

Weather Forecasting



Goals

- Knowledge of the Coast Guard weather reporting system.
- Understand how to take a MAFOR.

Environment
Canada's
weather
forecasts are
separated by
region. The ones
we usually sail
through are
labelled.



*The North Channel is covered by a recreational boating forecast and is only issued in plain language.

Detailed 48 hour forecasts are issued 3 times daily at
0300 - 1030 - 1830

It is the OOW job to record the forecast when it is issued.

Extended (longer range) forecasts are issued twice daily at
0300 and 1830.

Forecasts may be issued outside of these times, usually if
the weather is expected to worsen. In that case a
notification is broadcast as a *Securite* on Ch.16.

Contents of a Forecast

Forecasts predict wind strength and direction, wave height, and precipitation/visibility, as well as the timing of changes in the above.

Forecasts are issued in both plain language and coded broadcasts. Examples follow:

Plain language example: Regular Marine Forecast Issued 2-4 times daily.

“Marine forecasts for the Canadian portion of the Great Lakes and the Ontario portion of the St. Lawrence River issued by Environment Canada at 10:30 a.m. EST Friday 16 January 2015 for today tonight and Saturday.

The next scheduled forecasts will be issued at 6:30 p.m.

Fog implies visibility less than 1 mile.

Winds are for offshore areas. Nearshore winds may vary considerably due to shoreline effects.

Western Lake Superior.

Gale warning in effect.

Freezing spray warning in effect.

Wind north 10 knots becoming light near noon then increasing to south 15 this evening. Wind increasing to south 25 near midnight and to south 35 late overnight. Wind diminishing to south 25 Saturday morning and to southwest 15 near noon Saturday. Wind veering to northwest 15 Saturday evening. Periods of snow beginning near midnight. Visibility 1 mile or less in snow. Freezing spray overnight and Saturday morning.

Eastern Lake Superior.

Gale warning in effect....”

Plain language forecast: Extended Marine Forecast. Issued twice daily

Extended marine forecasts for the Canadian portion of the Great Lakes and the Ontario portion of the St. Lawrence River issued by Environment Canada at 3:00 a.m. EST Friday 23 January 2015 for Sunday Monday and Tuesday.

The next scheduled forecasts will be issued at 6:30 p.m.

Lake Superior.

Sunday..Wind northeast 15 knots diminishing to light in the afternoon.

Monday..Wind light increasing to south 25 knots late in the day.

Tuesday..Wind south 25 knots diminishing to northwest 20.

Whitefish Bay.

Sunday..Wind light.

Monday..Wind light increasing to...

Plain language example - wave height forecast. Issued twice daily.

Wave height forecasts for the Canadian portion of the Great Lakes issued by Environment Canada at 10:30 a.m. EST Friday 23 January 2015 for today tonight and Saturday.

The next scheduled forecasts will be issued at 6:30 p.m.

Wave heights are for offshore and are forecast from trough to crest. Nearshore waves may vary considerably due to shoreline effects.

Western Lake Superior.

Over open water waves 2 metres subsiding to one early this evening then building to 2 early Saturday morning. Waves subsiding to one Saturday evening.

Eastern Lake Superior.

Over open water waves 2 metres...

Plain language example: technical marine synopsis. Issued with the regular forecast (2-4x/daily).

Technical marine synopsis for The Canadian portion of the Great Lakes and the Ontario portion of the St. Lawrence River issued by Environment Canada at 10:30 a.m. EST Friday 23 January 2015 for today tonight and Saturday.

The next scheduled forecasts will be issued at 6:30 p.m.

Systems position.

At 10:30 a.m. EST today departing ridge located on a line east-west over Virginia.

At 10:30 a.m. EST today trough located on a line northeast-southwest over northwestern Ontario.

By 10:30 a.m. EST Saturday trough located on a line northeast-southwest over northern Lake Huron.

Plain Language In Summary:

Regular Marine Forecast

The **regular marine forecast** gives a description of the marine winds and weather, visibility, and/or freezing spray (if applicable), expected over the marine district. It also states any marine warnings or watches that may be in effect.

Extended Marine Forecast

The **extended marine forecast** is meant for longer range planning purposes and therefore **only** gives a description of the marine winds expected over the marine district. Marine wind warnings are not included with the extended marine forecast because of the greater potential for forecast variability in longer range outlooks.

Wave Height Forecast

The **wave height forecast** gives a description of the significant wave heights expected over the marine district.

Marine Synopses

The **marine synopses** consist of two bulletins:

- **Technical Marine Synopsis** - The **technical marine synopsis** is a brief and generic description of the main weather systems affecting the marine district.
- **Marine Weather Statement** - The **marine weather statement** is used either to describe (in further detail) marine weather conditions that may pose a hazard to marine interests; or as a way of providing additional marine weather information to supplement the marine forecast.


Coded Forecast: Example

WESTERN LAKE SUPERIOR.

11800 13900 11410 11434 11452 19454 11454 19452 11434 12514 12714

EASTERN LAKE SUPERIOR.

1281...



this is what you hear

The MAFOR is a coded broadcast of the regular marine broadcast only, extended and wave height forecasts need to be taken separately.

Each group of 5 numbers begins with 1, the next 4 numbers are attributes:

1GDF_mW_m

- **G**: Forecast period
- **D**: Direction from which the wind is blowing
- **F_m**: Wind speed
- **W_m**: Forecast weather

MAFOR decoding

Code	Forecast Period <i>Descriptive</i>	Wind <i>Direction</i>	Wind <i>Knots</i>	Forecast Weather
0	Beginning of period	Calm	0 - 10	Moderate to good visibility (greater than 5 km)
1	Valid for 3 hrs	Northeast	11 - 16	Risk of accumulation of ice on superstructures
2	Valid for 6 hrs	East	17 - 21	Strong risk of accumulation of ice on superstructure
3	Valid for 9 hrs	Southeast	22 - 27	Mist (visibility 1 – 5 km)
4	Valid for 12 hrs	South	28 - 33	Fog (visibility > 1 km)
5	Valid for 18 hrs	Southwest	34 - 40	Drizzle
6	Valid for 24 hrs	West	41 - 47	Rain
7	Valid for 48 hrs	Northwest	48 - 55	Snow, or rain and snow
8	Valid for 72 hrs	North	56 - 63	Squally weather with or without showers
9	Occasionally	Variable	64 +	Thunderstorms

MAFOR Decoding Example

issued at 1030:

11800

1 Valid for three hours: 1030-1330

8 Wind direction: North

0 Wind speed: 0-10 knots

0 Forecast weather: Moderate to good visibility (>5km)

11452

1 Valid for three hours: 1330-1630

4 Wind direction: South

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Note that the forecast period for each group begins at the end of the previous group.

A forecast period of 9 (*occasionally*) means that the weather will occur sporadically throughout the previous group's forecast period.

Now work through some examples :)

pro-tip:

The wind direction code can be thought of as an 8 hour clock that you map over the compass rose.

