

infoplaza



Forecast report

Product description

Prepared for: Forecast customer
Date: 24/06/2024
Reference.: RP fcst description Issue 3.7

Document Status Page

Document prepared by: : Infoplaza Business BV
 Sleepboot 5, 3991 CN Houten
 The Netherlands
 Email: marine@infoplaza.nl

Author(s) : **Joris de Vroom**
Mark van der Putte
Roel Linssen
Leon Saris

Title : Forecast report product description

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Review history:

Rev	Date	Reviewer	Comments
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Introduction

The operational weather forecast centre at Infoplaza offers several forecast products. This document offers a description of all parameters and forecast components used in the regular forecast as well as in the 10-day extended forecast. The regular forecast, consisting of a graph section and a table section, is available for up to 7 days ahead in both an automated version and a manual version. The automated version is derived from raw model data. The manual forecast is composed by a marine meteorologist on duty using model data, in situ measurements and satellite data and supplies additional information. The 10-day outlook is only available as an automated product and merely contains graphs.

The operational weather forecast centre can be contacted 24/7 at:

Tel: +31 (0)85 2103 006
weather@infoplaza.com
www.infoplaza.com

Regular forecast (tables and graphs)

Warnings & Warnings (24hrs)

Summarized meta data: production date and time (either in UTC or in local time); valid time (either in UTC or in local time); forecaster that produced the forecast; forecast location and maximum expected values during the forecast period.

Warnings (manual forecast only)

Chances of fog or lightning appear as:

- none: less than 10% chance of occurrence;
- low: 10% to 30% chance of occurrence;
- medium: 30% to 60% chance of occurrence;
- high: 60% to 100% chance of occurrence.

A medium or high warning level will always include a textual description of the warning.

Synoptic discussion (manual forecast only)

An overview of the synoptic situation and the expected developments for the next three days is provided.

Comments (manual forecast only)

Any forecaster comments regarding the forecast will be placed here.

Optimal weather risk summary

The optimal weather risk summary or Thresholds section consists of a color-coded warning status based on customer predefined limits. The three levels are "No Risk" (green), "Caution" (orange) and "Warning" (red). The status bar above the graphs indicates the workability during the forecast period.

The primary thresholds as defined by the client are displayed on the graphical forecast page, as well as in tabular form on the next page. If additional thresholds are selected, an additional tabular page is added to the forecast with corresponding warning colors.

Charts

The table below describes each of the elements in the charts and tables in the forecast bulletin.

Wind Charts	Description
Arrows below	Direction of 10 meter wind
Black line	10 meter wind speed
Blue line	50 meter wind speed
Horizontal axis	Forecast time
Left axis	Wind speed in meters per second
Right axis	Wind speed in kts

Wave Charts	Description
Arrows below	Total wave direction
Numbers below	Total wave peak period (overall: T_p)
Blue line	Swell wave height (swell: H_t)
Black line	Significant wave height (overall: H_s)
Black dotted line	Maximum wave height (overall: Max)
Horizontal axis	Forecast time
Left axis	Wave height in meters
Right axis	Wave height in feet

Time series

Component	Description	Specifications
Date/Time	Forecast date and time	First two days 3-hour time interval, thereafter 6 hour time interval.
Confidence index	Forecast confidence	1 bar means low confidence, 2 bars mean medium confidence, 3 bars mean high confidence
Wind: Dir	Direction of 10 m wind	Wind direction is defined as coming from ¹ .
Wind: 10m	10 meter wind speed in knots or m/s	Wind speed at 10m above the surface representing the previous 10 minutes.
Wind: XXm	XX meter wind speed in knots or m/s	Wind speed at XXm above the surface representing the previous 10 minutes.
Gust: 10m	10 meter speed of gusts in knots or m/s	10 meter wind speed multiplied by a factor dependent on the stability of the atmosphere.
Gust: XXm	XX meter speed of gusts in knots or m/s	XX meter wind speed multiplied by a factor dependent on the stability of the atmosphere.
Overall: Hs	Significant wave height in meters	Average of the highest 33% of all wave heights.
Overall: Hmax	Maximum wave height in meters	Average of the highest 0.1 - 10% of all wave heights, depending on stability parameters.
Overall: Tz	Mean zero crossing period in seconds	The average time elapsed between two consecutive crests of all waves.
Overall: Tm	Mean period in seconds	The frequency averaged (energy weighted) wave period of all waves.
Overall: Dir	Mean wave direction	The mean wave direction of all waves Error! Bookmark not defined.
Sea: Hs	Significant wave height in meters	Average of the highest 33% of wind sea wave heights ¹ .
Sea: Tz	Mean zero crossing period in seconds	The average time elapsed between two consecutive up-crossings (crests) of the wind sea waves.
Sea: Tp	Peak period in seconds	Period of the dominant waves within the wind sea wave group.
Sea: Dir	Peak direction	Direction of the dominant waves within the wind sea wave group.
Swell: Hs	Significant wave height in meters	Average height of the highest third of waves in the total or 1 st swell wave group
Swell: Tz	Mean zero crossing period in seconds	Average time elapsed between two consecutive up-crossings (crests) of the waves in the total or 1 st swell wave group.

Swell: Tm	Mean period in seconds	Frequency averaged and energy weighted mean period of waves in the total or 1 st swell wave group (Tm -1,0)
Swell: Tp	Peak period in seconds	Period of the dominant waves in the total or 1 st swell wave group.
Swell: Dir (θ_o)	Mean direction	Frequency averaged and energy weighted mean direction of waves in the total or 1 st swell wave group
Swell: Dir (θ_p)	Peak direction	Direction of waves with the highest energy in the total or 1 st swell wave group

Note: If multiple swells are provided, then swells are sorted by increasing average of the mean wave period (Tm -1,0 averaged over the forecast period).

Swell2: Hs	Significant wave height in meters	Average height of the highest third of waves in the 2 nd swell wave group
Swell2: Tz	Mean zero crossing period in seconds	Average time elapsed between two consecutive up-crossings (crests) of the waves in the 2 nd swell wave group.
Swell2: Tm	Mean period in seconds	Frequency averaged and energy weighted mean period of waves in The 2 nd swell wave group (Tm - 1,0)
Swell2: Tp	Peak period in seconds	Period of the dominant waves in the 2 nd swell wave group.
Swell2: Dir (θ_o)	Mean direction	Frequency averaged and energy weighted mean direction of waves in the 2 nd swell wave group
Swell: Dir (θ_p)	Peak direction	Direction of waves with the highest energy in the 2 nd swell wave group
Weather: Sym or Weather	Weather description	
Weather: Vis	Visibility in kilometers	
Weather: Clibase	Cloudbase in feet	
Weather: T	Air temperature in degrees Celsius	

Weather: T 50m	Air temperature at 50m in degrees Celsius	
Weather: MSLP	Mean sea level pressure in hPa	Atmospheric pressure at sea level
Weather: Precip	Precipitation in mm per hour	Hourly precipitation accumulated
Weather: WBGT	Wet Bulb Globe Temperature	A temperature index to indicate the heat stress caused by humidity, temperature and radiation
Weather: Wind chill	Wind chill temperature in degrees Celsius	Perceived decrease in air temperature on exposed skin due to the flow of air.
Weather: Wind chill 50m	Wind chill temperature at 50m in degrees Celsius	Perceived decrease in air temperature on exposed skin due to the flow of air.

¹ The wind sea is the group of waves that receive energy from the wind as they travel slower than the air particles. All other waves are considered to be swell.

Scenario forecast (15 day outlook)

The Infoplaza 15-day outlook is a probabilistic forecast based on the model ensembles. It consists of a set of forecasts that present the range of model run possibilities. Multiple simulations are run, each with a slightly different starting condition. These variations represent the uncertainty in the initial conditions and approximations in the models. They produce a range of possible weather conditions. This ensemble or scenario forecast is available for the following meteorological parameters:

- Wind speed at 10m
- Wind direction at 10m
- Significant wave height
- Significant wave direction

The respective charts will be briefly discussed in the sections below. For a sample forecast, please refer to Appendix C and D. Note that the sample forecast shows all available parameters, while your forecast may contain only a subset of the listed parameters. The 10-day outlook is an automated product and is currently only available for sites (not for routes).

Wind speed

The graph depicts the wind speed at 10 meters above surface level averaged over the 10 minutes preceding the forecast time. It is represented by a box-whisker chart, with the forecast

time on the horizontal axis and the wind speed on the vertical axis. The ensemble median (second quartile) is represented as a continuous line. The large boxes indicate the bottom and top of the 25th and 75th percentile (the lower and upper quartiles, respectively), while the small boxes indicate the 10th and 90th percentile (40% on both sides of the median). The whiskers indicate the minimum and maximum values of all ensemble members for that time step.

In short, the continuous line indicates the ensemble mean, the large boxes represent a 50% probability, the small boxes denote an 80% probability, and the whiskers indicate the full spread of the ensemble forecast.

Wind direction

The wind direction forecast is represented by a polar plot. The most likely wind direction (ensemble median) is represented by the black line, while the shaded area indicates an 80% chance that the wind direction will be blowing from that direction.

Temperature

The temperature forecast is represented by a box-whisker chart, with the forecast time on the horizontal axis and the temperature on the vertical axis. The ensemble median (second quartile) is represented as a continuous line. The large boxes indicate the bottom and top of the 25th and 75th percentile (the lower and upper quartiles, respectively), while the small boxes indicate the 10th and 90th percentile (40% on both sides of the median). The whiskers indicate the minimum and maximum values of all ensemble members for that time step.

In short, the continuous line indicates the ensemble mean, the large boxes represent a 50% probability, the small boxes denote an 80% probability, and the whiskers indicate the full spread of the ensemble forecast.

Precipitation

The precipitation forecast is represented by a box-whisker chart, with the forecast time on the horizontal axis and the precipitation chance on the vertical axis. The ensemble median (second quartile) is represented as a continuous line. The large boxes indicate the bottom and top of the 25th and 75th percentile (the lower and upper quartiles, respectively), while the small boxes indicate the 10th and 90th percentile (40% on both sides of the median). The whiskers indicate the minimum and maximum values of all ensemble members for that time step.

In short, the continuous line indicates the ensemble mean, the large boxes represent a 50% probability, the small boxes denote an 80% probability, and the whiskers indicate the full spread of the ensemble forecast. Please note that the graph contains no information on the amount of precipitation.

Relative humidity

The relative humidity is represented by a box-whisker chart, with the forecast time on the horizontal axis and the relative humidity on the vertical axis. The ensemble median (second quartile) is represented as a continuous line. The large boxes indicate the bottom and top of the 25th and 75th percentile (the lower and upper quartiles, respectively), while the small boxes indicate the 10th and 90th percentile (40% on both sides of the median). The whiskers indicate the minimum and maximum values of all ensemble members for that time step.

In short, the continuous line indicates the ensemble mean, the large boxes represent a 50% probability, the small boxes denote an 80% probability, and the whiskers indicate the full spread of the ensemble forecast.

Cloud cover

The cloud cover is represented by a box-whisker chart, with the forecast time on the horizontal axis and the total cloud cover on the vertical axis. The ensemble median (second quartile) is represented as a continuous line. The large boxes indicate the bottom and top of the 25th and 75th percentile (the lower and upper quartiles, respectively), while the small boxes indicate the 10th and 90th percentile (40% on both sides of the median). The whiskers indicate the minimum and maximum values of all ensemble members for that time step.

In short, the continuous line indicates the ensemble mean, the large boxes represent a 50% probability, the small boxes denote an 80% probability, and the whiskers indicate the full spread of the ensemble forecast.

2D spectra

In the 2D spectra section, the spectrum and the dominant wave directions are analysed to determine where most of the energy is concentrated. This analysis also helps us differentiate between swell (waves with a longer period generated by distant weather systems) and sea waves (waves with a shorter period generated by local winds). Each wave partition has its own set of characteristics, such as mean and peak wave period and significant wave height. The significant wave height is described as the average height of the highest one-third of waves in a partition.

The visualizations in the Marine Weather Dashboard consist of

- A 3D plot showing the normalized wave energy as a function of the period and time.
- A polar plot depicting the full wave spectrum for the selected time step, adding directional information.
- A graph showing the normalized wave energy for your forecast location as a function of time.

All plots are interactive; using the slider in the bottom plot will indicate the respective elements and values in the other plots.

Appendices

Appendix A_1: Example forecast report wind/wave (graph)



(1) Client Demo - Sample location

Location: Lat 54.316 N / Lon 2.619 E
 Forecast issued by Rob Koenders at 09:00 (UTC) Wed 26 Apr 2023. Next update 09:00 (UTC) Thu 27 Apr 2023
 Email: weather@infoplaza.nl / Phone: +31 (0) 85 210 3006



Summary & Warnings (+ 24 Hours)

Lightning Risk: None
 Fog Risk: None
 Gale: None
 10m Max Wind: 10 kts
 10m Wind Gust: 13 kts
 Wave height: 1.7 m
 SST: 8°C
 SunRise / Set: 05:24 / 20:12
 Timezone: UTC

Threshold Exceedance

Critical 10m winds
 Risk Level: Caution
 Sig. Wave: 2.0 m
 10m wind: 16 kts

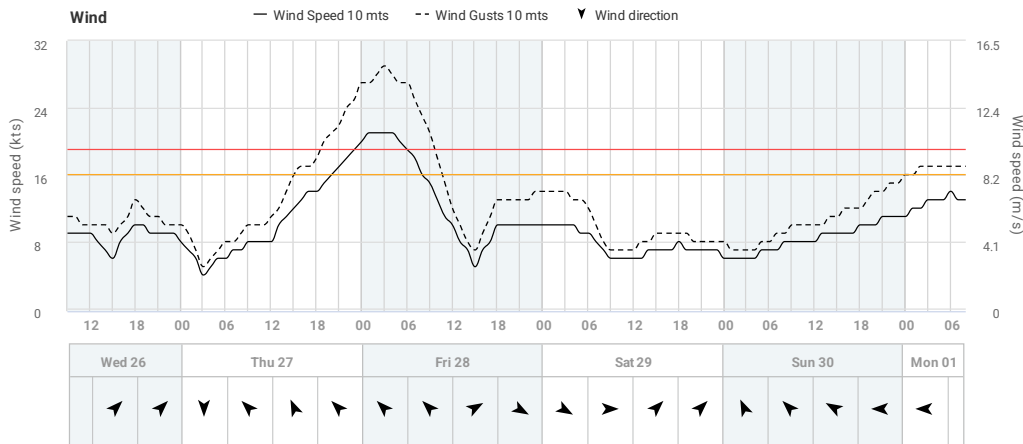
Forecaster Comments

Warnings: Nil
Synoptic situation: [Wed 26-Apr-2023 04:00 UTC] Low pressure lingers over Sweden while filling. A strong high over Iceland extends a ridge across the UK; slowly shifting NE over the North Sea and reaching Denmark on Thursday. By then; a frontal trough associated with an Atlantic low approaches the southern North Sea; possibly spawning a separate low on Friday.
 Comments: Nil

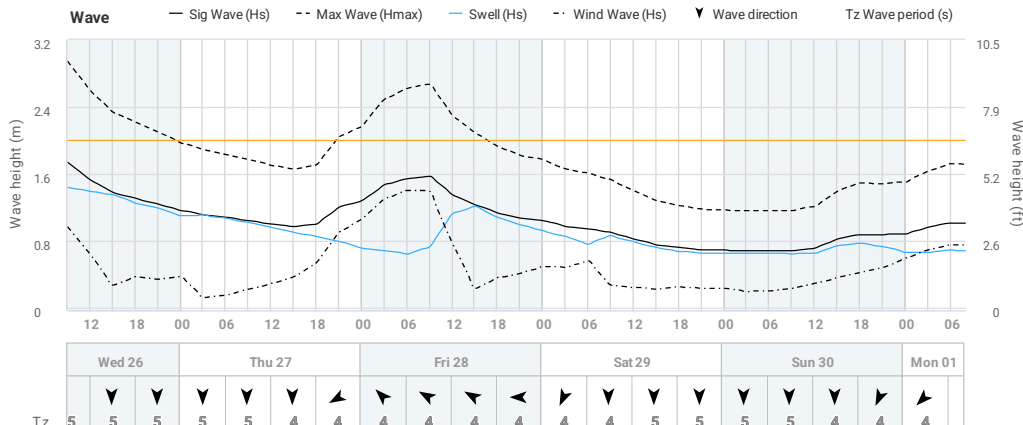
Optimal Weather Risk Summary



Wind



Wave



Risk Level: No Risk ■ Caution ■ Warning ■

For an explanation of the wind and wave parameters, please learn more here: <https://www.infoplaza.nl/offshore-forecast-description>

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Appendix B: Example forecast report (table)



(1) Client Demo - Sample location

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Forecaster Comments

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 Comments: Nil

Risk	Time (UTC)	Winds			Sea								Weather Temp (°C)
		Dir (°)	10m speed (kts)	10m gusts (kts)	Waves		Wind waves			Swell			
					Hs (m)	Hmax (m)	Ht (m)	θp (°)	Tp (s)	Ht (m)	θp (°)	Tp (s)	
Wed 26 Apr													
	09:00	290	9	11	1.7	3.0	1.0	317	4	1.4	5	9	6
	12:00	266	9	10	1.5	2.6	0.6	309	4	1.4	4	9	6
	15:00	233	6	9	1.4	2.3	0.3	277	3	1.4	4	9	6
	18:00	246	10	13	1.3	2.2	0.4	308	4	1.3	3	9	6
	21:00	225	9	11	1.2	2.1	0.3	271	3	1.2	3	8	7
Thu 27 Apr													
	00:00	233	8	10	1.2	2.0	0.4	260	3	1.1	2	8	7
	03:00	353	4	5	1.1	1.9	0.1	344	2	1.1	1	8	7
	06:00	83	6	8	1.1	1.8	0.1	55	3	1.1	1	8	7
	09:00	131	8	10	1.0	1.8	0.2	139	4	1.0	1	8	7
	12:00	164	8	11	1.0	1.7	0.3	166	4	1.0	1	8	8
	15:00	152	12	16	1.0	1.7	0.4	177	3	0.9	360	8	8
	18:00	137	14	18	1.0	1.7	0.5	171	3	0.8	359	8	8
1	21:00	125	17	22	1.2	2.0	0.9	151	4	0.8	1	8	8
Fri 28 Apr													
2	00:00	124	20	27	1.3	2.2	1.1	139	4	0.7	0	8	8
2	03:00	138	21	29	1.5	2.5	1.3	139	5	0.7	1	8	8
1	06:00	124	19	27	1.5	2.6	1.4	135	6	0.6	2	8	8
	09:00	126	15	21	1.6	2.7	1.4	129	6	0.7	3	8	8
	12:00	133	10	12	1.4	2.3	0.8	127	4	1.1	123	6	8
	15:00	246	5	7	1.2	2.1	0.2	186	2	1.2	116	6	8
	18:00	302	10	13	1.1	1.9	0.4	281	3	1.1	107	6	9
	21:00	287	10	13	1.1	1.8	0.4	265	3	1.0	99	6	9
Sat 29 Apr													
	00:00	292	10	14	1.0	1.8	0.5	278	3	0.9	89	6	8
	03:00	287	10	14	1.0	1.7	0.5	286	3	0.8	85	6	8
	06:00	324	9	12	0.9	1.6	0.6	312	4	0.8	4	8	8
	09:00	275	6	7	0.9	1.5	0.3	292	2	0.9	5	8	8
	12:00	241	6	7	0.8	1.4	0.2	268	3	0.8	4	8	9
	18:00	221	8	9	0.7	1.2	0.3	238	4	0.7	3	8	10
Sun 30 Apr													
	00:00	198	6	8	0.7	1.2	0.2	266	3	0.7	0	8	9
	06:00	120	7	8	0.7	1.2	0.2	92	3	0.7	355	9	9
	12:00	119	8	10	0.7	1.2	0.3	51	3	0.7	353	8	9
	18:00	101	10	12	0.9	1.5	0.4	29	4	0.8	354	8	9
Mon 01 May													
	00:00	92	11	16	0.9	1.5	0.6	36	4	0.7	357	9	8
	06:00	80	14	17	1.0	1.7	0.8	69	4	0.7	352	11	8
	12:00	60	13	16	1.0	1.7	0.7	64	4	0.6	352	10	8
	18:00	28	12	16	1.0	1.7	0.8	40	5	0.7	353	12	7

Risk Level: No Risk ■ Caution 1 Warning 2

For an explanation of the wind and wave parameters, please learn more here: <https://www.infoplaza.nl/offshore-forecast-description>

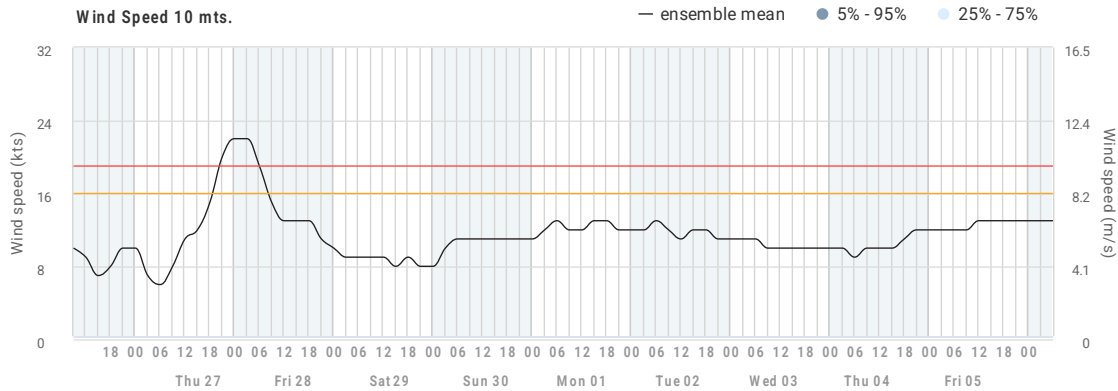
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Appendix C: Example forecast report 1/2 (10-day outlook)

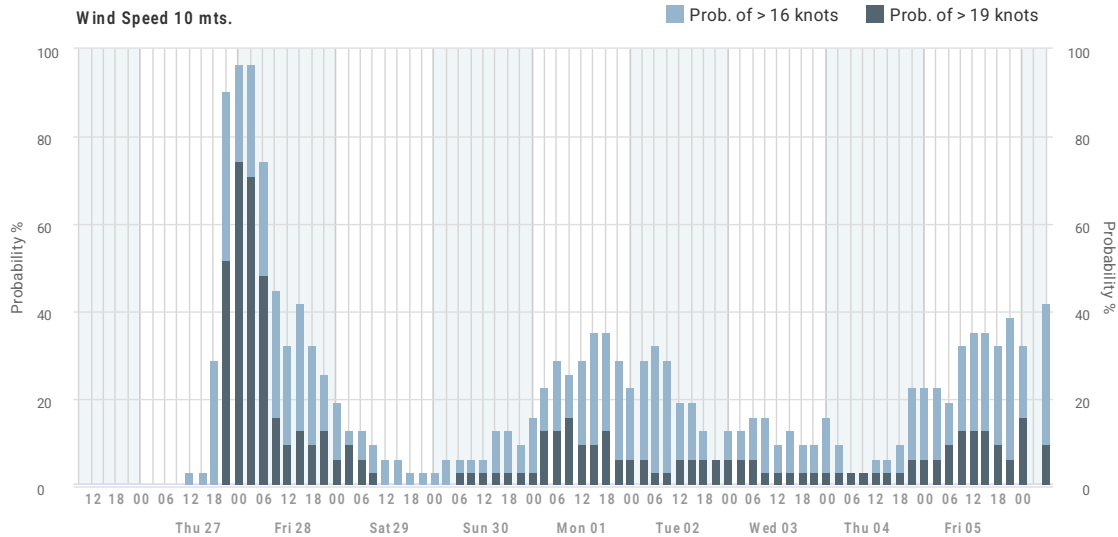
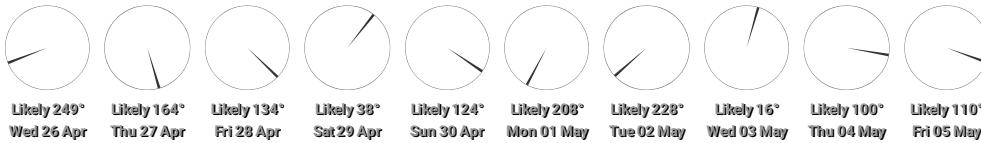
(1) Client Demo - Sample location

Location: Lat 54.316 N / Lon 2.619 E Scenario probabilities representative for offshore conditions
 Forecast issued by the weather computer at 09:00 (UTC) Wed 26 Apr 2023. Next update 09:00 (UTC) Thu 27 Apr 2023
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Wind Direction

— most likely direction wind is blowing from 5% - 95% prob.



Risk Level: No Risk ■ Caution 1 Warning 2

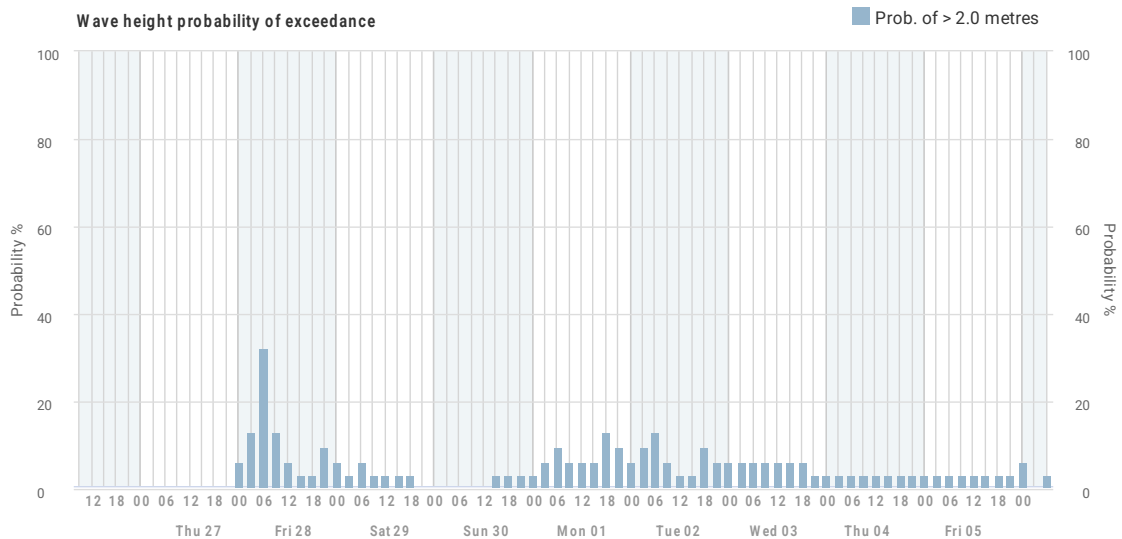
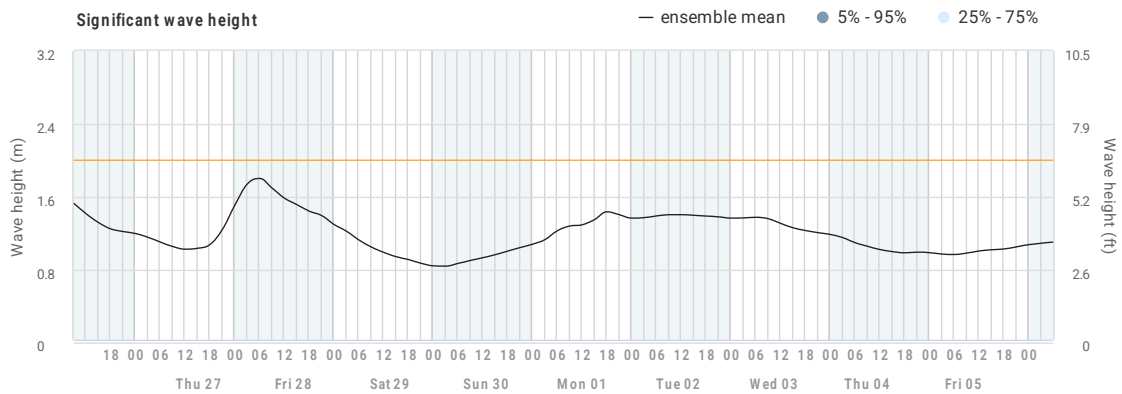
For an explanation of the wind and wave parameters, please learn more here: <https://www.infoplaza.nl/offshore-forecast-description>

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Appendix D: Example forecast report 1/2 (10-day outlook)

(1) Client Demo - Sample location

Location: Lat 54.316 N / Lon 2.619 E Scenario probabilities representative for offshore conditions
 Forecast issued by the weather computer at 09:00 (UTC) Wed 26 Apr 2023. Next update 09:00 (UTC) Thu 27 Apr 2023
 Email: weather@infoplaza.nl / Phone: +31 (0) 85 210 3006



Risk Level: No Risk ■ Caution 1 Warning 2

For an explanation of the wind and wave parameters, please learn more here: <https://www.infoplaza.nl/offshore-forecast-description>

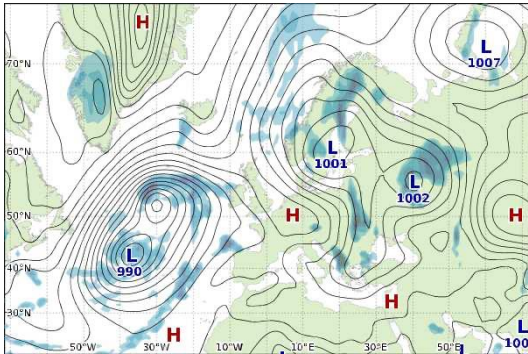
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Appendix E: Example synoptic chart

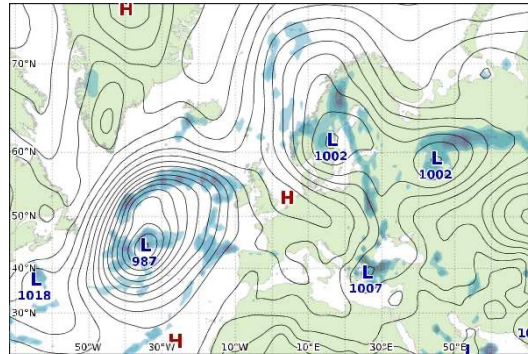
Synoptic Charts for - Atlantic NE - Sea level pressure and precipitation

Forecast issued by the weather computer at 09:00 (UTC) Wed 26 Apr 2023. Next update 09:00 (UTC) Thu 27 Apr 2023
 Email: weather@infoplaza.nl / Phone: +31 (0) 85 210 3006

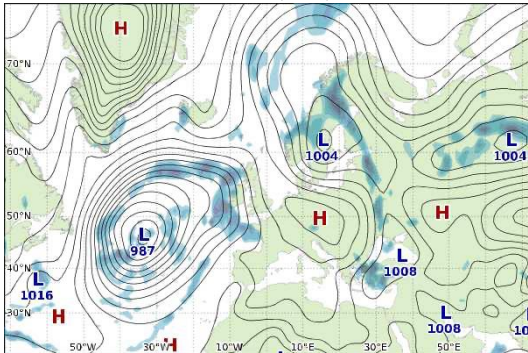
Wed 26 Apr 2023 at 06:00 (UTC)



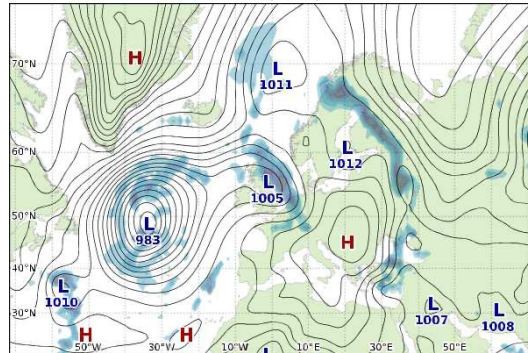
Wed 26 Apr 2023 at 18:00 (UTC)



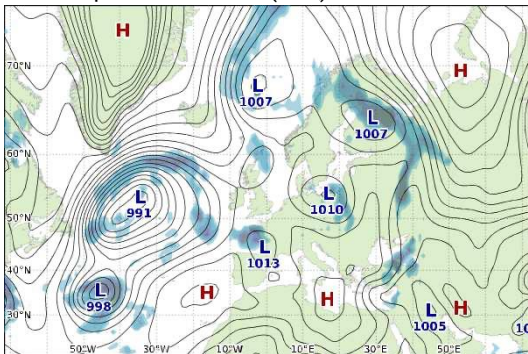
Thu 27 Apr 2023 at 06:00 (UTC)



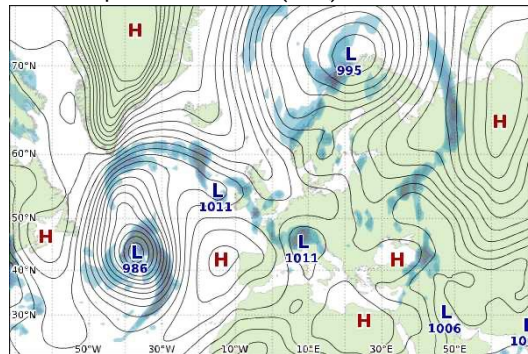
Fri 28 Apr 2023 at 06:00 (UTC)



Sat 29 Apr 2023 at 06:00 (UTC)



Sun 30 Apr 2023 at 06:00 (UTC)



For an explanation of the wind and wave parameters, please learn more here: <https://www.infoplaza.nl/offshore-forecast-description>

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Appendix F: Beaufort scale

Beaufort wind scale	Wind speed (Knots)	Wind speed (m/s)	Wind descriptive terms	Expected wave height in meters*	Sea state	Sea descriptive terms
0	<1	<0.5	Calm	-	0	Calm (glassy)
1	1–3	0.5–1.5	Very light	0.1	1	Calm (rippled)
2	4–6	1.6–3.3	Light breeze	0.2	2	Smooth (wavelets)
3	7–10	3.4–5.5	Gentle breeze	0.6	3	Slight
4	11–16	5.5–7.9	Moderate breeze	1.0	3–4	Slight–Moderate
5	17–21	8–10.7	Fresh breeze	2.0	4	Moderate
6	22–27	10.8–13.8	Strong breeze	3.0	5	Rough
7	28–33	13.9–17.1	Near gale	4.0	5–6	Rough–Very rough
8	34–40	17.2–20.7	Gale	5.5	6–7	Very rough–High
9	41–47	20.8–24.4	Strong gale	7.0	7	High
10	48–55	24.5–28.4	Storm	9.0	8	Very High
11	56–63	28.5–32.6	Violent storm	11.5	8	Very High
12	64+	>32.6	Hurricane	14+	9	Phenomenal

*These values refer to developed wind waves at the open sea