

Software applications developed for the maritime service at the Danish Meteorological Institute

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Two web applications

➤ Shipping
Information
System

➤ Information about
ship locations and
their weather
conditions - for
shipping
companies

➤ Marine Forecast
Service

➤ Information on
weather and sea
conditions - for
offshore
operations

MFS and SIS

- Enable easy access to data relevant to the user

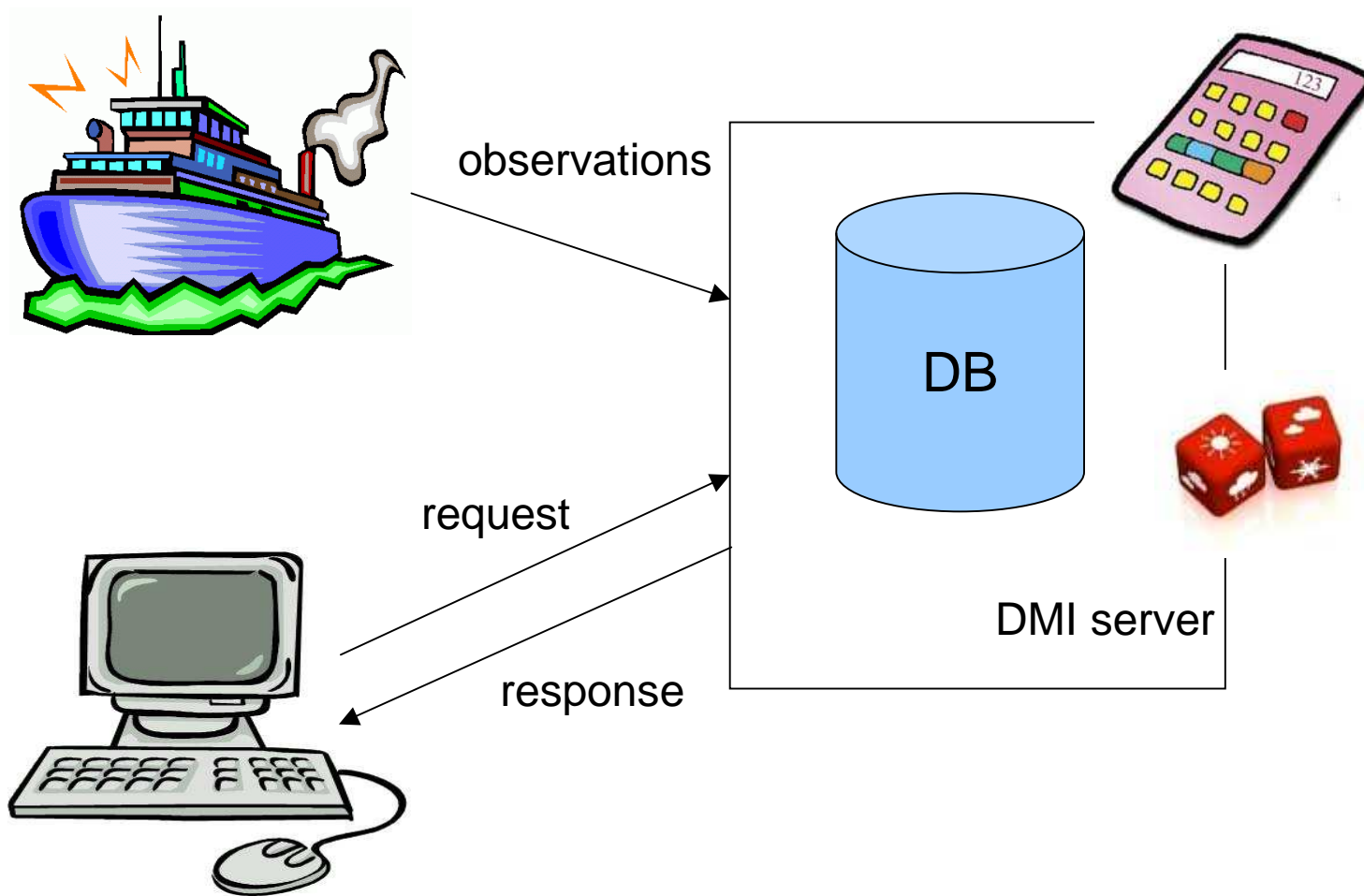
A photograph of an offshore oil platform in the middle of the ocean. The platform is a complex of red metal structures with white walkways and railings. It has several large white storage tanks on its deck. The ocean is dark blue with white-capped waves. The sky is overcast with grey clouds.

- Developed by DMI in cooperation with business partners operating offshore

- Require only a web browser and an internet connection

- Work on all platforms

Shipping Information System



Shipping Information System

☒ Today

☐ 2011 ☐ May ☐ 18



Weather maps

From: ☒ Latest forecast

☐ 2011 ☐ May ☐ 18 ☐ 00

To: ☒ Next 5 days

☐ 2011 ☐ May ☐ 22 ☐ 12

☒ None ☐ Wind ☐ Wave ☐ Current ☐ Tropical lows

Click on ship - or select ship name in drop down list - to get detailed ship information

Select ship

Tropical cyclone data are received from the Joint Typhoon Warning Center and the National Hurricane Center in Miami

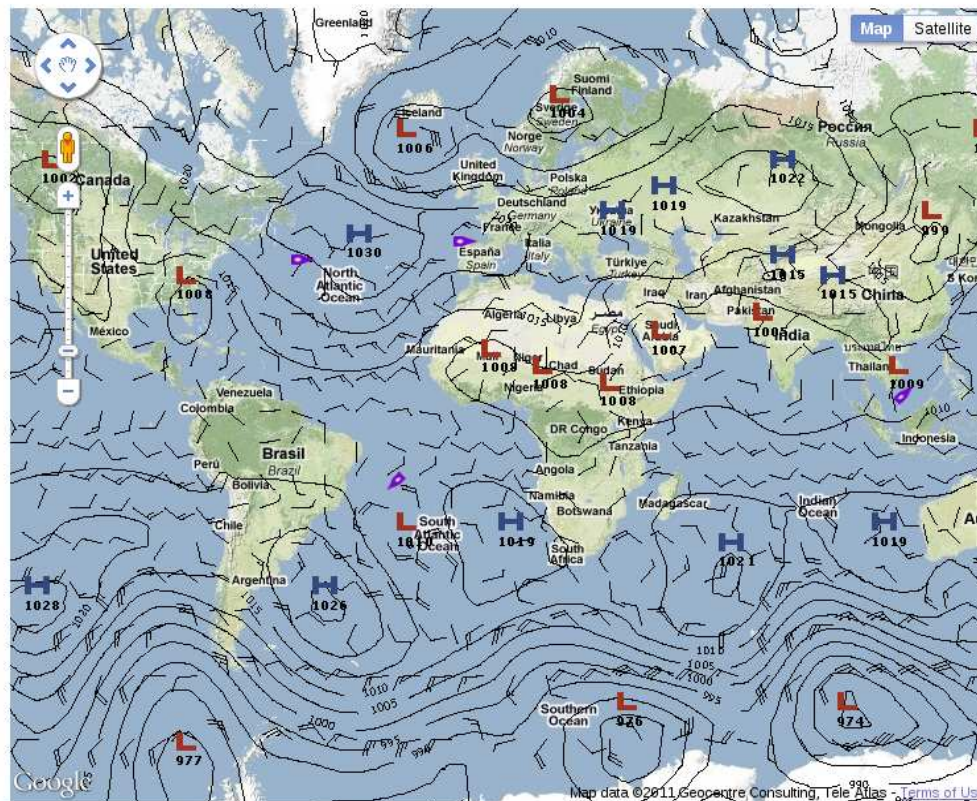


Markers off ☐

Shipping Information System

● Today

☐ 2011 ☐ May ☐ 17



Click on ship - or select ship name in drop down list - to get detailed ship information

Select ship

Weather maps

From: ● Latest forecast

☐ 2011 ☐ May ☐ 17 ☐ 12

To: ● Next 5 days

☐ 2011 ☐ May ☐ 22 ☐ 00

☐ None ☒ Wind ☐ Wave ☐ Current ☐ Tropical lows



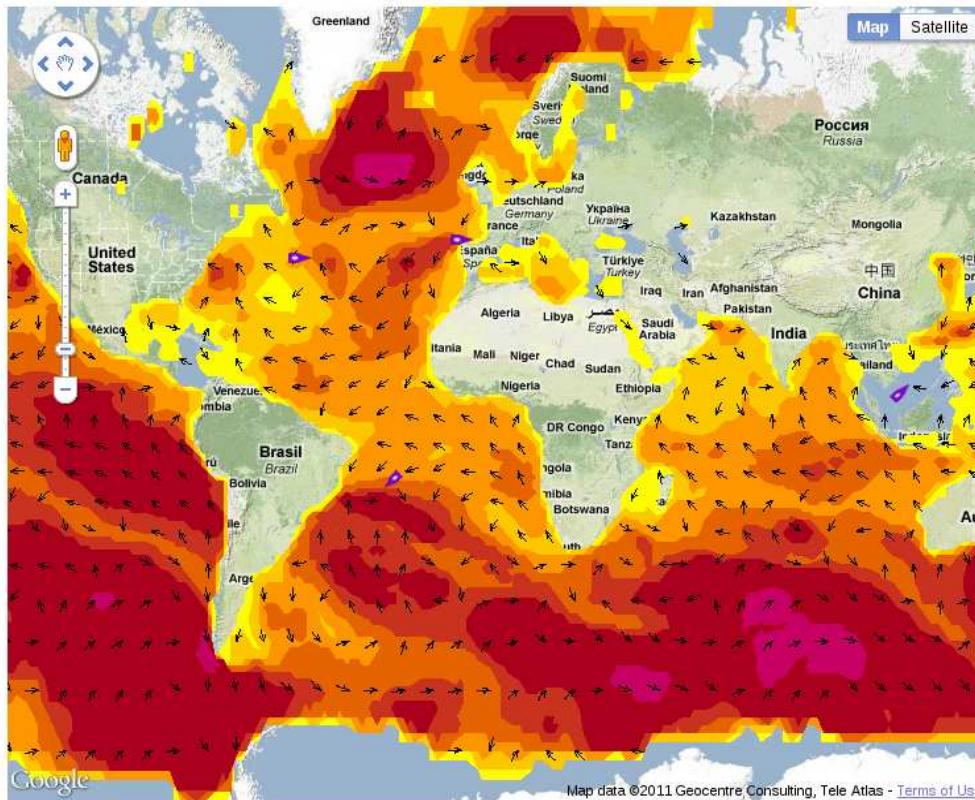
loading data ...

VALID: 2011-05-17
 12:00:00

Shipping Information System

Today

☐ 2011 ☐ May ☐ 17



Weather maps

From: ☒ Latest forecast

☐ 2011 ☐ May ☐ 17 ☐ 12

To: ☒ Next 5 days

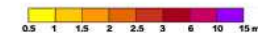
☐ 2011 ☐ May ☐ 22 ☐ 00

☐ None ☐ Wind ☒ Wave ☐ Current ☐ Tropical lows



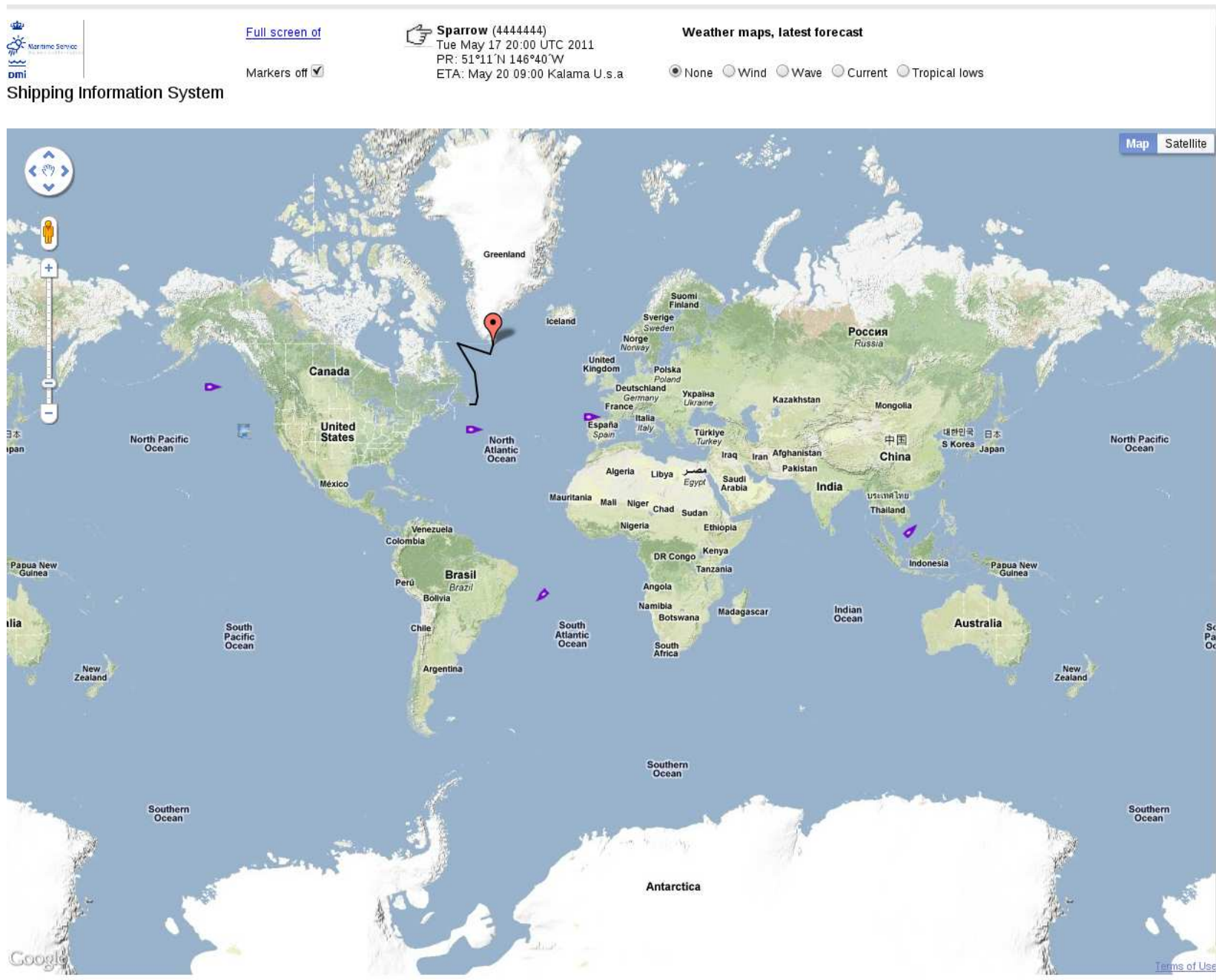
VALID: 2011-05-17
 12:00:00

loading data ...



Click on ship - or select ship name in drop down list - to get detailed ship information

Select ship



Shipping Information System

From:

☒ Start of year

☐ 2011

To:

☒ Today

☐ 2011

Ship: Black Pearl
(4444441)

Weather maps

From: ☒ Latest forecast

☐ 2011

To: ☒ Next 5 days

☐ 2011

☒ None ☐ Wind ☐ Wave ☐ Current ☐ Tropical lows



Select combination

Condition	Laden	Ballast
Combination	1	1
Warranted Speed (kts)	13.75	13.75
Warranted Fuel consump.(t/24h)	36.00	36.00
Warranted Diesel consump. (t/24h)		
Steam days	13.87	11.75
Average performance speed (kts)	13.34	14.17
Average daily Fuel consump. (t/24h)	35.52	35.14
Average daily diesel consump.(t/24h)	0.01	0.02

[Back to overview page](#)

Mouse over (lat,long): 34 37N, 010 35W

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[Export Xls](#)

Legs in the Selected period

Reference	Condi- tion	Leg	COSP	Fuel ROB	Diesel ROB	Departure	EOSP	Fuel ROB	Diesel ROB	Destination	Perf. Speed	Distance	Steam Days	Fuel (Avg)	Diesel (Avg)	Vali- dated
12345678910	L	14	2011-05-09 23:18	576.8	0.45	Kamsar	2011-05-17 12:06	345.0	0.3	San Ciprian	12.98	2327.0	7.53	35.18	0.01	yes

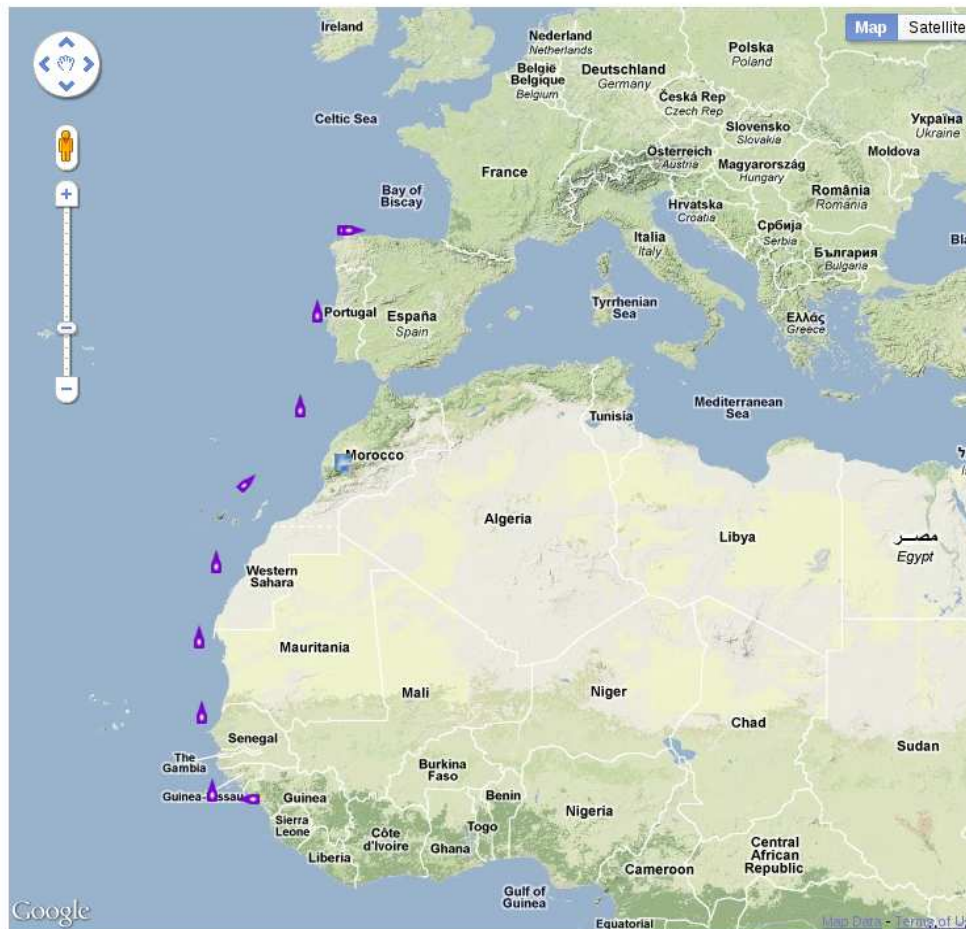
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Shipping Information System

Weather maps



From: ☒ Latest forecast
☐ 2011
 To: ☒ Next 5 days
☐ 2011
☒ None ☐ Wind ☐ Wave ☐ Current ☐ Tropical
 lows

Sun May 15 12:00 UTC 2011
 PR: 34°41'N 011°19'W
 ETA: May 18 12:30 San Ciprian

Average Performance:
 for Black Pearl (4444441) Leg 14 Ref: 12345678910

Total distance sailed (NM)	2327.0
Total time enroute	180 h 48.0 min
Speed	12.87 kts
Weather reduction	0.0
Current reduction (kts)	0.11
Performance speed (kts)	12.98
Time lost	10 h 12.7 min

[Back to overview page](#)

[Back to leg table](#)

Mouse over (lat,long): 34 41N, 011 17W

[Export Pdf](#)
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Detailed performance data:

Date	Hour:min	Latitude	Longitude	Distance	Steam hours	Speed	Weather reduction	Current reduction	Perf. speed	Fuel con.	Diesel con
2011-05-09	23:18	10°20'N	014°48'W	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
2011-05-10	12:00	10°58'N	017°08'W	175.0	12.7	13.78	0.00	0.08	13.86		
2011-05-11	12:00	16°06'N	017°54'W	312.0	24.0	13.00	0.00	0.12	13.12	35.80	0.10
2011-05-12	12:00	20°54'N	018°03'W	287.0	24.0	11.96	0.00	0.26	12.22	34.40	0.00

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for Black Pearl (4444441) Leg 14 Ref: 12345678910

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[Back to overview page](#)

[Back to leg table](#)

Mouse over (lat,long):

[Export Pdf](#)
[Export Xls](#)

Detailed performance data:

Date	Hour:min	Latitude	Longitude	Distance	Steam hours	Speed	Weather reduction	Current reduction	Perf. speed	Fuel con.	Diesel con
2011-05-09	23:18	10°20'N	014°48'W	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00
2011-05-10	12:00	10°58'N	017°08'W	175.0	12.7	13.78	0.00	0.08	13.86		
2011-05-11	12:00	16°06'N	017°54'W	312.0	24.0	13.00	0.00	0.12	13.12	35.80	0.10
2011-05-12	12:00	20°54'N	018°03'W	287.0	24.0	11.96	0.00	0.26	12.22	34.40	0.00
2011-05-13	12:00	25°36'N	016°57'W	292.0	24.0	12.17	0.00	0.32	12.49	34.10	0.00
2011-05-14	12:00	30°22'N	014°51'W	313.0	24.0	13.04	0.00	0.08	13.12	34.70	0.00
2011-05-15	12:00	34°41'N	011°19'W	317.0	24.0	13.21	0.00	-0.05	13.16	35.40	0.00
2011-05-16	11:00	39°47'N	010°08'W	317.0	23.0	13.78	0.00	-0.13	13.65	34.70	0.00
2011-05-17	11:00	43°53'N	008°00'W	300.0	24.0	12.50	0.00	0.12	12.62	35.50	0.00
2011-05-17	12:06	43°53'N	007°41'W	14.0	1.1	12.73	0.51	0.64	13.88		

Weather Conditions:

Date	Hour	Latitude	Longitude	Wind direction	Wind	Sea	Current direction	Current
2011-05-10	12:00	10°58'N	017°08'W	295	06	0.3	355	0.2
2011-05-11	12:00	16°06'N	017°54'W	340	12	0.6	030	0.2
2011-05-12	12:00	20°54'N	018°03'W	355	16	1.1	030	0.3
2011-05-13	12:00	25°36'N	016°57'W	325	09	0.3	025	0.3
2011-05-14	12:00	30°22'N	014°51'W	285	03	0.1	315	0.2
2011-05-15	12:00	34°41'N	011°19'W	100	02	0.1	140	0.2
2011-05-16	11:00	39°47'N	010°08'W	110	12	0.5	175	0.1
2011-05-17	11:00	43°53'N	008°00'W	090	13	0.8	090	0.4
2011-05-17	12:06	43°53'N	007°41'W	080	18	1.2	095	0.6

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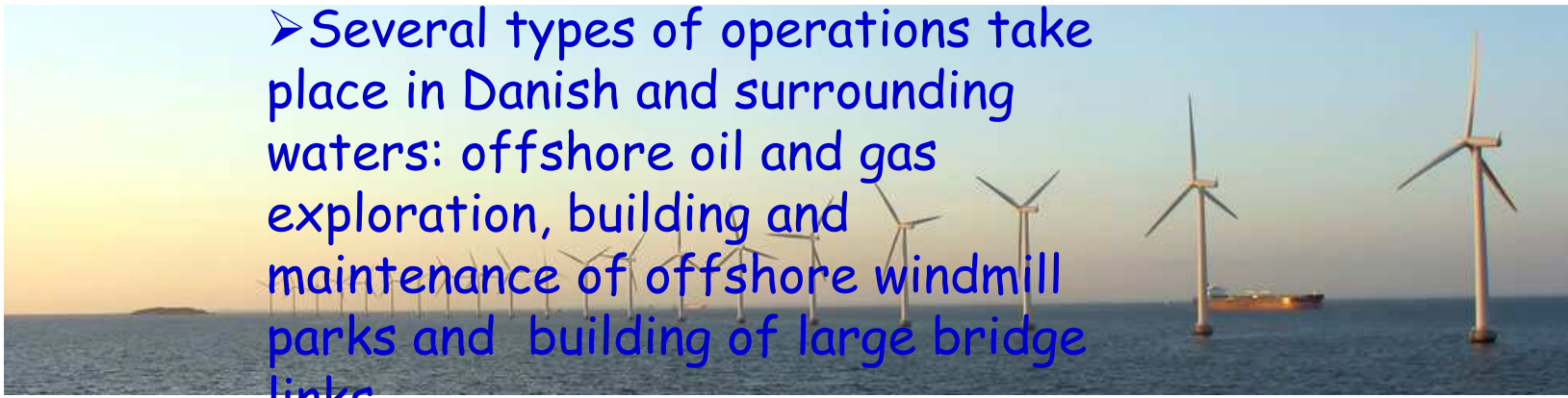
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Concluding remarks

- First version of SIS was developed in the fall 2009 in collaboration with a large Norwegian shipping company
- SIS is still developed in collaboration with the shipping companies
- Currently ~300 ships including 5 major shipping companies are in the system

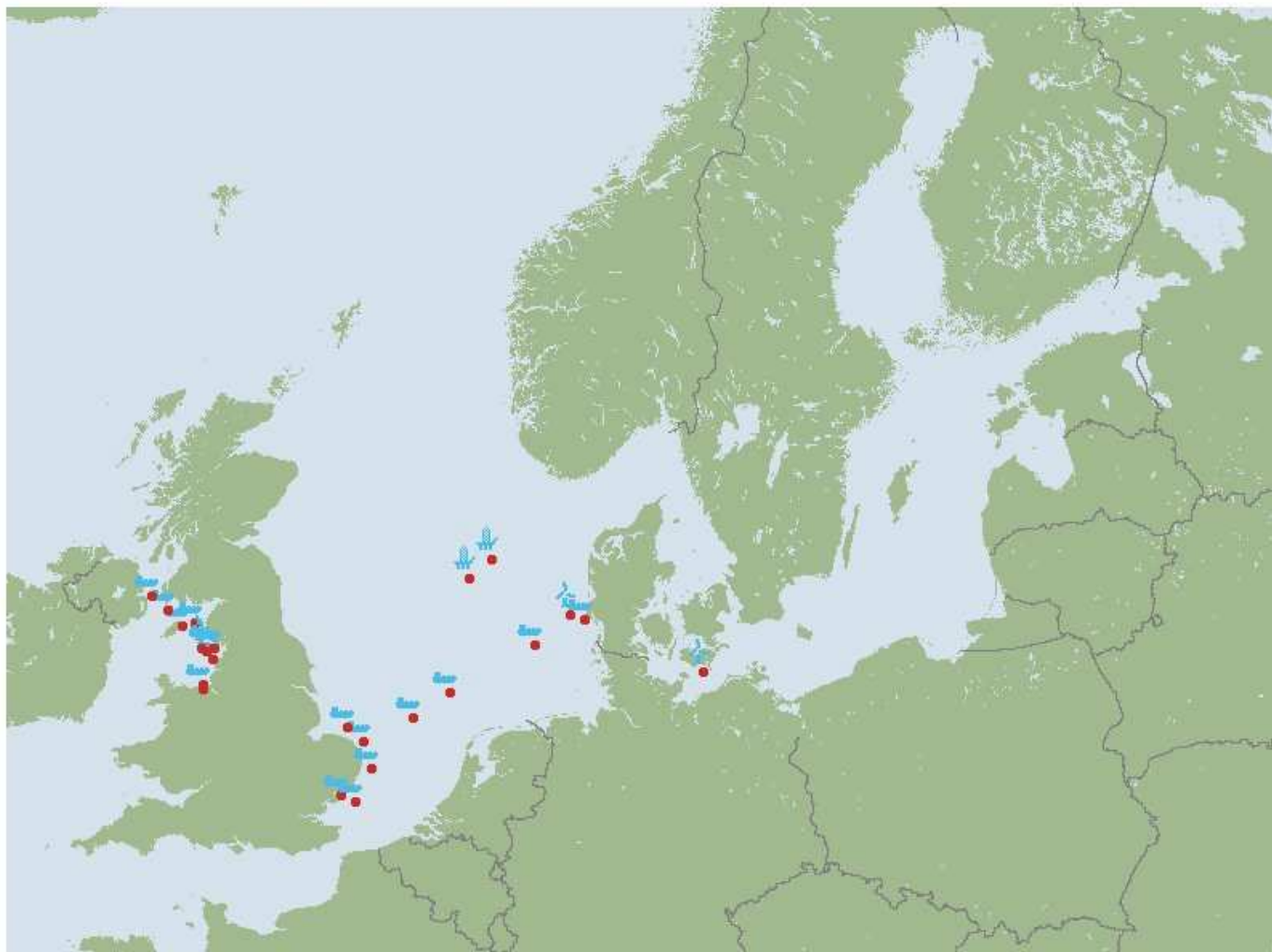
Marine Forecast Service

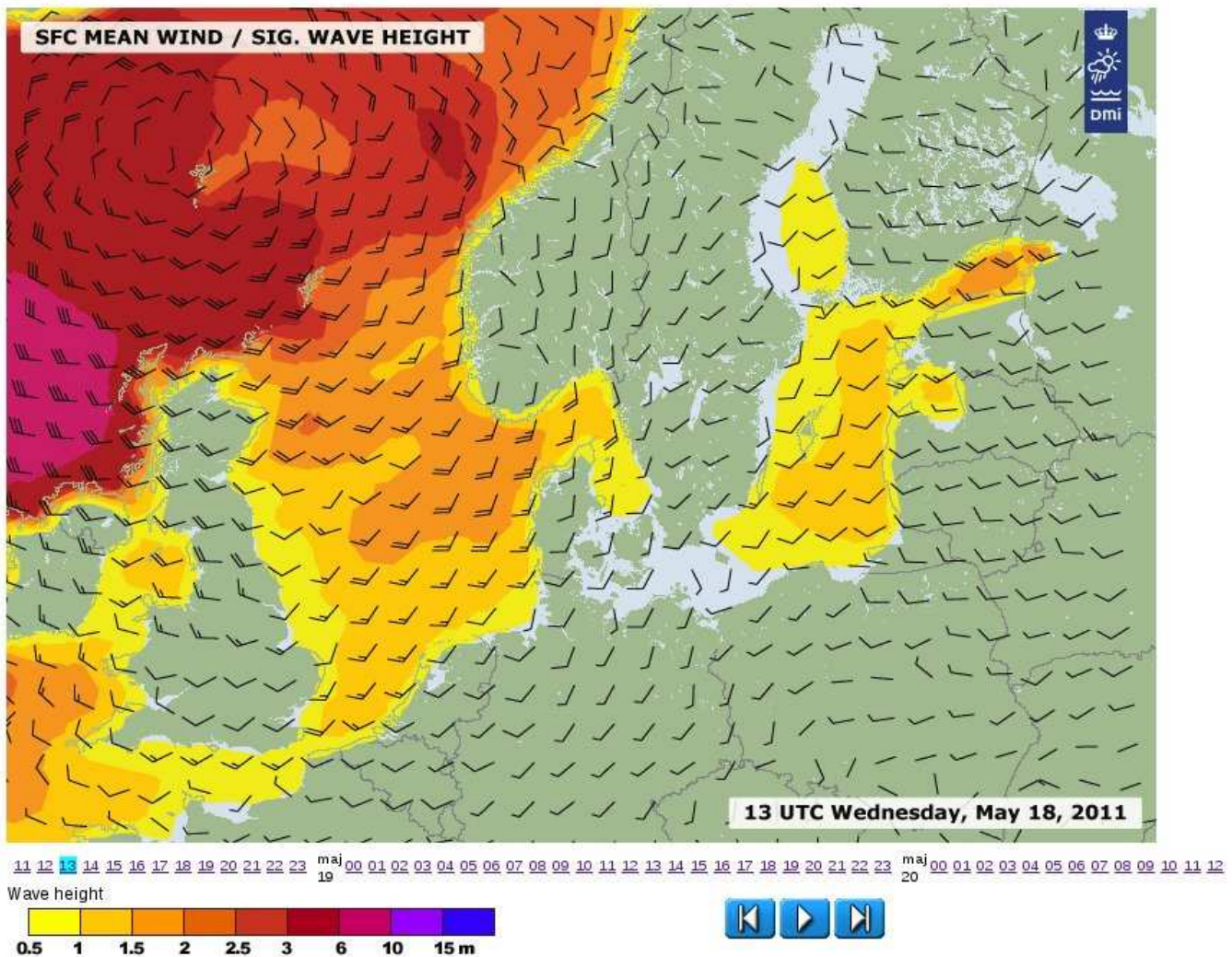
Background:



➤ Several types of operations take place in Danish and surrounding waters: offshore oil and gas exploration, building and maintenance of offshore windmill parks and building of large bridge links

➤ Detailed knowledge of sea and weather conditions are of crucial importance for the safety of such operations





Select location

Walney 2

Select forecast

☒ Latest available

☐ 2011

May

18

06:00

OK

☒ Day 1-5 Forecast

☐ Day 6-10 Forecast

☒ Graph

☐ Table

Synopsis issued: N/A

[Print synopsis](#)

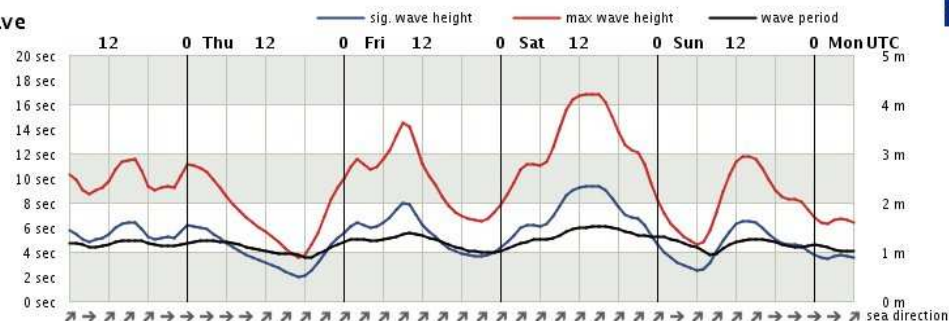
[Wind](#) [Wave](#) [Swell/Current](#) [Temp./Precip.](#) [Pressure/Lightning](#) [Print all](#)

Walney 2

54.05 14N 3.59639W

Forecast for the period 06 UTC May 18 2011 until 06 UTC May 23 2011
based on latest available data

Wave



Wave



[Export forecast](#) [Date format...](#) [Decimal separator...](#)

Data

- DMI-HIRLAM(DMI-High Resolution Limited Area Model): run each 6th hour – one hour intervals up to 60 hours from the latest model run.
- ECMWF model in a little coarser resolution – up to 10 days



Select location

Walney 2

Select forecast

☒ Latest available

☐ 2011 May 18 06:00 OK

☒ Graph

☐ Obs table

Observation at 10:57 UTC

Marine Forecast Service
Walney 2

Wind: N/A
Sig. Wave: 1,33 m
Max. Wave: 2,26 m
Temp: N/A
Sea: 11,2 °C

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Synopsis issued: N/A

[Print synopsis](#)

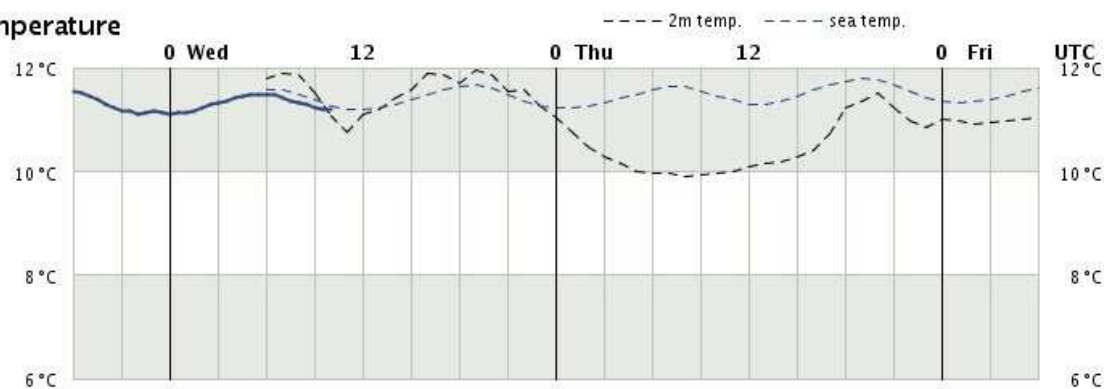
[Wind](#) [Wave](#) [Swell/Current](#) [Temp./Precip.](#) [Pressure/Lightning](#) [Print all](#)

Walney 2

54.0514N 3.59639W

Forecast for the period 06 UTC May 18 2011 until 06 UTC May 20 2011
based on latest available data

Temperature



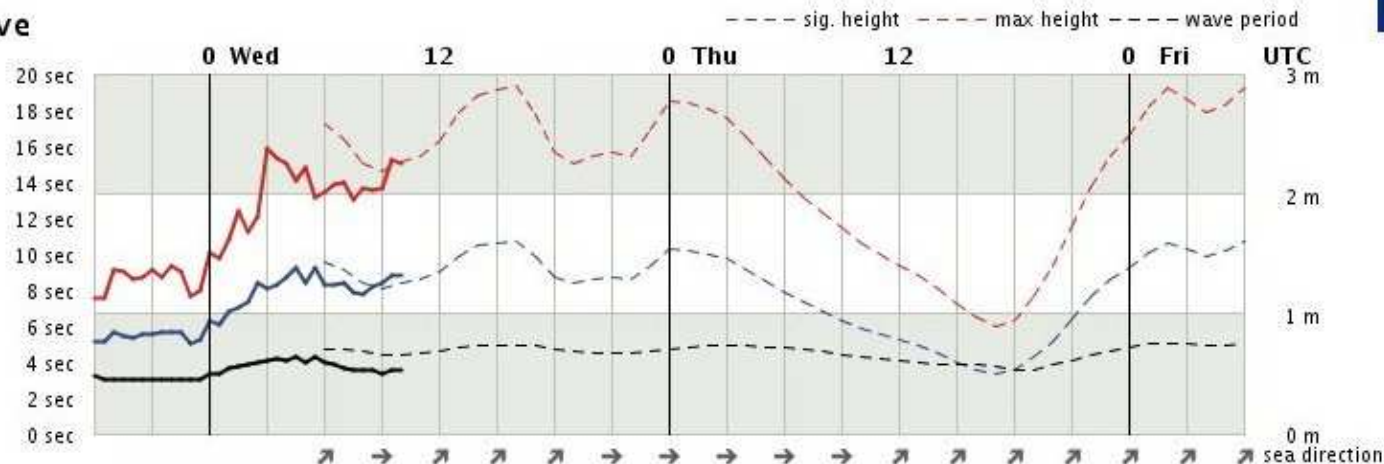
Walney 2

54.0514N 3.59639W

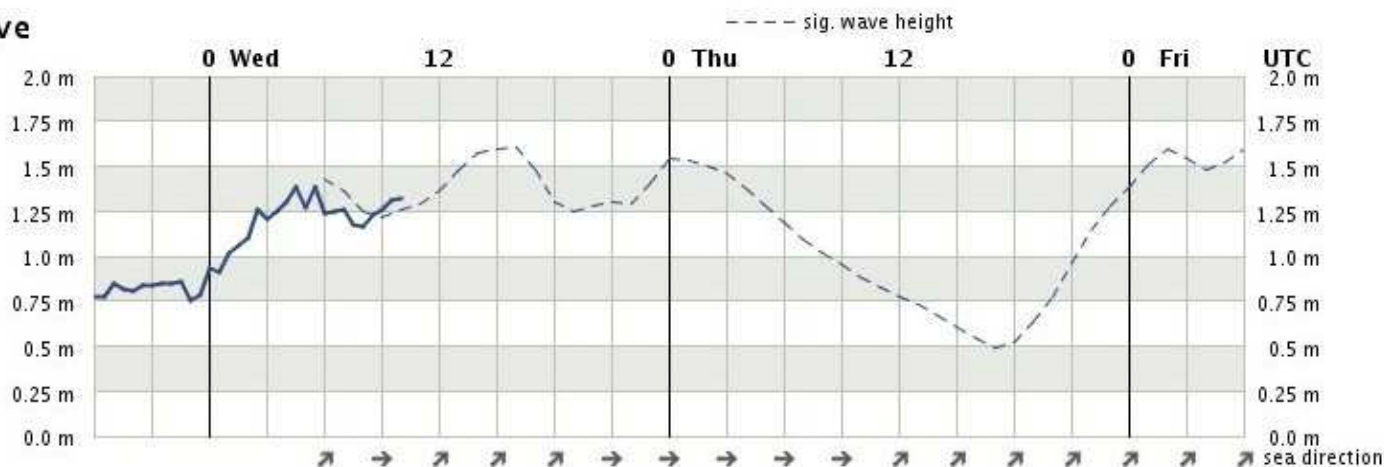
Forecast for the period 06 UTC May 18 2011 until 06 UTC May 20 2011
based on latest available data



Wave



Wave



Export monthly observations

Date format...



Decimal separator...



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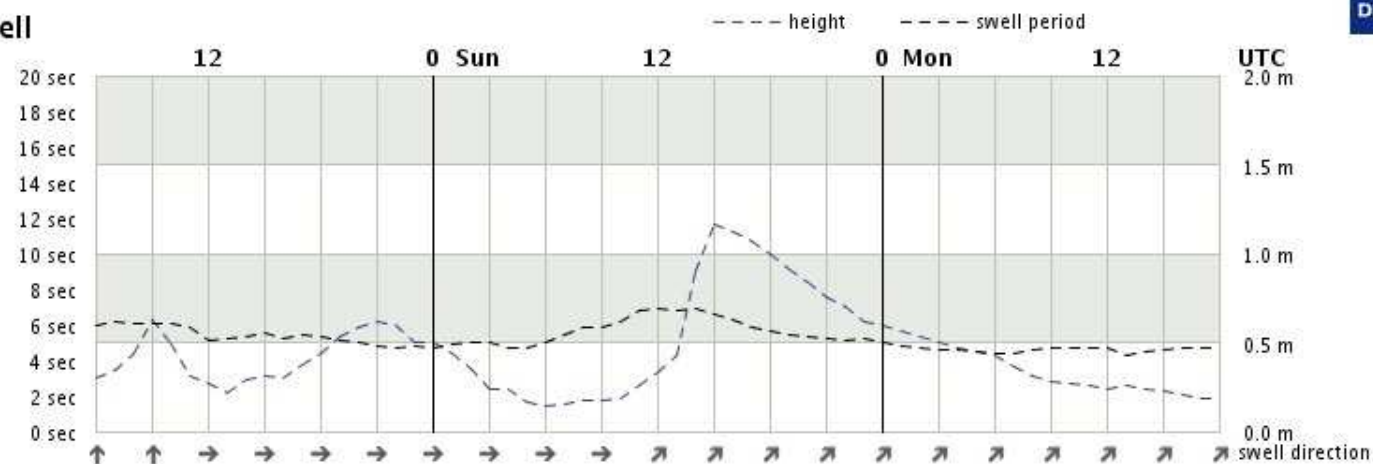
Walney 2

54.0514N 3.59639W

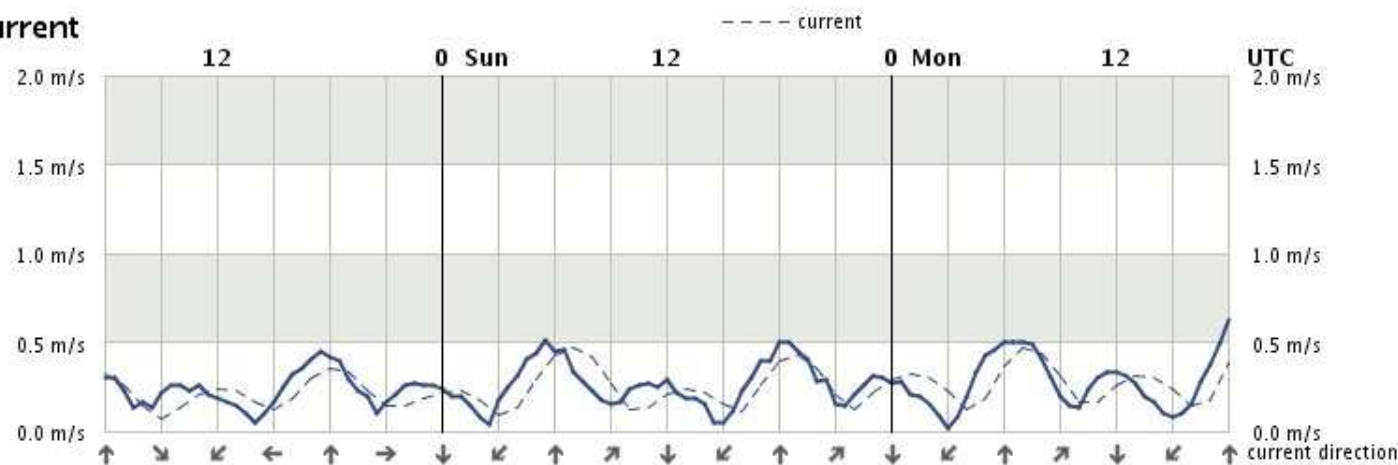
Forecast for the period 06 UTC May 28 2011 until 18 UTC May 30 2011
 based on data 06 UTC May 28 2011



Swell



Current

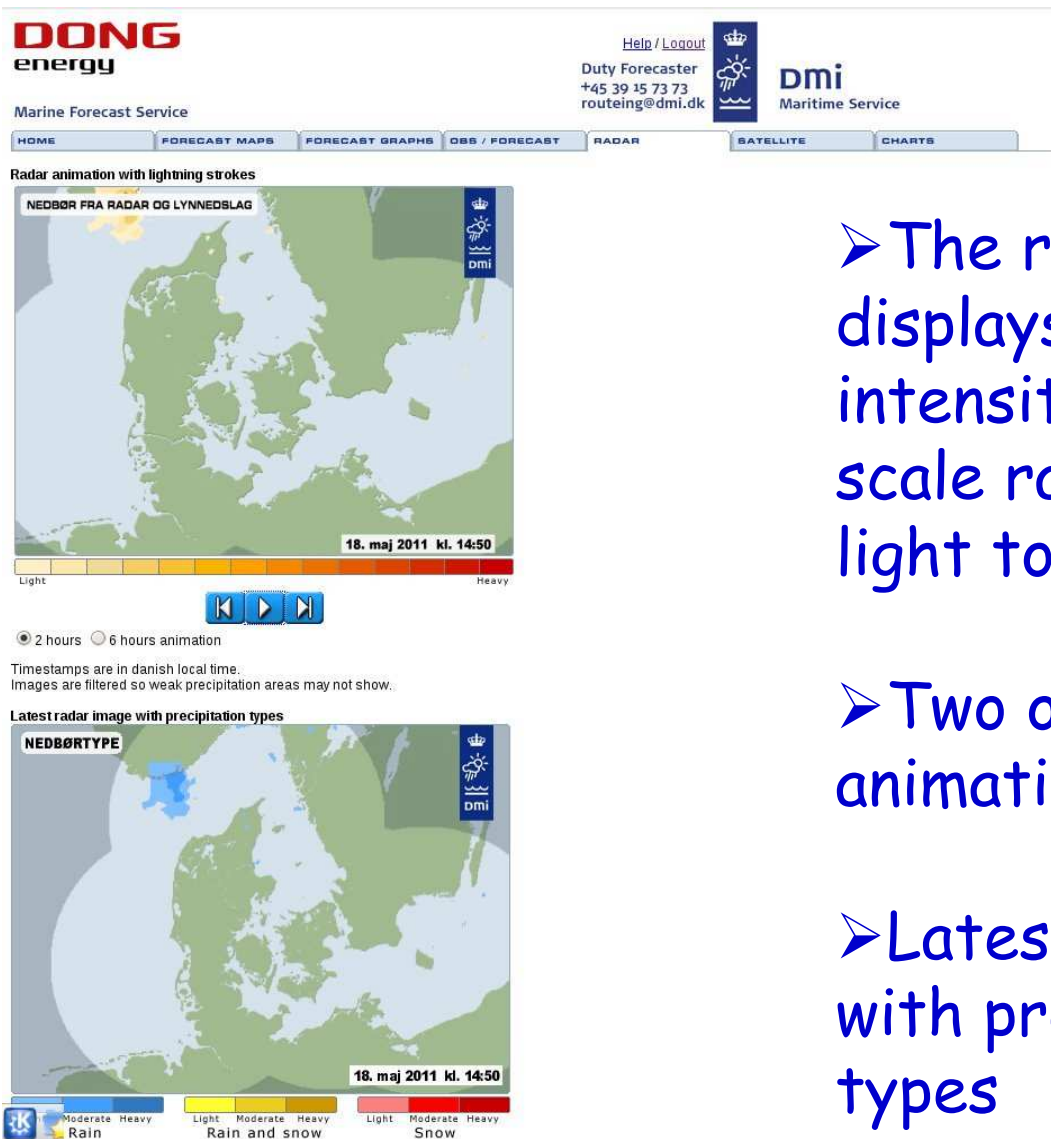


Export observations from May 2011

Date format...

Decimal separator...

[Download month report in PDF for May 2011](#)



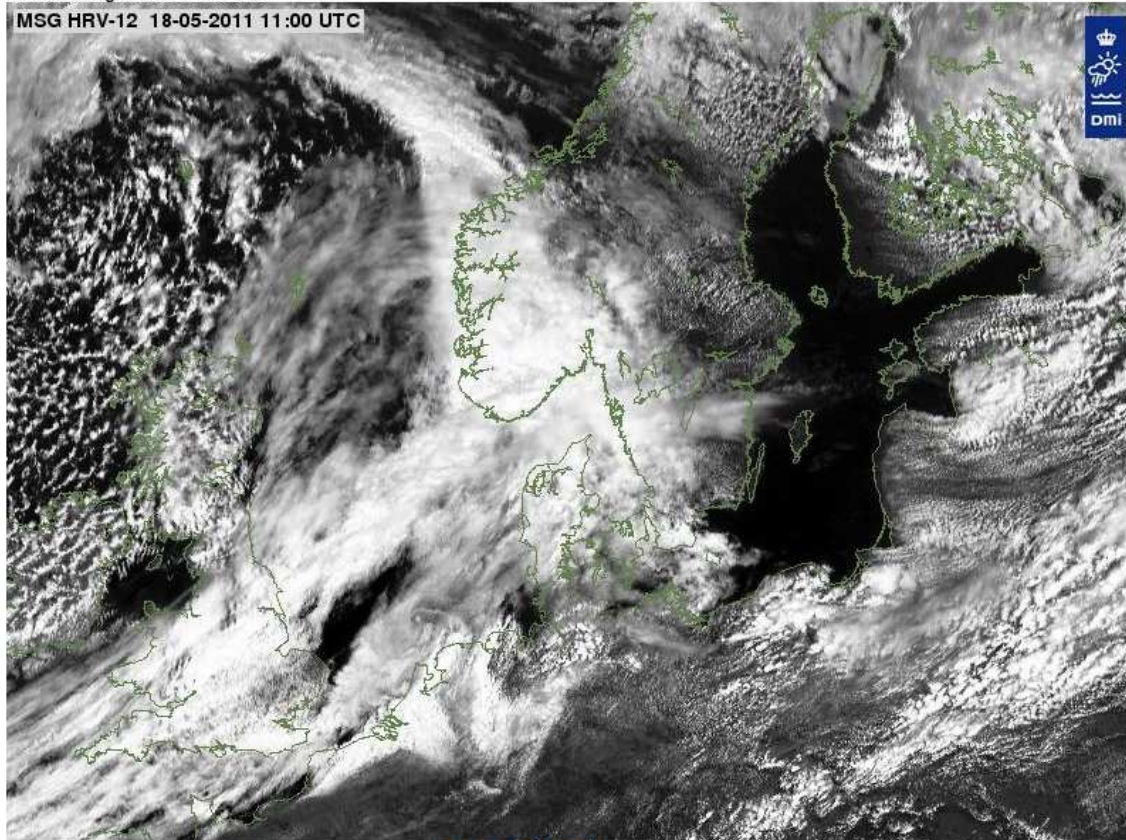
➤ The radar animation displays precipitation intensities on a colored scale ranging from light to heavy.

➤ Two or six hours animation

➤ Latest radar image with precipitation types

Satellite images from Meteosat

MSG HRV-12 18-05-2011 11:00 UTC



☒ Visual ☐ Infrared



☒ 3 hours ☐ 9 hours animation

➤ Satellite images from Meteosat

➤ 3 or 9 hour animation

Batch version

- The customer can also obtain an e-mail with the forecast graphs and data up to four times a day. Available format: pdf and excel



Concluding remarks

- MFS has global coverage.
- MFS comes with full 24 h meteorological guidance from experienced forecasters.
- First MFS version developed in the beginning of 2009
- MFS is under continued development and refinement in close cooperation with business partners.
- Currently ~ 500 geographical points registered

Resume

Presented two web based applications that can be used to get easy accessible information on weather conditions for shipping and offshore operations

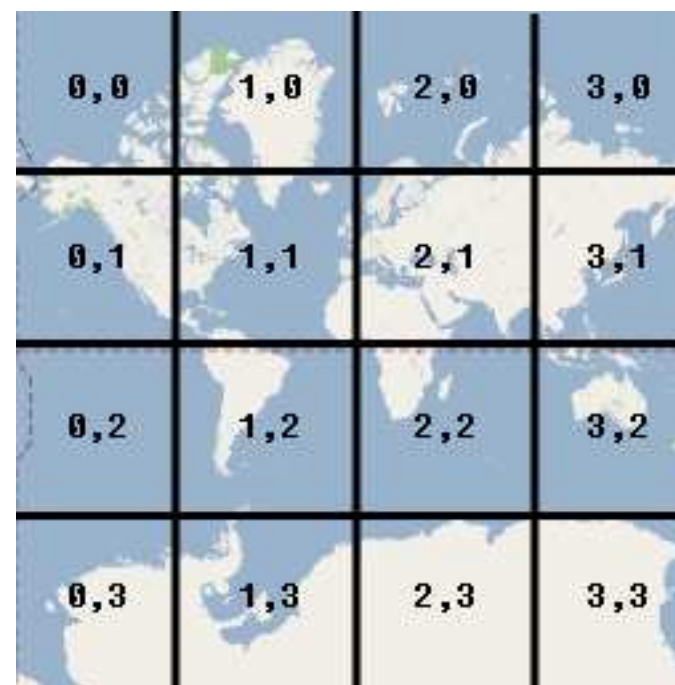
➤ Thank you for your attention

zoom level 0: 1 tile; At higher zoom levels, pixel space expands by doubling the size in both x and y dimension; So, at zoom level 1, the map consists of 4 256x256 tiles; At zoom level 2 the map consists of 16 256x256 tiles

zoom level 0



zoom level 2



**SIS2: GIF pictures in 4 sizes: 512x512 for z= 0,1
1024x1024 for z=2
2048x2048 for z=3,
4096x4096 for z=4,5**

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