kattegat was free of ice. Of the fiords Mariager Fjord and Randers Fjord had ice for about 5 to 6 weeks, Horsens Fjord and Odense Fjord only for 2 weeks. The ice was generally quite navigable and only for about 4 days there was some difficulty for steamers at Mariager.

The Sound and its ports were perfectly free of ice.

The Great Belt was free of ice. In Nakskov Fjord there was a little ice during a few weeks and for 2 days in the beginning of February the navigation was closed for sailing vessels.

Lille Bælt var isfrit. Paa Vejle- og Kolding Fjorde laa der Is henholdsvis i 2 og 4 Uger; men Sejlskibsfarten var ikke standset.

Østersøen, deri Farvandet omkring Bornholm, var isfri.

I de indre Farvande var der ogsaa kun meget lidt Is og denne optraadte da navnlig i Begyndelsen af Februar noget efter Frostperioden i Slutningen af Januar. I Roskilde Fjord laa Isen i ca. 3 Uger; i Isefjordens andre Dele var der saa godt som ingen Is. I Bøgestrømmen laa Isen ca. 3 Uger, i Guldborgsund og Præstø Fjord 4 Uger, mellem Øerne Nord for Lolland 2 Uger. Sejlskibsfarten var kun ganske faa Dage standset. Syd for Fyen var Farvandene isfri, kun i enkelte Havnne laa Is i et Par Dage.

Helt isfri var 77 Stationer af 125. Kun 1 Station havde Is mere end 2 Maaneder og 6 mere end en Maaned. Det højeste Antal Dage med Is, 68, havde Skive Havn og Fjord. Den første Is viste sig den 24. December (Ringkjøbing Fjord), den sidste Is gik den 29. Marts (Skive Havn og Fjord og Mariager Fjord).

Isens Tykkelse blev maalt fra 22 Stationer, og den største Tykkelse, 30 cm, blev maalt i Guldborgsunds nordlige Del. Isens gennemsnitlige Tykkelse i Havnne og Inderfarvande var 11 cm.

Tabel VI viser, hvorlænge Fyrskibene gennemsnitlig har været inde for Is i de sidste 37 Aar; det fremgaar heraf, at Fyrskibene indenfor Skagen som Regel inddrages hver 3die Vinter. I Vinteren 1914—1915 var ingen Fyrskibe inde, og Ismeldingstjenesten var ikke etableret.

Til Sammenligning mellem denne Vinter og de 8 foregaaende tjener Tab. VII, hvor Tallene angiver det gennemsnitlige Antal Dage med Is for de forskellige Slags Farvande og Havne. Det ses heraf, at Vinteren 1914—1915 havde meget lidt Is, idet Gennemsnits-tallet af Antal Isdage for »Alle Stationer« var 6,1, medens Gennemsnit for 9 Aar er 15,4, altsaa meget højere.

De sidste 9 Aar grupperede sig imidlertid med Hensyn til Isdagenes Antal i 2 skarpt adskilte Grupper. For de 3 kolde Vintre er Gennemsnittet 33,5

The Little Belt was free of ice. In Vejle Fjord and Kolding Fjord there was ice for respectively 2 and 4 weeks but the navigation was not closed for sailing vessels.

The Baltic and the waters around Bornholm were free of ice.

The inner waters had also very little ice and most of it appeared in the beginning of February some time after the frosty period during the end of January. Roskilde Fjord had ice for about 3 weeks while hardly any ice appeared in the other parts of Isefjord. In Bøgestrømmen there was ice for about 3 weeks, in Guldborgsund and Præstø Fjord for about 4 weeks and between the islands north of Lolland for about 2 weeks. The navigation even for sailing vessels was only closed for a very few days. South of Fyen the waters were free of ice, and only some of the ports had ice for quite a few days.

77 stations out of 125 were completely free of ice. Only 1 station had ice for more than 2 months and 6 stations for more than 1 month.

The highest number of days with ice was 68 which was reported from Skive harbour and fiord. The first ice appeared on December 24th (Ringkjøbing Fjord), while the last ice left on March 29th (Skive harbour and fiord and Mariager Fjord).

The thickness of the ice was measured at 22 stations and the greatest thickness, 30 cm, was measured in the northern part of Guldborgsund. The mean thickness of the ice in the harbours and the inner waters was 11 cm.

Table VI gives a general view of the withdrawal of the light ships during the last 37 years. It will be seen that the light ships inside the Scaw as a rule, are withdrawn every 3rd winter. During the winter 1914—1915 no light ship was withdrawn and the ice-signal service was not established.

To compare last winter with the 8 preceding winters Table VII has been compiled the ciphers of which give the average number of days with ice in the various waters and harbours. It will appear from this table that the winter 1914—1915 had very little ice, the mean number of days with ice at all the stations being but 6,1 while the mean of 9 years is 15,4 which is considerably higher.

Relative to the number of days with ice the last 9 years form two distinctly different groups. During the 3 cold winters the mean is 33,5 days with ice, the

Dage med Is med Grænserne 30,3 og 38,8; medens Gennemsnittet for de 6 varme Vintre er 6,3 Dage med Is og med Grænserne 2,4 og 10,1.

limits being 30,3 and 38
6,3 days with ice for the
being 2,4 and 10,1 days.

Meteorologisk Institut bringer sin Tak til alle de Observatorer, hvis Iagttagelser har gjort det muligt at fremkomme med de foreliggende Oplysninger om Isforholdene i de danske Farvande i Vinteren 1914—1915.

Maj 1915.

The Meteorological Institute
express its thanks to the
rendered it possible to publish
concerning the state of the ice
during the winter 1914—1915.

May 1915.

Tab. I. Luftens Middeltemperatur samt Afgigelserne fra Normalen i
The mean-temperature of the air and the variations from the normal temperature in

		Fanø (Nordby)	Skagen (Fyret)	Randers (Strømmen)	Samsø (Tranebjerg)	(N)
December	Middeltemp..	4.0	4.2	3.4	4.3	
	Afgelsen ..	+ 3.1	+ 2.4	+ 3.1	+ 2.5	
Januar	Middeltemp..	0.7	- 0.2	- 0.3	0.7	
	Afgelsen ..	+ 0.8	- 0.9	+ 0.2	+ 0.3	
Februar	Middeltemp..	1.1	0.3	0.3	1.2	
	Afgelsen ..	+ 1.2	+ 0.3	+ 0.9	+ 1.0	
Marts	Middeltemp..	1.2	0.1	0.2	0.9	
	Afgelsen ..	- 0.3	- 1.2	- 1.1	- 0.8	

Tab. II.

Frostperioderne og Frostdagene i Vinteren 1914—1915.

The frosty periods and frosty days during the winter 1914—1915.

	Frostdage				Frostperioder				Frostdage				Frostperioder				Samlet Kuldesum Total amount of cold
Fanø (Nordby)	a b c	17/11-20/11 4 — 2.2	23/11-24/11 2 — 0.6	24/12-27/12 4 — 2.4	8/1-13/1 3 m. Afb. — 3.1	17/1-19/1 3 — 4.8	26/1-1/2 6 m. Afb. — 7.7	5/2-7/2 3 — 5.5	17/2 1 — 0.2	25/2 1 — 0.1	3/3-8/3 5 m. Afb. — 5.7	17/3-20/3 4 — 7.1	27/3-29/3 3 — 3.0	42.4			
Skagen (Fyret)	a b c		12/12-13/12 2 — 1.0		5/1-13/1 9 — 15.3	17/1-19/1 3 — 7.0	26/1-1/2 7 — 15.0	5/2-8/2 4 — 9.3	12/2-17/2 6 — 7.7	24/2-25/2 2 — 0.9	2/3-9/3 8 — 19.3	17/3-19/3 3 — 9.5	27/3-29/3 3 — 4.7	89.7			
Randers (Strømmen)	a b c	16/11-20/11 5 — 5.2	24/11 1 — 1.9	23/12-26/12 3 m. Afb. — 3.5	5/1-13/1 6 m. Afb. — 7.0	17/1-21/1 4 m. Afb. — 9.2	26/1-1/2 7 — 15.3	5/2-7/2 3 — 6.9	15/2-17/2 3 — 4.0	25/2 1 — 0.6	1/3-10/3 10 — 16.2	17/3-20/3 4 — 12.2	28/3-29/3 4 — 10.1	92.1			
Samsø (Tranebjerg)	a b c			20/12 1 — 0.2	7/1-10/1 2 m. Afb. — 0.3	17/1-19/1 3 — 3.7	27/1-30/1 4 — 9.8	6/2-7/2 2 — 5.1	16/2 1 — 0.1	3/3-9/3 7 — 8.8	17/3-20/3 4 — 8.9	27/3-28/3 2 — 0.7	37.6				
Bogø (Navig. Skolen)	a b c		24/11 1 — 0.9	20/12-27/12 2 — 1.2	6/1 1 — 1.2	18/1-21/1 3 m. Afb. — 8.8	26/1-2/2 8 — 18.3	5/2-7/2 3 — 7.5	16/2 1 — 0.9	3/3-10/3 8 — 15.6	17/3-20/3 4 — 10.5	28/3-29/3 4 — 4.5	69.4				
København (Met. Inst.)	a b c	24/11 1 — 0.6			6/1-7/1 2 — 2.5	17/1-21/1 4 m. Afb. — 9.0	26/1-2/2 8 — 20.5	5/2-7/2 3 — 6.6	16/2-17/2 2 — 0.9	25/2 1 — 0.6	3/3-10/3 8 — 12.2	17/3-20/3 4 — 11.6	28/3-29/3 2 — 3.0	67.5			
Hammershus (Sandvig)	a b c	24/11 1 — 0.1			6/1-7/1 2 — 1.2	17/1-21/1 4 m. Afb. — 8.9	26/1-2/2 7 — 15.5	5/2-7/2 3 — 7.7	17/2 1 — 0.2	3/3-11/3 9 — 14.1	17/3-20/3 4 — 12.4	28/3-29/3 4 — 5.6	65.7				

Anm. I: a er Frostperiodens Varighed (the duration of the frosty period).

b er Antal af Dage, hvilke Middeltemperatur var under 0° (number of days with a mean-temperature below 0°).

c er Kuldesummen (Produktet af Frostperiodens Middeltemperatur og Dageantallet) (the amount of cold (the product of the mean-temperature of frosty period and the number of days of the period)).

Tab. III.

Middeltal af Vandets Overfladetemperatur og Saltholdighed Kl. 8 Fm. i Vinteren 1914—1915.

The mean temperature and salinity of the surface water at 8 a. m. during the winter 1914—1915.

(Det øverste Tal i hver Rubrik angiver Temperaturen, det underste Saltholdigheden.)

(The upper number in each rubric indicates the temperature, the lower the salinity).

1914—1915	Skagens-Rev	Læsø-Rende	Anholt-Knob	Lappe-Grund	Gjedser-Rev	Odde-Sund	Aalborg	Middelfart	Svendborg-Sund	Kolby-Kaas	Sprogg	Kjels-Nor	Rørvig	Middelgrunds-fortet	Masnedø	Christiansø
1/12—10/12	6.4 31.5	6.4 27.2	6.0 24.7	5.8 24.1	5.8 18.8	4.9 30.0	4.7 24.8	6.1 23.8	4.5 19.9	6.1 24.5	6.3 24.6	5.8 21.3	4.9 21.8	6.2 24.9	5.0 17.7	7.0 7.8
11/12—20/12	5.5 30.7	4.7 27.8	5.1 25.7	5.0 12.7	5.1 14.6	3.3 29.7	2.9 25.7	5.1 20.4	4.9 19.9	4.8 24.7	5.1 20.8	4.9 19.6	3.8 22.0	5.2 10.9	5.0 12.7	6.2 7.7
21/12—31/12	5.2 31.3	4.0 27.3	4.3 25.4	4.1 13.1	4.1 12.5	2.3 29.7	1.7 23.7	4.2 19.5	4.3 19.3	3.4 21.9	4.0 18.7	3.7 19.1	2.9 22.9	4.1 11.6	3.8 12.0	5.4 7.8
1/1—10/1	3.7 28.3	3.2 26.2	3.5 24.2	3.0 12.0	3.6 10.4	1.0 29.2	0.7 24.6	3.1 19.3	3.1 19.2	2.6 20.1	3.0 16.4	3.1 16.9	2.2 24.1	3.1 10.7	2.9 11.3	4.7 8.0
11/1—20/1	2.5 28.8	1.6 25.9	2.4 24.0	2.4 17.5	2.9 12.2	-0.1 28.7	-0.7 25.7	2.3 20.4	2.4 18.4	1.7 19.3	2.4 17.9	2.3 17.2	1.8 23.9	2.2 12.9	1.9 12.9	4.3 7.6
21/1—31/1	2.2 28.0	1.4 25.6	1.7 24.4	1.6 14.0	1.7 13.0	-0.2 28.2	-0.9 18.8	1.4 19.5	1.7 18.6	1.3 20.3	1.4 18.4	1.3 17.2	0.6 24.3	1.7 13.3	0.9 12.2	3.1 7.5
1/2—10/2	1.8 29.1	0.6 25.4	0.8 24.2	1.1 16.2	1.1 12.6	-0.6 27.6	-1.1 21.6	0.6 19.9	0.6 18.5	0.6 20.4	0.8 18.7	0.8 17.9	-0.3 24.2	1.3 13.1	0.4 11.7	2.3 7.8
11/2—20/2	1.7 27.3	0.8 25.0	0.8 21.6	1.2 12.3	1.1 11.2	-0.2 27.5	-0.9 22.5	0.5 19.0	0.8 18.6	0.7 17.3	0.7 14.6	0.7 15.0	0.7 23.4	1.9 9.5	1.0 10.8	2.1 7.3
21/2—28/2	1.9 31.0	1.3 24.4	1.0 22.3	1.5 16.8	1.1 10.9	0.1 28.0	0.1 14.2	1.1 19.1	1.5 19.1	1.6 17.7	1.1 15.9	0.9 16.9	1.2 21.3	1.9 11.4	1.1 11.7	1.7 7.4
1/3—10/3	1.6 29.8	1.0 25.4	0.5 22.8	1.1 11.3	1.1 10.9	0.2 26.5	-0.3 20.6	0.9 19.3	0.9 18.9	0.9 20.3	0.8 15.9	0.8 17.4	0.1 23.4	1.1 10.6	0.7 9.5	1.7 7.4
11/3—20/3	2.2 32.0	1.1 25.9	0.9 23.4	1.1 19.2	1.2 13.4	2.7.5 19.0	1.6 19.0	1.3 20.3	1.3 18.8	1.3 19.8	1.3 18.1	1.2 18.5	1.2 23.1	1.7 15.3	0.9 10.8	7.5 1.3
21/3—31/3	2.5 32.1	1.5 26.2	1.2 23.7	1.5 15.9	1.2 14.0	2.4 27.8	1.8 20.2	1.5 20.2	1.9 18.9	1.7 22.5	1.5 19.9	1.3 19.2	1.2 23.8	1.7 11.9	0.9 11.4	7.5 1.3

Daglige lagttagelser over Is- og Besejlingsforholdene

i de danske Farvande for Vinteren 1914—1915.

Daily observations concerning the ice and the navigation in the danish waters during the winter 1914-1915.

December

Jyllands Vestkyst.																		
ingkj. Fjord (nordl. Del)	{Isforh. (Besejlfh.)	.	.	.	.	.	.	.	.	.	.	.	.	.	b o	b o	b o	
Limfjorden.																		
itive Havn og Fjord	{Isforh. (Besejlfh.)	.	.	.	.	.	.	.	.	.	.	.	.	.	b n	b n		
Lille Bælt.																		
eje Havn og Fjord	{Isforh. (Besejlfh.)	.	.	.	.	.	.	.	.	.	.	.	.	.	d o	d o	d o	d o

Januar

Jyllands Vestkyst.																										
bjerg	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	c	n	n	c	c	.	skun faa Timer af Døgnet, ellers isfrift.	
aadyb	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	b	c	n	n	.		
ingkj. Fjord (nordl. Del.) .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	b	b	b	o	p	p	e	e	o	o	
 Limfjorden.																										
emvig Havn og Lem-Vig .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	b	b	b	o	o	n	
ruer Havn og Bugt . . .	{Isforh. Besejlfh.	.	.	.	.	.	b	e	.	d	b	.	.	d	e	e	.	.	.	d	d	g	g	o	p	
tive Havn og Fjord . . .	{Isforh. Besejlfh.	.	.	.	.	b	e	d	e	e	e	e	e	c	d	d	e	e	b	b	b	d	d	d		
ggersund	{Isforh. Besejlfh.	.	.	.	.	n	o	o	o	o	o	o	o	p	p	p	p	p	n	n	n	o	q	q		
øgstør Bredning	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	b	c	c	.	.	.	.	d	d	d	d	p	p
mfjorden udfor Løgstør . .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	p	p	o	.	.	.	.	p	p	p	p	b	b
mfjorden udfor Nibe . . .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	e	e	e	e	.	.	.	.	.	.	.	n	o
mfjorden udfor Aalborg . .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	o	o	o	o	.	.	.	.	.	.	o	o	
mfjorden Aalborg—Hals .	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	p
 Kattegat.																										
esø Rende	{Isforh. Besejlfh.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	b	n
ariager Fjord	{Isforh. Besejlfh.	.	.	.	.	.	.	b	b	d	.	.	b	b	b	b	.	.	.	b	b	d	d	p	p	
dløb til Mariager Fjord . .	{Isforh. Besejlfh.	.	.	.	.	.	.	n	n	p	.	.	p	p	p	p	.	.	.	p	p	p	p	d	d	

Daglige lagttagelser over Is- og Besejlingsforholdene

Tab. IV.

i de danske Farvande for Vinteren 1914-1915.

Daily observations concerning the ice and the navigation in the danish waters during the winter 1914-1915.

Daglige lagttagelser over Is- og Besejlingsforholdene

i de danske Farvande for Vinteren 1914—1915.

Daily observations concerning the ice and the navigation in the danish waters during the winter 1914—1915.

Daglige lagttagelser over Is og Besejlingsforholdene

Tab. IV.

i de danske Farvande for Vinteren 1914—1915.

Daily observations concerning the ice and the navigation in the danish waters during the winter 1914-1915

Marts

Daglige lagttigelser over Is- og Besejlingsforholdene

i de danske Farvande for Vinteren 1914—1915.

Daily observations concerning the ice and the navigation in the danish waters during the winter 1914-1915.

Tab. V. (Sammendrag af Tabel IV.)
Sumary of Tab. IV.

(Sammendrag af Tabel IV.
Summary of Tab. IV.)

Tab. VI.

Oversigt over Inddragningen af danske Fyrskibe under Isforhold.

Oplysningerne begynder 1879*)

*Withdrawal of Danish light-ships during ice.
The reports commence 1879*).*

	Vinteren 1914—1915		Antal Dage fra Station paa Grund af Is <i>Number of days of the station on account of ice</i>	Har siden 1879 været inddraget withdrawn since 1879			Bemærkninger <i>Remarks</i>
	Inddraget withdrawn	Udlagt replaced		i Antal Vintre <i>Number of winters</i>	Alt Dage Total number of days	Antal Dage pr. Vinter med Is <i>Number of days pr. winter with ice</i>	
Horns-Rev.....			—	1	3	3	
Vyl.....			—	1	12	12	
Graadyb			—	1	8	8	*.) {Udlagt i 1906 <i>Established in 1906</i>
Skagens-Rev			—	10	368	37	
Læsø-Trindel			—	11	391	36	
Læsø-Rende	Ikke inddraget i Vinteren 1914—1915. <i>Not withdrawn during the winter 1914—1915.</i>		—	12	421	35	
Østre-Flak.....			—	2	40	20	*.) {Udlagt i Juli 1908. <i>Established in July 1908.</i>
Anholt-Knob.....			—	13	458	35	
Schultz-Grund			—	12	481	40	
Lappe-Grund			—	12	303	25	*.) {Oplysningerne begynder 1883. <i>The reports commence 1883.</i>
Drogden			—	13	514	40	
Gedser-Rev			—	12	521	43	

Tab. VII.

Antal Dage med Is for: <i>Number of days with ice in:</i>	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13	1913-14	1914-15
Aabne Farvande (<i>The fairways</i>).....	6.6	0.2	18.6	0.1	0	17.7	0.3	0.1	0.0
Havne ved aabent Farvand (<i>Harbours situated at the fairways</i>).....	17.4	2.9	28.4	2.2	0.5	20.4	3.2	2.1	0.5
Tildels lukkede Farvande (<i>Partly closed waters</i>)	24.2	6.7	41.0	2.1	0.2	35.1	6.2	4.6	2.7
Havne ved indelukkede Farvande (<i>Harbours situated in closed waters</i>). .	52.8	25.5	69.2	14.2	9.6	49.1	18.4	15.0	16.9
Indelukkede Farvande (<i>Closed waters</i>)	57.9	32.2	66.3	20.7	5.6	52.9	19.1	16.6	19.3
Alle Stationer (<i>All stations</i>)	30.3	10.1	38.8	5.7	2.4	31.5	7.4	6.0	6.1
Middeltal af Kuldemængde for Stat. i Tab. II (<i>Mean amount of cold for the stations in Tab. II</i>)	121.1	65.8	151.6	37.9	23.9	128.6	31.9	49.2	66.3