

## PART 5

### Environment Canada Marine and Ice Warning and Forecast Programs

#### Background

The Meteorological Service of Canada (MSC) of Environment Canada and the regional Meteorological Service Branch offices of Environment Canada operate Canada's weather service. MSC offices offer a broad range of products and services that are designed to help mariners make informed decisions on how weather will affect them. The Canadian Coast Guard (CCG) plays an important role in disseminating forecasts and warnings and in collecting and relaying weather information from volunteer observers and ships.

The constant stream of data coming from volunteer observers, ships, weather buoys, automatic stations, and lighthouses is supplemented by satellite imagery, weather radar and a full set of numerical weather products adapted for marine operations.

#### Marine Warning Program

☛ Warnings of extreme weather events that pose a threat to life and property at sea such as strong winds, freezing spray, high coastal waters, squall lines and other localized phenomena shall be issued for the offshore economic zone including the St. Lawrence Seaway and major inland waters.

Major inland waters are defined as having significant marine activity and where time to reach shore is comparable to the marine weather warning lead time. The criteria for the issuance of weather warnings are based on national guidance, but determined regionally based on appropriate climatology and the character of the regional marine community. The following table describes the warning program:

☛ **Table 1: Synoptic warnings**

Synoptic warnings *	Warning criteria
Strong wind warning <sup>(2)</sup>	Winds <sup>(1)</sup> 20 to 33 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an «except» statement.
Gale warning	Winds <sup>(1)</sup> 34 to 47 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an «except» statement.
Storm warning	Winds <sup>(1)</sup> 48 to 63 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an «except» statement.
Hurricane force wind warning	Winds <sup>(1)</sup> 64 knots or above occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an «except» statement.
Freezing spray warning	Ice accretion rate of 0.7 cm/hr or more occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an «except» statement.

☛ Notes: \* These warnings are included in the body of the text forecast.

(1) Gusts are excluded from the definition.

(2) A warning is not required when the wind is described using the range 15-20 knots. This range is normally used for greater accuracy.

Range: when a range is used to describe the wind speed, the upper value of the range determines the warning category.

**Table 2: Localized warnings**

Localized warnings/watches *	warning criteria
☉ Squall watch	Advance notice of conditions that are favorable to the development of squalls.
Squall warning	Wind gust $\geq$ 34 knots associated with a line or an organized area of thunderstorms.
Tornado watch	Advance notice of conditions that are favorable to the development of Tornadoes.
Tornado warning	Evidence of tornado formation (radar, report from a reliable source, etc.) over a marine area, or an existing tornado moving from land to an adjacent marine area.
Waterspout watch	Advance notice of conditions that are favorable to the development of cold-air waterspouts.
High coastal waters warning	To warn mariners and coastal populations of high impacts caused by abnormal heights of the water and waves on coastal areas
Special marine warning/watch	Used to describe other conditions deemed dangerous to navigation that could not be described with a specific warning in the discussion text of the warning.

☉ Notes: \* These warnings/watches are delivered using separate messages.

☉ **Ice warnings:** refer to the Canadian Ice Services further in this section.

### Marine Forecast program and ice bulletins

Marine forecasts are issued for the offshore economic zone including the St. Lawrence Seaway and major inland waters. For sea ice, useful forecast time scales are generally much longer. Basic forecasts for the general sea-ice conditions include weekly, monthly and seasonal time frames. The production schedule is detailed in each regional section of this chapter. The forecast program includes the following bulletins:

**Table 3: Marine forecast program**

Forecast or bulletin name	Details
Technical marine synopsis	The bulletin provides the positions and trends of the main weather systems for the period Day 1 and Day 2.
Marine forecast (or Regular marine forecast)	The forecast provides information on: synoptic warnings, wind, visibility, precipitation, and freezing spray. It may include air temperature as appropriate. This is valid for Day 1 and Day 2.
Recreational boating marine forecast	This is a forecast for recreational boaters and is available only in specific regions.
Marine weather statement	The statement provides additional information on weather. It will be issued only as needed.
Wave height forecast	The forecast provides information on significant wave heights valid for Day 1 and Day 2. It is not available for the Arctic waters or Hudson Bay.
Extended marine forecast	Provides a 3 to 5 day wind outlook. The forecast is primarily a planning tool.
Iceberg bulletin	The bulletin provides information on icebergs valid for the time of issue of the bulletin.
Ice hazard bulletins	The bulletin provides information on hazardous ice conditions valid for Day 1 and Day 2.
NAVTEX <sup>1</sup>	A NAVTEX compatible bulletin issued with each Regular marine forecast or ice bulletin.
MAFOR <sup>1</sup>	This is a specialized coded marine forecast produced for Quebec and Ontario.

<sup>1</sup>: More details on NAVTEX and MAFOR are provided at the end of this section.

## **Monitoring the Forecast**

Forecasts are monitored, and amended as necessary, to reflect unexpected or changing weather conditions according to criteria based on the following principles:

1. when safety or security is at risk,
2. when inconvenience to the marine community will be extensive or,
3. when the product could adversely affect the credibility of the program.

## **Marine Forecast and Ice Areas**

Marine forecasts and ice bulletins are issued for marine and ice areas as outlined in the regional maps. The sizes and boundaries of these areas are determined regionally based on the following considerations:

1. marine traffic density,
2. the ability to forecast to the proposed resolution,
3. the degree to which, climatologically, marine weather varies, and
4. the ability to distribute the information effectively to the marine community.

## **Current Conditions**

Current weather data is available to Canadians for their local area. The frequency and quality of the data will be consistent with the standards established by the World Meteorological Organization (WMO). The data may include as appropriate:

Current temperature, wind speed and direction, atmospheric pressure, sky conditions, precipitation type, restrictions to visibility, sea state.

General information on current sea-ice will be provided to the marine community once a week to provide an adequate planning tool for those considering entering ice encumbered waters.

## **Emergency Response**

Meteorological support is provided during emergencies and includes the provision of meteorological information and forecasts. In the case of a pollution event, Environment Canada adheres to the “polluter pay” policy for the provision of all services. Where agreements are in place, Environment Canada will make its distribution systems available to transmit vital information during emergency situations.

## **Delivery of Marine Warning and Forecast Services**

Delivery of marine warning and forecast services to Canadians is primarily by mass communication in order to reach the greatest population base through technology available to most Canadians. The following principles apply, regardless of the specific available technologies:

- a. WEB access. All forecast and warning information will be found at the following address:  

[http://www.weatheroffice.ec.gc.ca/canada\\_e.html](http://www.weatheroffice.ec.gc.ca/canada_e.html)
- b. Basic services to Canadians shall be delivered primarily by mass distribution in partnership with media, relying on current and developing technologies in radio, television, newspaper, and the Internet. These distribution mechanisms represent the primary methods by which most Canadians receive their weather information, now and in the future.
- c. Marine and Environmental Advisories, Watches and Warnings are distributed through various mechanisms including partnerships with national and regional media distributors and local emergency measures organizations.

## **The Voluntary Observing Ship (VOS) Program**

The VOS program is organized for the purpose of obtaining weather and ice, and oceanographic observations from moving ships. An international program under the World Meteorological Organization (WMO) auspices, the VOS has near 8,000 vessels participating from 60 nations. It is part of the WMO Global Observing System of the World Weather Watch.

Canada has near 235 vessels participating. It closely follows WMO guidelines for VOS programs. The Canadian program is supported by full-time Port Meteorological Officers (PMO). The national program office in Toronto manages the program and oversees PMO activities. The office also maintains a VOS Program Computerized Data Management System to record PMO ship visits, vessel mailing addresses, vessel equipment inventories and other information about vessels reports. Any vessel willing to take and transmit observations in marine areas where Environment Canada prepares weather forecasts (see the regional annexes) can join the program. The importance of ship reports cannot be overstated. Without your participation in VOS, there would be vast marine areas without data, making marine forecasting nearly impossible for these areas. We thank ship officers for their fine work, dedication, and commitment.

Check out the SEAS program with your local Port Meteorological Officer. In the SEAS program, observations are sent via INMARSAT C and the cost of transmission is absorbed by a consortium of countries interested in timely reports from the seas of the world.

The WMO establishes the ships synoptic code, and procedures and standards for the collection and dissemination of information worldwide. The WMO also maintains information about countries and vessels participating in the program.

### **Buoys program**

In order to complement the observational network, Environment Canada operates a network of buoys across the country. This data becomes part of the collection of weather reports sent to the distribution network and is used to improve marine forecasting. The location, WMO identifiers and names of the Environment Canada buoys are given in the regional annexes.

Mariners are requested to use caution when approaching buoys as mooring chains are normally not detectable from a ship and can be damaged or even severed if there is contact, which could result in the buoy becoming adrift and a costly recovery of the platform. Please keep the Regional PMO's informed of any incidents involving buoys.

**Buoy Locations:** buoy positions are described in each specific regional annex.

### **MAREP (MARine REporting Program)**

MAREP gives mariners the opportunity to informally report local weather conditions and to receive up-to-date weather forecasts and warnings. MAREP stations are generally operated on a semi-volunteer basis by a member of the marine community who is concerned about marine safety. The stations operators are in regular contact with the Marine Weather Forecaster of the area.

Since the program is informal, the individuals at the stations do not provide a 24 hour service, but are likely available during day-time and early evening hours.

### **Port Meteorological Officers (PMOs)**

☞ PMOs spend most of their time visiting ships in support of the VOS program. This is to encourage vessels to report weather and ice, to instruct observers about procedures and the use of code; to supply observing forms, handbooks (free of charge!); to calibrate equipment; and, in some cases, to install, on loan, meteorological or oceanographic instrumentation. The PMO is also responsible to recruit new vessels wishing to participate in the VOS program.

If a PMO visits your ship, remember to ask questions about observing and coding, and reporting weather and ice. Keep the PMO informed of your mailing address. Discuss forecast, warnings, facsimile products, especially if you have specific problems. The PMO will contact the appropriate party for investigation.



**Table 4: Port Meteorological Officers (PMOs)**

<b>Great Lakes</b>	<b>Atlantic - Maritimes</b>	<b>Atlantic - Newfoundland</b>
<b>Tony Hilton, Supervisor</b> <b>Rick Shukster, Buoy Specialist</b> <b>Roland Kleer, PMO</b> <b>Shawn Livingstone, PMO</b> <b>Environment Canada, MSC</b> <b>100 East Port Blvd</b> <b>Hamilton ON L8H 7S4</b> <b>Tel: 905-312-0900</b> <b>Fax: 905-312-0730</b> <b>Email: anthony.hilton@ec.gc.ca</b>	<b>Randy Sheppard, Supervisor</b> <b>Derek Cain, PMO</b> <b>Environment Canada, MSC</b> <b>45 Alderney Drive, 16<sup>th</sup> floor</b> <b>Dartmouth NS B2Y 2N6</b> <b>Tel: 902-426-6616</b> <b>Cell: 902-456-6927</b> <b>Fax: 902-426-6404</b> <b>Email: randy.sheppard@ec.gc.ca</b>	<b>Andre Dwyer, PMO</b> <b>Environment Canada, MSC</b> <b>6 Bruce St.</b> <b>Mount Pearl NL A1N 4T3</b> <b>Tel: 709-772-2167</b> <b>Cell: 709-689-5787</b> <b>Fax: 709-772-5097</b> <b>Email: andre.dwyer@ec.gc.ca</b>
<b>St-Lawrence - Québec</b>	<b>Pacific</b>	<b>Great Slave Lake / Western Arctic</b>
<b>Erich Gola, PMO</b> <b>Environnement Canada, SMC Canada</b> <b>Place Bonaventure, Portail Nord-Est</b> <b>800 de la Gauchetière ouest, Suite 810</b> <b>Montreal QC H5A 1L9</b> <b>Tel: 514-283-1644</b> <b>Fax: 514-496-1867</b> <b>Email: <a href="mailto:erich.gola@ec.gc.ca">erich.gola@ec.gc.ca</a></b>	<b>Bruce Lohnes, Supervisor</b> <b>Mike Riley, PMO</b> <b>Hamid Nasr, PMO</b> <b>Environment Canada, MSC</b> <b>140 13160 Vanier Place</b> <b>Richmond BC V6V 2J2</b> <b>Tel: 604-664-9188</b> <b>Fax: 604-664-4094</b> <b>Email: bruce.lohnes@ec.gc.ca</b>	<b>Ben Lemon, PMO</b> <b>Environment Canada, MSC</b> <b>M.J. Greenwood Centre</b> <b>9345 - 49 Street</b> <b>Edmonton AB T6B 2L8</b>  <b>Tel: 780-495-6442</b> <b>Email: ben.lemon@ec.gc.ca</b>
<b>Manitoba Lakes / Lake Athabaska</b>		
<b>Barry Funk, PMO</b> <b>Monitoring and Systems</b> <b>Environment Canada, MSC</b> <b>Suite 150</b> <b>123 Main Street</b> <b>Winnipeg MB R3C 4W2</b> <b>Tel: 204-984-2018</b> <b>Email: barry.funk@ec.gc.ca</b>		



## NAVTEX

MSC will provide CCG with NAVTEX information based on international IMO standards. These standards are:

### Service for coastal & offshore areas:

- I. **Warnings** (Winds & ice accretion),
- II. **Synopsis** (major feature),
- III: **Forecasts** (wind, visibility, ice accretion, wave height)

Each bulletin will contain a header, a valid period, notes on parameters used within the bulletin, a synopsis section, a weather forecast section and a wave forecast section. Below is a sample of a partial NAVTEX produced for CCG MCTS Sydney. Note that NAVTEX will make use of abbreviations: this is necessary in order to comply with the physical limitations of the NAVTEX system. In the example, text in superscript indicates how abbreviations are used.

<b>NAVTEX service sample (518 kHz)</b>	
Header	FQCN <sup>34</sup> <b>CWHX</b> 171400
Title(part one)	▶ NAVTEX/I FOR SYDNEY VCO AT 10:00 AM AST FRI <sup>Friday</sup> 17 NOV <sup>November</sup> 2006.
<b>Weather forecast</b>	
Parameters	▶ VLD <sup>valid period</sup> 17/14Z-19/03Z, WND(KT) <sup>wind in knots</sup> , VIS(NM) <sup>visibility in nautical miles</sup> ABV <sup>above</sup> 1 NM UNL IND <sup>unless indicated</sup> , FOG IMPLIES VIS 1 NM OR LESS.
Synopsis	▶ <b>SYNOPSIS:</b> 17/14Z STRM <sup>storm</sup> 980 MB OVR SRN NFLD <sup>over southern Newfoundland</sup> 18/14Z STRM <sup>storm</sup> 985 MB OVR NRN NFLD <sup>over northern Newfoundland</sup> 17/14Z RIDG OVR WRN QUE. <sup>ridge over western Quebec</sup> 18/14Z RIDG OVR WRN GU ST LAW. <sup>ridge over western Gulf of St Lawrence</sup>
Area name	▶ EASTERN SHORE, FOURCHU:
Warning	▶ WNG <sup>warning</sup> : NIL.
Wind forecast	▶ WND: SW <sup>southwest</sup> 10-15. 17/18Z SE <sup>southeast</sup> 15-20. 18/06Z V15. 18/12Z SW <sup>southwest</sup> 15-20. 18/18Z SW20-25. 19/00Z SW15-20.
Visibility forecast	▶ VIS: 17/13Z-19/03Z PTH-FG <sup>.fog banks</sup>  {... other marine areas }
End of weather	▶ END/
<b>Waves forecast</b>	
Parameters	▶ WAVES(M) <sup>meter</sup> VLD 17/09Z-18/10Z.
Area name	▶ EASTERN SHORE, SABLE, EAST SCOTIAN SLOPE-N <sup>- northern half</sup> , FOURCHU, BANQUEREAU:
Height in meters	▶ 1-2.  {.... Other marine areas }
End of waves and part one	▶ END/



NAVTEX service sample (518 kHz)

Header ▶	FQCN <u>34</u> <b>CYOX</b> 171330
Title (VCO part two) ▶	NAVTEX/2 FOR SYDNEY VCO.
<b>Weather forecast</b>	
Parameters ▶	VLD 17/13Z-19/03Z.
Marine areas ▶	NORTHEAST GULF, GULF-PORT AU PORT:
Warning ▶	WNG: NIL.
Wind ▶	WND: S10-15G20. 17/23Z S10-15. 18/11Z S15-20. 18/18Z SW20.
Visibility ▶	VIS: 17/12Z-19/02Z FG-PTH.
	<i>{... other marine areas}</i>
End of weather ▶	END/
<b>Wave forecast</b>	
Parameters ▶	WAVES(M) VLD 17/09Z-18/09Z.
Marine areas ▶	NORTHEAST GULF:
Waves ▶	1-2. 18/06Z 0-1.
	<i>{... other marine areas}</i>
End of waves and part two ▶	END/



Table 5: Abbreviations used by MSC within NAVTEX

Date/Time standards

April	APR	June	JUN	September	SEP
August	AUG	March	MAR	Sunday	SUN
December	DEC	May	MAY	Thursday	THU
February	FEB	Monday	MON	today	TDY
Friday	FRI	November	NOV	tonight	TNGHT
January	JAN	October	OCT	Tuesday	TUE
July	JUL	Saturday	SAT	Wednesday	WED

Marine Forecast area dividing standards

- eastern half	-E	- northwestern half	-NW	- southwestern half	-SW
- northeastern half	-NE	- southeastern half	-SE	- western half	-W
- northern half	-N	- southern half	-S		

Forecast parameters

valid	VLD	unless	UNL	millibar	MB
indicated	IND	knots	KT	nautical mile	NM
implies	IMPL	meters	M		



**Table 5: Abbreviations used by MSC within NAVTEX**

**Wind elements**

east	E	south	S	west	W
north	N	southeast	SE	light	LGT
northeast	NE	southwest	SW	with gust to	G
northwest	NW	variable	VRB	warning	WNG

**Freezing spray qualifier**

freezing spray	FRZ-SPR	risk	RSK	outside the ice edge	OUT-EDGE
moderate	MOD	severe	SEV	over open water	OVR-OW
at times	OCNL				

**Wave elements**

ice covered	ICE				
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**Weather elements**

blizzard	BZ	hail	HL	mist patches	PTH-MIST
blowing snow	BS	heavy rain	HVY-RA	rain	RA
drizzle	DZ	heavy snow	HVY-SN	rain and snow mixed	MIX-RASN
flurries	LGT-SN	heavy thunderstorm	HVY-TSTM	scattered	SCT
fog	FG	ice fog	IFG	showers	SHWRS
fog banks	PTH-FG	ice pellets	IP	snow	SN
freezing drizzle	FRZ-DZ	light snow	LGT-SN	thunderstorm	TSTM
freezing rain	FRZ-RA	mist	MST	waterspout	WTSPT

**Weather/visibility elements (qualifier)**

at times	OCNL	as low as 1 mile	NR 1	one mile or less	0-1
heavy	HVY	in precipitation	IN-PRECIP	visibility	VIS
occasional	OCNL	near zero	NR 0		

**Trend descriptors (synopsis)**

building	BLDN	intensifying	INTSF	splitting	SPLIT
dissipating	DISS	merging	MERG	weakening	WKN
deepening	DPN	quasi-stationary	QSTNR		

**Systems descriptors (synopsis)**

cold front	C-FRONT	hurricane	HURR	ridge	RIDG
col	COL	low	LOW	storm	STRM
disturbance	DISTURB	trough	TROUGH	tropical depression	TD
flat low	FLAT LOW	Post tropical storm	POST-TS	tropical storm	TS
frontal system	FRONT	high	HIGH	warm front	W-FRONT

**Position descriptors (synopsis)**

cape	CAP	lake	LK	Pacific	PAC
coastal	CSTL	longitude	LONG	peninsula	PEN
from	FM	near	NR	river	RIV
island	IS	located on a line	ON LINE	strait	STR
latitude	LAT	over	OVR		





**Table 5: Abbreviations used by MSC within NAVTEX**

**Cardinal point descriptors (synopsis)**

central	CENTRAL	northeast-southwest	NE-SW	southeast	SE
east	E	northern	NRN	southeastern	SERN
eastern	ERN	north - south	N-S	southern	SRN
east - west	E-W	northwest	NW	southwest	SW
from	FM	northwestern	NWRN	southwestern	SWRN
north	N	northwest-southeast	NW-SE	west	W
northeast	NE	south	S	western	WRN
northeastern	NERN				

**Territorial references (synopsis)**

Alberta	ALTA	New Brunswick	NB	Ontario	ONT
British Columbia	BC	Newfoundland	NFLD	Prince Edward Island	PEI
Great lakes	GRT LKS	Newfoundland and Labrador	NL	Quebec	QUE
Gulf of St Lawrence	GU ST LAW	Nova Scotia	NS	Saskatchewan	SASK
Labrador	LAB	Northwest Territories	NWT	Yukon Territory	YT
Manitoba	MAN				

**ICE ELEMENTS**

**ice conc.**

1 tenth	1	6 tenths	6	bergly water	BW
10 tenths	10	7 tenths	7	consolidated	CONS
2 tenths	2	8 tenths	8	ice free	IF
3 tenths	3	9 plus tenths	9+	open water	OW
4 tenths	4	9 tenths	9	trace of	TR-
5 tenths	5	9 to 10 tenths (lake ice)	9-10		

**ice type**

first year ice	FYI	medium ice	MEDI	thick ice	TKI
grey ice	GI	new ice	NI	thin ice	THI
greywhite ice	GW	old ice	OI	very thick ice	VTKI

**ice qualifier**

heavy	HVY	moderate	MOD	strong	STRG
light	LGT	pressure	PRESS		

**ice general**

conditions	CDNS	except	EXC	possible	POSS
edge	EDGE	ice	ICE	along the coast	ALNG CST
estimated	EST	including	INCL		

**ice direction**

eastward	EWD	northwestward	NWWD	southwestward	SWWD
northeastward	NEWD	southeastward	SEWD	westward	WWD
northward	NWD	southward	SWD		



**Table 6: MAFOR DECODE TABLE**

**MAFOR**  
**YYG<sub>1</sub>G<sub>1</sub>/**

**0AAAa<sub>m</sub>**

**1GDF<sub>m</sub>W<sub>m</sub>**

YYG<sub>1</sub>G<sub>1</sub>/ YY: Day of the month

G<sub>1</sub>G<sub>1</sub>: Time of commencement of forecast (UTC). Midnight is encoded as 00

0AAAa<sub>m</sub> the maritime area to which the whole forecast or set of forecasts refers. If the geographical name for the forecast region is used instead of the indicator AAAa<sub>m</sub>, it shall be inserted at the place of this group.

a <sub>m</sub>	Portion of the maritime area		
<i>Code</i>		<i>Code</i>	
0	Whole of the area AAA	5	Southwest quadrant of the area AAA
1	Northeast quadrant of the area AAA	6	Western half of the area AAA
2	Eastern half of the area AAA	7	Northwest quadrant of the area AAA
3	Southeast quadrant of the area AAA	8	Northern half of the area AAA
4	Southern half of the area AAA	9	Rest of the area AAA

1GDFmWm G: Forecast period

D: Direction from which the wind is blowing

F<sub>m</sub>: Beaufort number

W<sub>m</sub>: Forecast weather

G	Forecast period	D	Wind	F <sub>m</sub>	Wind	W <sub>m</sub>	Forecast weather
<i>Code</i>	<i>Descriptive</i>	<i>Code</i>	<i>direction</i>	<i>Code</i>	<i>Beaufort</i>	<i>Code</i>	
0	Beginning of period	0	Calm	0	0 - 3	0	Moderate to good visibility, (greater than 1 nm)
1	Valid for 3 hrs	1	Northeast	1	4	1	Risk of accumulation of ice on superstructures
2	Valid for 6 hrs	2	East	2	5	2	Strong risk of accumulation of ice on superstructure
3	Valid for 9 hrs	3	Southeast	3	6	3	mist
4	Valid for 12 hrs	4	South	4	7	4	Fog
5	Valid for 18 hrs	5	Southwest	5	8	5	Drizzle
6	Valid for 24 hrs	6	West	6	9	6	Rain
7	Valid for 48 hrs	7	Northwest	7	10	7	Snow, or rain and snow
8	Valid for 72 hrs	8	North	8	11	8	Squally weather with or without showers
9	Occasionally*	9	Variable	9	12	9	Thunderstorms



## NORTHERN CANADA

**Includes: Western and Eastern Arctic, Central and Western Hudson Bay & Major Inland Lakes of Manitoba, Northern Saskatchewan and Northwest Territories.**

### Marine Weather Forecast Program

➡ **The Prairie and Arctic Storm Prediction Centre**, Environment Canada, Edmonton, provides marine forecasts in support of Arctic marine activity during the open water season from summer into parts of the fall. The forecast area encompasses Lake Athabasca, Great Slave Lake, the Mackenzie River, the waterways of the western and high Arctic, Baffin Bay and Davis Strait, Foxe Basin, Hudson Strait and Ungava Bay, and central and western Hudson Bay. Quebec Region provides marine weather forecasts for eastern Hudson Bay and James Bay. **Note that sea state forecasts are not produced for the Arctic areas.**

**The Storm Prediction Centre**, Environment Canada, Winnipeg, provides marine forecasts for Lake Winnipeg (north and south basins), Lake Manitoba and Lake Winnipegosis during the open water season in support of pleasure and commercial activities. The forecast program for the Manitoba lakes continues through the winter months as a public rather than a marine forecast in aid of commercial ice fishing. Minimum and maximum temperatures along with wind chill are included in the forecast.



**Table 7: Production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Technical marine synopsis	06:30, 18:30	MDT / MST	Western Arctic
	04:45, 16:45	EDT / EST	Eastern Arctic
Suite of Marine forecasts	05:00, 17:00	MDT / MST	Inland waters
	07:00, 19:00	MDT / MST	Western Arctic Waterway
	05:30, 17:30	EDT / EST	Arctic
	07:30, 19:30	CDT / CST	Western Hudson Bay
	05:30, 17:30	EDT / EST	Southern Nunavut
	05:00, 17:00	EDT / EST	Eastern Nunavut

#### b) NAVTEX format on 518 kHz:

MCTS Centre	Name	Header	Availability
Iqaluit VFF	Navtex	FQCN36 CWNT	05:30, 17:30 EDT / EST

#### Marine Weather Warnings: (refer to Table 1, page 5-1)

Note the following regional particularities:

	Warning Types	Comments
➡ <sub>1</sub>	<b>Strong wind warning</b>	Applies to Manitoba Lakes, Lake Athabasca, Great Slave Lake and Mackenzie River

#### Weather and ice messages:

Ship weather and ice reports in the international meteorological code, taken at the standard synoptic hours of 0000, 0600, 1200 and 1800 UTC are solicited from ships of all nationalities which have been recruited by their national weather service, or other weather services. These reports should be transmitted directly to the circuit using Inmarsat. Alternately, the observation should be passed to the nearest Marine Communications and Traffic Services Centre, irrespective of the ship's position. Reports made close to, or even within sight of land, are as important as reports made offshore, due to the greater variability of weather conditions in proximity to a coastline. Such reports 'contribute' to knowledge of Arctic weather from both a real-time operational perspective and from a climate perspective.

The **Prairie Storm Prediction Centre** also welcomes weather, sea, and ice observations from the lakes. Real-time observations, and those up to a few hours after the event, are most valuable. Pass observations to 1-800-66STORM (1-800-667-8676).

**Radiofacsimile package available: Analyses and prognostics**

Weather analysis and weather prognostic charts covering Arctic and Hudson Bay waters are prepared at the Arctic Weather Centre. MCTS Iqaluit and MCTS Inuvik transmit selected charts on radiofacsimile. Please note the MCTS Centres access these charts from a web site at the Canadian Ice Service (CIS). Arctic Weather prepared charts are available directly to subscribers of the Canadian Ice Services Web site.

**Buoys – the following buoys are usually in place during the open water season**

WMO #	Location / Information	LAT Deg/min	LONG Deg/min
45140	Lake Winnipeg South Basin (moored buoy)	50°48'N	096°44'W
45141	Great Slave (moored buoy - 25 nm northeast of Hay River)	61°11'N	115°19'W
45144	Lake Winnipeg North Basin (moored buoy)	53°15'N	098°15'W
45145	Lake Winnipeg between North and South Basins	51°24'N	096°42'W
45150	Great Slave (moored buoy - immediate west of Inner Whaleback Rocks)	61°55'N	113°45'W
45158	Hudson Bay SW	59°00'N	094°00'W

The **Great Slave Lake** buoys are deployed in early July and retrieved in late September or early October. The buoys provide hourly wind and temperature data and include surface water temperature and wave data.

The **Lake Winnipeg** South Basin buoys are deployed annually in May or June, and retrieved in October. The buoys provide hourly wind and temperature data and include surface water temperature data. The buoys also provide wave data.

The **Hudson Bay** buoy is deployed annually mid to late July and retrieved late September or early October. The buoy provides hourly wind and temperature data and includes surface water temperature data. The buoy also provides wave data.

**Weatheradio Canada**

Stations	CALL SIGN	Frequency (MHz)	Power	Location
Iqaluit	CIQA	93.3 FM		Iqaluit
Inuvik	VBU996	162.400	53.7 Watts ERP	Hidden Lake
Yellowknife	VBC200	162.400	150 Watts ERP	Yellowknife Seismic Station
Winnipeg	XLM538	162.550		
Riverton	XLF471	162.400		
Long Point	VCI386	162.550		

**Winnipeg, Riverton and Long Point** provide **continuous** broadcast of marine weather forecasts and warnings for the Manitoba Lakes, and of marine weather observations when available.

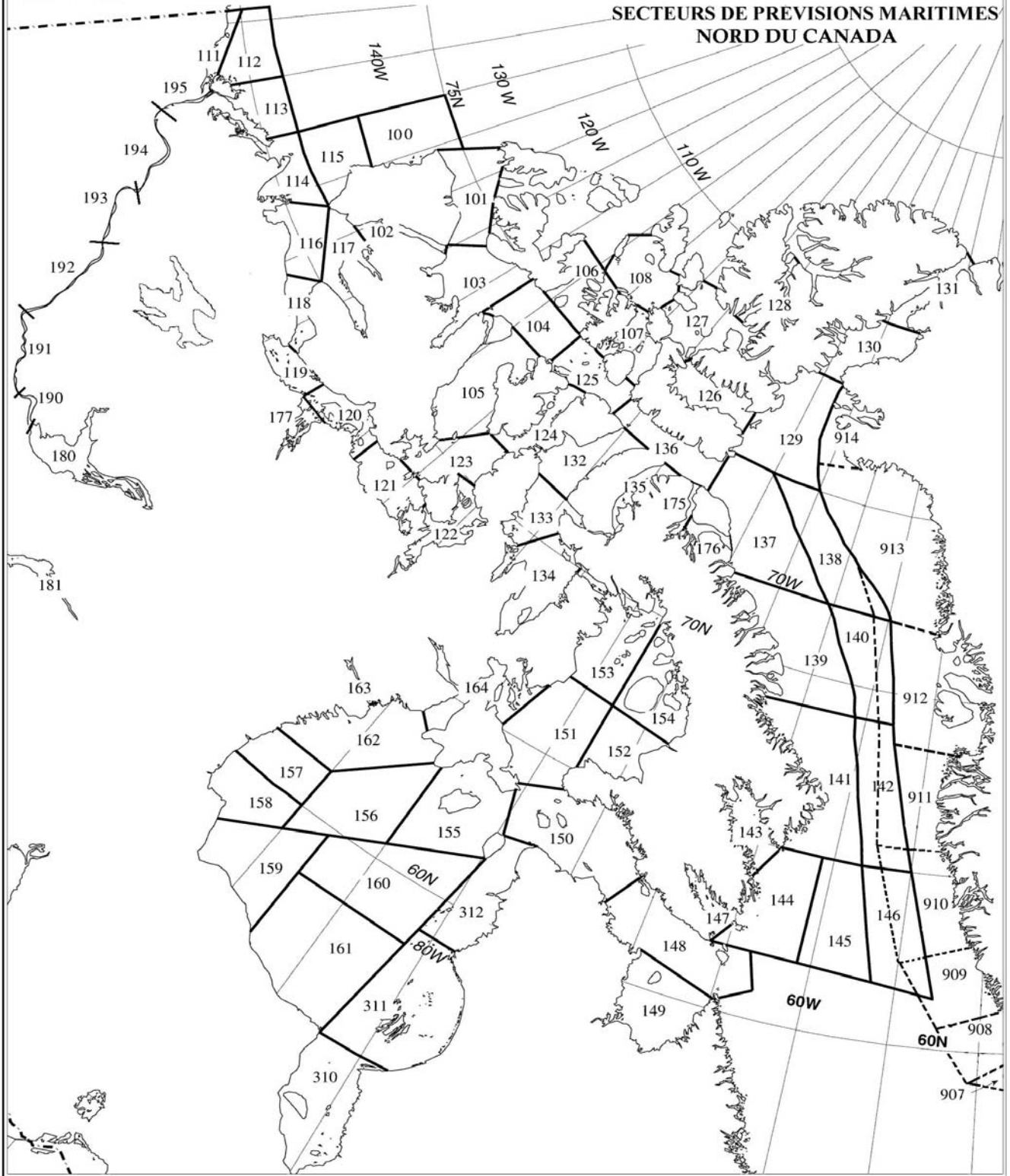


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Canada

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Canada

# MARINE FORECAST AREAS NORTHERN CANADA

## SECTEURS DE PREVISIONS MARITIMES NORD DU CANADA



## MARINE FORECAST AREAS

### Eastern and Western Arctic Waters

<u>Number</u>	<u>Area Name</u>	<u>Availability Period</u>	<u>Number</u>	<u>Area Name</u>	<u>Availability Period</u>
100	Prince Alfred	Shipping season	138	East Baffin	July-August
101	McClure	Shipping season	139	West Clyde	July 01 - Oct. 31
102	Prince of Wales	Shipping season	140	East Clyde	July-August
103	Melville	Shipping season	141	West Davis	July 01 - Oct. 31
104	Rae	Shipping season	142	East Davis	July 01 - Oct. 31
105	McClintock	Shipping season	143	Cumberland	July 01 - Oct. 31
106	Byam	Shipping season	144	West Brevoort	July 01 - Oct. 31
107	Queens	Shipping season	145	Central Brevoort	July 01 - Oct. 31
108	Maclean	Shipping season	146	East Brevoort	July 01 - Oct. 31
109	(unused)	-	147	Frobisher Bay	July 01 - Oct. 31
110	(unused)	-	148	Resolution	July 01 - Oct. 31
111	Yukon Coast	July 01 - Sept. 30	149	Ungava	July 01 - Oct. 31
112	Mackenzie	July 01 - Oct 10	150	Nottingham	July 01 - Oct. 31
113	Tuktoyaktuk	July 01 - Oct 10	151	West Foxe	Shipping season
114	Baillie	July 15 - Sept. 30	152	East Foxe	Shipping season
115	Banks	Shipping season	153	Igloolik	Shipping season
116	Amundsen	July 15 - Sept. 30	154	Prince Charles	Shipping season
117	Holman	Shipping season	155	Coats	Shipping season
118	Dolphin	July 15 - Sept. 30	156	Central	Shipping season
119	Coronation	July 15 - Sept. 30	157	Arviat	July 01 - Oct. 15
120	Dease	July 15 - Sept. 30	158	Churchill	July 01 - Oct. 15
121	Maud	Shipping season	159	York	Shipping season
122	St. Roch	Shipping season	160	South-central Hudson	Shipping season
123	Larsen	Shipping season	161	South Hudson	Shipping season
124	Peel	Shipping season	162	Rankin	July 01 - Oct. 15
125	Barrow	July 01 - Oct. 31	163	Baker	July 01 - Sept. 30
126	Jones	Shipping season	164	Roes Welcome	Shipping season
127	Norwegian	Shipping season	170	North Tuktoyaktuk	July 01 - Oct. 31
128	Eureka	Shipping season	171	North Mackenzie	July 01 - Oct. 31
129	Clarence	Shipping season	172	West Prince Alfred	July 01 - Oct. 31
130	Kane	Shipping season	173	Northwest Beaufort	July 01 - Oct. 31
131	Robeson	Shipping season	175	Navy Board	July 01 - Oct. 31
132	Regent	Shipping season	176	Pond	July 01 - Oct. 31
133	Boothia	Shipping season	177	Bathurst	July 01 - Oct. 31
134	Committee	Shipping season	310	James Bay	Navigation season
135	Admiralty	Shipping season	311	Belcher	Navigation season
136	Lancaster	July 01 - Oct. 31	312	Povungnituk	Navigation season
137	West Baffin	July 01 - Oct. 31			

**Inland waters**

<u>Number</u>	<u>Area name</u>	<u>Availability period</u>
180	Great Slave Lake	June 15 - October 31
181	Lake Athabasca	Open water season
182	Lake Manitoba	Open water season
183	Lake Winnipeg - south basin	Open water season
184	Lake Winnipeg - north basin	Open water season
185	Lake Winnipegosis	Open water season
190	Wrigley Harbour (mile 0) to Axe Point (mile 91)	June 01 - Oct. 20
191	Axe Point (mile 91) to Camsell Bend (mile 290)	June 01 - Oct. 20
192	Camsell Bend (mile 290) to Tulita (mile 512)	June 01 - Oct. 20
193	Tulita mile (512) to Fort Good Hope (mile 684)	June 01 - Oct. 20
194	Fort Good Hope (mile 684) to Point Separation (mile 913)	June 01 - Oct. 20
195	Point Separation mile (913) to Kittigazuit Bay (mile 1081)	June 01 - Oct. 20

Danish Marine Forecasts for Baffin Bay Waters **available via:** Danish Meteorological Institute, Copenhagen Tel: (45) 39 15 7500.

<u>Number</u>	<u>Area Name</u>	<u>Period</u>	<u>Number</u>	<u>Area Name</u>	<u>Period</u>
907	Nunap Isuata Kitaa	Year round	911	Attu	Year round
908	Nuuarsuit	Year round	912	Uiffaq	Year round
909	Narsalik	Year round	913	Qimusseriarsuaq	Year round
910	Meqqitsoq	Year round	914	Kiatak	Year round

**Marine Weather Observations - manned stations Weather Reports (See note 2) for**

Aklavik	Lake Winnipeg: Gimli	Norman Wells
Fort MacPherson	Lake Winnipeg: Grand Rapids	Sachs Harbour
Fort Reliance	Lake Winnipeg: George Island	Tuktoyaktuk
Fort Resolution	Lake Winnipeg: Norway House	Yellowknife
Hay River	Lake Winnipeg: Berens River	
Inuvik	Lake Winnipeg: Victoria Beach	

**Marine Weather Observations – Automatic stations Weather Reports (See note 2) for**

Inner Whale Back Island automatic station
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**Marine Weather Observations – Buoy reports Weather Reports (See note 2) for**

45141	Great Slave Lake Buoy	45140	Lake Winnipeg Buoy (South Basin)
45150	Great Slave Lake Buoy	45144	Lake Winnipeg Buoy (North Basin)

(2) When available. Full broadcasts from staffed stations. Temperature and winds from automatic stations and buoys.





## NEWFOUNDLAND AND LABRADOR

### Marine Weather Forecast Program

The program provides marine weather, sea state and wave height information for the waters around Newfoundland and Labrador out to approximately 250 nm and the waters of the Gulf of St. Lawrence, and for other specific bodies of water.

#### The regular program

The regular program covers the waterways mentioned above and this is in effect year round. The program provides a full 24 hour, 7 days a week weather watch, warning and amendment service. Each contains detailed forecasts for the period until midnight of the following day. An outlook for the following 3 days is also produced.

Wave height forecasts are produced twice a day and cover the following 30 hours.



**Table 8: Production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Technical marine synopsis	03:00, 10:00, 15:30, 20:00	NDT / NST	Newfoundland
	04:00, 09:30, 16:00, 21:30	NDT / NST	Labrador
Marine forecast	03:00, 10:00, 15:30, 20:00	NDT / NST	Newfoundland
	04:00, 09:30, 16:00, 21:30	NDT / NST	Labrador
Marine weather statement	As needed		
Wave height forecast	06:00, 18:00	NDT / NST	Newfoundland
	06:00, 18:00	NDT / NST	Labrador
Extended marine forecast	05:00, 16:30	NDT / NST	Newfoundland
	05:00, 16:30	NDT / NST	Labrador

#### b) NAVTEX format on 518 kHz

MCTS Centres	Name	Header	Availability
St. John's VON	Navtex	FQCN33 CYQX	03:00, 10:00, 15:30, 20:00 NDT / NST
Labrador VOK	Navtex	FQCN35 CYQX	04:00, 09:30, 16:00, 21:30 NDT / NST

### Weather Bulletins

Observations on the Automated Marine Telephone Line and Weatheradio are updated hourly and include a series of coastal stations extending around the coast of Newfoundland and Labrador, and into the Gulf of St. Lawrence, as well as offshore buoys.

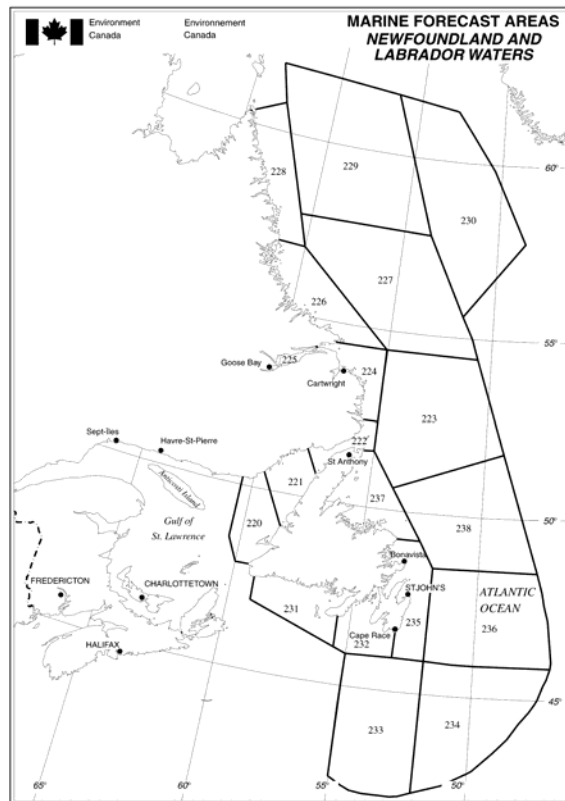
#### Weatheradio Canada

There is 1 main station in the region.

Stations	CALL SIGN	Repeaters
Gander	XLM 616	15

**Frequencies in use: 162.400 MHz, 162.475MHz, 162.550 MHz.**

Broadcasts can be received over most coastal areas of Newfoundland and southern Labrador. Broadcasts include **warnings**, marine weather **forecasts**, **synopses**, **sea state** forecasts, **ice** conditions. Hourly updated observations from coastal stations and offshore buoys are all incorporated in the broadcast.



## MARINE FORECAST AREAS

### Newfoundland and Labrador Waters:

220	Gulf - Port au Port	227	South Labrador Sea	233	Southwestern Grand Banks
221	Northeast Gulf	228	North Labrador Coast	234	Southeastern Grand Banks
222	Strait of Belle Isle	229	Northwest Labrador Sea	235	East Coast
223	Belle Isle Bank	230	East Labrador Sea	236	Northern Grand Banks
224	South Labrador Coast	231	Southwest Coast	237	Northeast Coast
225	Lake Melville	232	South Coast	238	Funk Island Bank
226	Mid Labrador Coast				

### Marine Weather Observations

Argentia	Englee	Natashquan
Blanc Sablon	Ferolle Pt.	Pool's Island
Bonavista	Goose Bay	Port aux Basques
Burgeo	Grates Cove	Sagona
Cap Whittle	Hopedale	St Anthony's Harbour
Cape d'Espoir	LaScie	St John's
Cape Race	Makkovik	St. Anthony Airport
Cartwright	Marticot	Stephenville
Chevery	Mary's Harbour	Twillingate
Daniels's Harbour	Nain	

Observations will be broadcast only when available.

Hourly updated observations from coastal stations and offshore buoys may also be available on **Weatheradio**



## MARITIMES REGION

### Marine Weather Forecast Program

The program provides marine weather, sea state and wave height information for the waters around the Maritimes to approximately 250 nm and the waters of the Gulf of St. Lawrence, and for other specific bodies of water. The Atlantic Storm Prediction Centre also maintains a Wave Analysis and forecasting program which provides analysis and forecast wave charts for the north Atlantic for DND; these charts are subsequently rebroadcast by FLEET on Radiofax.

#### The regular program

The regular program covers the waterways mentioned above, plus detailed forecasts for Halifax Harbour and this is in effect year round. The program provides a full 24 hour, 7 days a week weather watch, warning and amendment service. Each contains detailed forecast for the period until midnight of the following day. An outlook for the following 3 days is also produced.

Wave height forecasts are produced twice a day and cover the following 30 hours.

#### The recreational program

The recreational program covers the waters of Bras d'Or Lakes in Cape Breton during the summer season (May 01 to October 31). Recreational forecasts are issued 3 times a day.



**Table 9: Production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Technical marine synopsis	03:00, 10:00, 15:30, 20:00	ADT / AST	Maritimes
Marine forecast	03:00, 10:00, 15:30, 20:00	ADT / AST	Maritimes
	03:00, 10:00, 15:30, 20:00	ADT / AST	Halifax Harbour and Approaches
Recreational boating marine forecast	03:00, 10:00, 15:30	ADT / AST	Bras d'Or Lakes
Marine weather statement	As needed		
Wave height forecast	05:00, 17:00	ADT / AST	Maritimes
Extended marine forecast	04:00, 16:00	ADT / AST	Maritimes

#### b) NAVTEX format on 518 kHz:

MCTS	Name	Header	Availability
Saint John VAR	NAVTEX	FQCN33 CWHX	03:00, 10:00, 15:30, 20:00 ADT / AST
Sydney VCO	NAVTEX/1	FQCN34 CWHX	03:00, 10:00, 15:30, 20:00 ADT / AST
	NAVTEX/2	FQCN34 CYQX	03:00, 10:00, 15:30, 20:00 NDT / NST

#### Marine Weather Warnings:

(refer to Table 1, page 5-1). Note the following regional particularities:

	Warning Types	Comments
1	Strong wind warning	Applies to Maritimes only and is only indicated in the synopsis and the forecast for Halifax harbour and the Bras d'Or Lakes Issued between April 15 and November 15.

## Weather Bulletins

Observations on the Marine Line and Weatheradio are updated hourly and include a series of coastal stations extending from the coast of Maine around the Maritimes and into the Gulf of St. Lawrence, as well as offshore buoys.

## Canadian Hurricane Centre

**The Canadian Hurricane Centre** is collocated with the Atlantic Storm Prediction Centre. It becomes operational when the effects of a Tropical storm enters or threatens to enter our response zone within 48-72 hrs. (Distant Tropical storm information is mentioned in the Marine Synopsis if the storm is north of 30°N and west of 40°W.) When operational the Canadian Hurricane Centre issues bulletins every 6 hours which include information statements for Public and Media and Prognostic messages for AEB and CFWS. Bulletins are issued at 3 hourly intervals when the storm threatens land.

## Moored Buoys: Positions North-West Atlantic Ocean

WMO#	Name	LAT	LONG
44137	East Scotia Slope	42.28 N	062.00 W
44138	SW Grand Banks	44.26 N	053.62 W
44139	Banquereau	44.27 N	057.09 W
44140	Tail of the Bank	43.75 N	051.75 W
44141	Laurentian Fan	43.00 N	058.00 W
44142	La Have bank	42.50 N	064.02 W
44251	Nickerson Bank	46.44 N	053.39 W
44255	NE Burgeo Bank	47.28 N	057.35 W
44258	Halifax Harbour Approaches	44.50 N	063.40 W

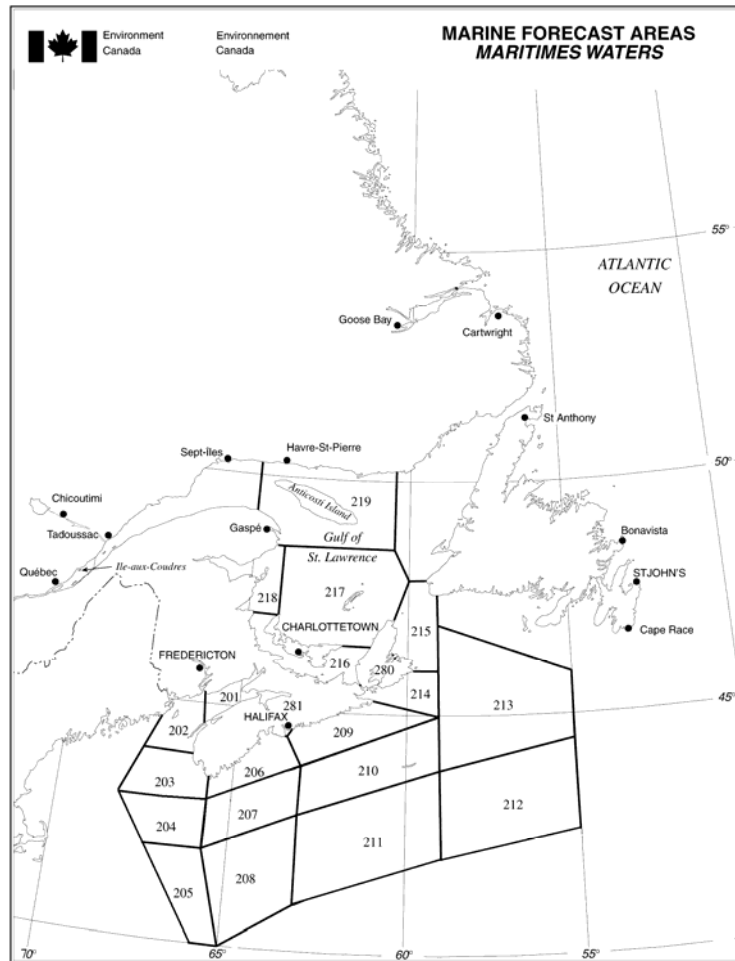
## Weatheradio Canada

There are 2 main stations in the region:

Stations	CALL SIGN	Repeaters
Moncton	XLM 466	8
Halifax	XLK 473	14

Frequencies in use: 162.400 MHz, 162.475MHz, 162.550 MHz.

Broadcasts can be received over most coastal areas of New Brunswick, Nova Scotia and Prince Edward Island. Broadcasts include **warnings**, marine weather **forecasts**, **synopses**, **sea state** forecasts, **ice** conditions. Hourly updated observations from coastal stations and offshore buoys are all incorporated in the broadcast.



**MARINE FORECAST AREAS**

**Maritime Waters:**

201 Fundy	208 West Scotian Slope	215 Cabot Strait
202 Grand Manan	209 Eastern Shore	216 Northumberland Strait
203 Lurcher	210 Sable	217 Gulf – Magdalen
204 Brown’s Bank	211 East Scotian Slope	218 Chaleur – Miscou
205 George’s Bank	212 Laurentian Fan	219 Anticosti
206 Southwestern Shore	213 Banquereau	280 Bras d’Or Lakes
207 Lahave Bank	214 Fourchu	281 Halifax Harbour and Approaches

**Marine Weather Observations:**

Miscou	Port aux Basques	Sept-Iles
Natashquan	Port Menier	St. Paul Island
Pointe Heath (Anticosti)	Rivière-au-Renard	St. Pierre
Pointe-des-Monts		

Observations will be broadcast only when available.

Hourly updated observations from coastal stations and offshore buoys may also be available on **Weatheradio**

## QUEBEC REGION

### Marine Weather Forecast Program

The program provides weather information for the St. Lawrence waterway, the Saguenay River, James Bay and eastern Hudson Bay, as well as for other specific lakes or navigable waterways.

#### The regular program

Area of coverage St.Lawrence waterway between Cornwall\* Ont. and Anticosti Island (65°W), and the navigable waterway of the Saguenay River between Chicoutimi and Tadoussac (see map areas 301-309). The program provides a **full 24 hour, 7 days a week weather watch, warning and amendment service**. Regular forecasts are issued twice a day.

Time coverage: Year round *\*St.Lawrence seaway portion (Cornwall to Montréal) in open season only.*

**Wave height forecasts are issued twice a day for marine areas 301, 302, 303 and 305.**

#### The northern program

Area of coverage: James Bay and eastern Hudson Bay (See map areas 310-311-312). The northern program provides a **full 24 hour, 7 days a week weather watch, warning and amendment service** during the navigation season. Forecasts are issued twice a day.

Time coverage: Navigation season (July - November).

**Wave height forecasts are also issued twice a day at for marine areas 310, 311 and 312.**

#### The recreational program

Area of coverage: Various lakes and navigable waterways (See map areas **380 to 386**).

Time coverage: Summer months (May - October).

The recreational (pleasure boaters) program provides a **full 24 hour, 7 days a week** squall line service during the summer months (refer to Table1, page 5-1)



**Table 10: Production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Technical marine synopsis	<b>03:00, 15:00</b>	EDT / EST	St. Lawrence and Saguenay rivers
	06:00, 18:00	EDT / EST	Eastern Hudson Bay
Marine forecast.	03:00, 15:00	EDT / EST	St. Lawrence and Saguenay rivers
	06:00, 18:00	EDT / EST	Eastern Hudson Bay
Marine weather statement	As needed		
Wave height forecast	03:00, 15:00	EDT / EST	St. Lawrence River
	06:00, 18:00	EDT / EST	Eastern Hudson Bay
MAFOR	03:00, 15:00	EDT / EST	St. Lawrence and Saguenay rivers
Extended marine forecast	06:00, 18:00	EDT / EST	St. Lawrence and Saguenay rivers
	06:00, 18:00	EDT / EST	Eastern Hudson Bay

**b) NAVTEX format on 518 kHz:**

MCTS	Name	Header	Availability
Rivière-au-Renard VCG	NAVTEX/1	FQCN37 CWUL	03:00, 15:00 EDT/EST
	NAVTEX/2	FQCN37 CWHX	03:00, 10:00, 15:30, 20:00 ADT/AST
	NAVTEX/3	FQCN37 CYQX	03:00, 10:00, 15:30, 20:00 NDT/NST

**Marine Weather Warnings: (refer to Table 1, page 5-1)**

Note the following regional particularities with respect to the **regular** programs:

	Warning Types	Comments
1	Strong wind <b>warning</b>	Issued between April and October only. Regular program only.

**Weather Bulletins**

Environment Canada operates a network of coastal and insular weather observing stations as well as one weather buoy. Hourly weather reports from these stations are available continuously on Environment Canada Weatheradio (see Weatheradio) and on request from the Canadian Coast Guard MCTS Centres (refer to Marine Weather Observations).

**Buoy Position St. Lawrence River**

In order to complement its network of coastal and insular weather observing stations, Environment Canada operates one weather buoy on the St-Lawrence. Mariners are requested to use caution when approaching the buoy as mooring chains are normally not detectable from a ship and can be damaged or even severed if there is contact.

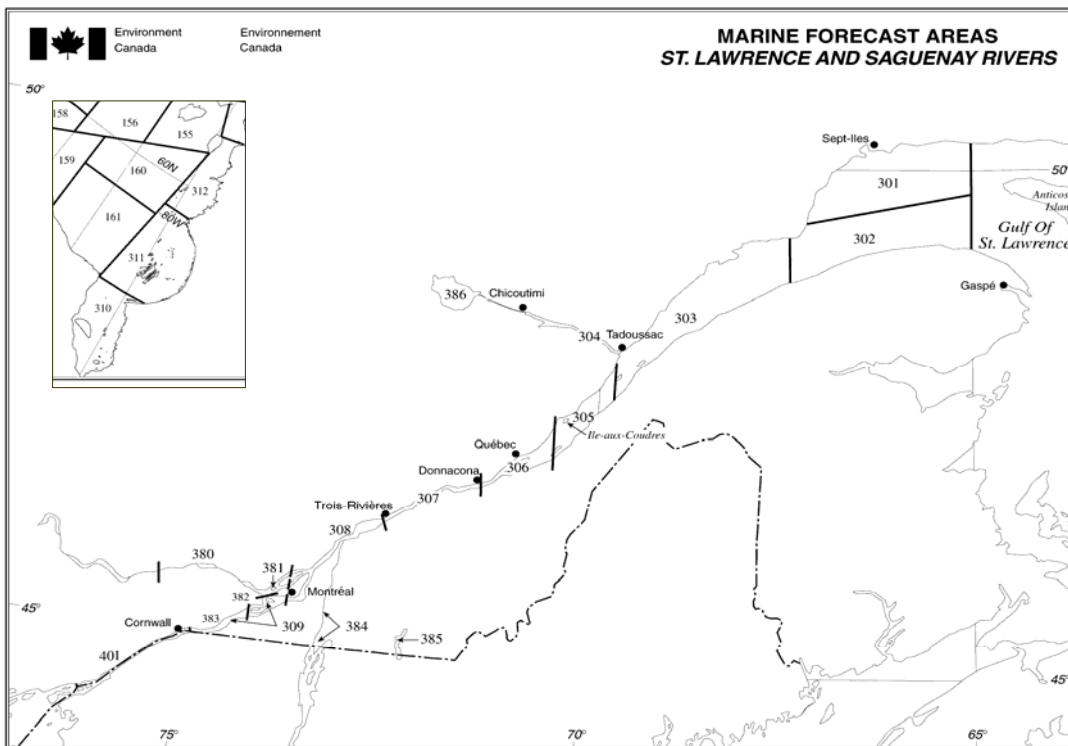
WMO#	Name	LAT	LONG
45138	Mont Louis	49.54°N	65.76°W

**Weatheradio Canada**

Weatheradio is a public service designed to make weather information available over VHF-FM continuously. Weatheradio is dedicated to transmitting up to the minute weather reports and forecasts directly to all users including the marine community. The table below lists all the Weatheradio stations under the responsibility of Environment Canada - Québec region broadcasting marine forecasts and weather reports, showing the stations and frequencies:

Stations	Frequency (Mhz)	Stations	Frequency (Mhz)
Montréal	162.550	Prevert	162.475
Trois-Rivières	162.400	Rivière-au-Renard	162.475
Québec	162.550	Gaspe (Pudding Stone)*	162.550
Baie St-Paul	162.400	Carleton *	162.500
Grand-Fonds	162.475	Mingan *	162.400
Mont Valin	162.550	Kegaska *	162.475
Rimouski	162.550	Harrington Harbour *	162.550
St-Cléophas	162.400	Blanc-Sablon *	162.400
Sept-Iles (Pointe Noire)	162.550	Magdalen Islands *	162.550

\* Also broadcast marine forecasts issued from Environment Canada – Atlantic region (refer to the Martimes Region and the Newfoundland and Labrador Region).



**MARINE FORECAST AREAS**

**Quebec waters**

**St Lawrence/Saguenay**

**Hudson Bay**

301	Pointe-des-Monts to Anticosti - northern half	310	James Bay
302	Pointe-des-Monts to Anticosti - southern half	311	Belcher
303	Tadoussac to Pointe-des-Monts	312	Puvirnituk
304	Saguenay to Tadoussac		
305	Isle-aux-Coudres to Tadoussac		
306	Donnacona to Isle-aux-Coudres		
307	Trois-Rivières to Donnacona		
308	Montréal to Trois-Rivières		
309	Cornwall to Montréal		
			<b><u>Major inland waters</u></b>
		384	Richelieu and Northern Lake Champlain
		385	Lake Memphrémagog - northern half
		386	Lake Saint-Jean

**Marine Weather Observations – St. Lawrence and Saguenay Rivers**

Baie-Comeau	Île Charron	Pointe Claveau
Cap Rouge	Île d'Orléans (St François)	Pointe-des-Monts
Cap-chat	Île Rouge	Port Alfred
Dorval Airport	Île St-Quentin	Rivière-au-Renard
Île aux Grues	Lauzon	Sept-Îles
Île Bicquette	Mont-Joli	St.-Hubert Airport

Reports are broadcast only when available.



## GREAT LAKES INCLUDING ST. LAWRENCE RIVER TO CORNWALL

### Marine Weather Forecast Program

The program provides marine weather information for the navigable waterway between Cornwall and Thunder Bay, and for other specific lakes or navigable waterways.

#### The marine weather forecast program

The program covers the waterway between Cornwall and Thunder Bay and is in effect **year round** except for the St. Lawrence Seaway portion where the service is only offered during the navigation season. The marine areas include: Lake Superior, Whitefish Bay, Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie, and Lake Ontario. Note that the marine forecast applies to the entire lake or specific body of water(not only to the Canadian portion). The program provides **a full 24 hour, 7 days a week weather watch, warning and amendment service**. Synopsis, **regular** forecast and wave height forecasts are issued 3 times a day

**Recreational forecasts** are issued 3 times a day for Lake Simcoe, Lake Nipissing, Lake of the Woods, the North Channel and Lake Nipigon.



**Tableau 11: Production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Technical marine synopsis	03:00, 10:30, 18:30	EDT / EST	Great Lakes and the Ontario portion of the St. Lawrence River
Marine forecast	03:00, 10:30, 18:30	EDT / EST	Great Lakes and the Ontario portion of the St. Lawrence River
Recreational boating marine forecast	05:00, 11:30, 17:30	EDT / EST	Lake of the Woods, Lake Nipigon, North Channel, Lake Nipissing, Lake Simcoe
Marine weather statement	As needed		
Wave height forecast	03:00, 10:30, 18:30	EDT / EST	Great Lakes and the Ontario portion of the St. Lawrence River
MAFOR	03:00, 10:30, 18:30	EDT / EST	Great Lakes and the Ontario portion of the St. Lawrence river
Extended marine forecast	03:00, 18:30	EDT / EST	Great Lakes and the Ontario portion of the St. Lawrence River

#### b) NAVTEX format on 518 kHz:

MCTS Centres	Name	Header	Availability
Prescott VBR	NAVTEX	FQCN38 CWTO	03:00, 10:30, 18:30 EDT / EST
Thunder Bay VBA	NAVTEX	FQCN39 CWTO	03:00, 10:30, 18:30 EDT / EST

#### Marine Weather Warnings:

(refer to Table 1, page 5-1): Note the following regional particularities with respect to the **regular** program:

	Warning Types	Comments
1	<b>Strong wind warning</b>	Issued May-Oct. and applies to Canadian waters only

#### Weather Bulletins: LAWEB (Great Lakes weather bulletin)

LAWEB consists of weather reports as received from Canadian Lighthouses equipped with automated weather stations, U.S. and Canadian weather buoys and weather offices located adjacent to the Great Lakes as observed at: 0000, 0300, 0600, 0900, 1200, 1500, 1800, 2100 UTC. When available, these reports are carried as part of the appropriate Continuous Marine Broadcast for three hours after the time of observation. MCTS Centres will broadcast these reports for the

locations indicated in the centre listing. More information on transmission of LAWEB can be found in the Marine eather Observations.

### Facsimile package available

The package is available by fax via the Prescott MCTS Centre and consists of:

- marine forecast for the Great Lakes and St. Lawrence River (eastward to Cornwall only).
- marine weather warnings
- charts of marine observations issued 4 times a day at: 0200, 0800, 1400, 2000 UTC
- 12 hr prognostic chart issued twice a day at 0100 and 1300 local time.
- Ice charts and reports – reference Part 5 Canadian Ice Services section

The facsimile package may be obtained by calling (613) 925-0666 and operating the POLL function on your facsimile machine. Mariners are cautioned that information may not be the latest issue.

### Buoys

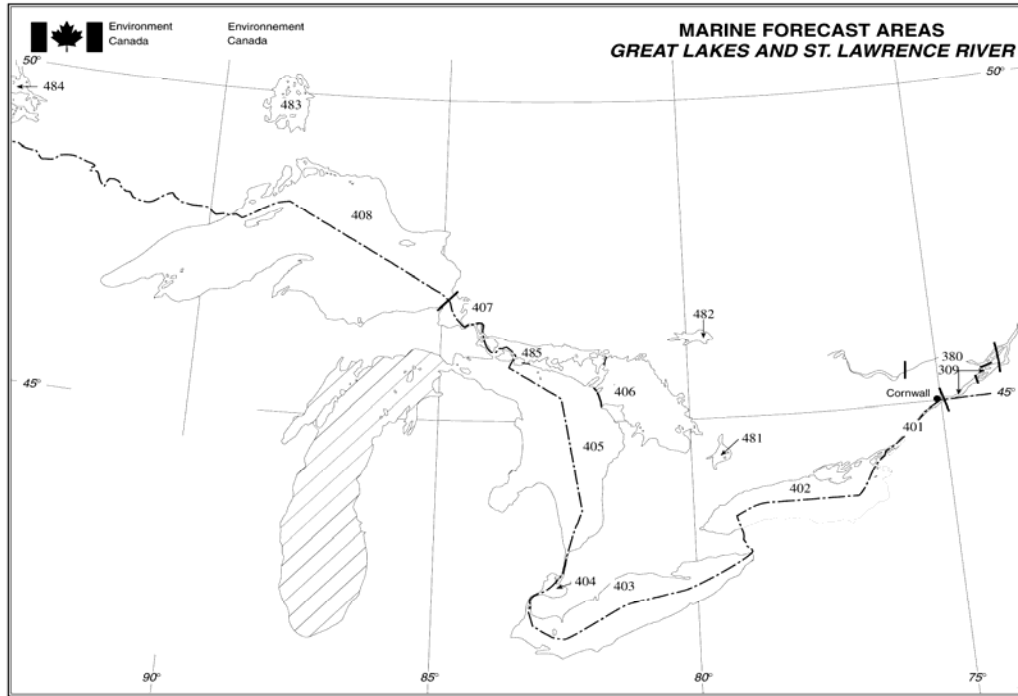
In order to complement the observational network, Environment Canada operates a network of buoys around the Great Lakes. This data becomes part of the collection of weather reports sent through LAWEB and is used to improve marine forecasting. Mariners are requested to use caution when approaching buoys as mooring chains are normally not detectable from a ship and can be damaged or even severed if there is contact, which could result in the buoy becoming adrift and a costly recovery of the platform. Please keep the regional Port Meteorological Officers informed of any incidents involving buoys.

Cdn. Buoys	Name/Lake	Position	U.S. buoys	Name/Lake	Position
45132	Port Stanley	42°28.3'N 81°12.9'W	45001	C. Superior	48°00'00"N 87°36'00"W
45135	Prince Edward Pt	43°47.4'N 76°52.4'W	45002	Michigan N.	45°18'00"N 86°18'00"W
45136	Slate Island	48°32.3'N 86°56.8'W	45003	N. Huron	45°18'00"N 82°48'00"W
45137	Georgian Bay	45°32.6'N 81°00.9'W	45004	E. Superior	47°12'00"N 86°30'00"W
45139	West Ontario	43°25.6'N 79°22.9'W	45005	W. Erie	41°42'00"N 82°30'00"W
45142	Port Colborne	42°44.2'N 79°17.4'W	45006	W. Superior	47°18'00"N 90°00'00"W
45143	S. Georgian B	44°55.1'N 80°37.7'W	45007	Michigan S.	42°43'00"N 87°06'00"W
45146	Triaxys	N/a	45008	S. Huron	44°18'00"N 82°24'00"W
45147	Lake St. Clair	42°25.8'N 82°41.0'W			
45148	Lake of the Woods	49°38.3'N 94°33.5'W			
45149	SE. Lake Huron	43°32.5'N 82°04.5'W			
45151	Lake Simcoe	44°30'N 79°22'W			
45152	Lake Nipissing	46°14'N 79°43'W			
45153	Wave test	43°25.4'N 79°21.9'W			
45154	North Channel East	46°03'N 82°38'W			
45159	Grimsby	43°13.7'N 79°28.3'W			
45160	16 Mile Creek	43°25.4'N 79°37.7'W			

### Weatheradio Canada

A very comprehensive network of stations covering the Great Lakes area. Frequencies in use are: **162.400 MHz, 162.475 MHz, and 162.550 MHz**. Broadcasts include Public and Marine Forecasts, select warnings, watches and advisories. Hourly updated observations from coastal stations and buoys are all incorporated in the broadcast.

Note: **Weatheradio Canada** automatically alerts users of severe weather warnings. Provided receivers are equipped with suitable alert devices they will emit a loud continuous tone and/or flashing light when a warning is issued.



**MARINE FORECAST AREAS**

**Ontario waters**

<b><u>Commercial shipping waters</u></b>		<b><u>Major inland waters</u></b>	
401	Kingston to Cornwall	481	Lake Simcoe
402	Lake Ontario	482	Lake Nipissing
403	Lake Erie	483	Lake Nipigon
404	Lake St. Clair	484	Lake of the Woods
405	Lake Huron	485	North Channel
406	Georgian Bay		
407	Whitefish Bay		
408	Lake Superior		

**Marine Weather Observations - weather Reports (1) for St. Lawrence River and Great Lakes**

Barrie	Montréal
Lake Simcoe ODAS buoy	Reports from Kingston to Montréal
Lagoon City	Reports from Long Point to Port Colborne
Kingston	Reports from Port Weller to Kingston
Alexandria Bay	Reports from Great Duck Island to Windsor
Massena	Reports from Sarnia to Port Colborne
Superior Shoals	Reports from Duluth (Lake Superior) to Detour Reef (Lake Huron)
Grenadier Islands	Reports from Sault Ste Marie to Sarnia and Georgian Bay

(1) Reports are broadcast only when available. Reports at sea, like buoys or ships, are also broadcast when available.

## CANADIAN ICE SERVICE (CIS)

### Ice Bulletins

Ice hazard bulletins are produced once a day year round. The intent is to advise users of any ice warning conditions that are in effect or that could develop during the day, the evening and the following day, for the areas where a daily ice chart is produced. The bulletins also provide a point by point description of the ice edge.

The iceberg bulletin is produced once a day except in November and December when it is produced from Monday to Friday only. The purpose is to convey routine, general information on the iceberg distribution off the Canadian East Coast. The bulletin provides the estimated limit of all known icebergs and a general description of the number of icebergs for each marine area.



**Table 12: Ice bulletins production schedule**

#### a) Text format

Forecast name	Issue Time	Time Zone	Marine region
Iceberg bulletin	11:00	EDT/EST	East Coast waters
Ice hazard bulletin	10:00	EDT/EST	Western and Central Arctic
	11:00	EDT/EST	Hudson and Foxe
	11:00	EDT/EST	Eastern and Northern Arctic
	10:00	EDT/EST	Gulf of St. Lawrence
	10:00	EDT/EST	East Newfoundland waters
	12:00	EDT/EST	Great Lakes

#### b) NAVTEX format on 518 kHz:

MCTS	Name	Header	Availability
St John's VON	Ice NAVTEX	FICN33 CWIS	10:00 EDT/EST
Sydney VCO	Ice NAVTEX	FICN34 CWIS	10:00 EDT/EST
Labrador VOK	Ice NAVTEX	FICN35 CWIS	10:00 EDT/EST
Prescott VBR	Ice NAVTEX	FICN38 CWIS	12:00 EDT/EST
Thunder Bay VBA	Ice NAVTEX	FICN39 CWIS	12:00 EDT/EST
Iqaluit VFF	Ice NAVTEX	N/a	N/a



#### Ice Warning Criteria

Warning Name	Warning criteria
<b>1. Ice Pressure warning</b>	Reported or forecast strong ice pressure in coastal areas, channels or ice pack.
<b>2. Rapid Closing of Coastal Leads warning</b>	Rapid closing of coastal leads is expected to occur.
<b>3. Special Ice warning</b>	When a shipping lane or port has been open for at least 2 weeks and is now expected to become blocked by first year or older ice.
	When one tenth or more of greywhite ice or older is expected to move into areas when that ice is not normally present.
	Any unusual or significant ice event that will present a hazard to navigation.

### Ice Forecast Program

Time scales for ice forecasts are relatively longer. Useful time scales for ice forecasts are weekly, monthly and seasonal. At present, the program provides a 30 day text forecast mainly as a planning tool for operators. Forecasts for specific areas and time scales are produced on demand on a cost-recovery basis.

## Ice Reports, Ice Observations

Ice reports from ships or other airborne platforms are normally relayed through MCTS Centres for broadcast. These reports are all assimilated in the daily ice charts produced by CIS.

## Ice Charts Available

Current ice conditions charts are produced on a daily basis. The area covered by the chart depends on the time of the season and these charts are normally broadcast at times specified in tables below.

Once a week, CIS produces Regional ice charts. These charts are intended to be used as a planning tool rather than a tactical support tool and are available to users on the CIS website at <http://ice-glaces.ec.gc.ca> and through commercial communication lines. They are not broadcast through MCTS Centres.

## Ice Beacons

In order to better track the ice drift or to verify ice models, CIS deploys between 4 to 8 ice beacons (locators) yearly. These devices drift with the ice and are relatively small, so they are very hard to detect from a ship. The beacons are deployed in the Beaufort sea polar pack (1 beacon), in Baffin Bay (1 to 3 beacons), off the East Coast of Labrador or Newfoundland (1 to 3) and in the Gulf of St Lawrence (2 to 4).

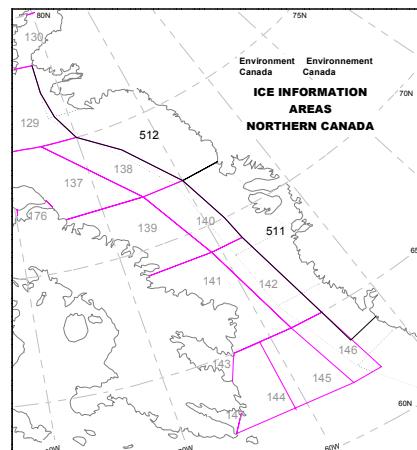
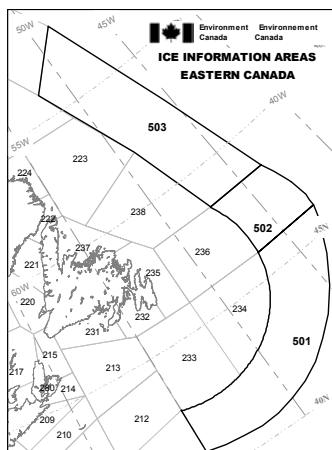
## Weatheradio Canada

Ice bulletins are not directly broadcast via Weatheradio. Rather, the regions capture the ice bulletins from the Environment Canada communication network and check if there is an ice warning in effect. If there is one, the warning will normally be added to the regular marine synopsis which is normally broadcast via the Weatheradio network.

## Ice areas

Areas for which ice bulletins apply are identical to the marine forecasts areas. In addition to these, ice bulletins will cover Lake Michigan, and may cover 3 areas along the East Coast (501 to 502), and two more off the Greenland Coast (511-512).

- 501 Tail of the Bank
- 502 Flemish
- 503 Southeast Labrador Sea
- 511 Greenland Central
- 512 Greenland North
- 541 Lake Michigan



## Ice charts

The following list describes ice charts produced to support Canadian Coast Guard operations which are available for broadcast. All **available** charts can be transmitted or re-transmitted on request. **MCTS broadcast times** are found in Chapter 2. **METOC Halifax broadcast times** are found immediately following this section.

Ice Chart (when available)	Broadcast site	Season
Iceberg limit	MCTS Sydney	Year round
Gulf of St. Lawrence	METOC Halifax MCTS Sydney	Winter Winter
East or Southeast Newfoundland Waters	METOC Halifax MCTS Sydney	Winter Winter
Labrador Coast	METOC Halifax MCTS Iqaluit	Winter Summer
Hudson Strait	MCTS Iqaluit	Summer
Northern Hudson Bay	MCTS Iqaluit	Summer
Southern Hudson Bay	MCTS Iqaluit	Summer
Foxe Basin	MCTS Iqaluit	Summer
Davis Strait	MCTS Iqaluit	Summer
Baffin Bay	MCTS Iqaluit (Resolute) MCTS Iqaluit	Summer
Approaches to Resolute	MCTS Iqaluit (Resolute)	Summer
Resolute - Byam	MCTS Iqaluit (Resolute)	Summer
Eureka Sound	MCTS Iqaluit (Resolute)	Summer
Parry Channel	MCTS Iqaluit (Resolute)	Summer
McClure Strait	MCTS Iqaluit (Resolute) MCTS Inuvik	Summer
Queen Maud	MCTS Iqaluit (Resolute) MCTS Inuvik	Summer
Amundsen Gulf	MCTS Inuvik	Summer
Alaskan Coast	MCTS Inuvik	Summer
Bering Strait	MCTS Inuvik	Summer

For correct reception of this broadcast on WMO standard facsimile recorders requiring 2300Hz for White and 1500 Hz for Black, 1800 Hz centre frequency, radio receivers should be tuned in the **UPPER SIDEBAND MODE** or **USB**; add **1.6 to 1.8** to the indicated frequencies.

**METOC Halifax (CFH):** Broadcasts intended for North Atlantic waters North of 35°N and West of 35°W. Radiofacsimile transmission commences with a 30 second break followed by a 30 second signal.

NAME	Call Sign	Modulation	Index of Cooperation	Power	Frequencies (kHz)	Drum speed
MCTS Iqaluit	<b>VFF</b>	J3C (FM)	576	5 KW	3251.1, 7708.1 ( <b>USB</b> )	120 RPM
MCTS Inuvik	<b>VFA</b>	J3C (FM)	576	1 KW	8456.0, 8457.8 ( <b>USB</b> )	120 RPM
METOC Halifax	<b>CFH</b>	J3C (FM)	576	6 KW	4271, 6496.4, 10536, 13510	120 RPM
METOC Halifax	<b>CFH</b>	J3C (FM)	576	10 KW	122.5	
MCTS Sydney	<b>VCO</b>	J3C (FM)	576	5 KW	4416, 6915.1	120 RPM

## Facsimile Broadcast

Upon authorized request from Canadian Coast Guard, C-GCFR can transmit observed conditions via satellite fax. Vessels must make a request through the Canadian Coast Guard to receive it.

## THE CANADIAN FORCES FLEET METEOROLOGICAL AND OCEANOGRAPHIC CENTRE (METOC) BROADCAST ATLANTIC

The Canadian Forces Fleet Meteorological and Oceanographic Centre (MetOe) Broadcast Atlantic broadcasts text and chart information for the Atlantic. The broadcast is maintained to serve and fulfill the requirements of the Canadian Navy. The area in which the broadcast is intended to be received is North Atlantic waters north of 35°N and west of 35°W.

### a) Radioteletype

NAME	Call Sign	Frequencies (kHz)	Power	Broadcast Times	Class of Transmission
Halifax	CFH	4271, 6496.4, 10536, 13510	6 KW	0000 – 2400	
Halifax	CFH	122.5	10 KW	0000 – 2400	100 WPM

Text based information is broadcast during those times when meteorological charts are not being transmitted. Selected bulletins are placed into a transmission queue. Once they have been received in the queue, they are assigned a priority. Once a bulletin is broadcast it is removed from the queue. The priority for a particular bulletin is reduced after each hour it remains in the queue. Each bulletin is also coded as to the length of time in hours it remains in the queue. If a particular bulletin is not broadcast during its allotted time, it is removed from the queue.

The following is a description of each type of bulletin that is inserted into the queue for broadcast.

**Weather Warnings (WH/WW)** have the highest priority and are put into the queue as they are received. They are broadcast as soon as possible once the charts have been done.

**The technical marine synopsis and (Regular) Marine Forecasts (FQ)** are issued by the Maritimes Weather Centre (CWHX) and the Newfoundland office (CYQX). **The production schedule is described in the MARITIMES and NEWFOUNDLAND AND LABRADOR sections of this chapter.**

**High Seas Forecasts** are issued four times per day and are put into the queue as they are received. The area of coverage is the Atlantic Ocean from 7N to 67N west of 35W.

**Ship Reports (SM)** are observations at each synoptic hour, 00, 06, 12 and 18 UTC. These reports are put into the queue when available.

**Buoy Reports** are from selected locations in the waters adjacent to Atlantic Canada.

**Terminal Forecasts (FT)** are issued four times per day within a half an hour of the synoptic hour, 00, 06, 12 and 18 UTC. Every hour surface observations and forecasts for selected aerodromes are broadcast.

**Ice Information (FI - Ice Hazard bulletins and FE - Thirty day Ice forecast)** for the Gulf of St. Lawrence, the East coast of Canada and the Eastern Arctic is broadcast according to the season and availability. When available, Ice Hazards bulletins are broadcast after 15 UTC and Thirty day Ice forecasts are broadcast after 18 UTC.

**Public Forecasts (FP)** are issued twice each day and contain a long-term forecast for the Maritimes provinces. These forecasts are put into the queue as they are received.

**PIREPS (UA)** are reports from aircraft pilots and are put into the queue as received.

**Upper Air Reports (UM, UG)** are reports from radiosonde balloons and are broadcast after 00 and 12 UTC.

**Tropical Cyclone Discussions (WO)** are bulletins that describe tropical weather that is expected to affect Canadian waters. These discussions are put into the queue when available.

The following list contains the buoys that are included in the Buoy Report groups. Every six hours reports from the available stations are collected and broadcast.

BUOYNS	44258 / 44139 / 44141 / 44137 / 44144 / 44011 / 44142
BUOYNF	44145 / 44251 / 44138 / 44255 / 44140
BUOYNE	44005 / 44008 / 44007 / 44013 / 44025

The following list contains the land stations that are included in the Terminal Forecast groups. For most stations both a METAR and TAF are broadcast.

TAFNS	CYAW XMI CYZX CYHZ CWSA CYQI CYQY
TAFNF	CYQX CYYT LFVP CYJT CYDF
TAFNB	CYSJ CYFC CYQM CYYG CYGR
TAFUS1	KNHZ KBOS KACK KGON JFK KDOV KADW KNHK KNGU KECG
TAFUS2	KMQI KNKT KMYR KNBC KNIP KCOF KHST TXKF TJNR TJSJ

In addition to the preceding tables and list, the following summarizes when particular bulletins are scheduled to be broadcast. All times UTC.

Hour 00	FQCN10/13 CWHX	Hour 08	FQCN10/13 CYQX	Hour 16	
Hour 01	FQCN10/13 CYQX	Hour 09	Buoy Reports Public Forecast	Hour 17	High Seas Forecast
Hour 02		Hour 10		Hour 18	
Hour 03	Buoy Reports	Hour 11	High Seas Forecast	Hour 19	FQCN10/13 CYQX
Hour 04		Hour 12		Hour 20	FQCN10/13 CYQX Public Forecast
Hour 05		Hour 13		Hour 21	Buoy Reports
Hour 06	High Seas Forecast	Hour 14	FQCN10/13 CWHX	Hour 22	
Hour 07	FQCN10/13 CWHX	Hour 15	FQCN10/13 CYQX Buoy Reports	Hour 23	High Seas Forecast

**b) Radio Facsimile**

NAME	Call Sign	Frequencies (kHz)	Power	Broadcast Times	Drum Speed	Index of Cooperation
Halifax	CFH	4271, 6496.4, 10536, 13510	6 KW	0000 – 2400	120 RPM	576
Halifax	CFH	122.5	10 KW	0000 – 2400	120 RPM	576

Chart based information is broadcast at the beginning of each hour. As chart transmission commences for a particular hour there is a 30 second break followed by a 30 second phasing signal. During a chart transmission period there will be one or two charts broadcast. The schedule of charts broadcast follows. At the conclusion of chart transmission, bulletin transmission begins and continues until the end of the current hour.

Notes:

Frequency 122.5 kHz is continuous except for maintenance from 1200 to 1600 UTC on the second Thursday of each Month.

Frequency 4271 kHz is continuous except for maintenance from 2200 to 1000 UTC on the second Thursday of each Month.

Frequency 6496.4 kHz is continuous.

Frequency 10536 kHz is continuous.

Frequency 13510 kHz is continuous except for maintenance from 1000 to 2200 UTC on the second Thursday of each Month.

The following summarizes the scheduled chart broadcast times

Time	Chart Description	Area	Time	Chart Description	Area
0001	Ice Chart #1 (see note): Latest	----	1201	Day 3 Surface Prognosis: 1200Z	G
			1222	Day 4 Surface Prognosis: 1200Z	G



Time	Chart Description	Area	Time	Chart Description	Area
0101	Satellite picture: infrared	-----	1301	Day 5 Surface Prognosis: 1200Z	G
0201	12Z Significant Weather Depiction: 1200Z	A	1401	00Z Significant Weather Depiction: 0000Z	A
0301	500 mb Analysis: 0000Z	B	1501	500 mb Analysis: 1200Z	B
0322	00Z Surface Analysis: 0000Z	F	1522	12Z Surface Analysis: 1200Z	F
0401	500 mb 36 hour Prognosis: 1200Z	H	1601	850 mb Analysis: 1200Z	B
0422	24hr Isobaric Prognosis: 0000Z	G	1622	500 mb 36 hour Prognosis: 0000Z	H
0501	850 mb Forecast Winds: 18/00Z	C	1701	24hr Isobaric Prognosis: 1200Z	G
0601	36hr Isobaric Prognosis: 1200Z	G	1801	36hr Isobaric Prognosis: 0000Z	G
			1822	850 mb Forecast Winds: 06/12Z	C
0701	18Z Significant Weather Depiction: 1800Z	A	1901	06Z Significant Weather Depiction: 0600Z	A
0801	24/36hr Significant Wave Prognosis: 0000Z/1200Z	I	2001	24/36hr Significant Wave Prognosis: 1200Z/0000Z	I
0901	06Z Surface Analysis: 0600Z	F	2101	18Z Surface Analysis 1800Z	F
1001	NS SST Mon, NS OFA Wed/Sat NF SST Tue/Fri, NF OFA Sun/Thu	E D	2201	NS SST Tue/Thu/Fri, NS OFA Sun NF SST Wed/Sat, NF OFA Mon	E D
1022	Satellite picture: infrared	-----	2222	Ice Chart #2 (see note): Latest	-----
1101	CFH Broadcast Schedule: Latest		2301	Ice Chart #3 (see note): Latest	-----

The following is a description of the coverage area for each charts.

Area	Geographical Area	Area	Geographical Area	Area	Geographical Area
A	56°N 87°W 56°N 24°W 34°N 38°W 34°N 73°W	D	60°N 68°W 60°N 33°W 43°N 33°W 43°N 68°W	G	52°N 98°W 56°N 24°W 30°N 39°W 28°N 78°W
B	76°N 16°W 30°N 20°W 23°N 11°0W 8°N 69°W	E	50°N 75°W 50°N 48°W 34°N 48°W 34°N 75°W	H	30°N 107°W 15°N 67°W 34°N 24°W 79°N 60°W
C	52°N 80°W 65°N 15°W 30°N 60°W 34°N 17°W	F	52°N 98°W 58°N 24°W 30°N 39°W 28°N 78°W	I	54°N 100°W 58°N 22°W 30°N 39°W 28°N 78°W

**NOTES:**

This schedule is subject to change without notice according to the requirements of the Canadian Forces.

The geographical area of coverage for the ice charts varies according to season. The typical areas are: Gulf of St. Lawrence, East Newfoundland waters, Labrador Coast, Hudson Strait, Davis Strait and Baffin Bay. The Canadian Ice Service prepares all ice charts.