



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

Getijvoorspellingen in de 21e eeuw van model naar werkelijkheid



Model

- **Model (wetenschap): bron wikipedia**
- In een wetenschappelijke of technische context is een **model** een **vereenvoudigde** voorstelling, beschrijving of **nabootsing van** (een deel van) **de werkelijkheid**. Een model kan formeel zijn (bijvoorbeeld een wiskundige vergelijking, een diagram of een tabel) of informeel (een beschrijving in woorden).



Schalkwijk (relatie wind/opzet)



Fig. 10.27

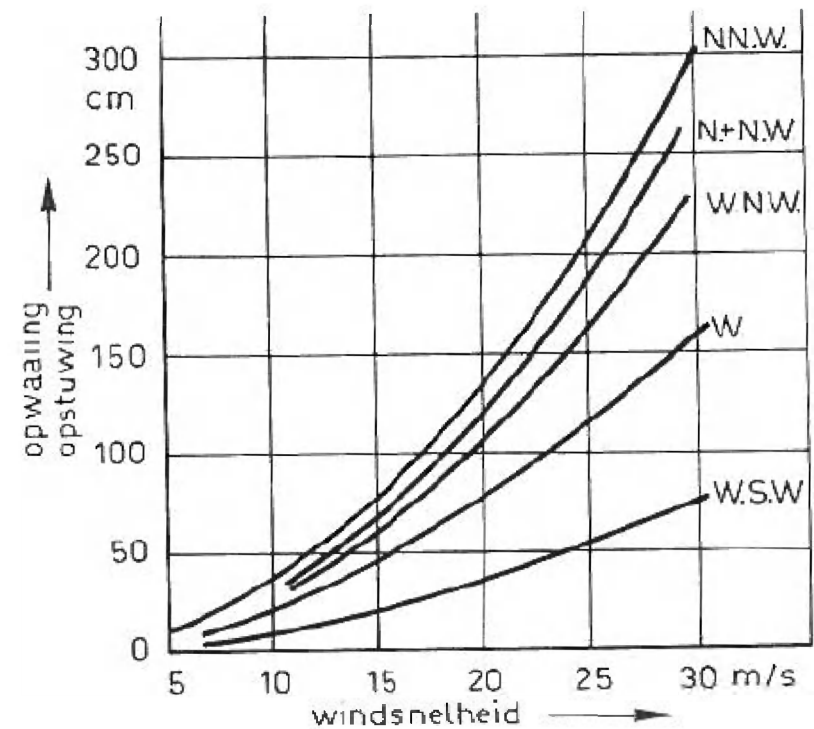
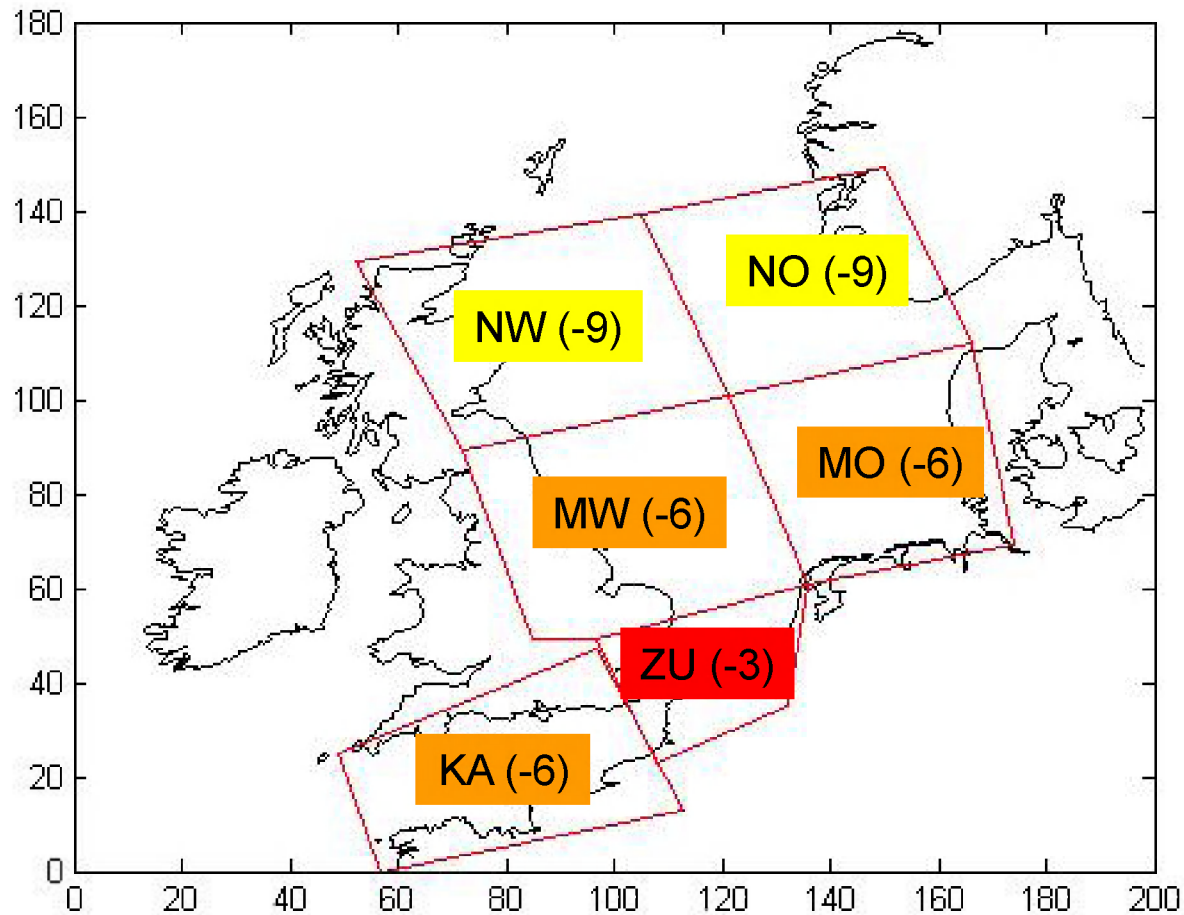


Fig. 10.28

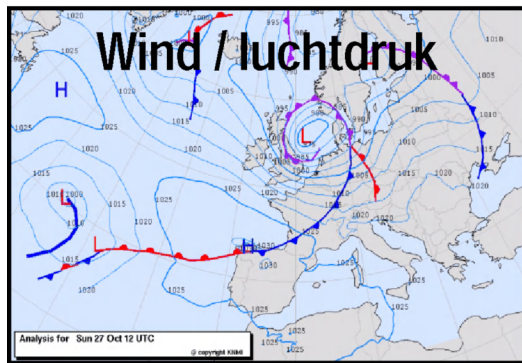


Vakkenmethode (en Noordzeemodel)

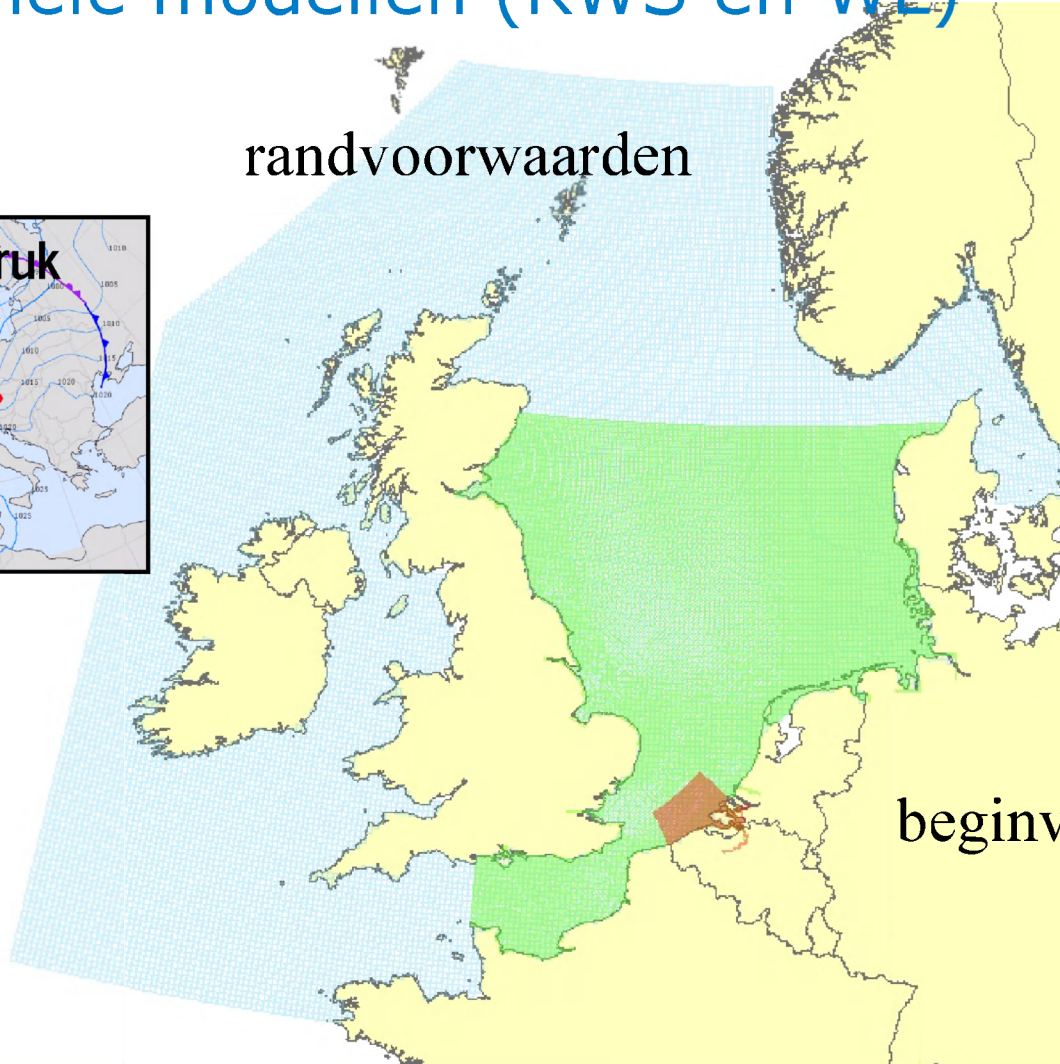




Operationele modellen (RWS en WL)



randvoorwaarden



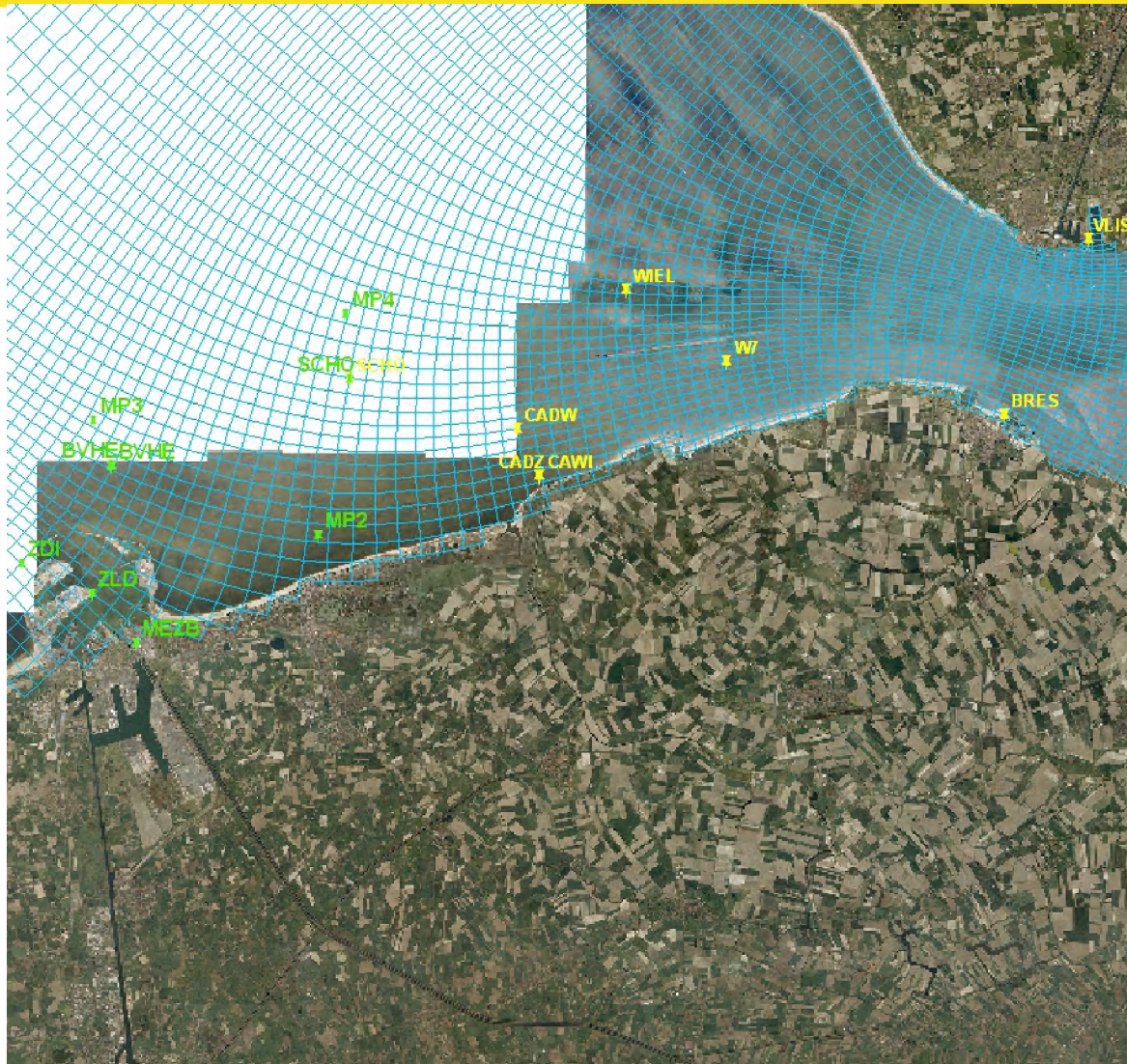
Data-assimilatie

beginvoorwaarden



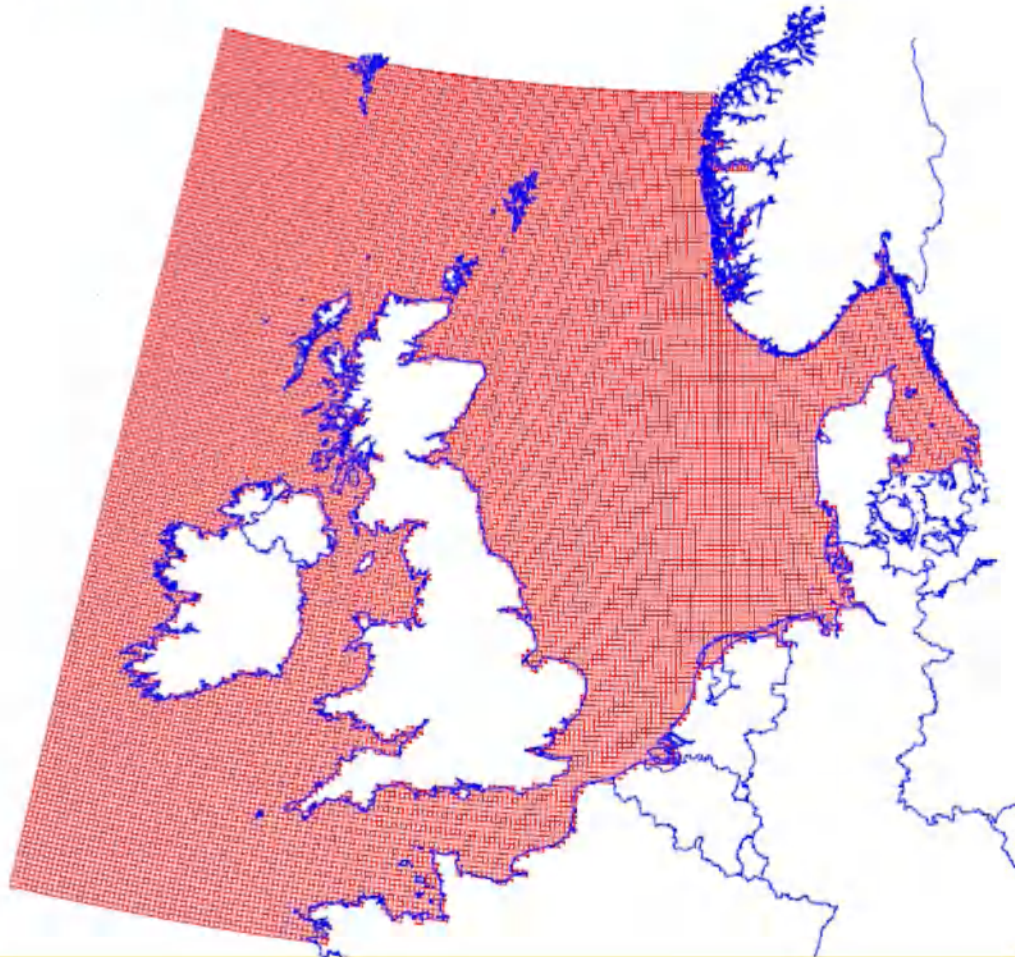






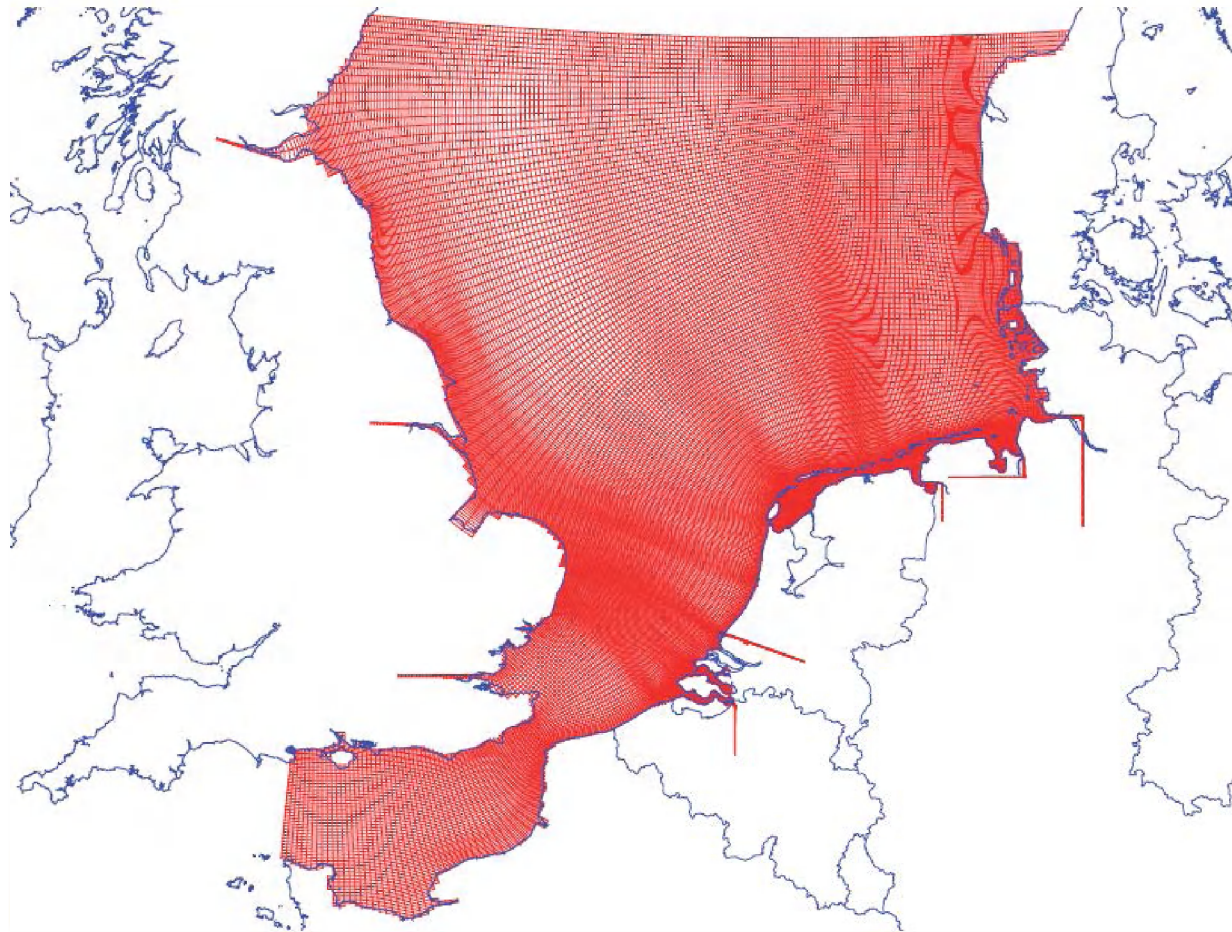


csm8 (dcsmv5)



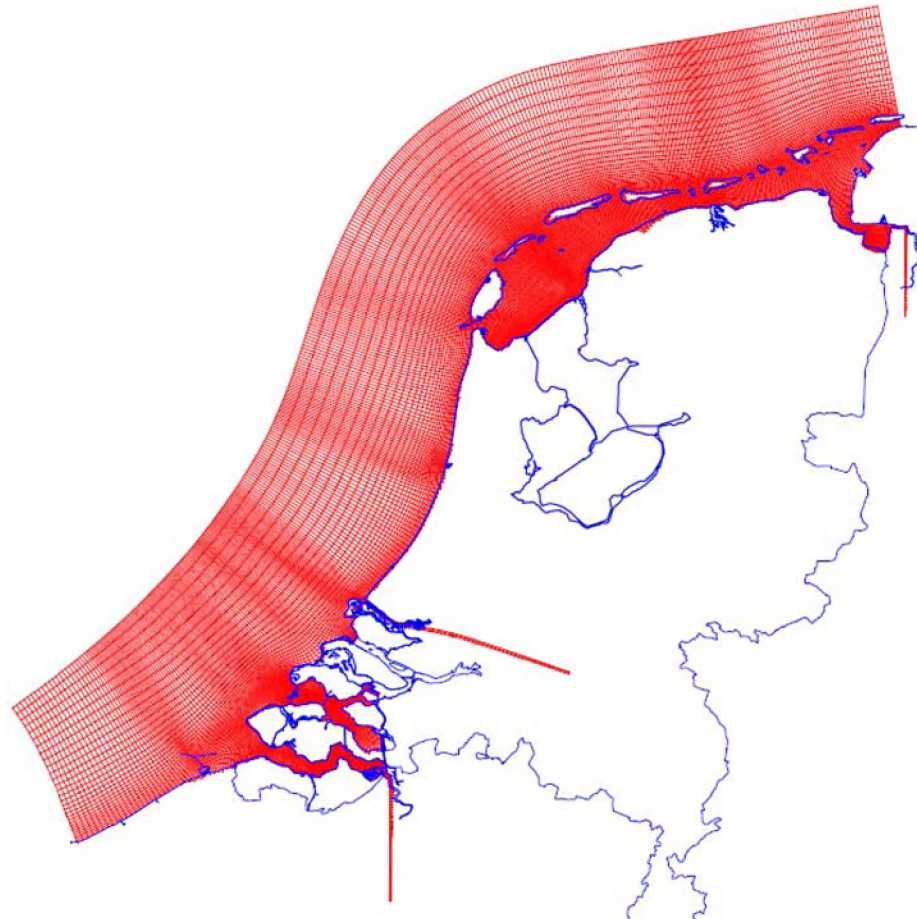


zunov3



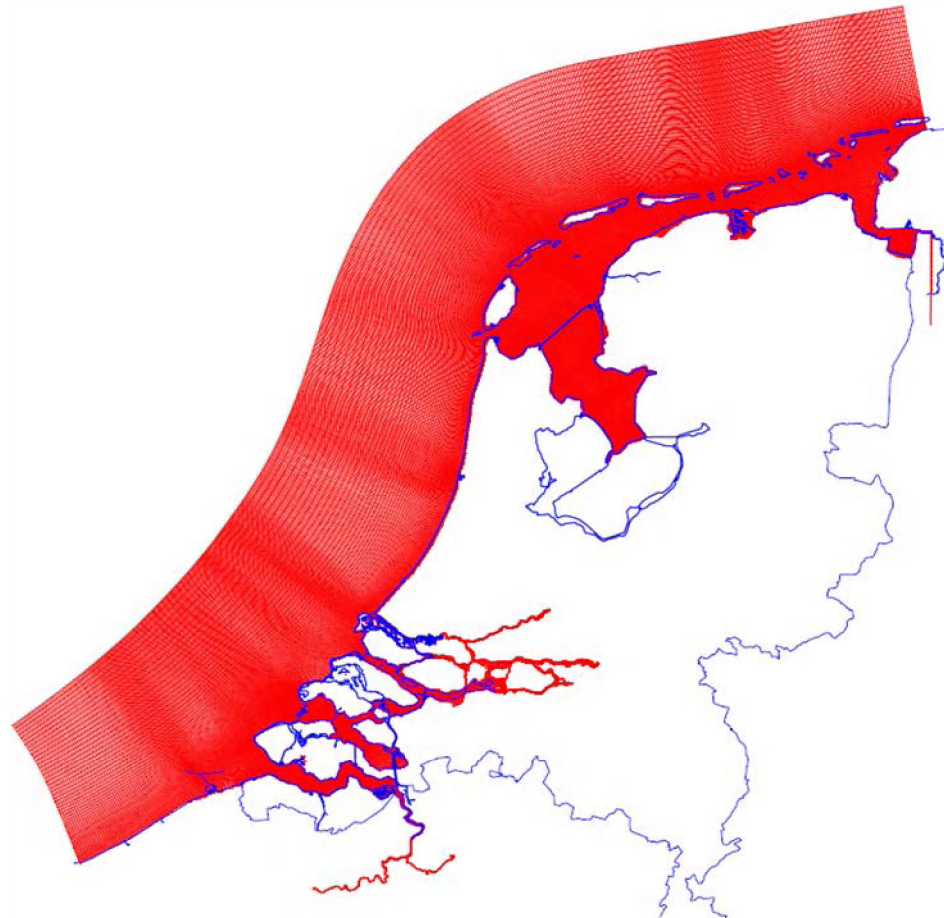


kustgrofv4

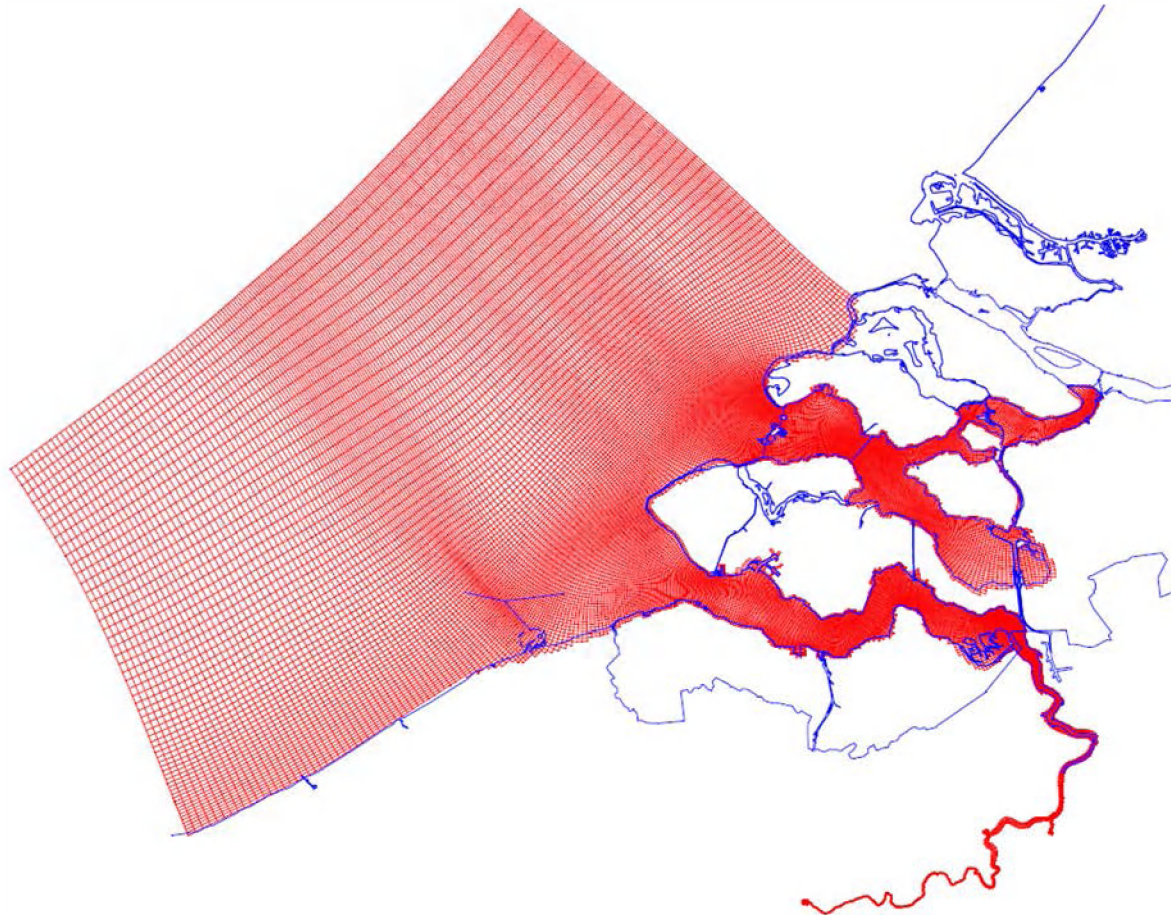


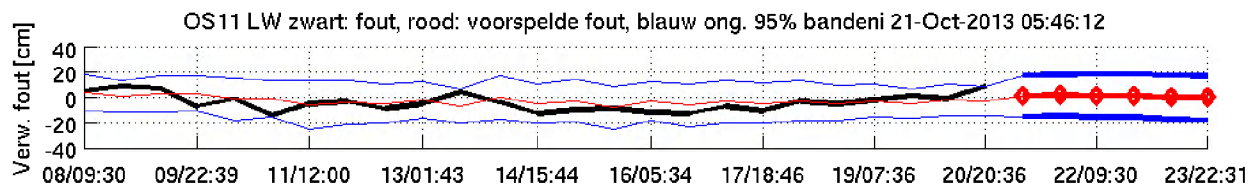
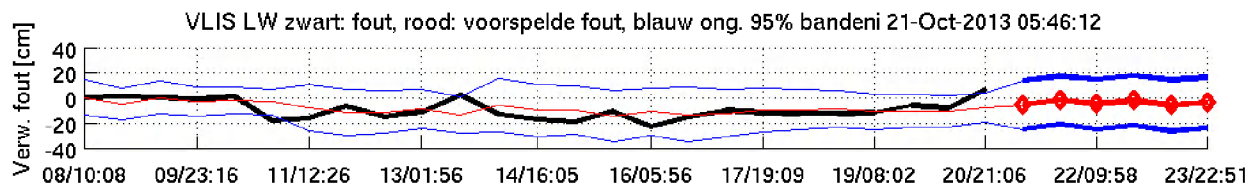
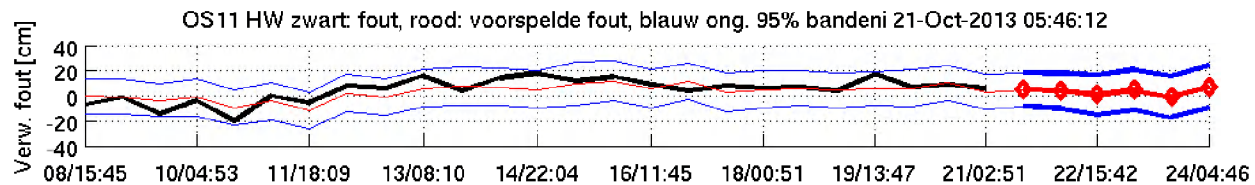
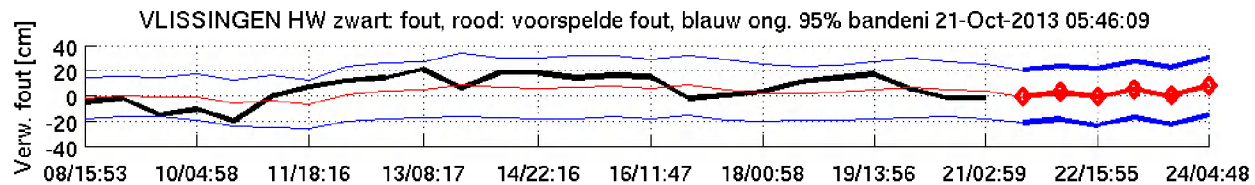


kustfijnv4



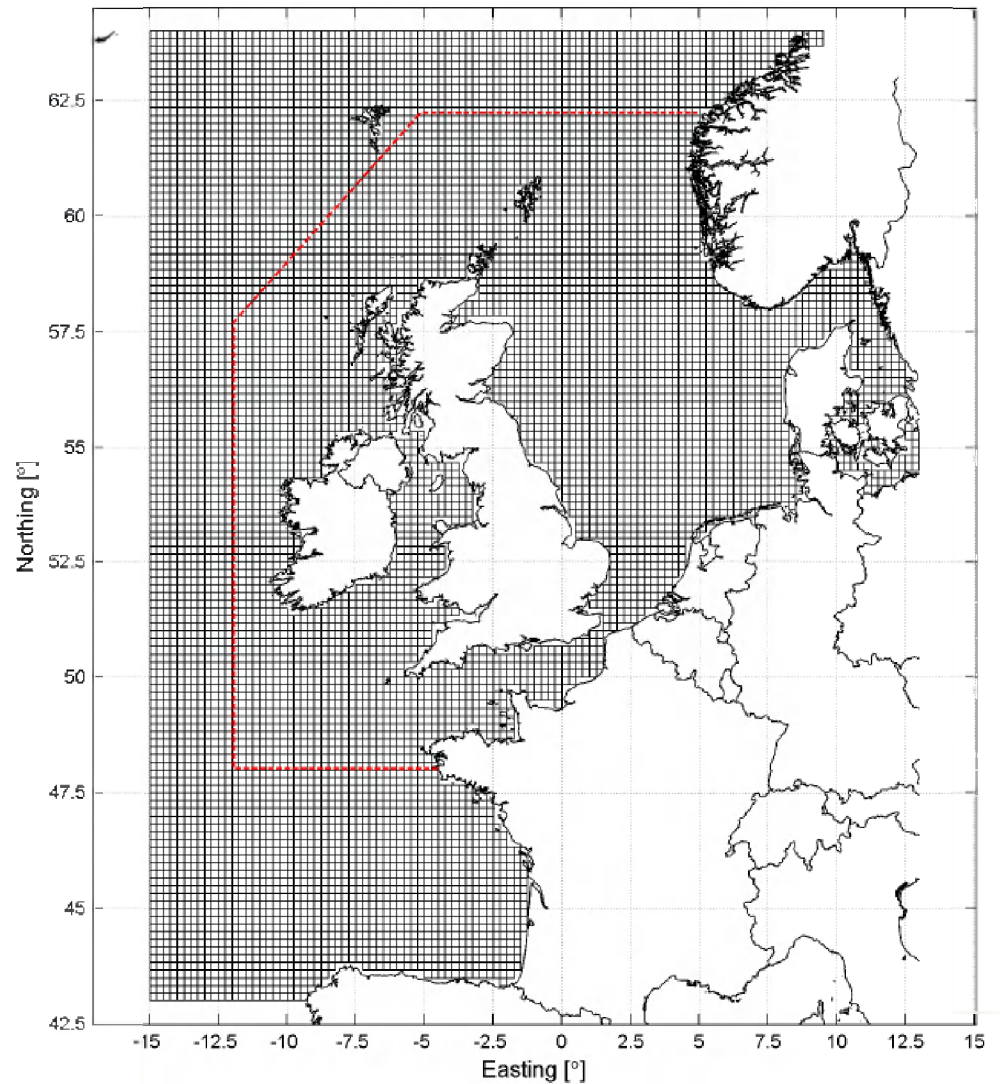
kustzuidv3





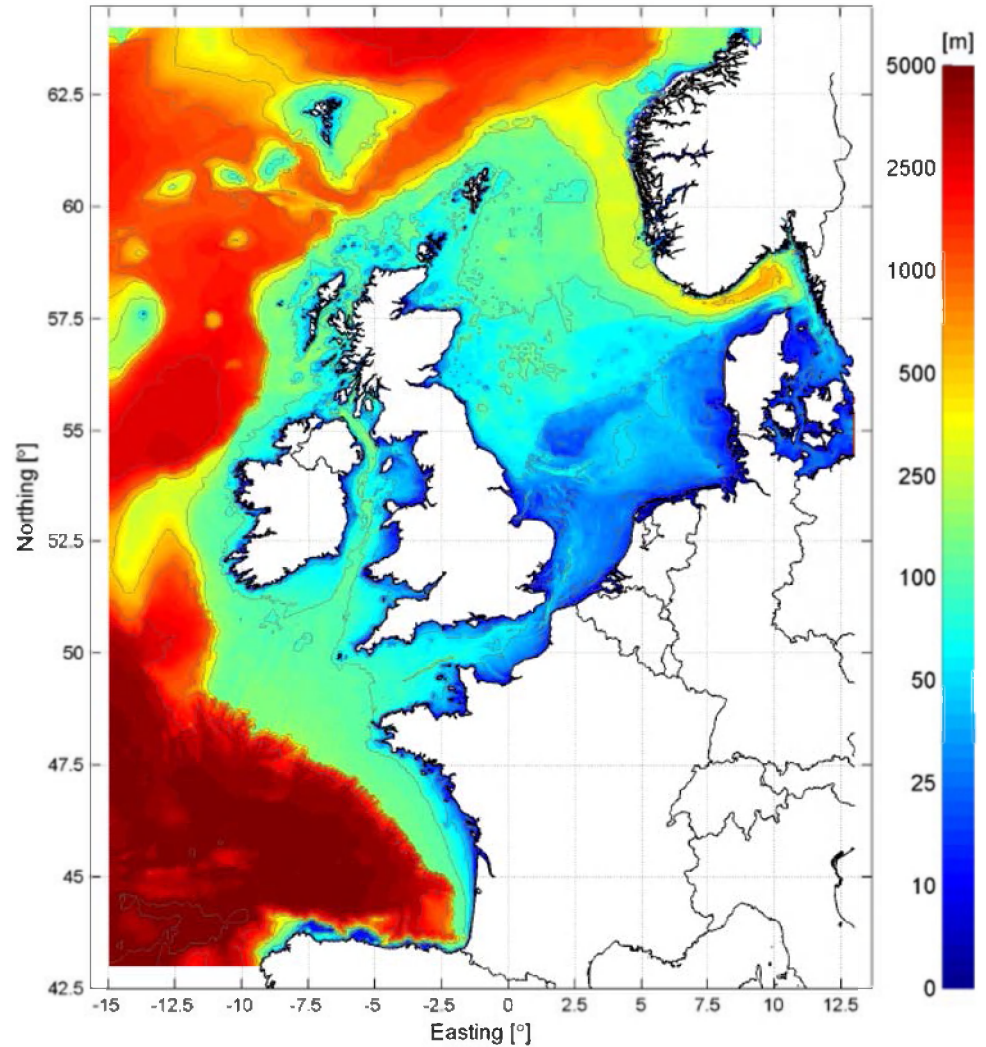


Grid dcsmv5 Grid dcsmv6 (1:10)



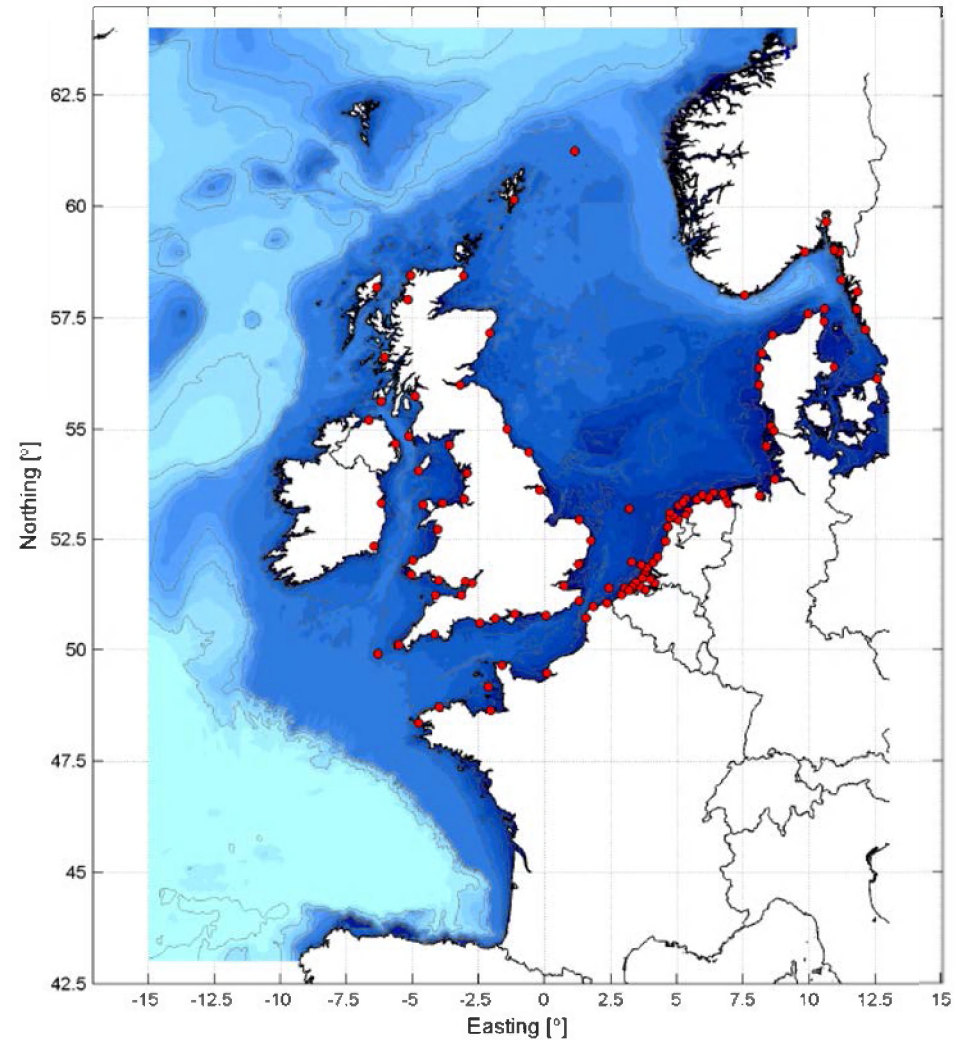


Bathymetrie dcsmv6



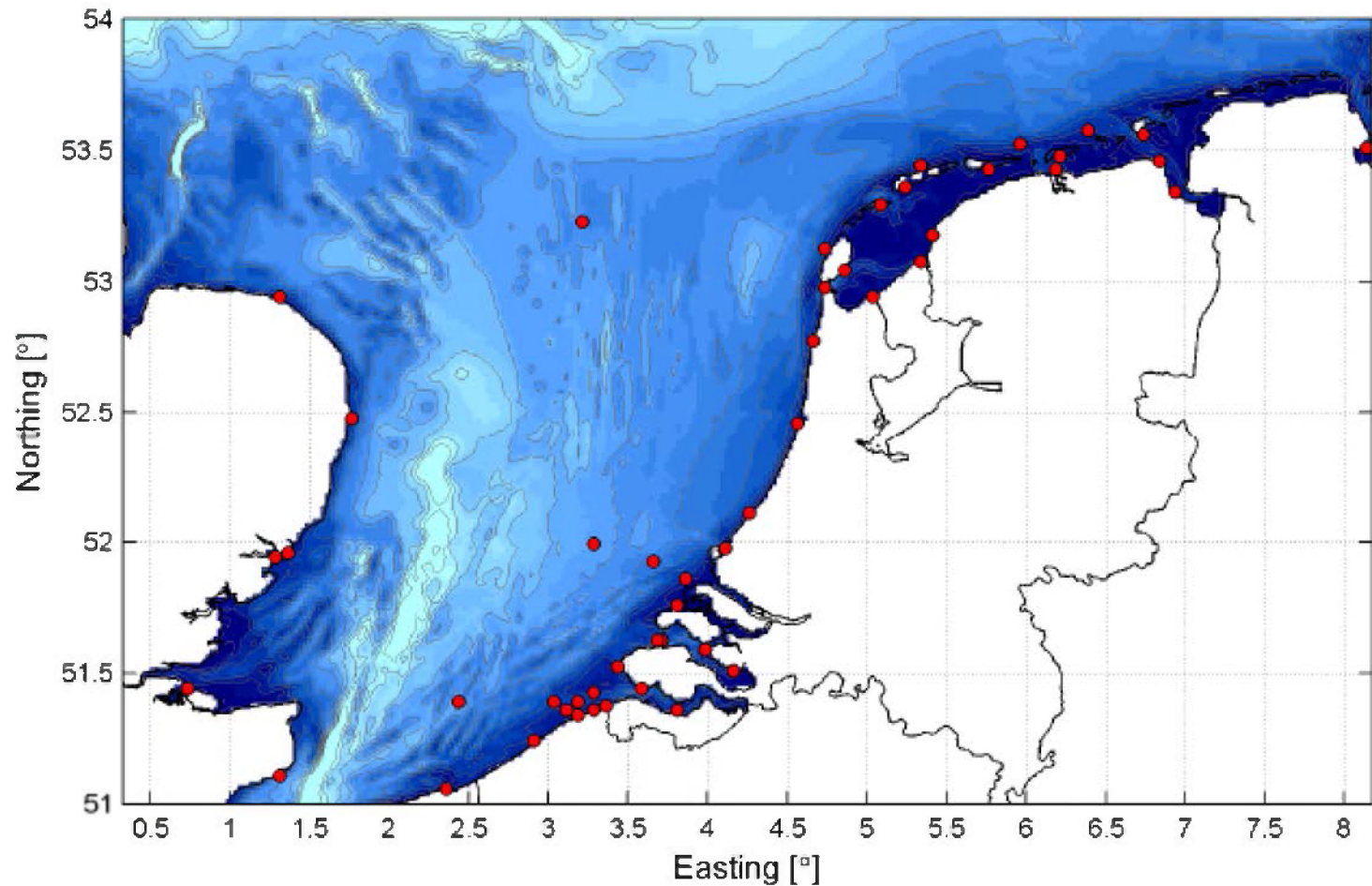


Calibratiestations





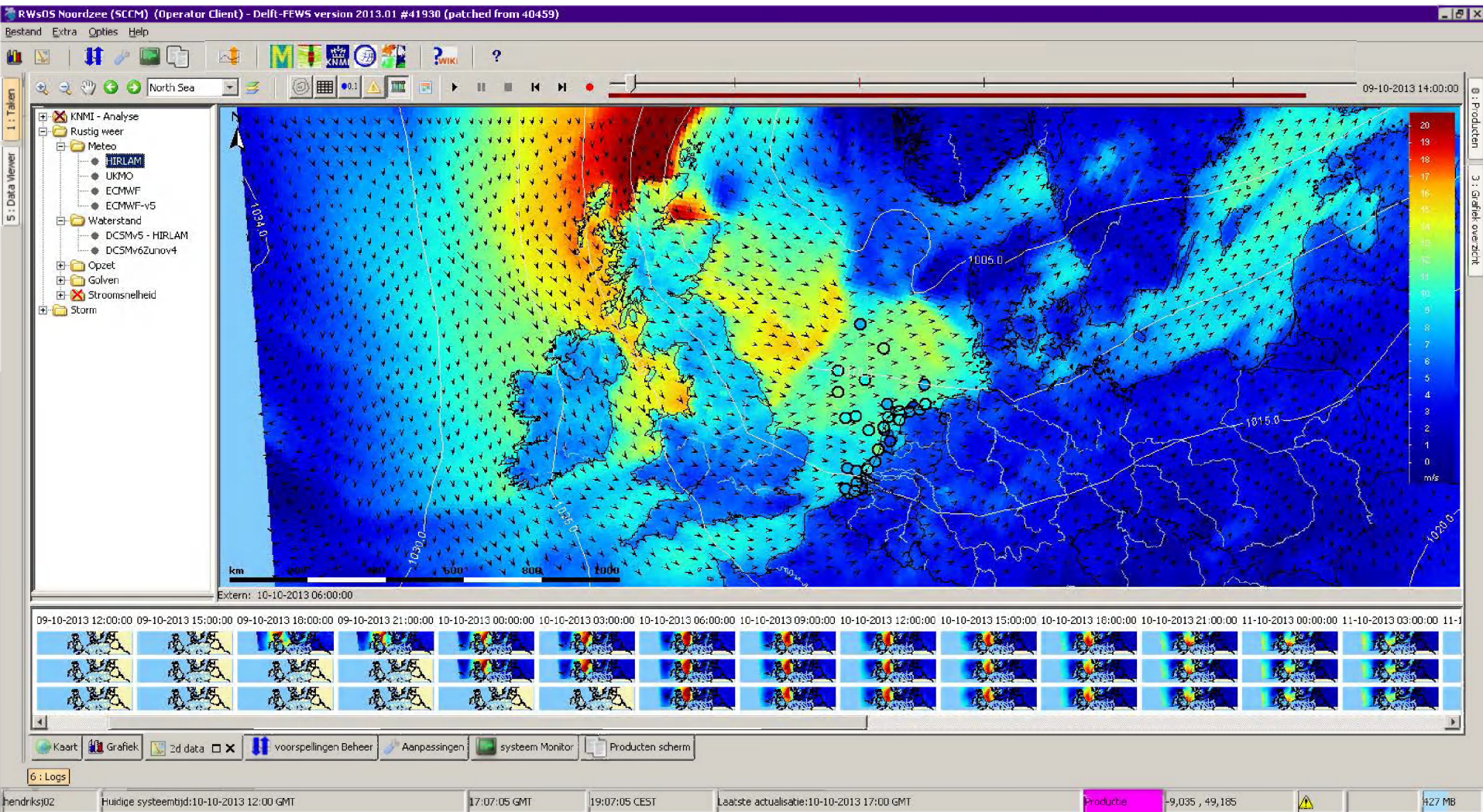
Calibratiestations (detail)

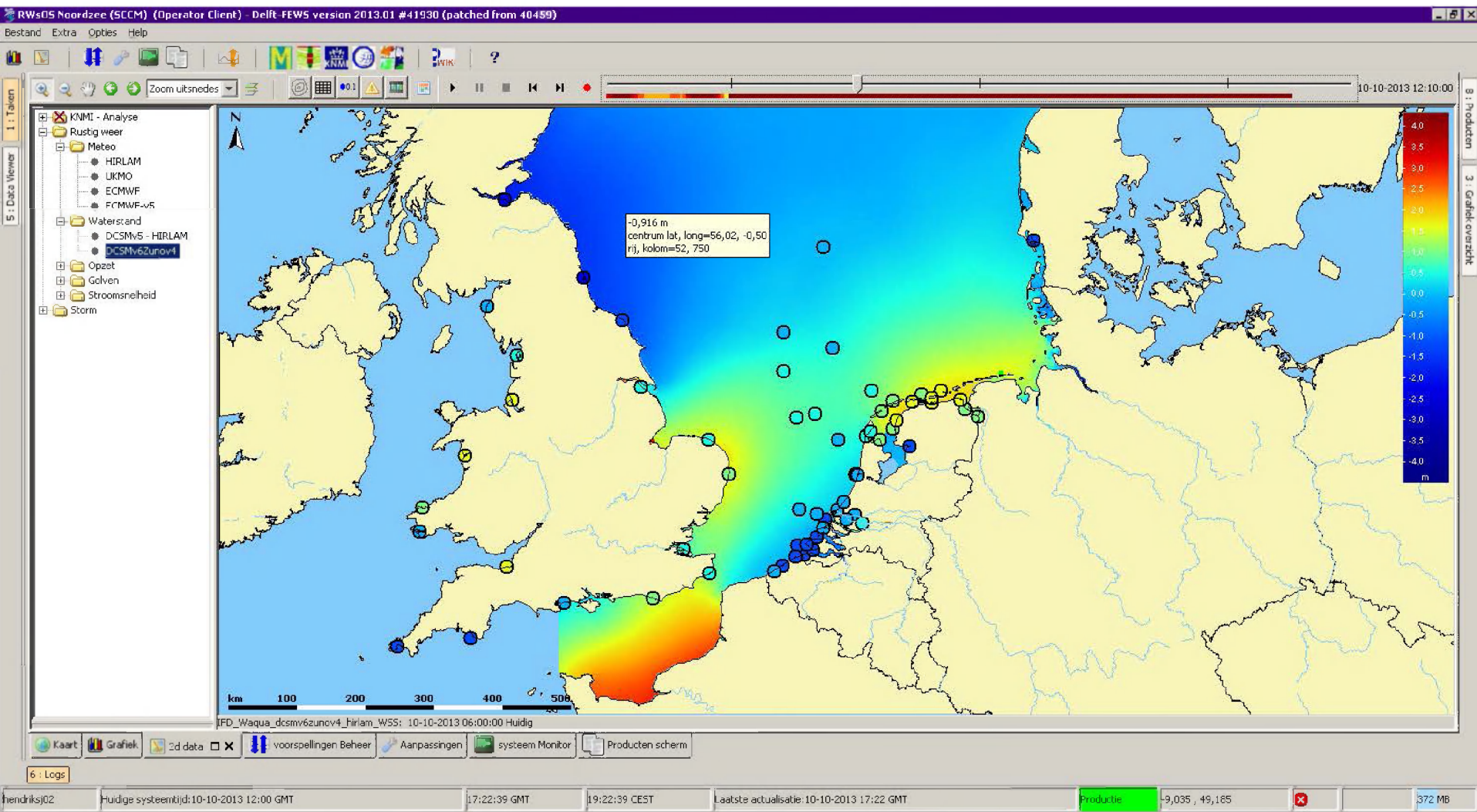


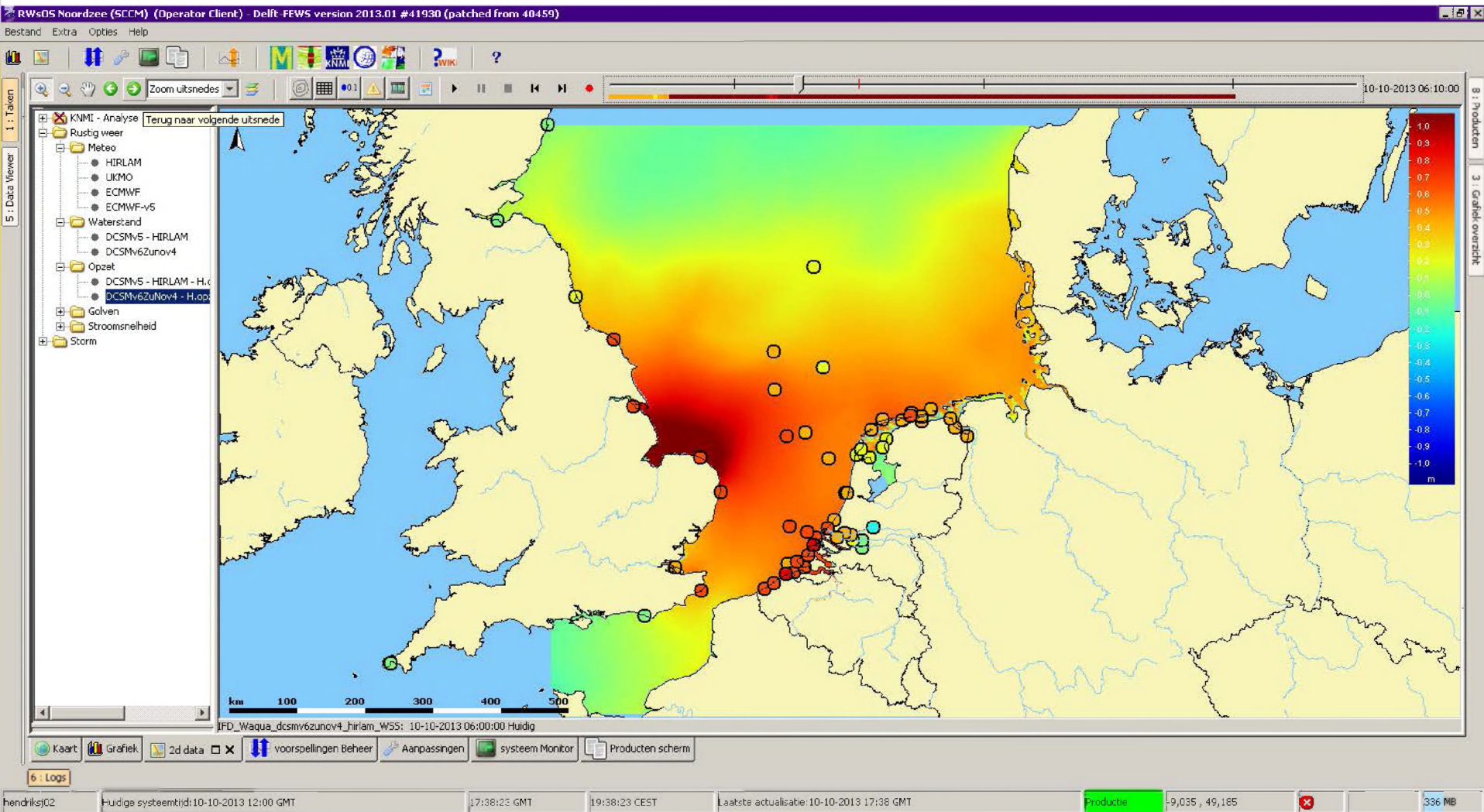


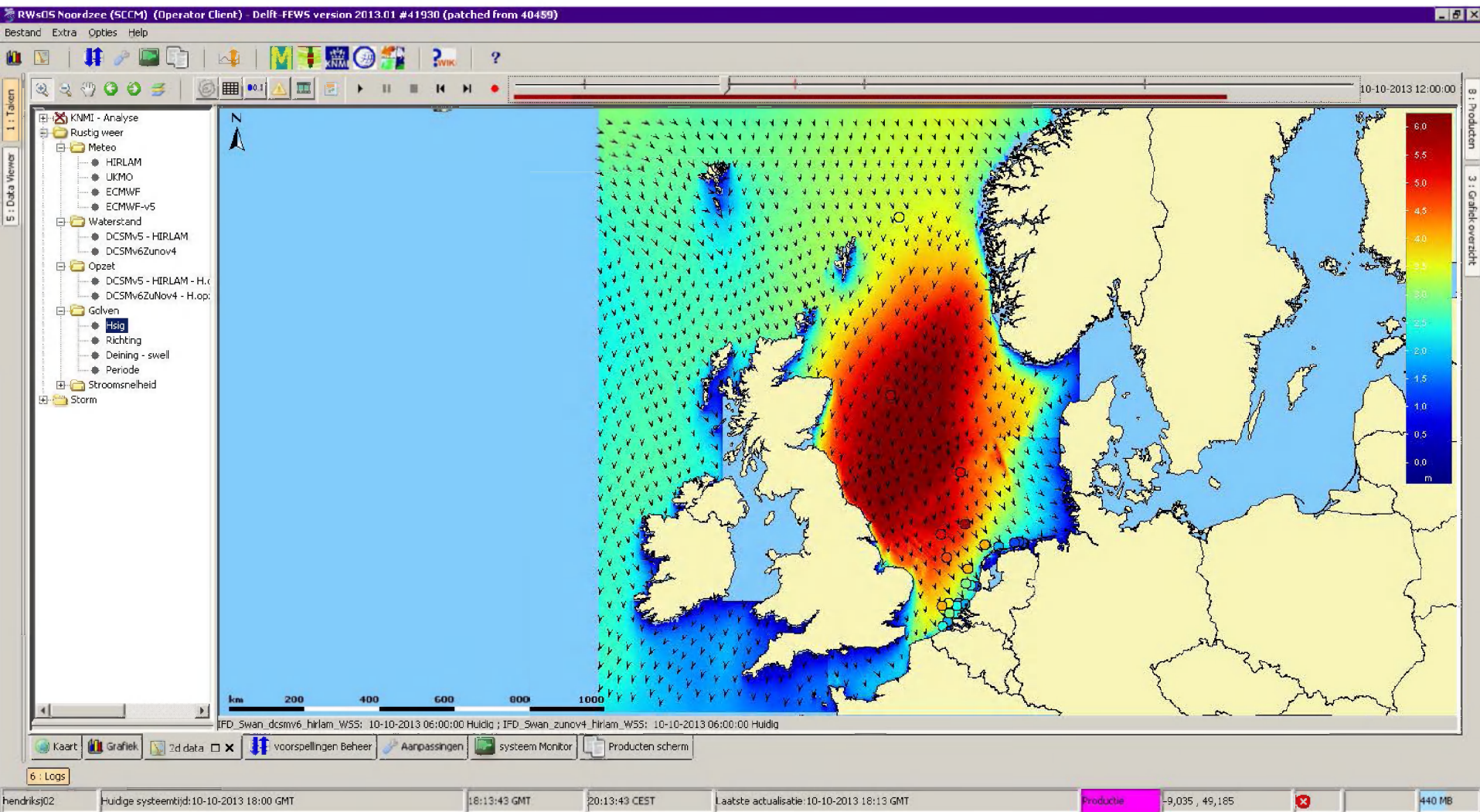
Beste huidige model / dcsmv6

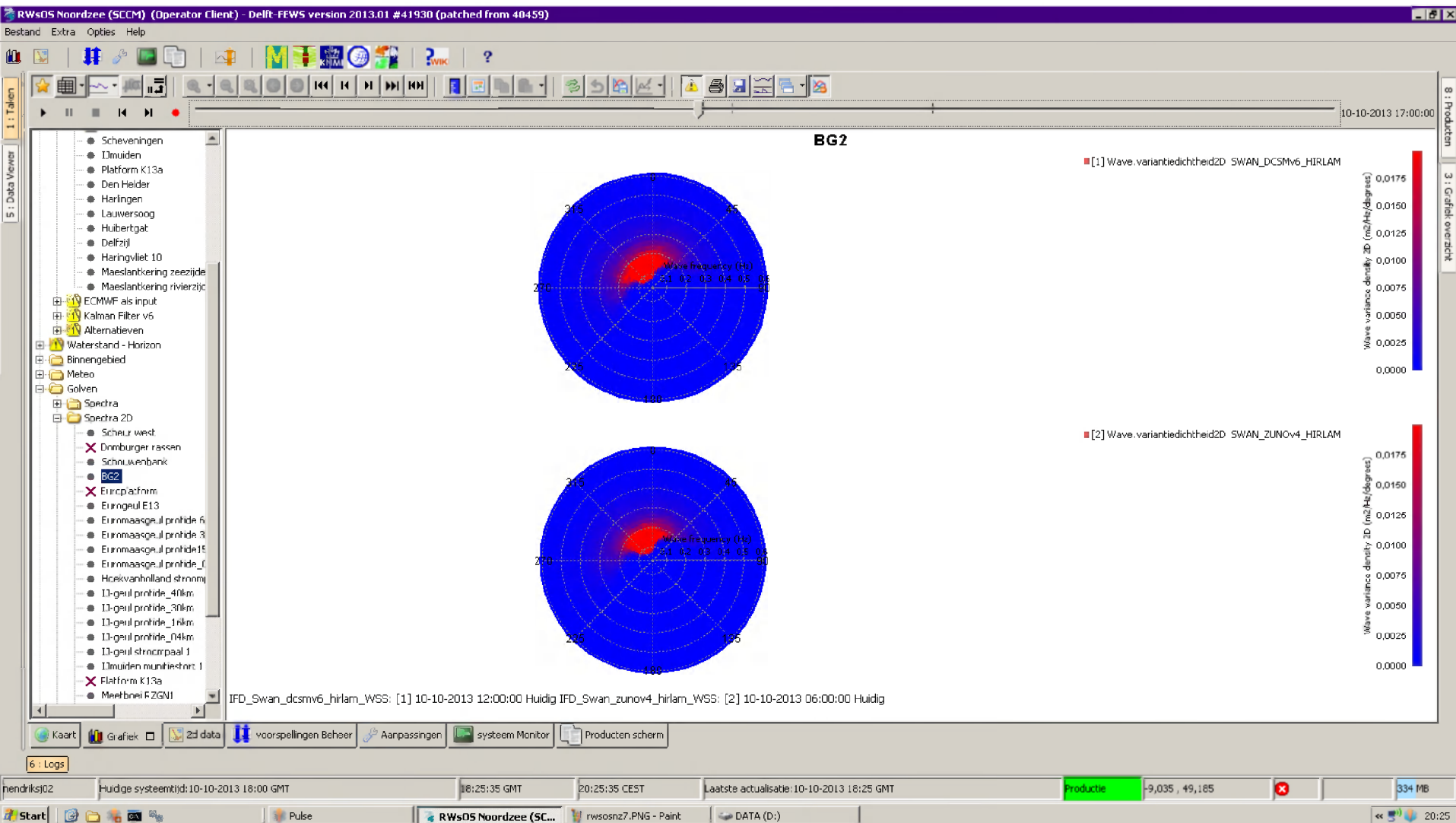
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Milford Haven	DCSMv5	18.0	10.2	Kinlochbervie	DCSMv5	12.5	9.5
Ilfracombe	DCSMv5	25.5	10.0	Oscarsborg	DCSMv5	15.2	8.3
Mumbles	DCSMv5	35.5	10.5	Frederikshavn	DCSMv5	10.6	6.3
Hinkley Point	DCSMv5	65.7	11.8	Vlissingen	ZUNOv3	15.2	8.7
Newport	DCSMv5	121.3	17.9	Terneuzen	KFv4	20.0	11.0
Fishguard	DCSMv5	29.2	12.8	Bergse Dieps.	KFv4	14.1	10.7
Barmouth	DCSMv5	28.9	13.2	Den Helder	KFv4	9.9	7.5
Holyhead	DCSMv5	18.5	7.6	Oudeschild	ZUNOv3	9.7	7.3
Llandudno	DCSMv5	16.2	11.4	Den Oever B.	ZUNOv3	10.4	9.7
Liverpool	DCSMv5	26.9	12.3	Vlielandhaven	KFv4	9.8	7.7
Heysham	DCSMv5	30.8	13.1	W. Terschelling	KFv4	11.5	7.5
Workington	DCSMv5	18.7	9.5	Komwerderz.	ZUNOv3	11.0	8.7
Portpatrick	DCSMv5	18.8	9.1	Harlingen	KFv4	10.9	11.3
Bangor	DCSMv5	25.7	8.3	Nes	KFv4	11.5	11.3
Millport	DCSMv5	32.1	12.2	Lauwersoog	KFv4	14.9	12.3
Portrush	DCSMv5	13.9	9.8	Schiermonnik.	ZUNOv3	16.4	12.3
Tobermory	DCSMv5	20.3	10.8	Eemshaven	KFv4	17.7	9.7
Ullapool	DCSMv5	15.4	12.4	Delfzijl	KFv4	20.5	17.8
Stomoway	DCSMv5	18.0	12.2				

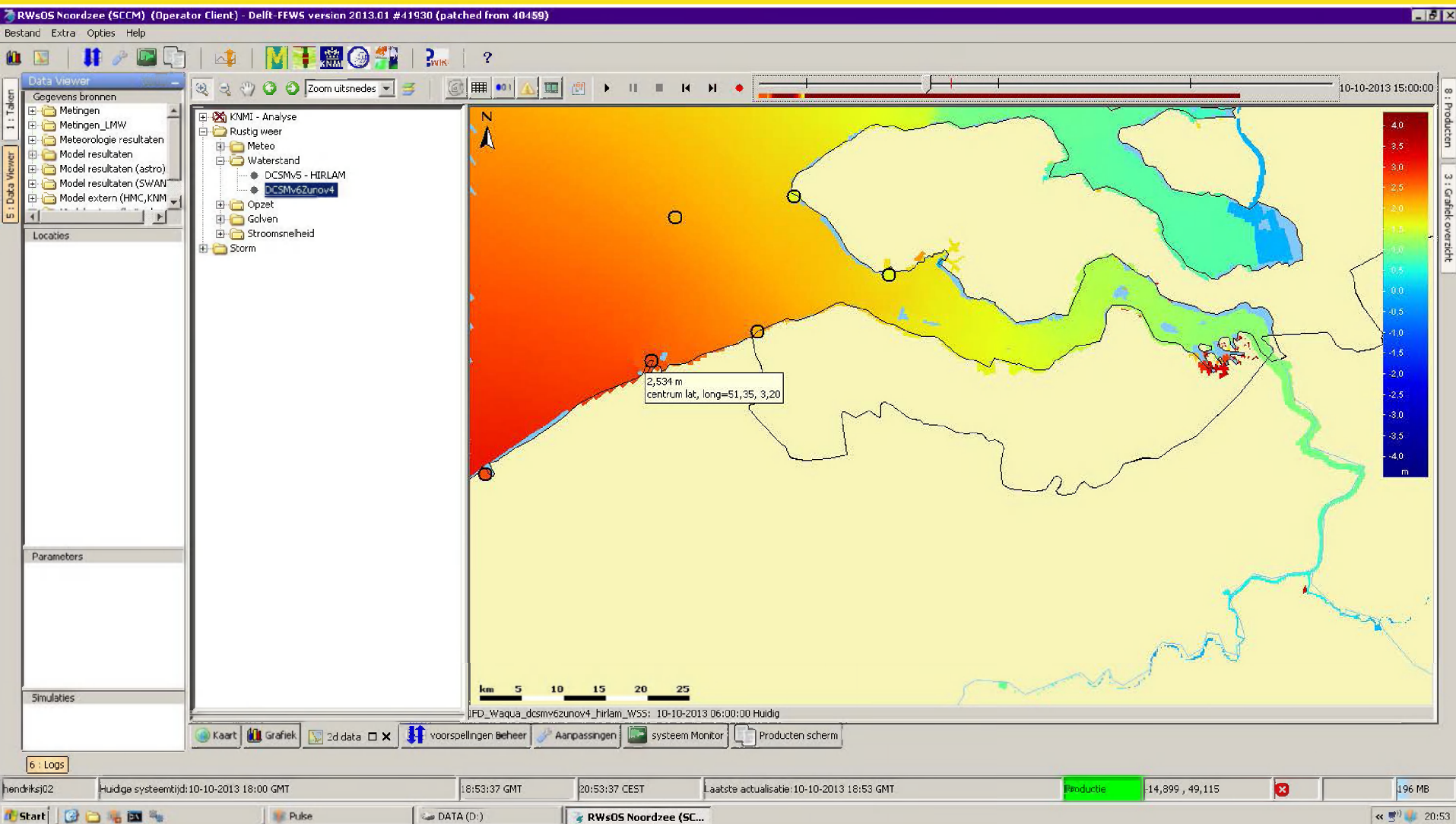


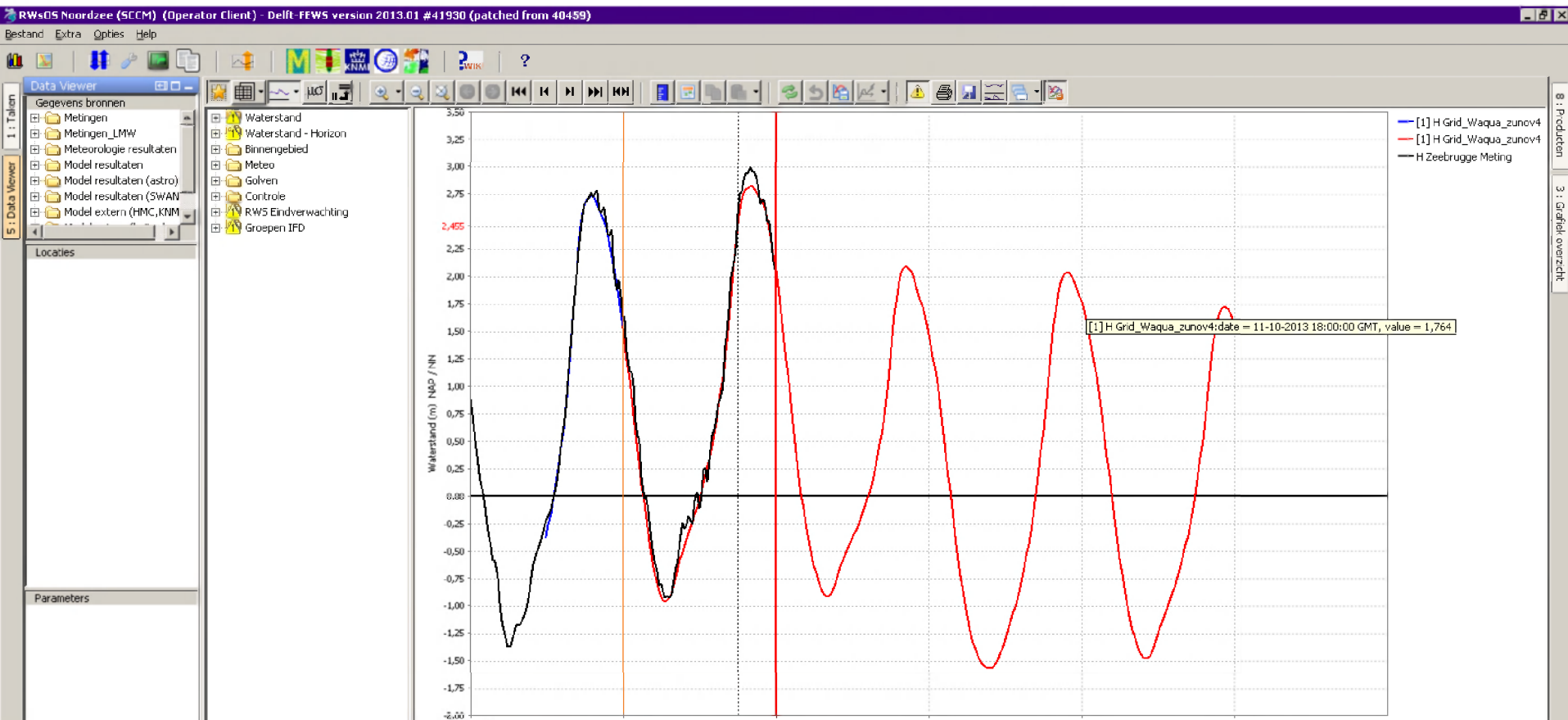


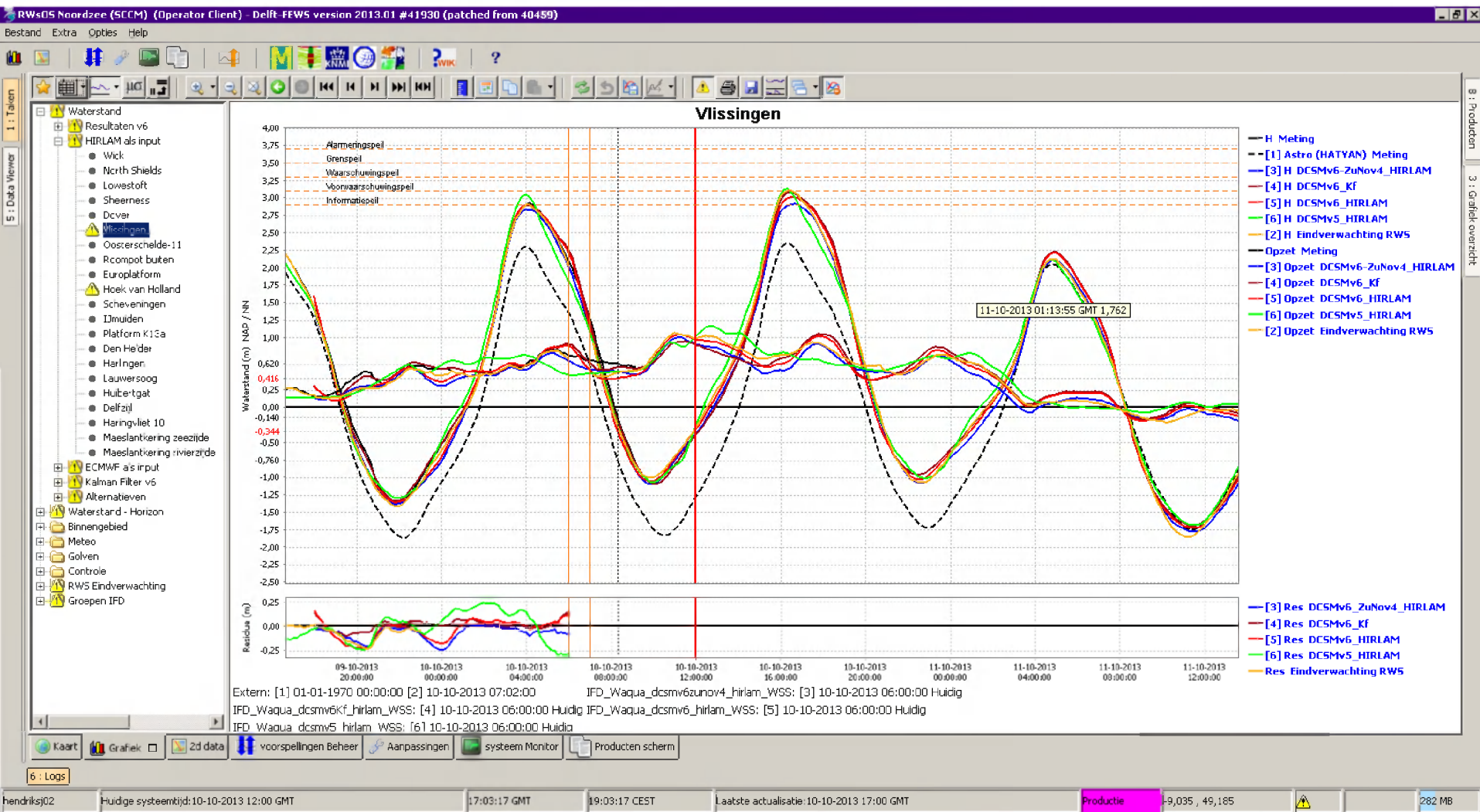












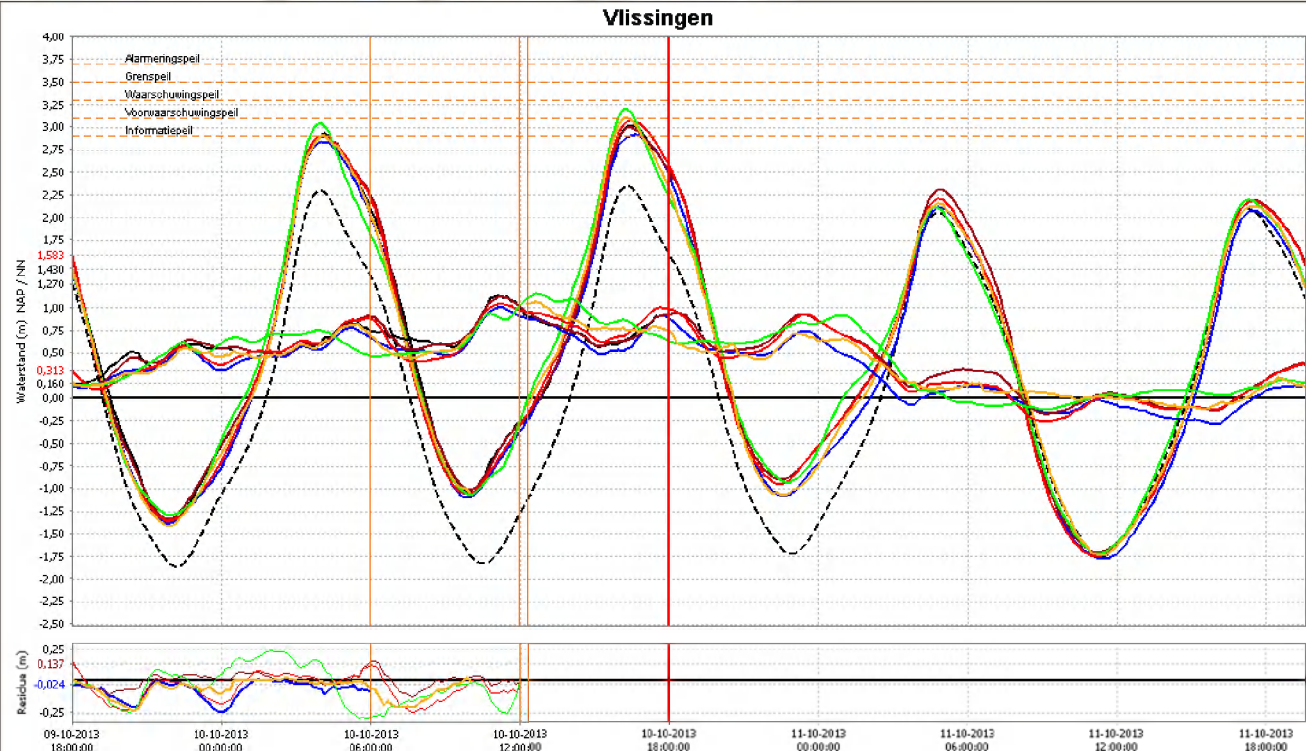


RWSOS Noordzee (SCCM) (Operator Client) - Delft-FEWS version 2013.01 #41930 (patched from 40459)

Bestand Extra Opties Help

1 : Taal
5 : Data Viewer

- Waterstand
 - Resultaten v6
 - HIRLAM als input
 - Wick
 - North Shields
 - Lowestoft
 - Sheerness
 - Dever
 - Milisingen
 - Oosterschelde-11
 - Rcompt buiten
 - Europlatform
 - Heek van Holland
 - Scheveningen
 - Imuiden
 - Platform K13a
 - Den Helder
 - Harlingen
 - Lauwersoog
 - Hultergat
 - Delfzijl
 - Haringvliet 10
 - Maeslantkering zeezijde
 - Maeslantkering rivierzijde
 - ECMWF als input
 - Kalman Filter v6
 - Alternatieven
 - Waterstand - Horizon
 - Binnengebied
 - Meteo
 - Golven
 - Controle
 - RWS Eindverwachting
 - Groepen IFD



Extern: [1] 01-01-1970 00:00:00 [2] 10-10-2013 12:18:00 IFD_Waqua_dcsmv6zunov4_hirlam_WSS: [3] 10-10-2013 06:00:00 Huidig
IFD_Waqua_dcsmv6kf_hirlam_WSS: [4] 10-10-2013 12:00:00 Huidig IFD_Waqua_dcsmv6_hirlam_WSS: [5] 10-10-2013 12:00:00 Huidig
IFD_Waqua_dcsmv5_hirlam_WSS: [6] 10-10-2013 12:00:00 Huidig

Kaart Grafiek 2d data voorspellingen Beheer Aanpassingen system Monitor Producten scherm

6 : Logs

hendrikj02 Huidige systeemtijd: 10-10-2013 18:00 GMT 18:21:28 GMT 20:21:28 CEST Laatste actualisatie: 10-10-2013 18:21 GMT Productie -9,035 , 49,185 331 MB

Start Pulse RWSOS Noordzee (SCCM) rwsosn2.PNG - Paint DATA (D:) 20:21

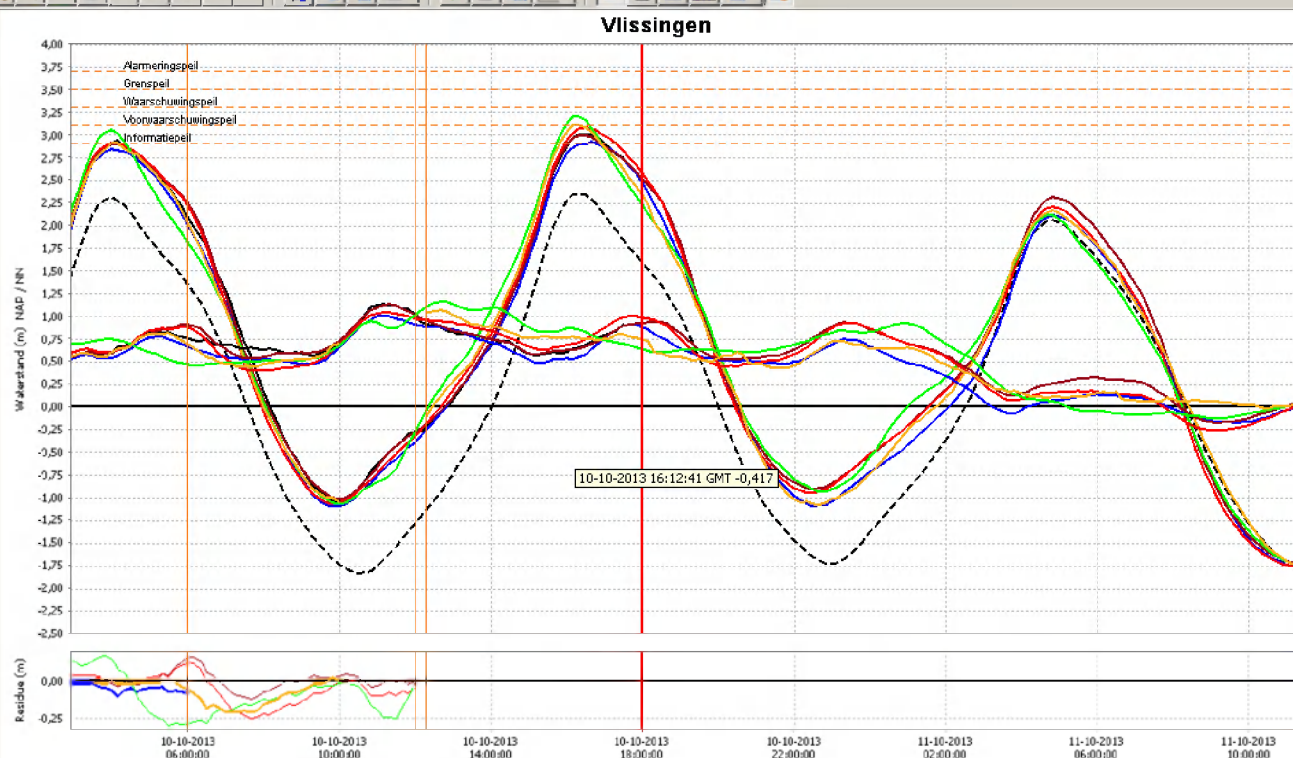


RWs05 Noordzee (SCCM) (Operator Client) - Delft-FEWS version 2013.01 #41930 (patched from 40459)

Bestand Extra Opties Help



- Waterstand
 - Resultaten v6
 - HIRLAM als input
 - Wick
 - North Shields
 - Lowestoft
 - Sheerness
 - Dover
 - Vlissingen**
 - Oosterschelde-11
 - Rcombot buiten
 - Europlatform
 - Hek van Holland
 - Scheveningen
 - Idmuden
 - Platform K13a
 - Den Helder
 - Harlingen
 - Lauwersoog
 - Huftergat
 - Delfzijl
 - Harnqvist 10
 - Maeslantkering zeezijde
 - Maeslantkering rivierzijde
 - ECMWF as input
 - Kalman Filter v6
 - Alternatieven
 - Waterstand - Horizon
 - Binnengebied
 - Meteo
 - Golven
 - Controle
 - RWS Eindverwachting
 - Groepen IFD



Extern: [1] 01-01-1970 00:00:00 [2] 10-10-2013 12:18:00 IFD_Waqua_dcsmv6zunov4_hirlam_WSS: [3] 10-10-2013 06:00:00 Huidig
IFD_Waqua_dcsmv6kf_hirlam_WSS: [4] 10-10-2013 12:00:00 Huidig IFD_Waqua_dcsmv6_hirlam_WSS: [5] 10-10-2013 12:00:00 Huidig
IFD_Waqua_dcsmv5_hirlam_WSS: [6] 10-10-2013 12:00:00 Huidig

Kaart Grafiek 2d data voorspellingen Beheer Aanpassingen systeem Monitor Producten scherm

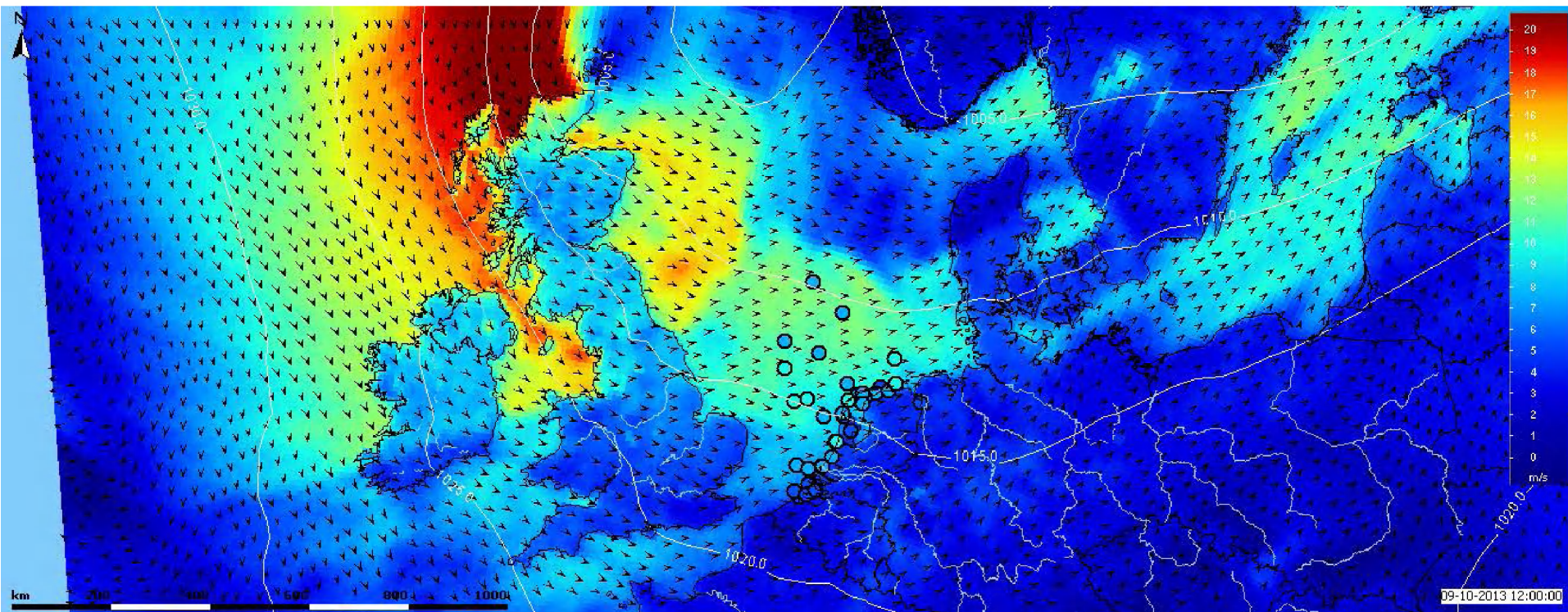
6 : Logs

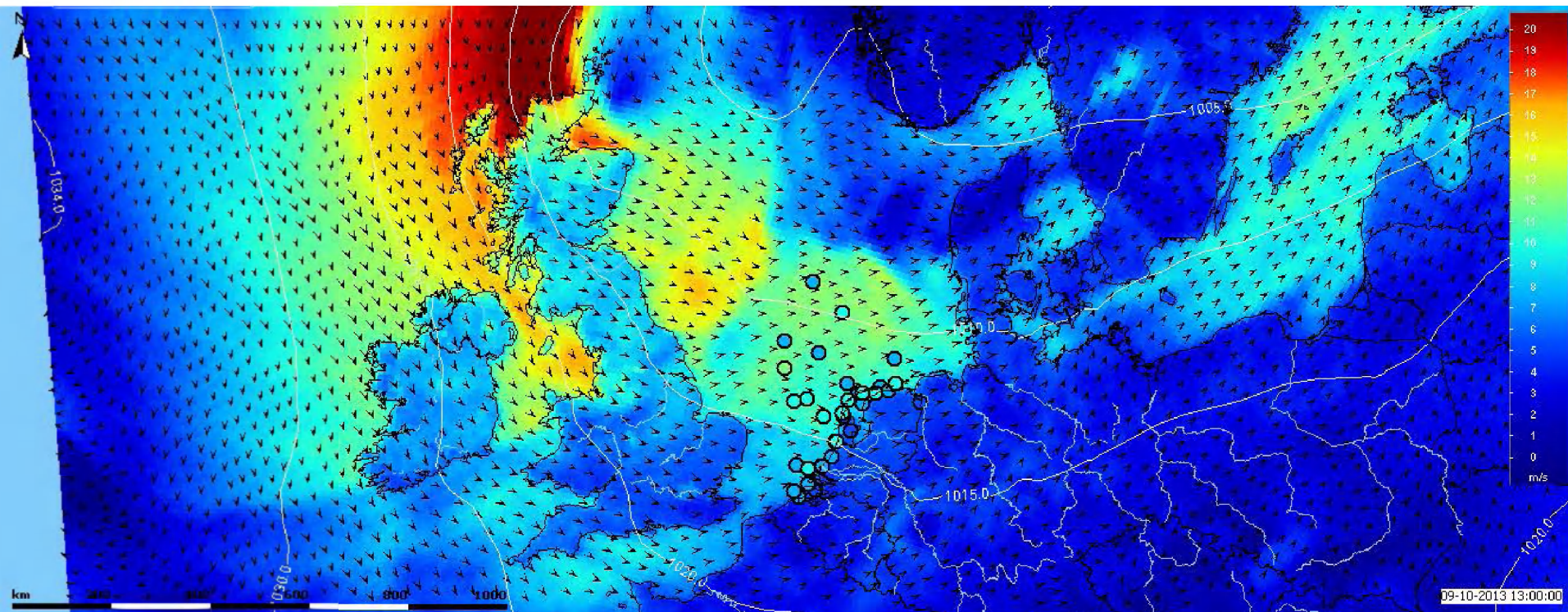
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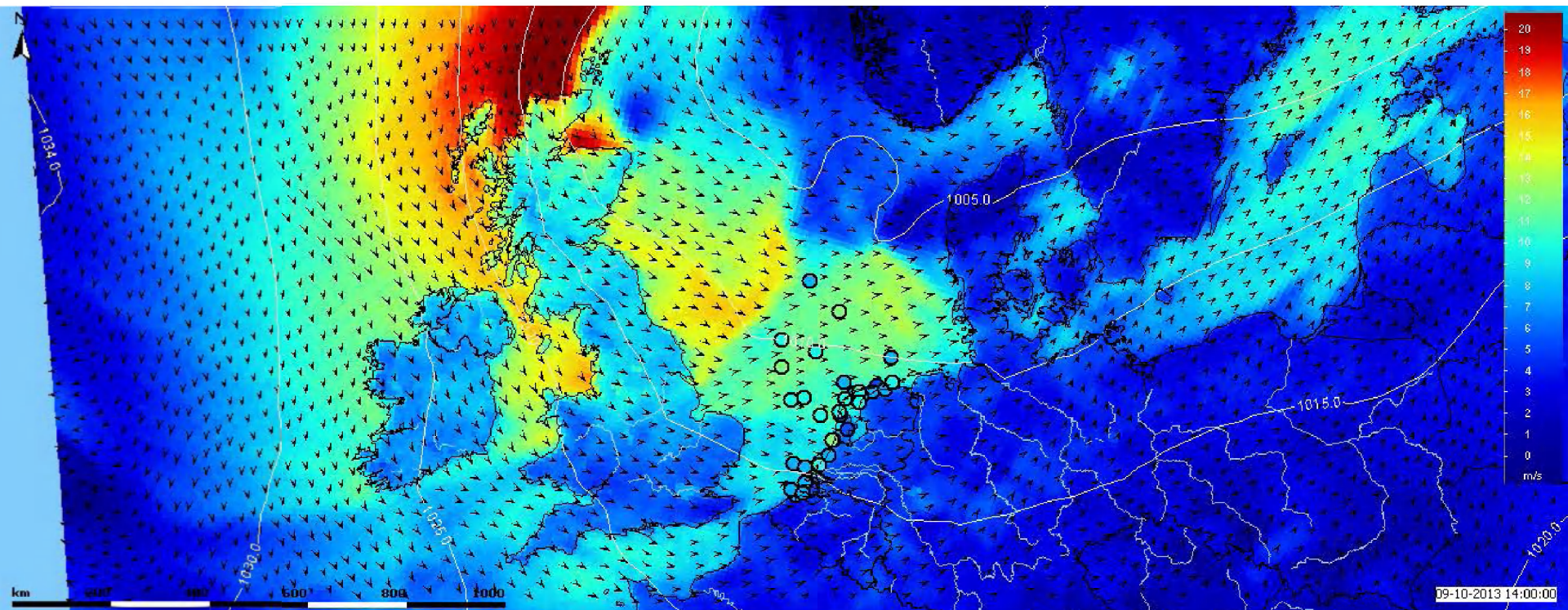
Productie -9,035 / 49,165 343 MB

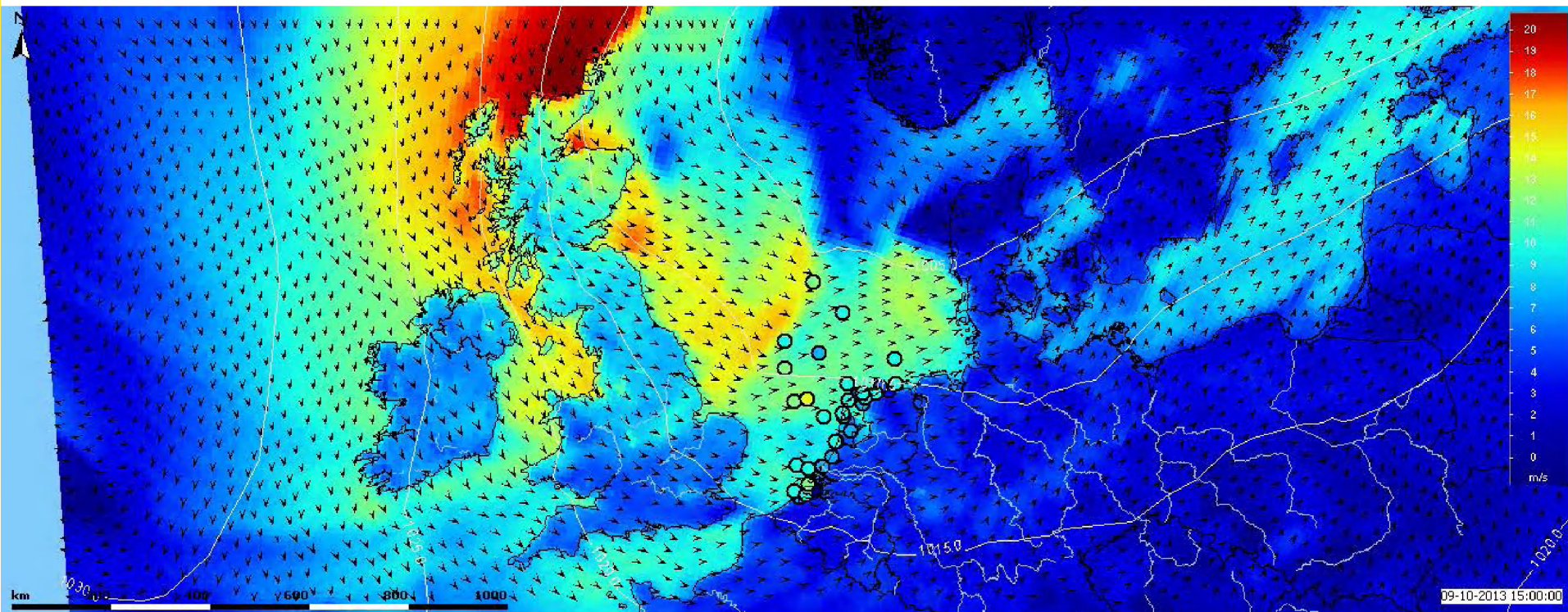
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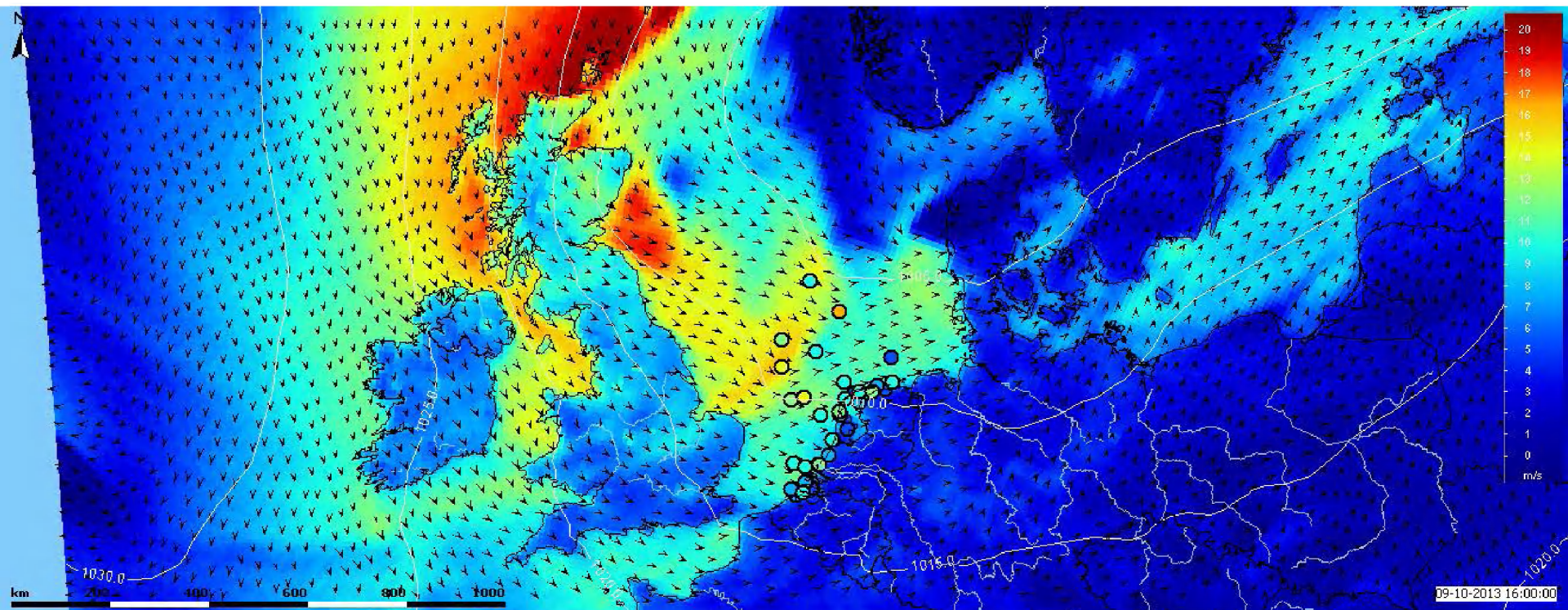
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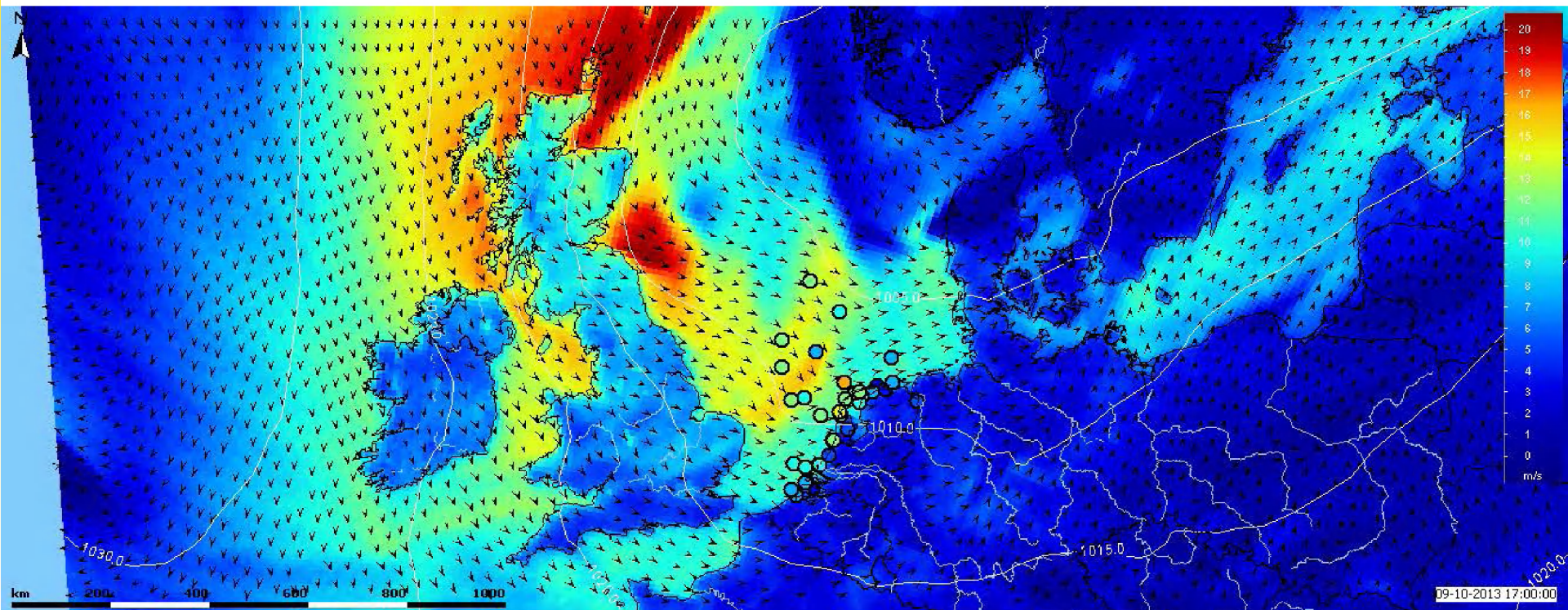


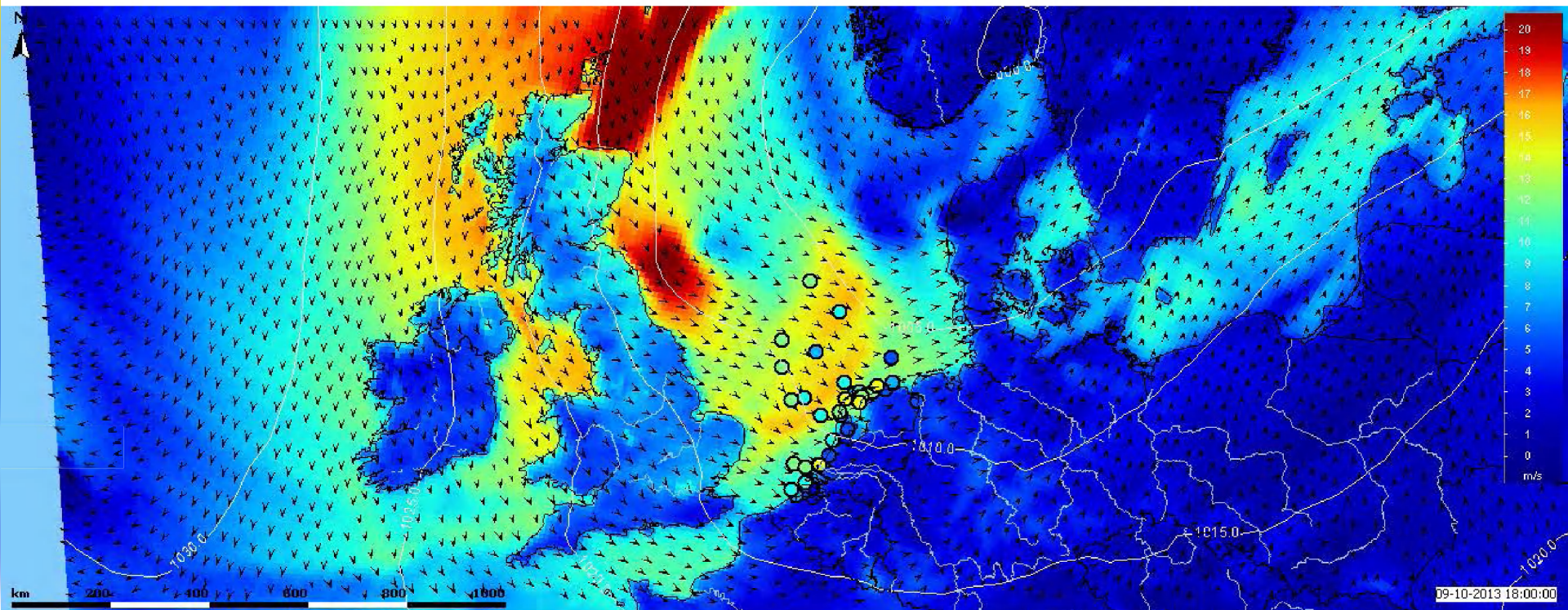


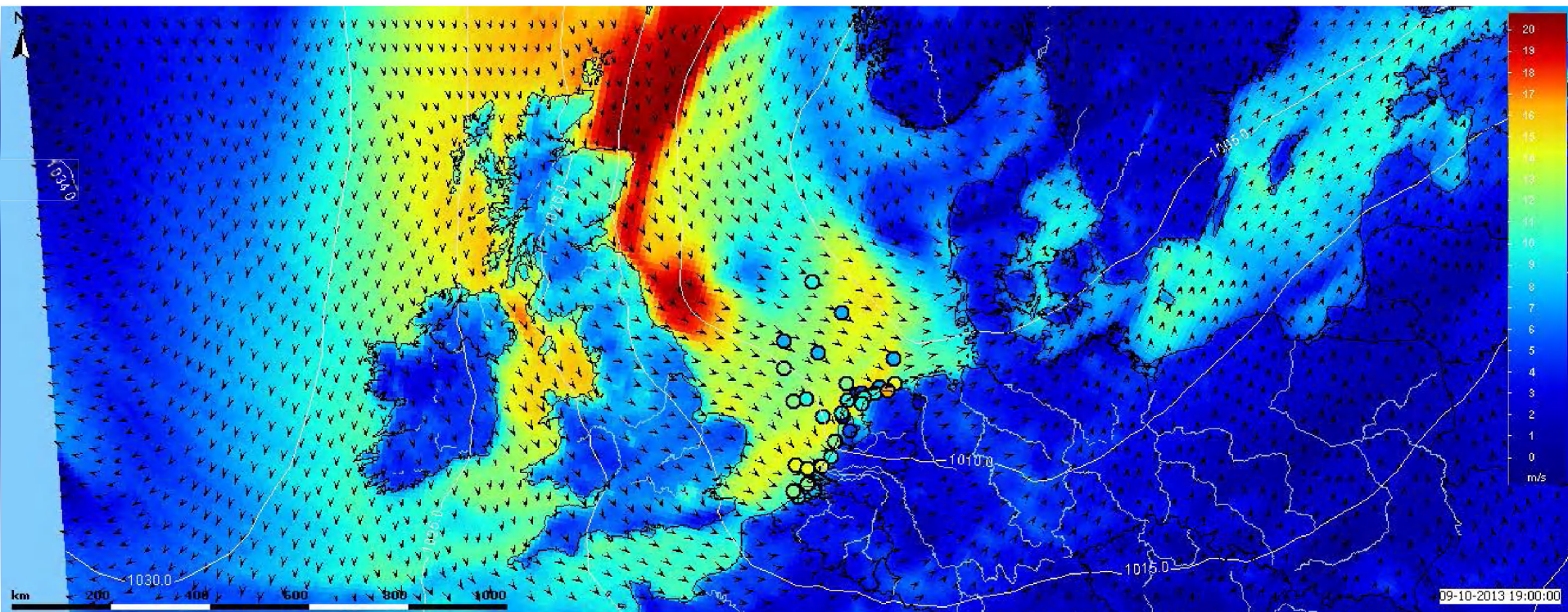


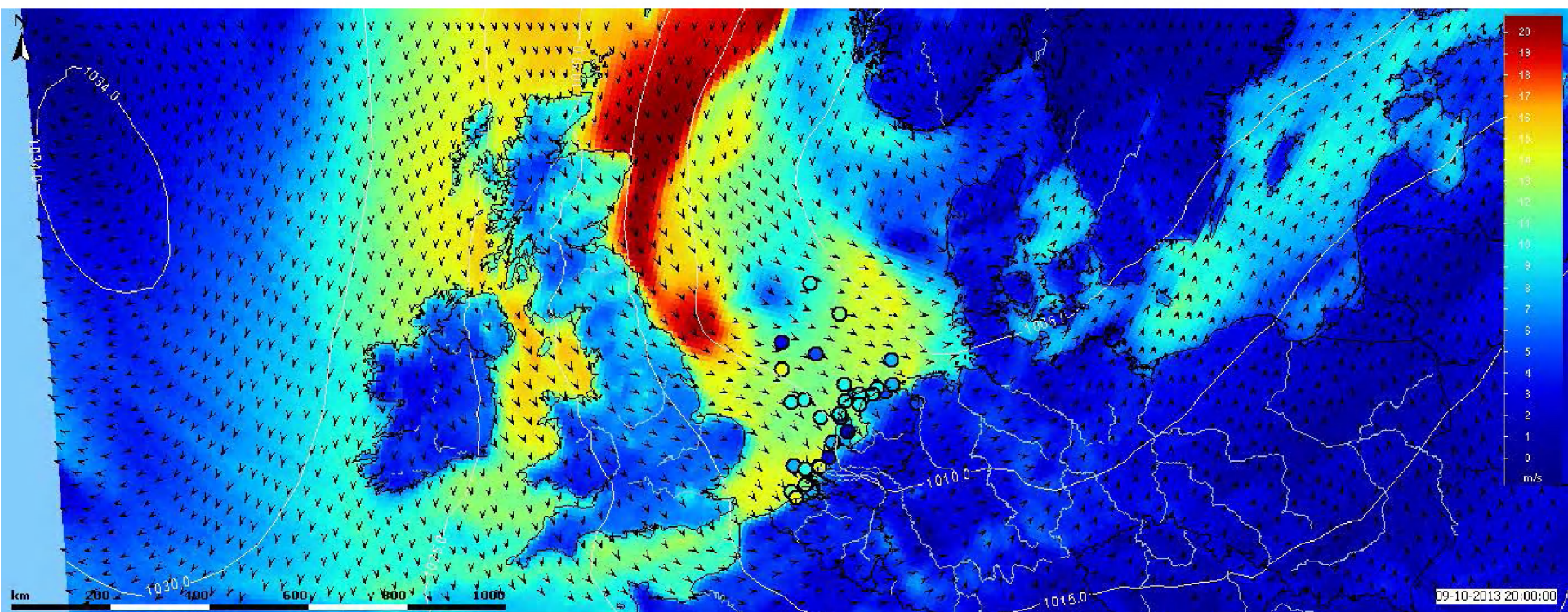


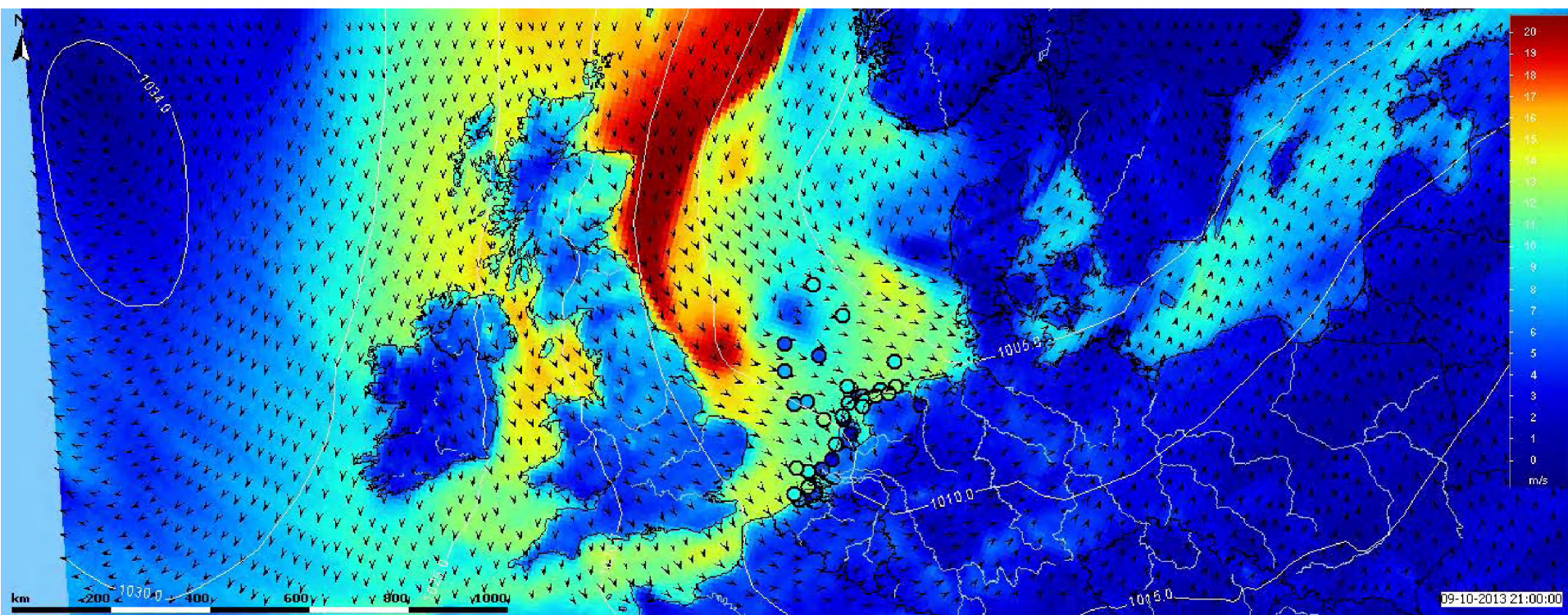


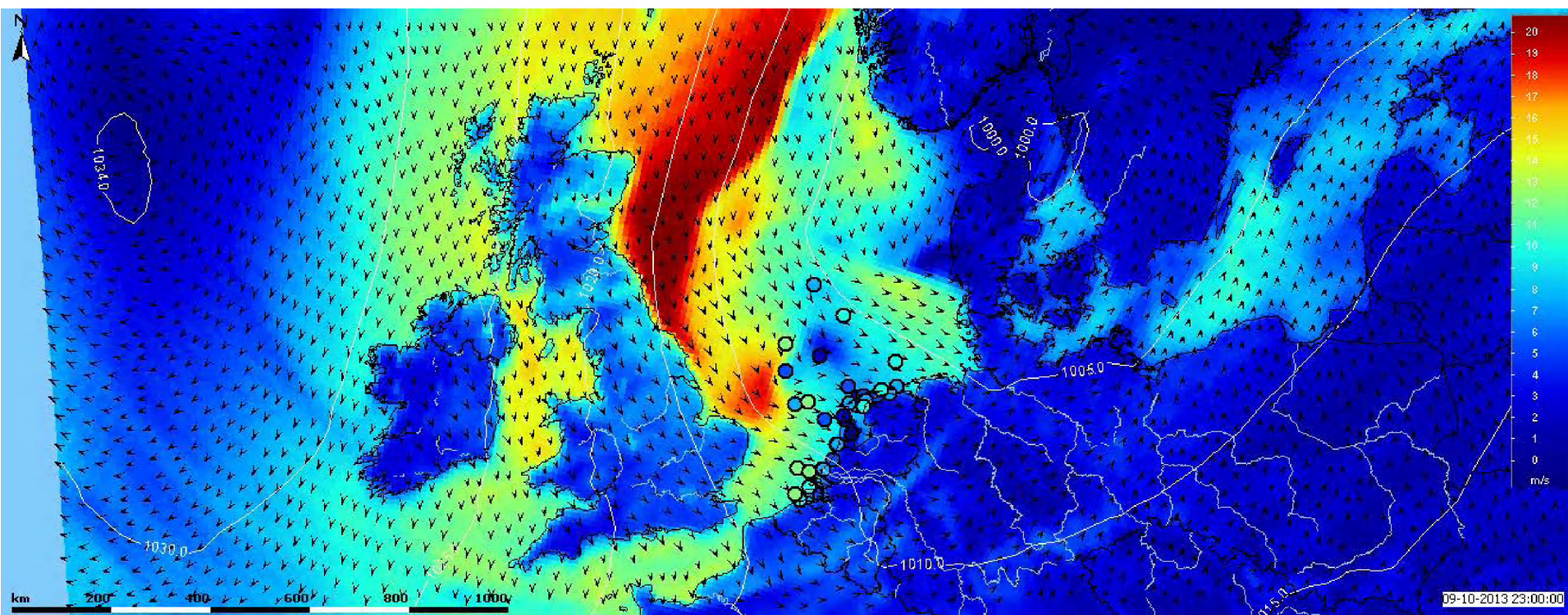


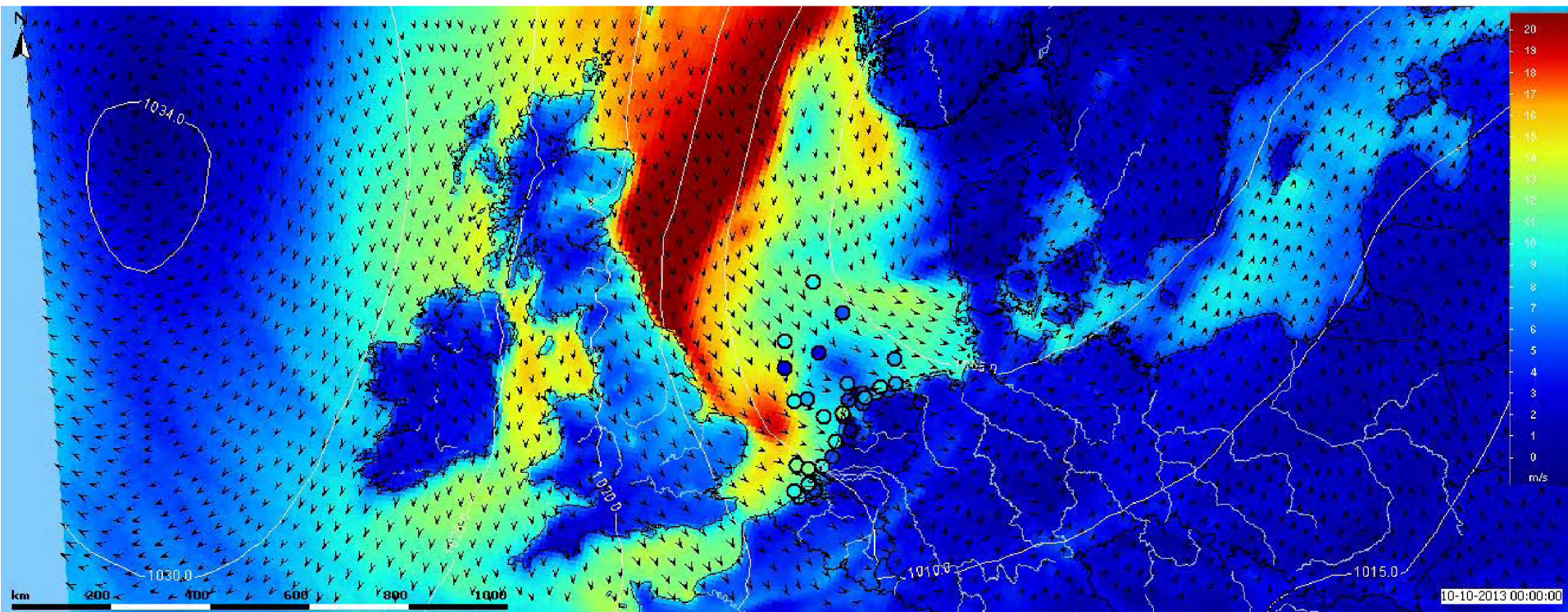


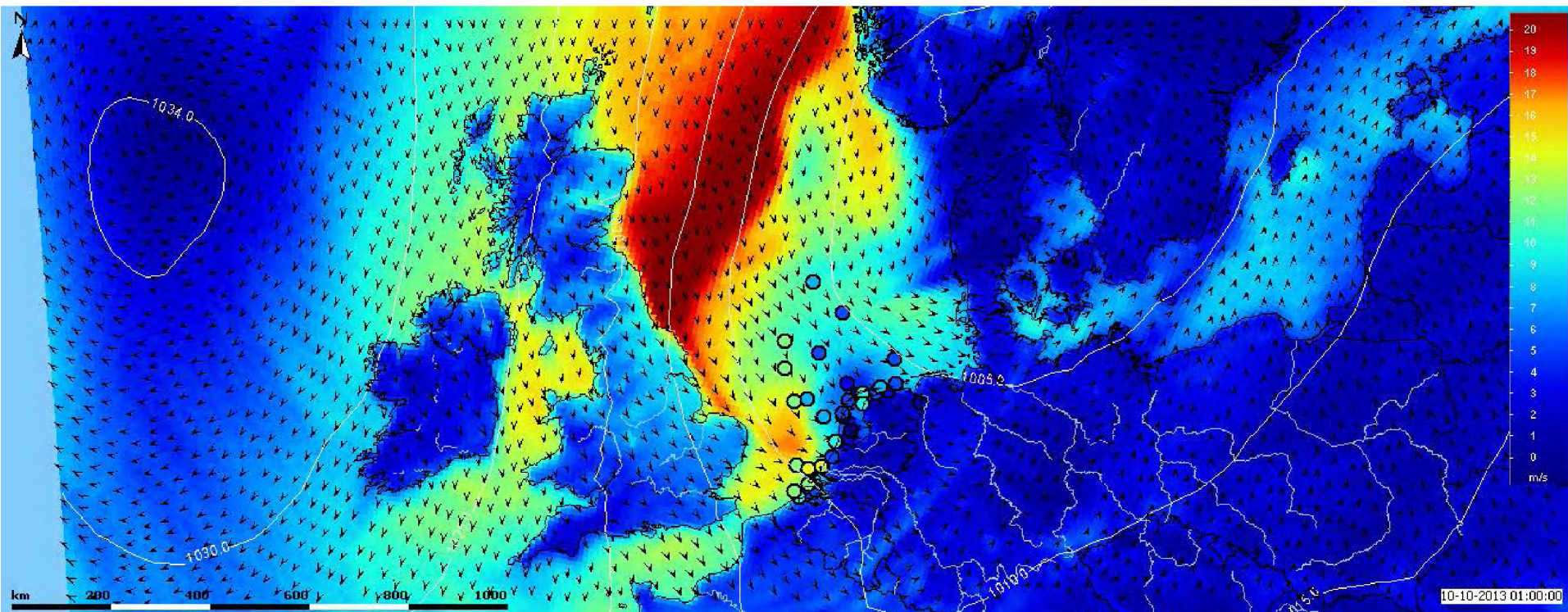


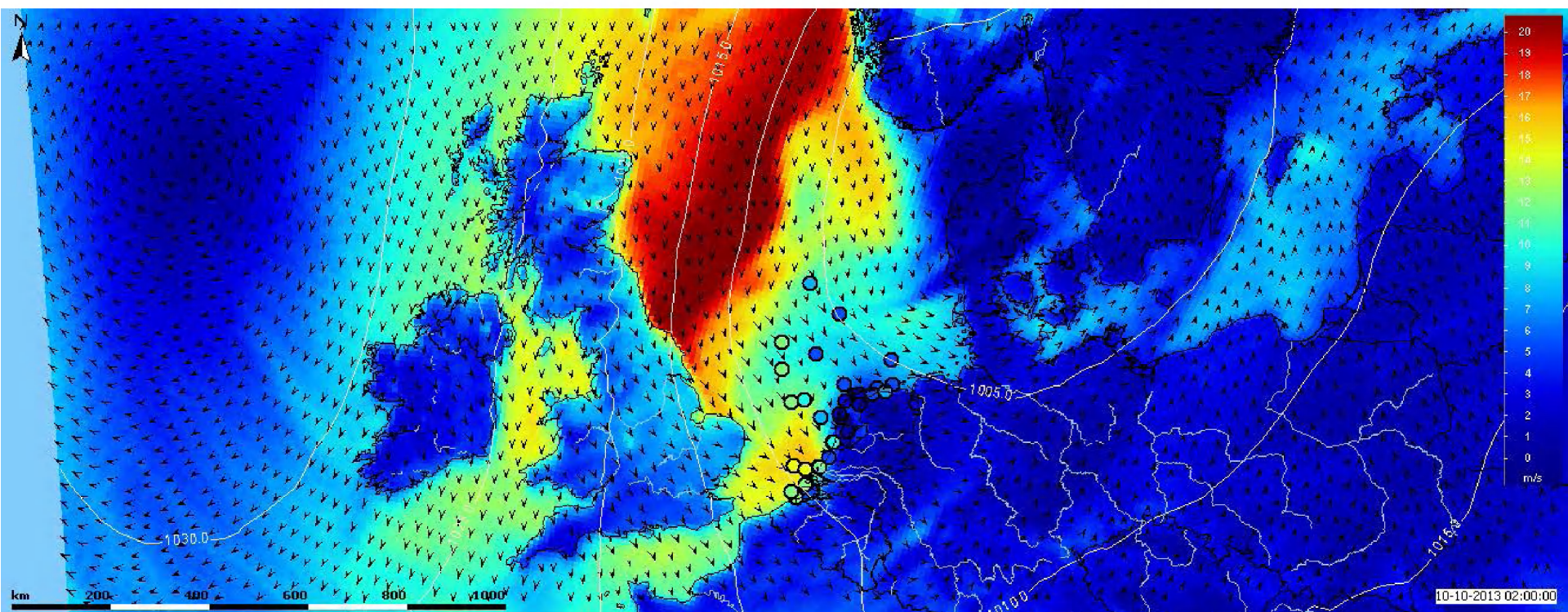


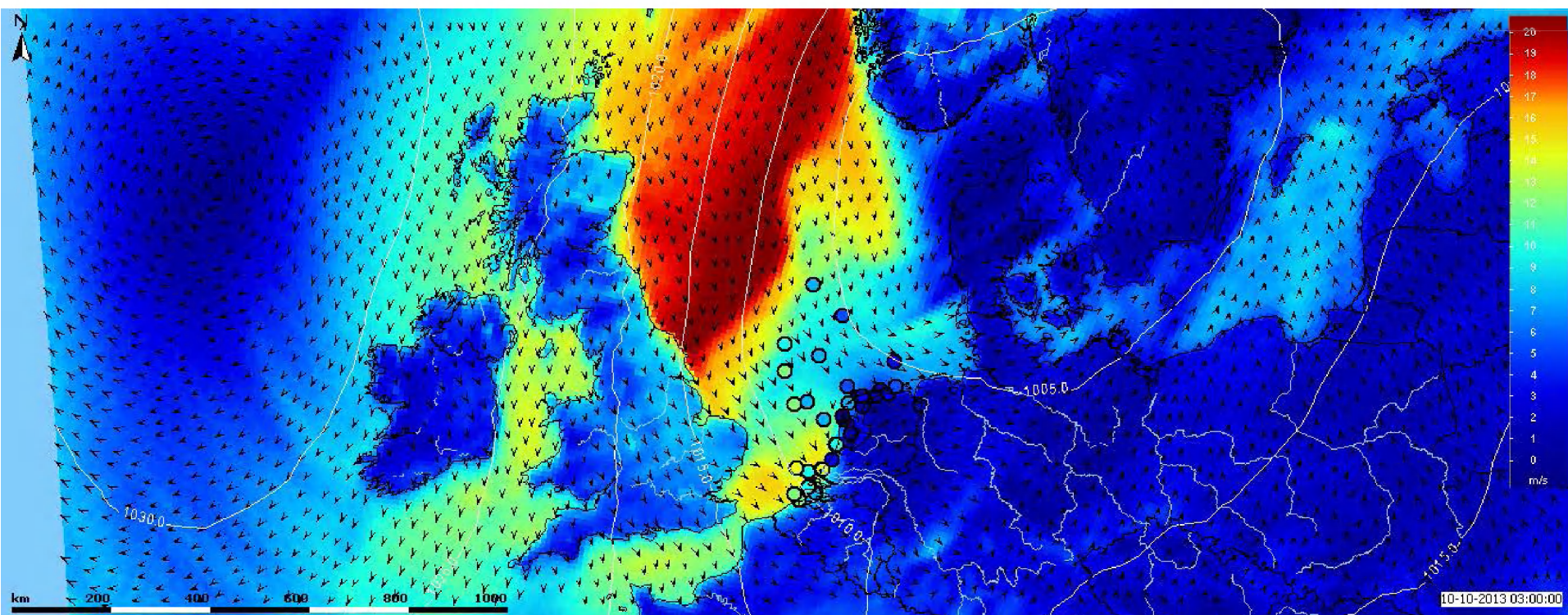


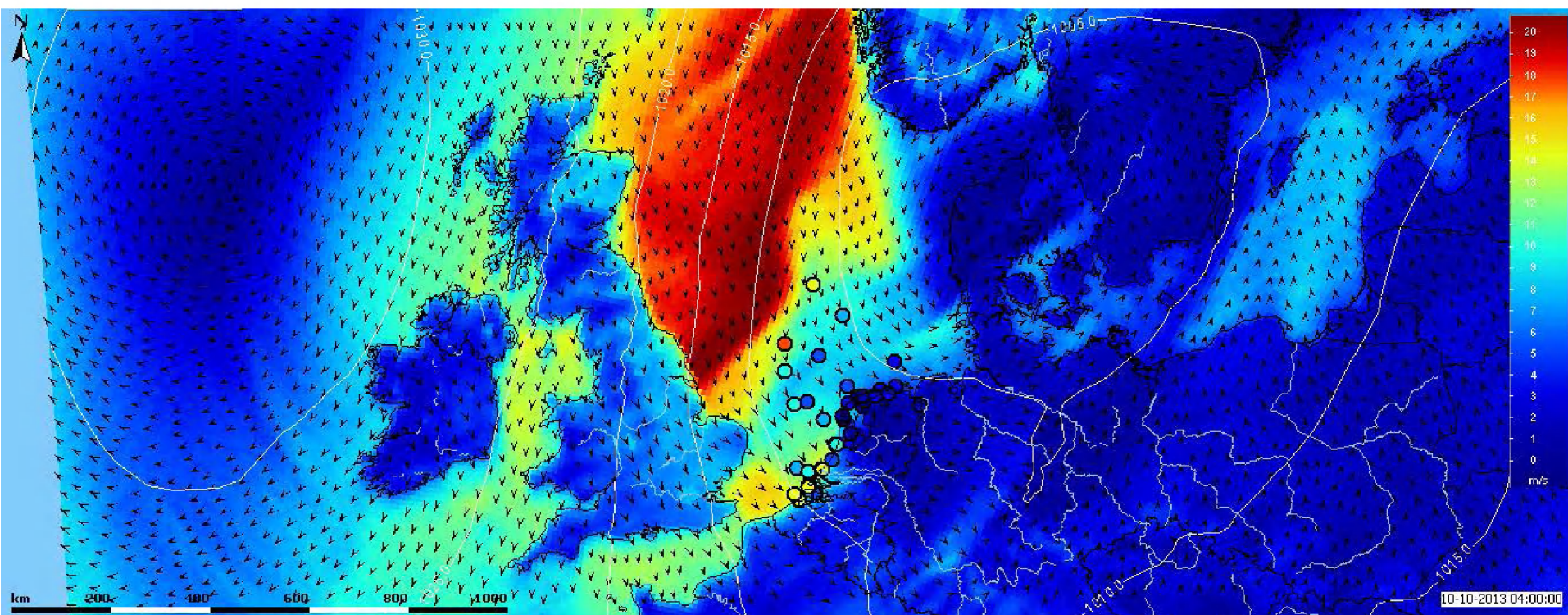


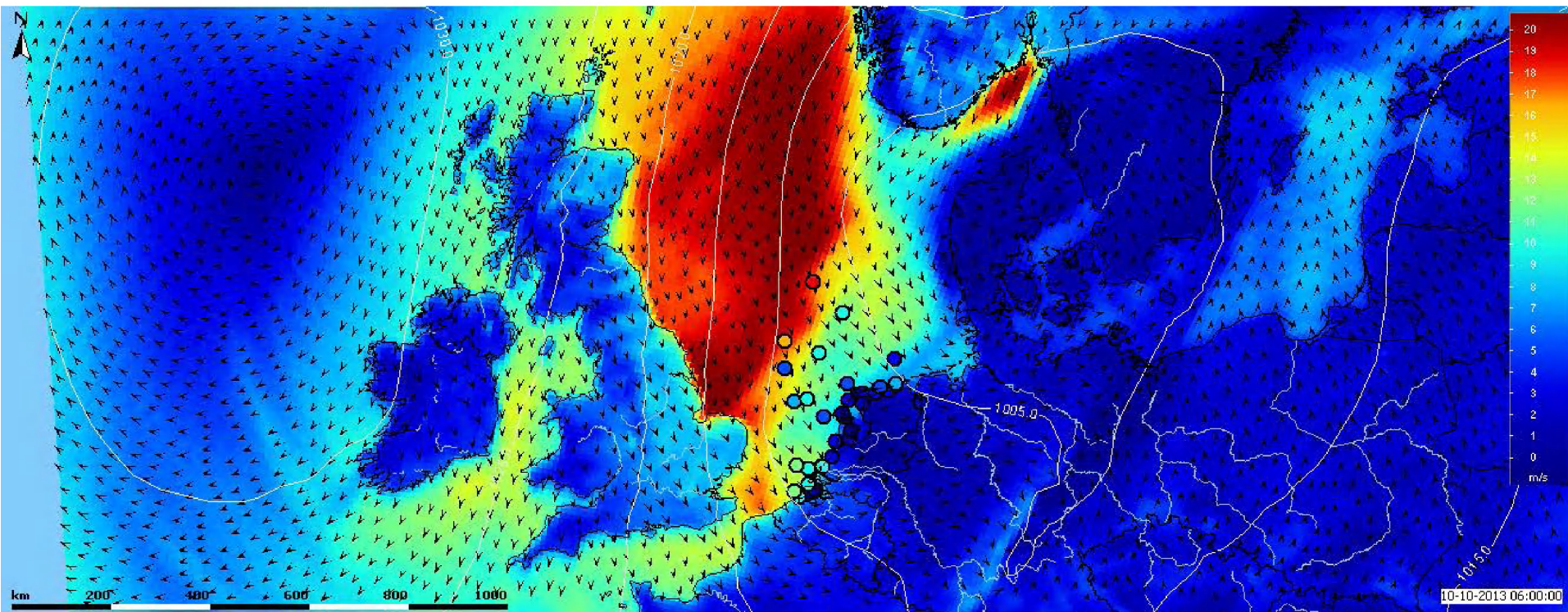


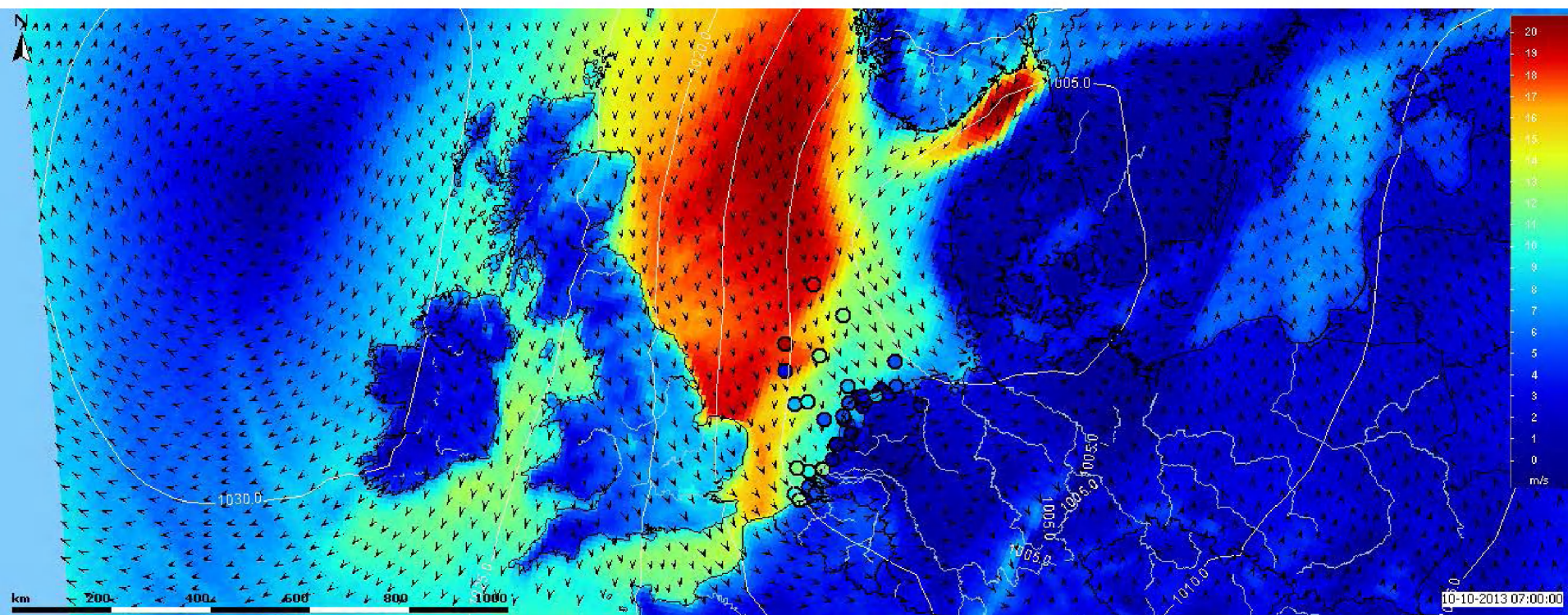


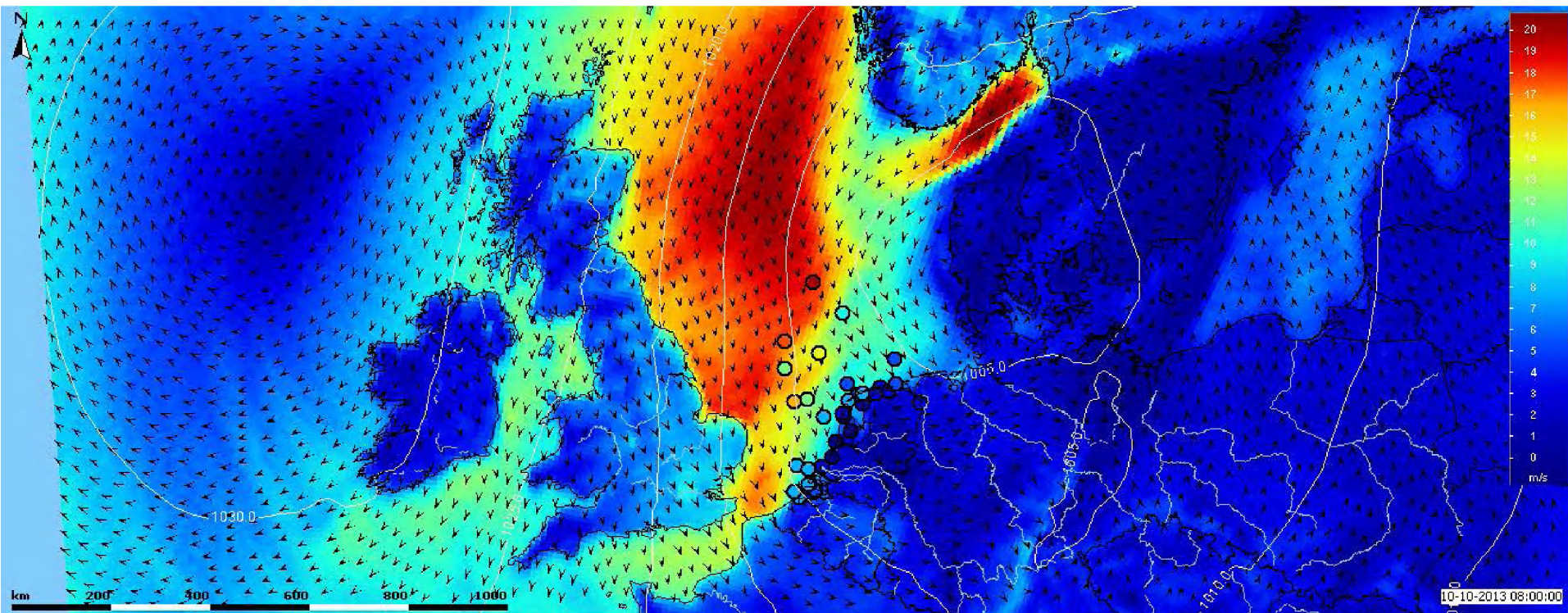


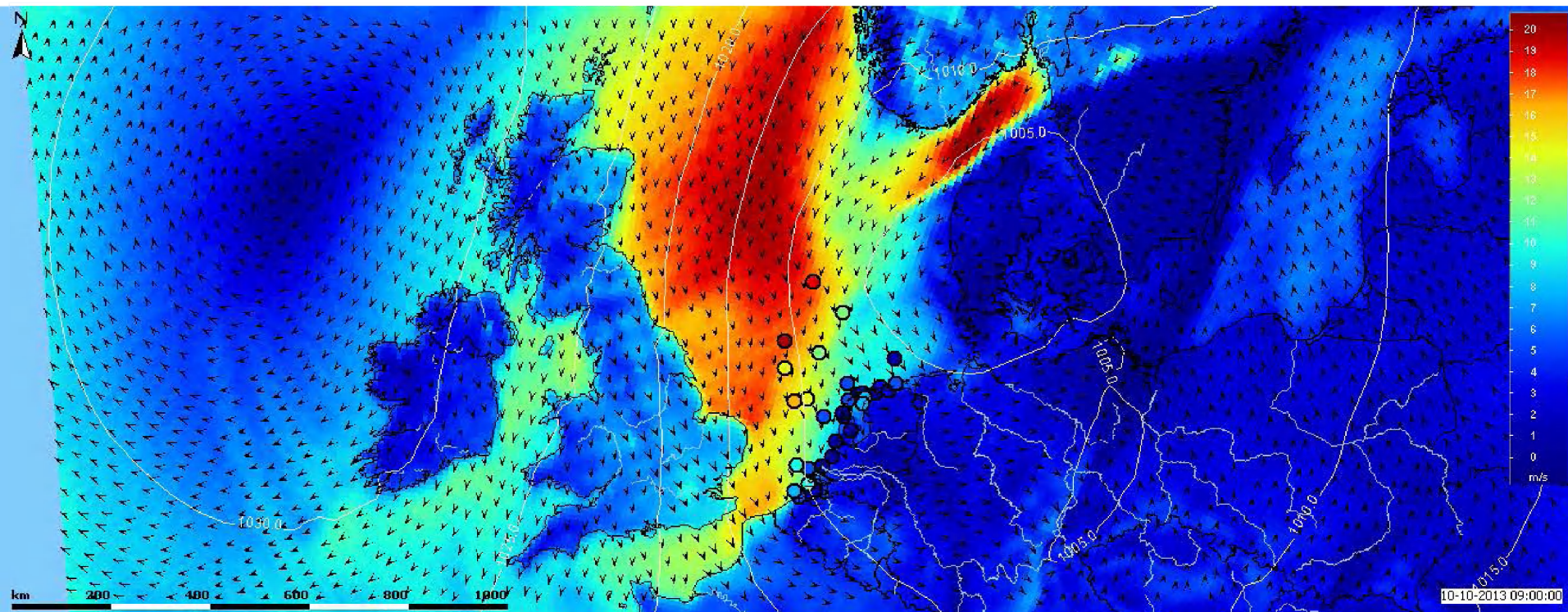


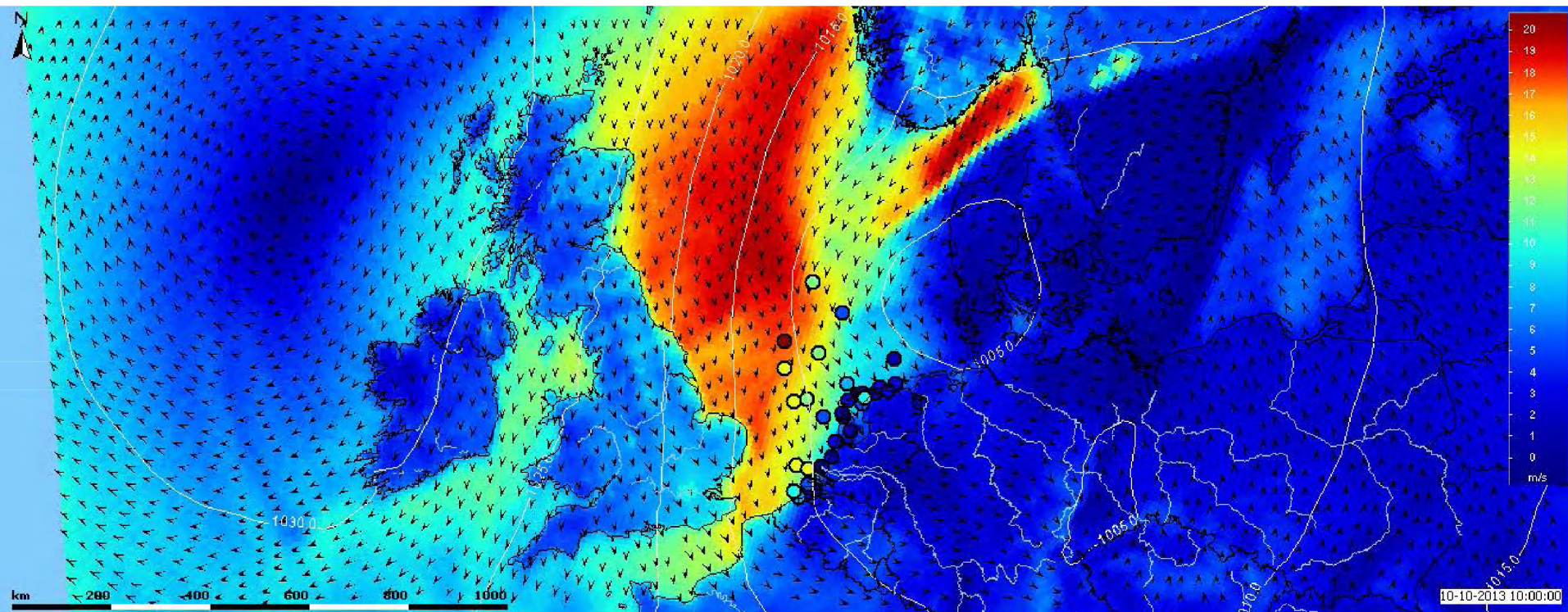


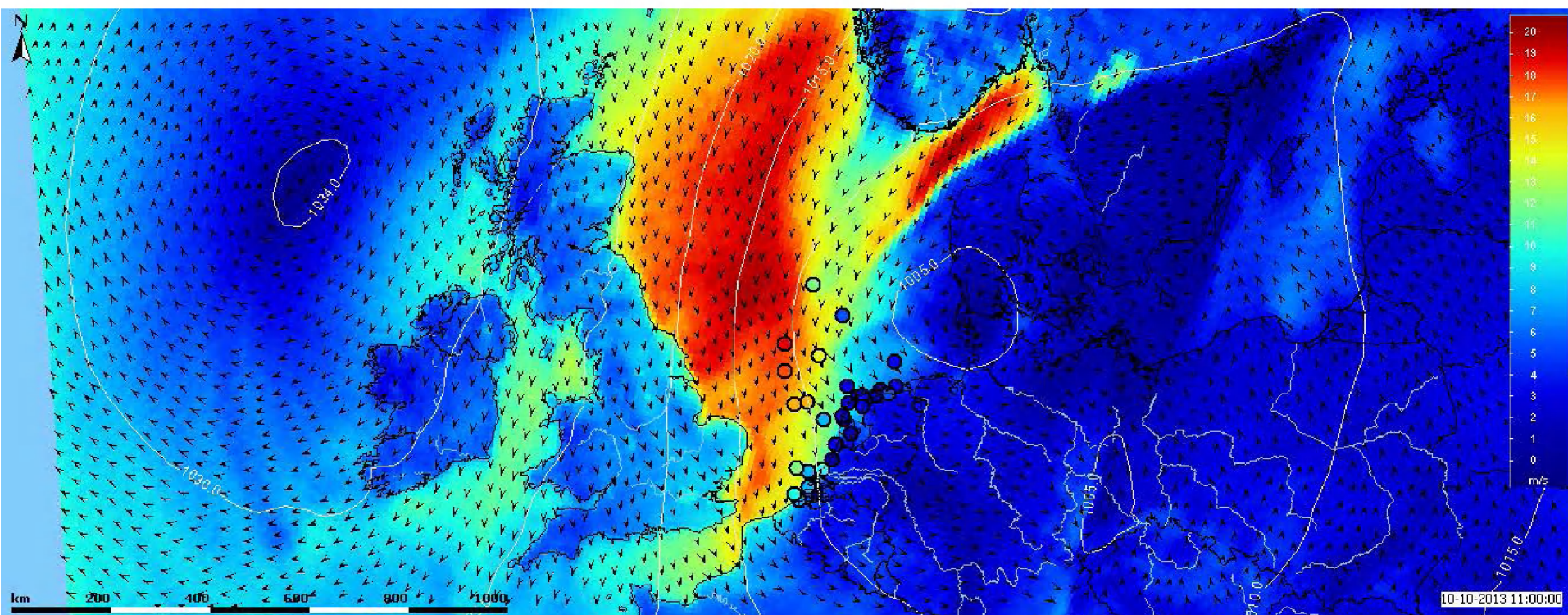


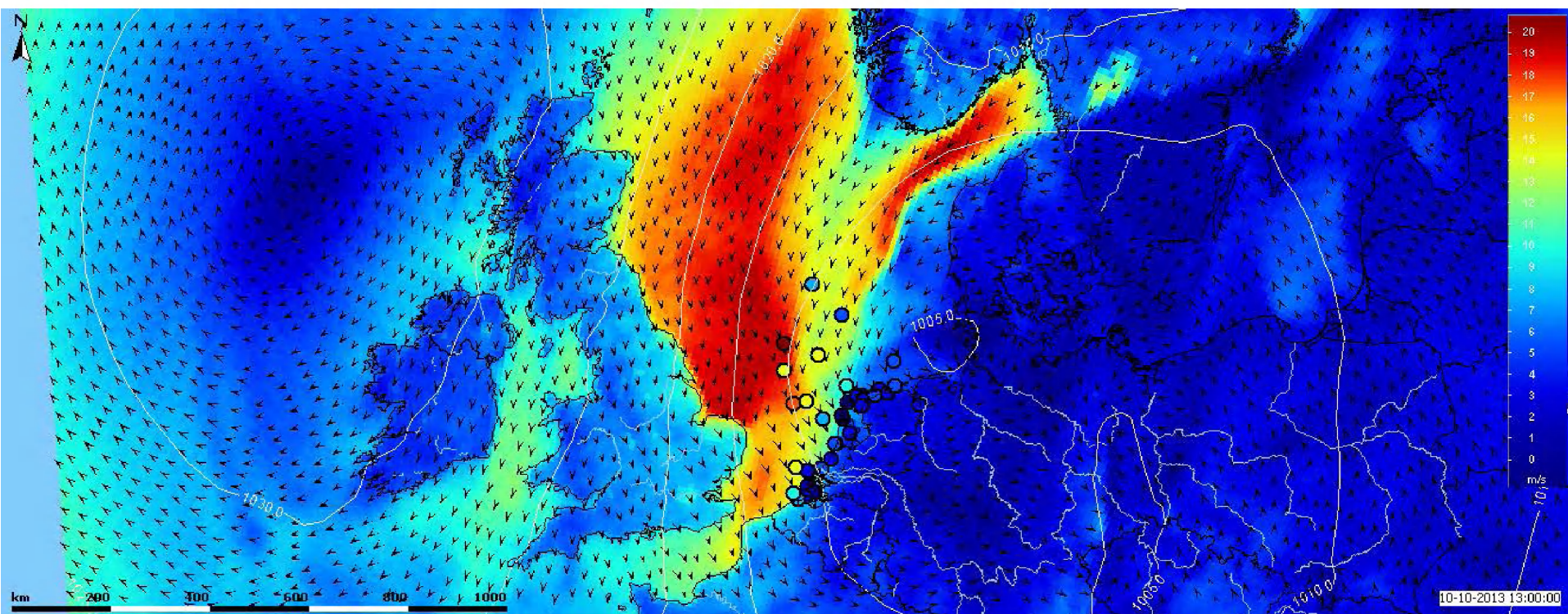


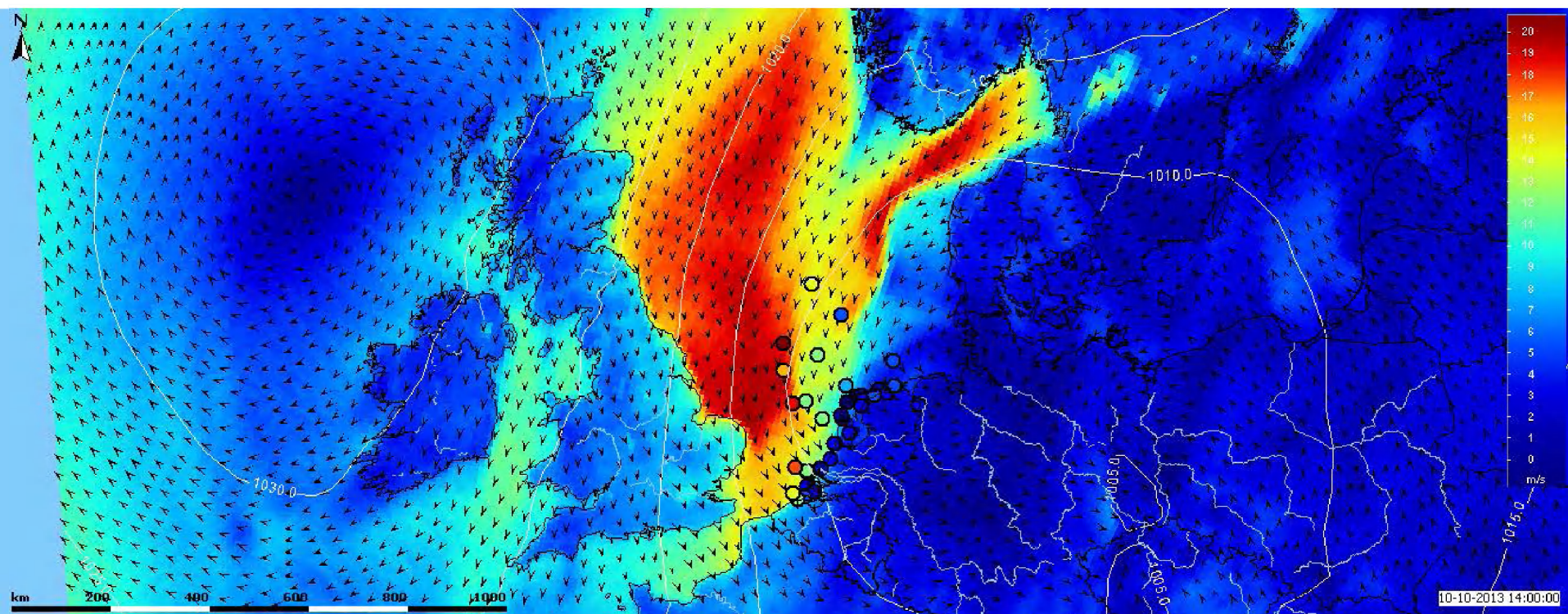


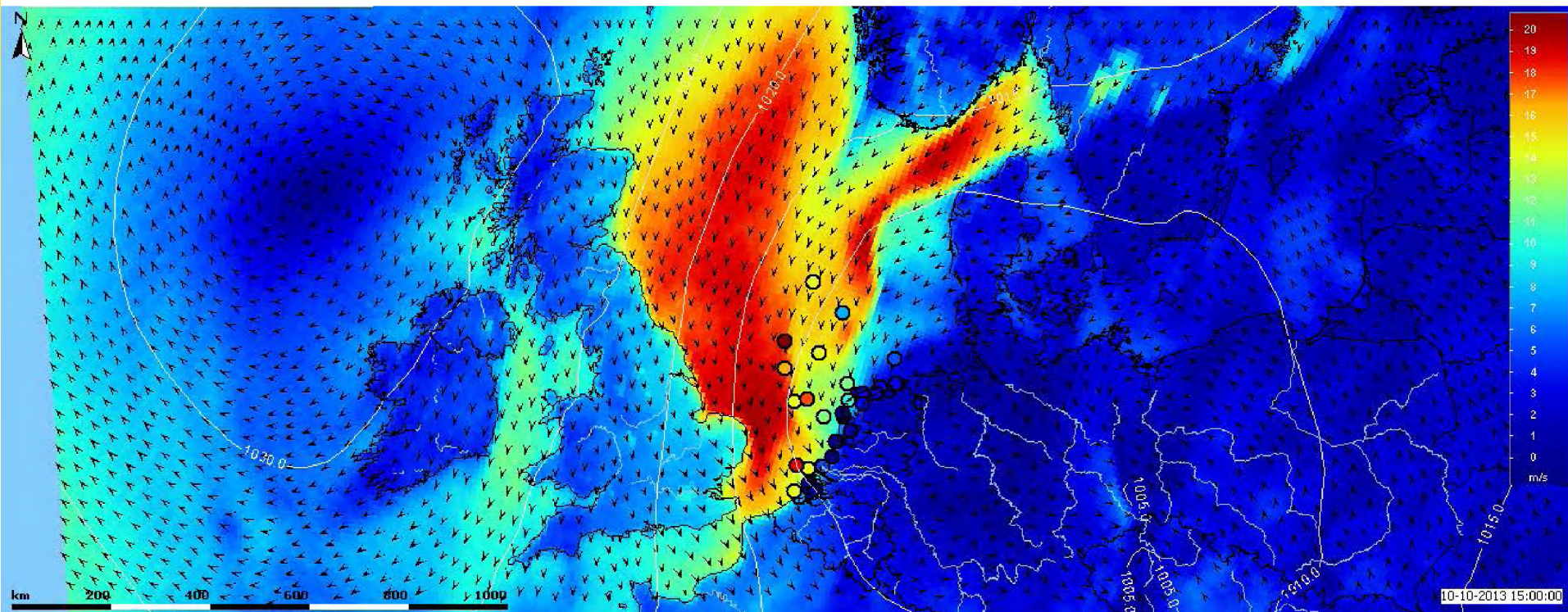


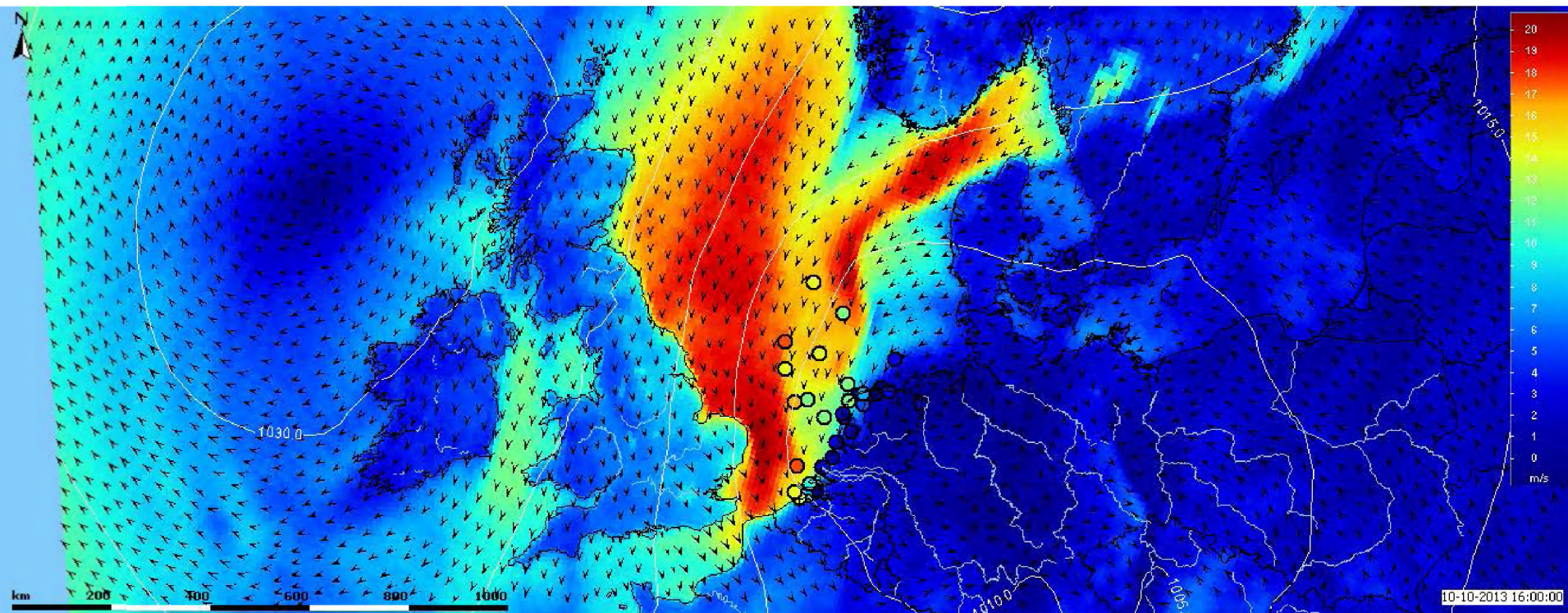


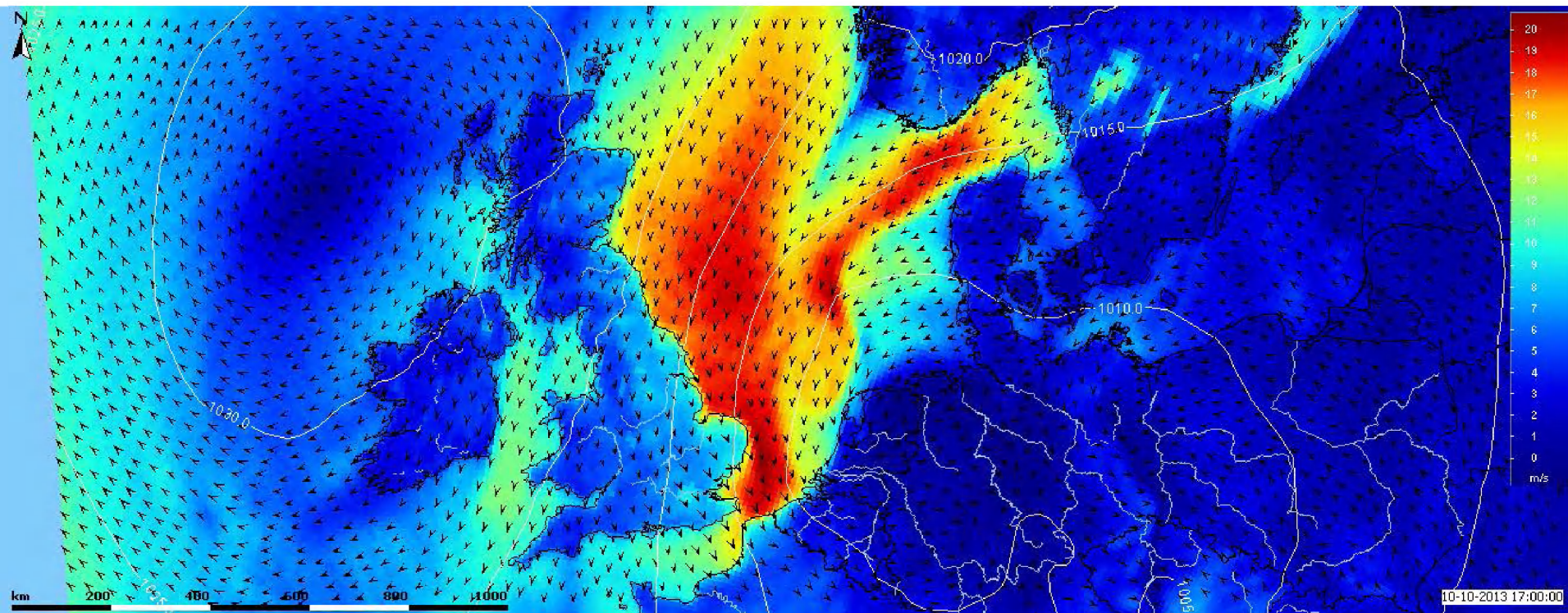


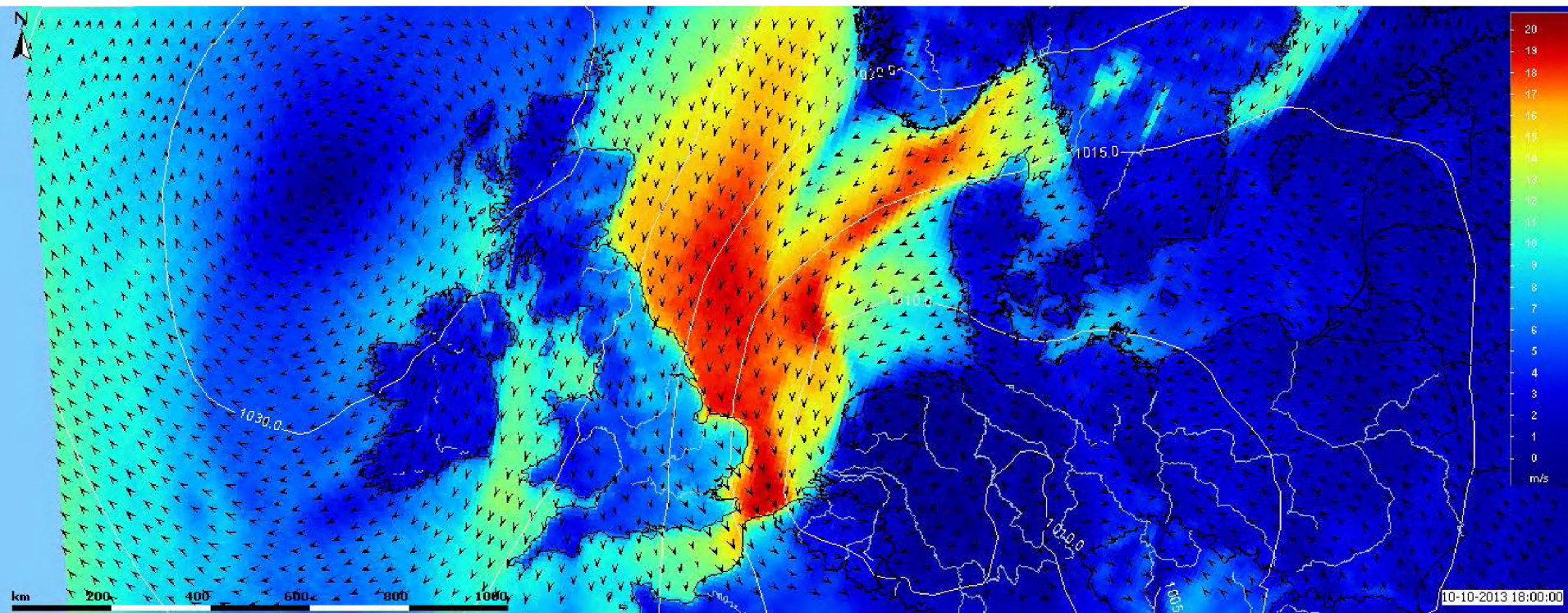


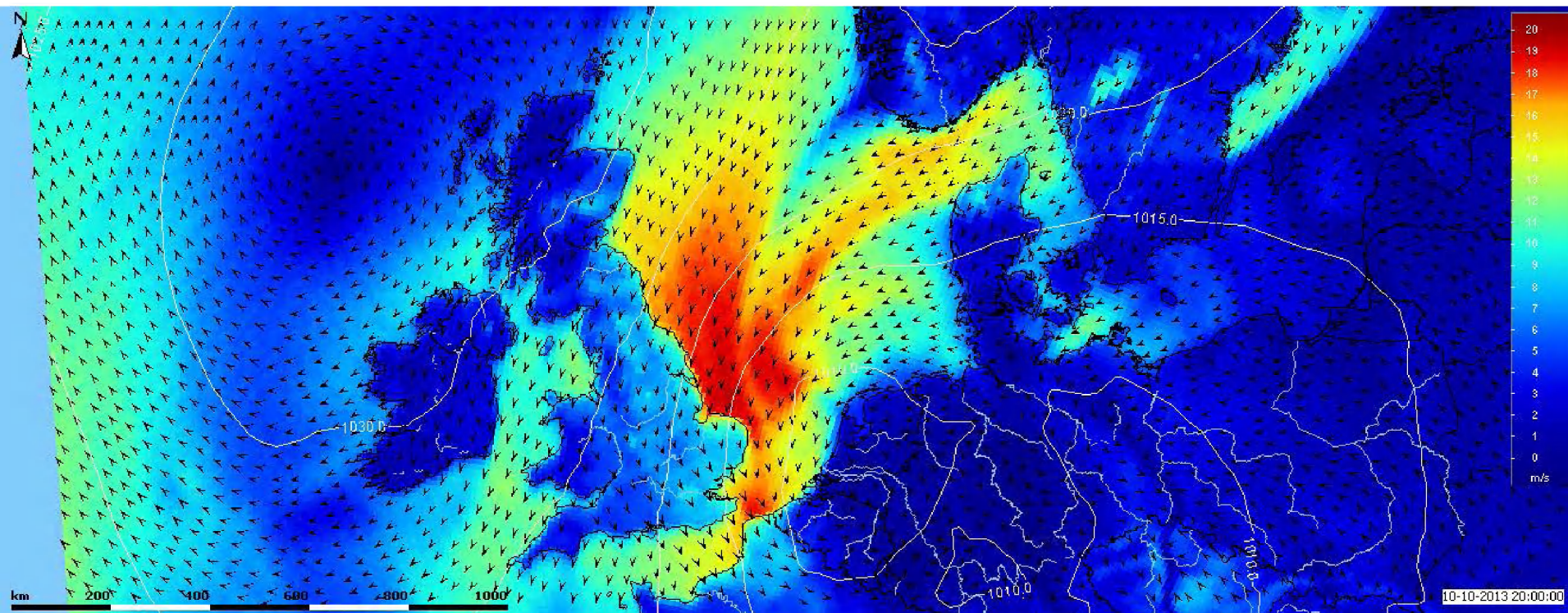


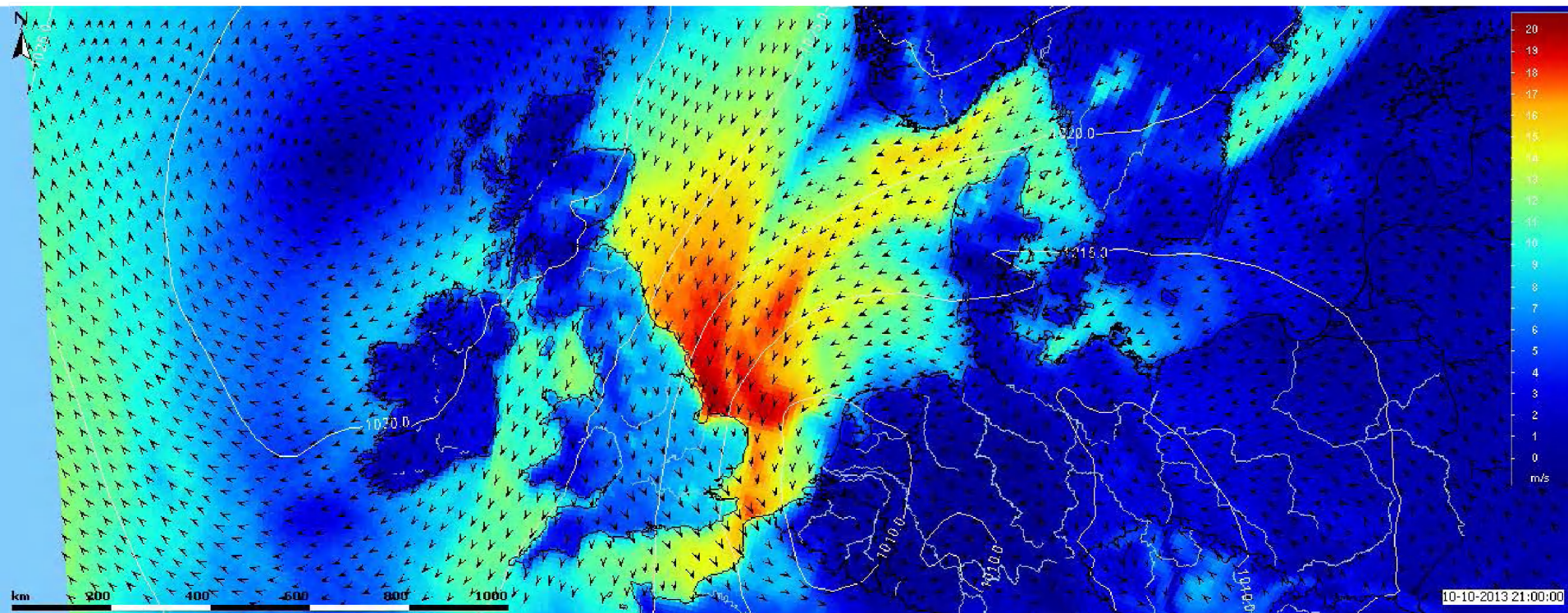


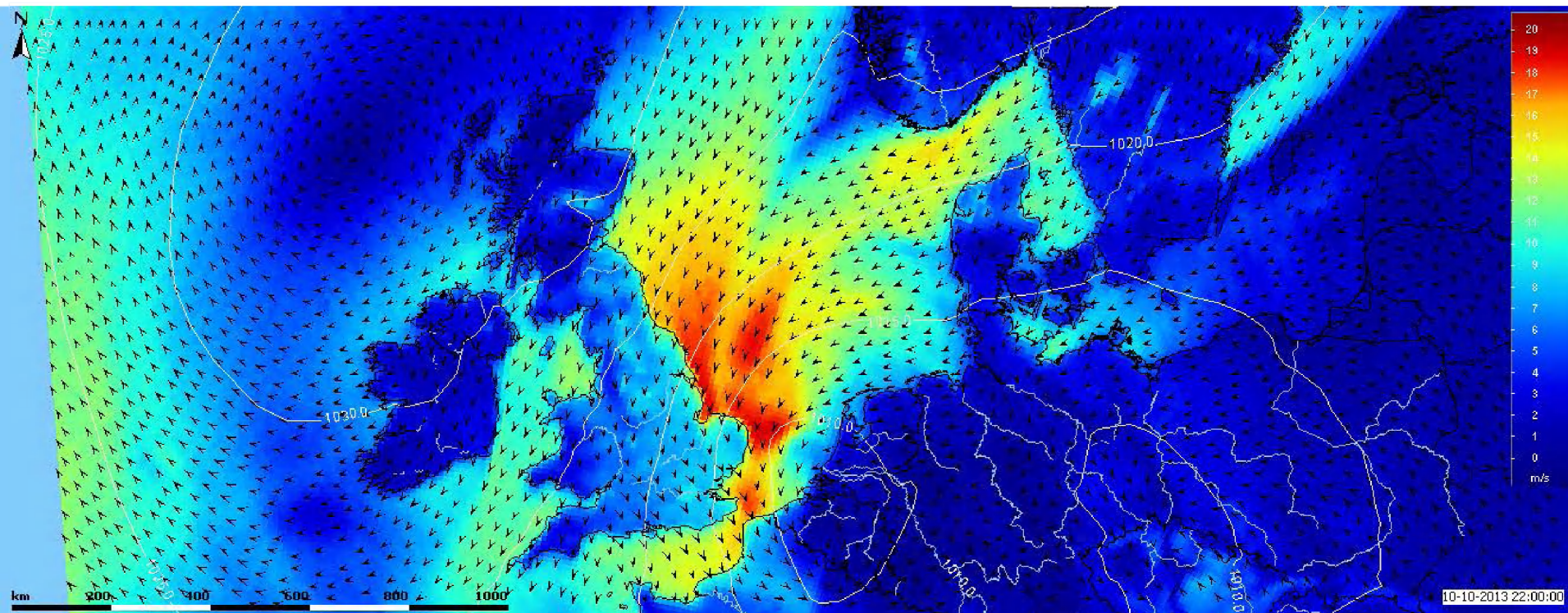


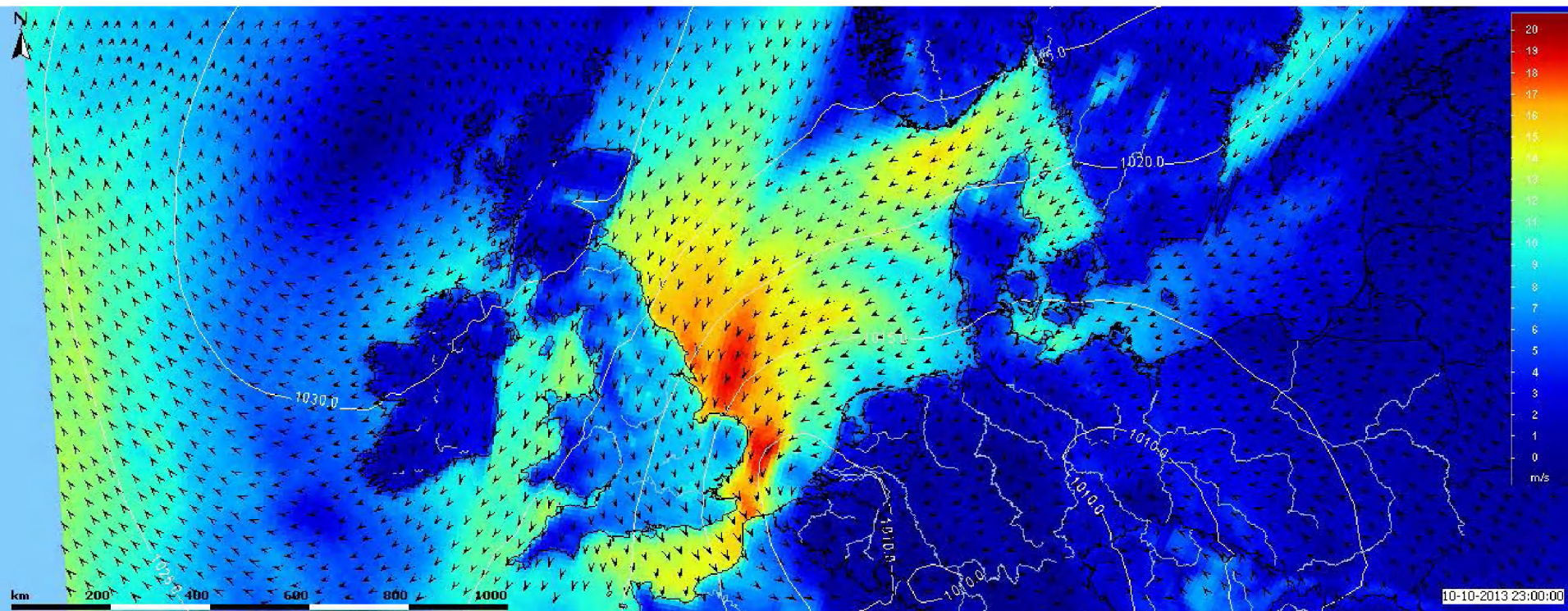


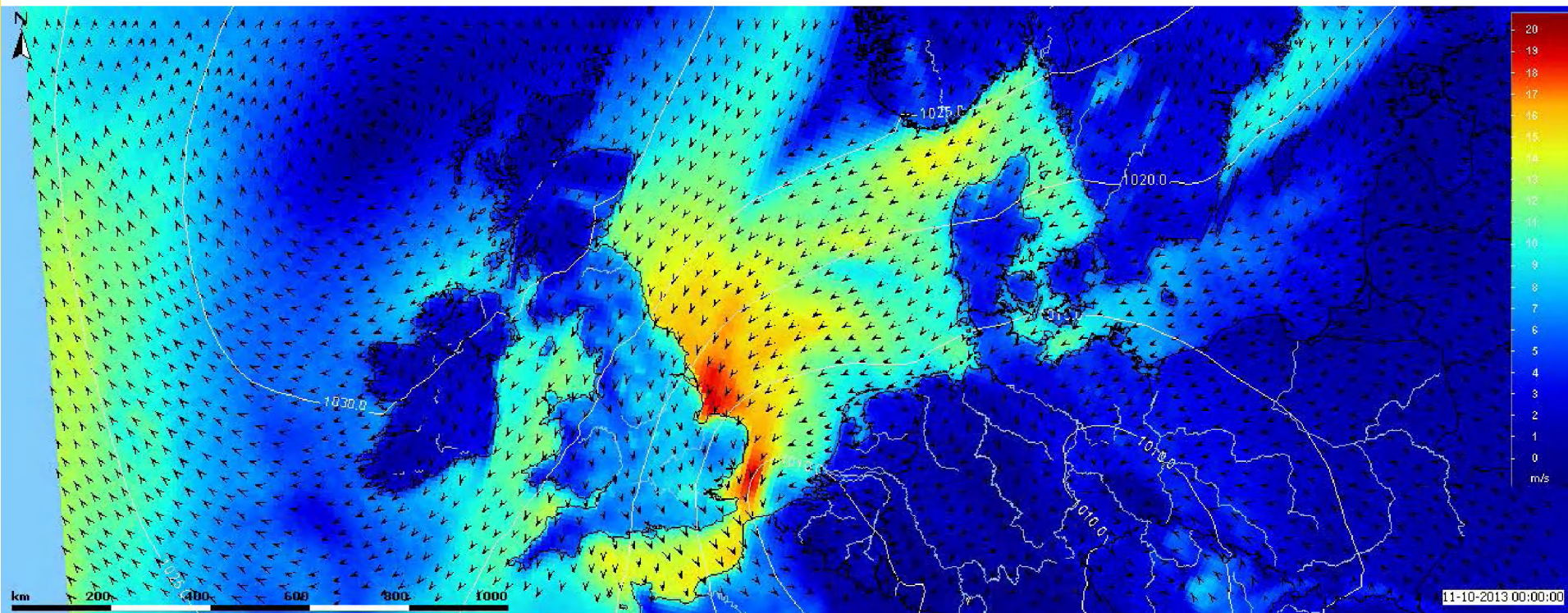


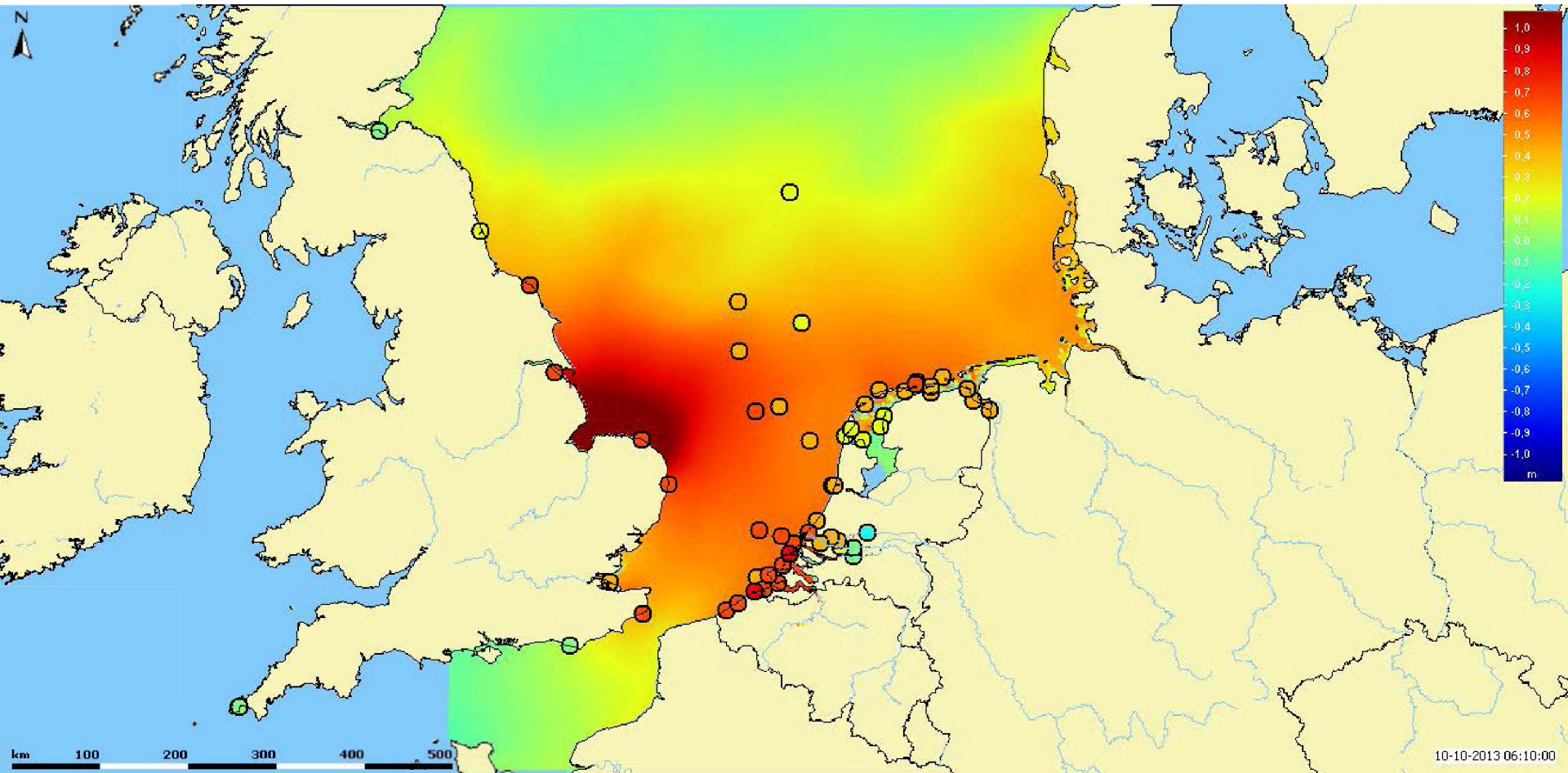


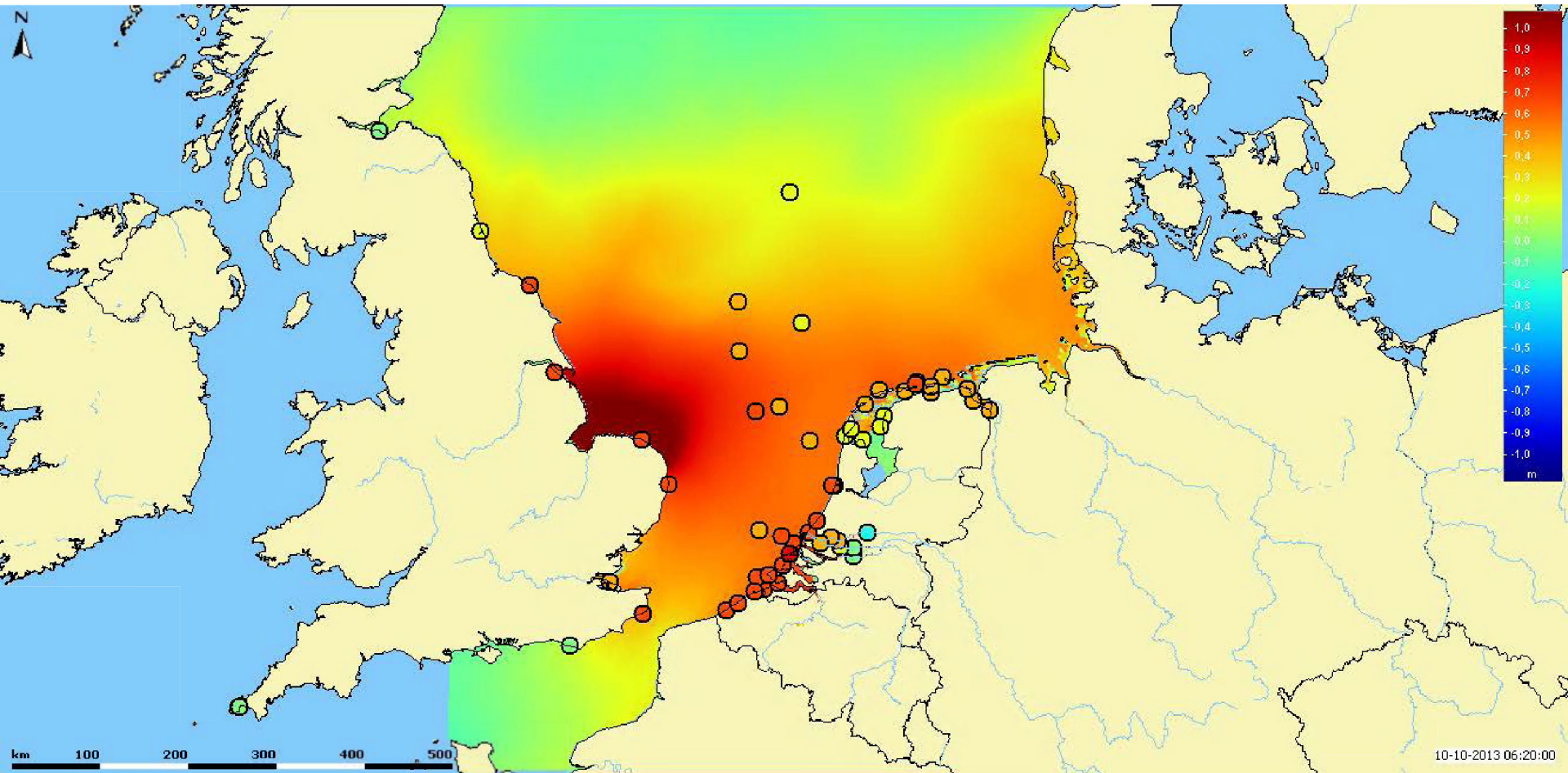


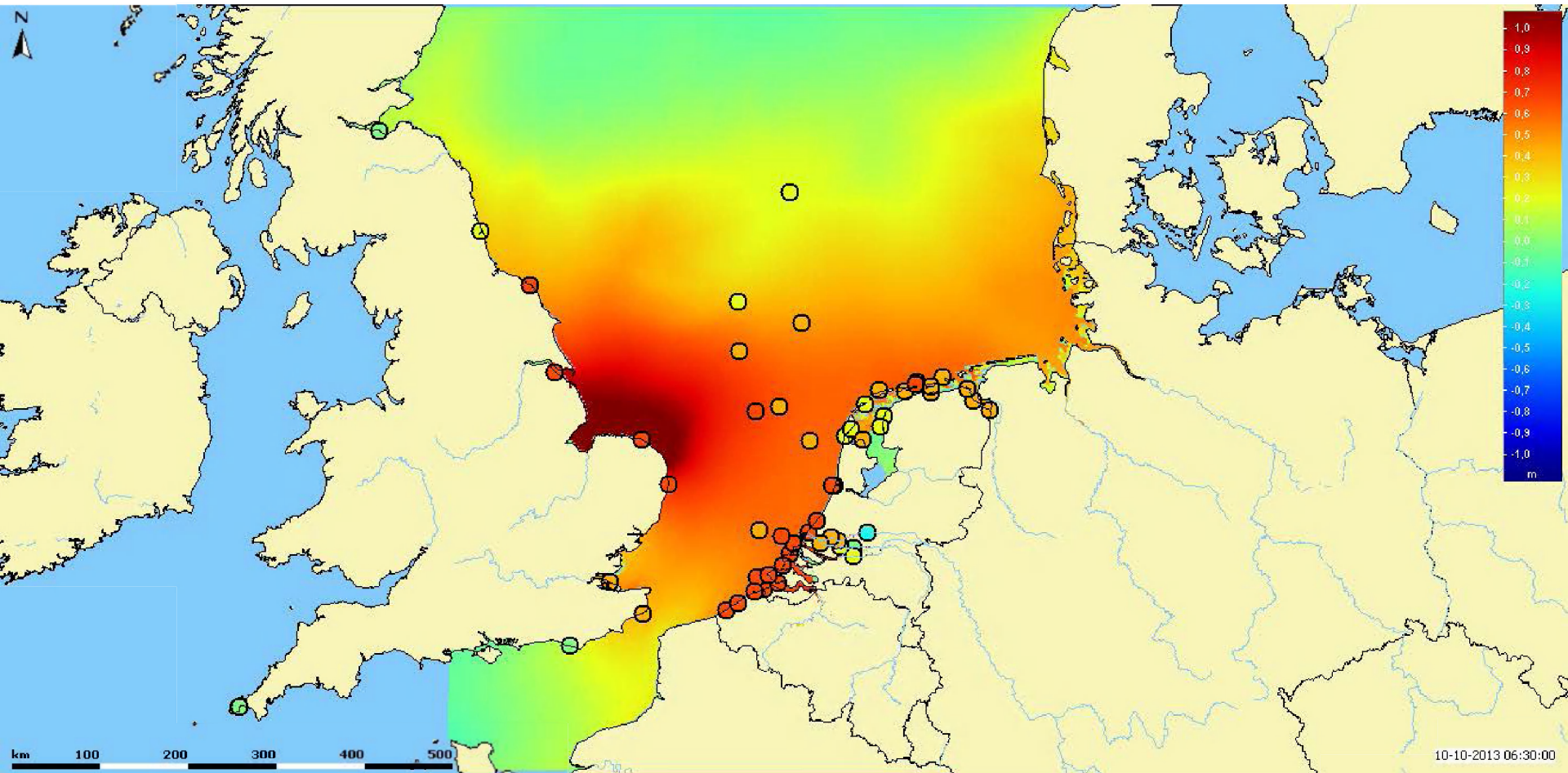


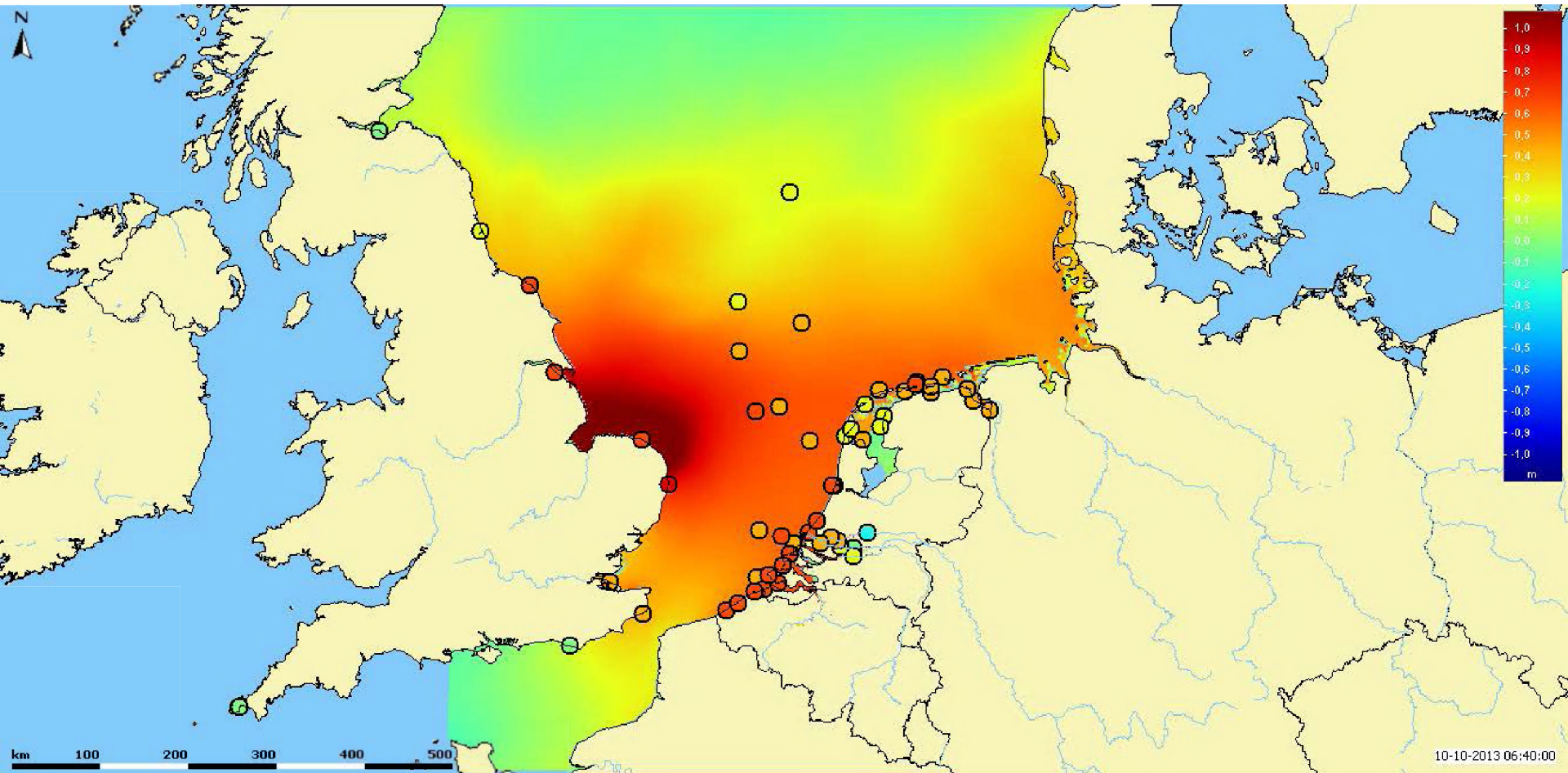


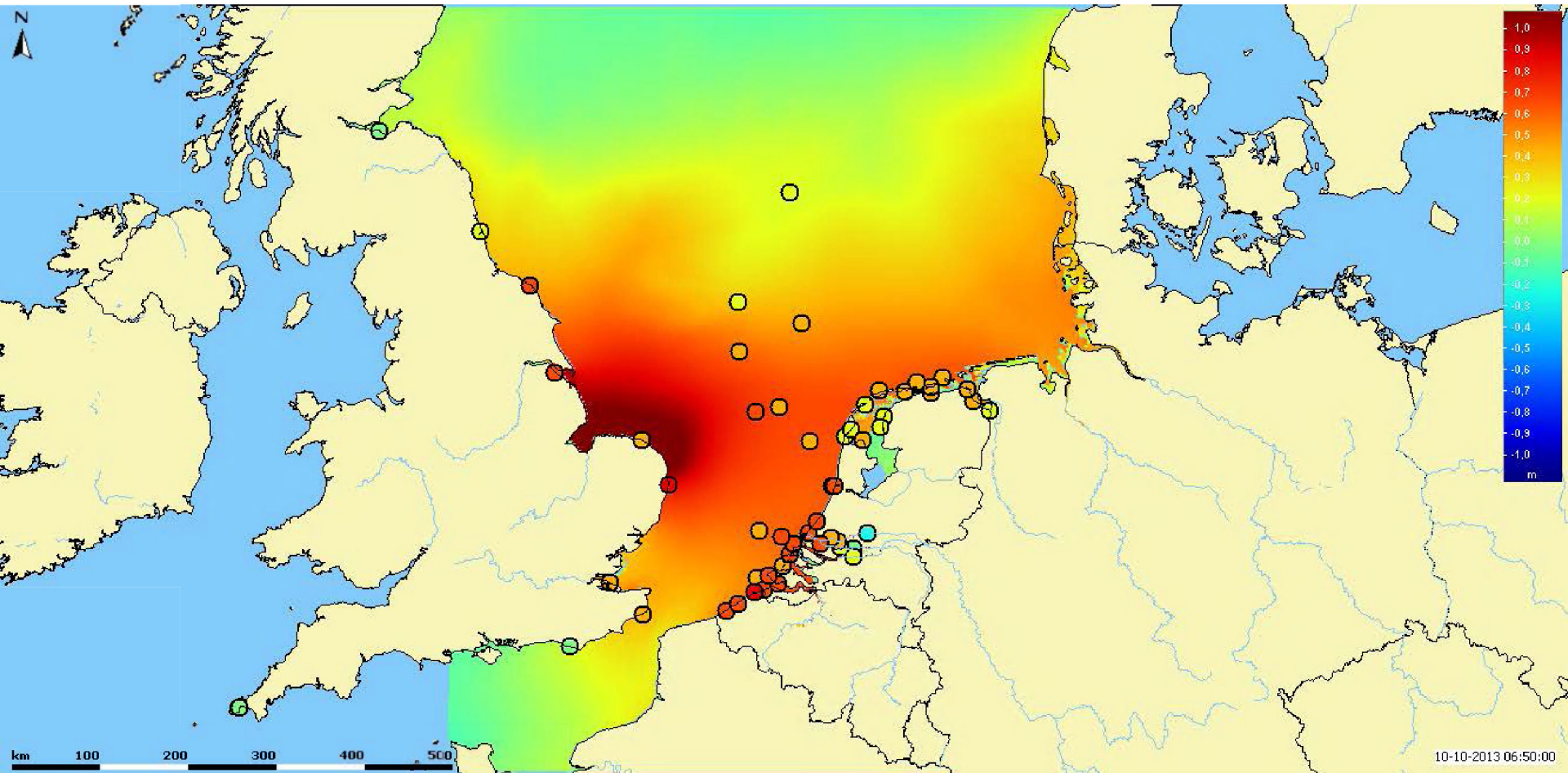


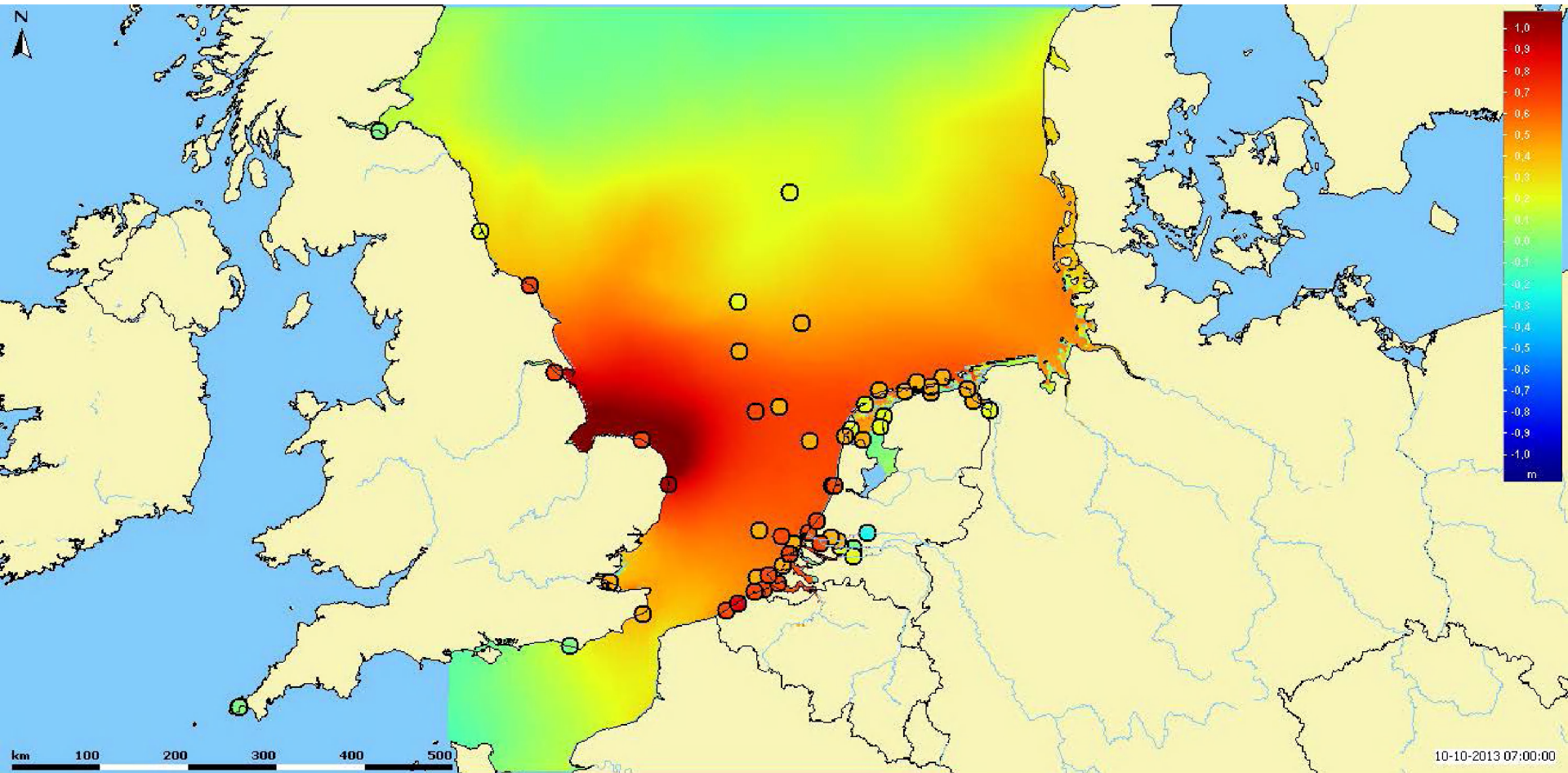


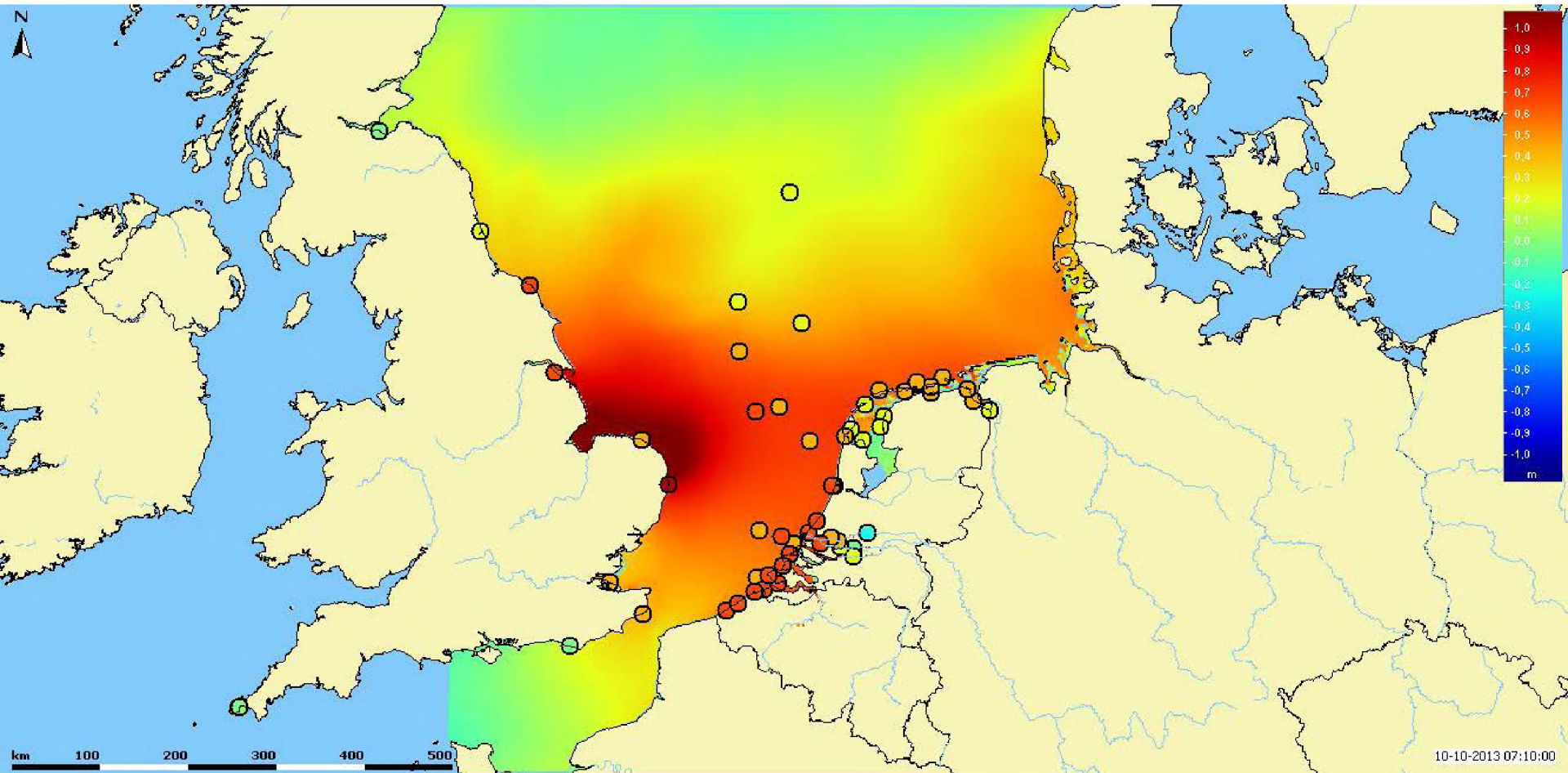


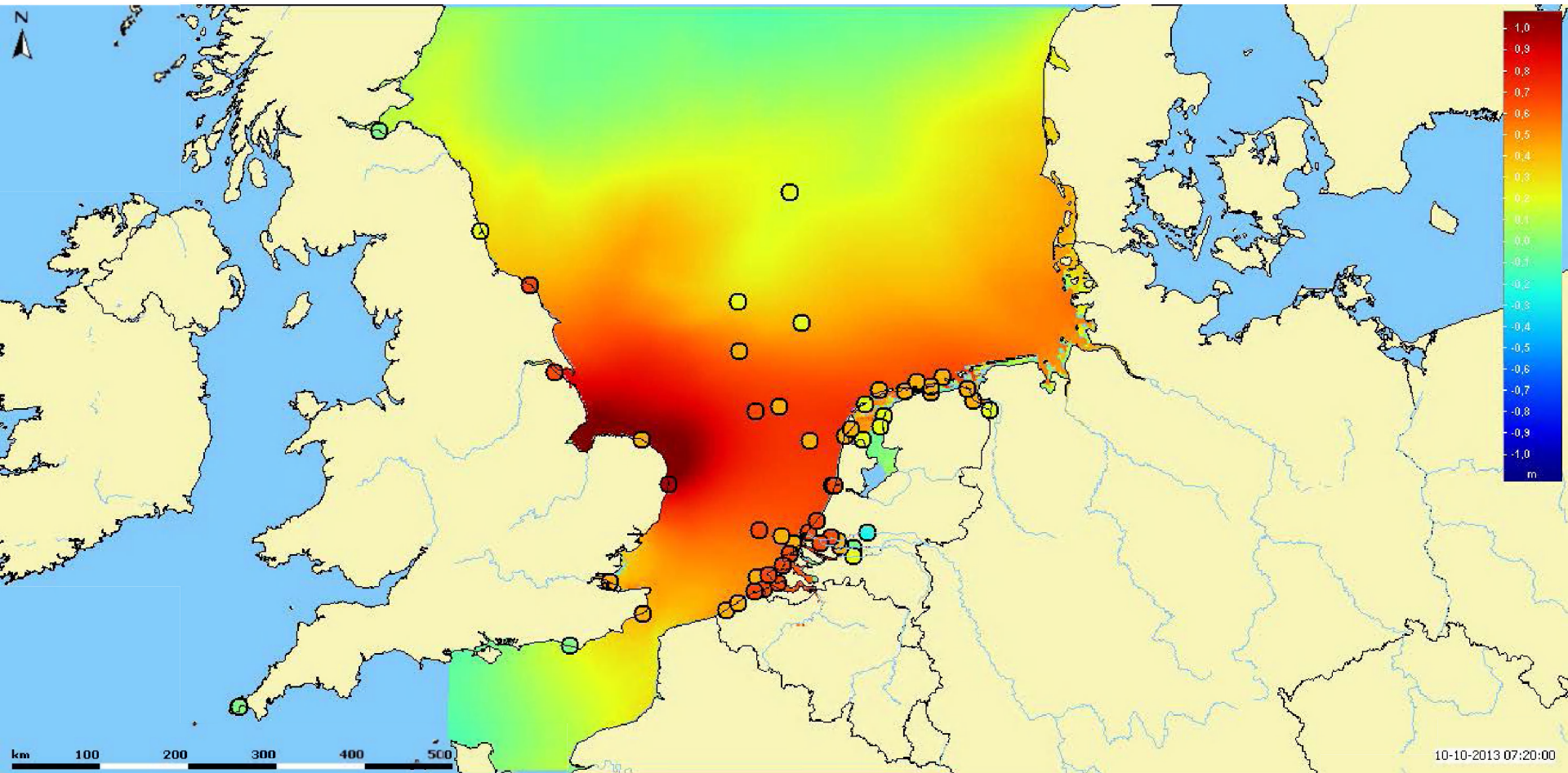


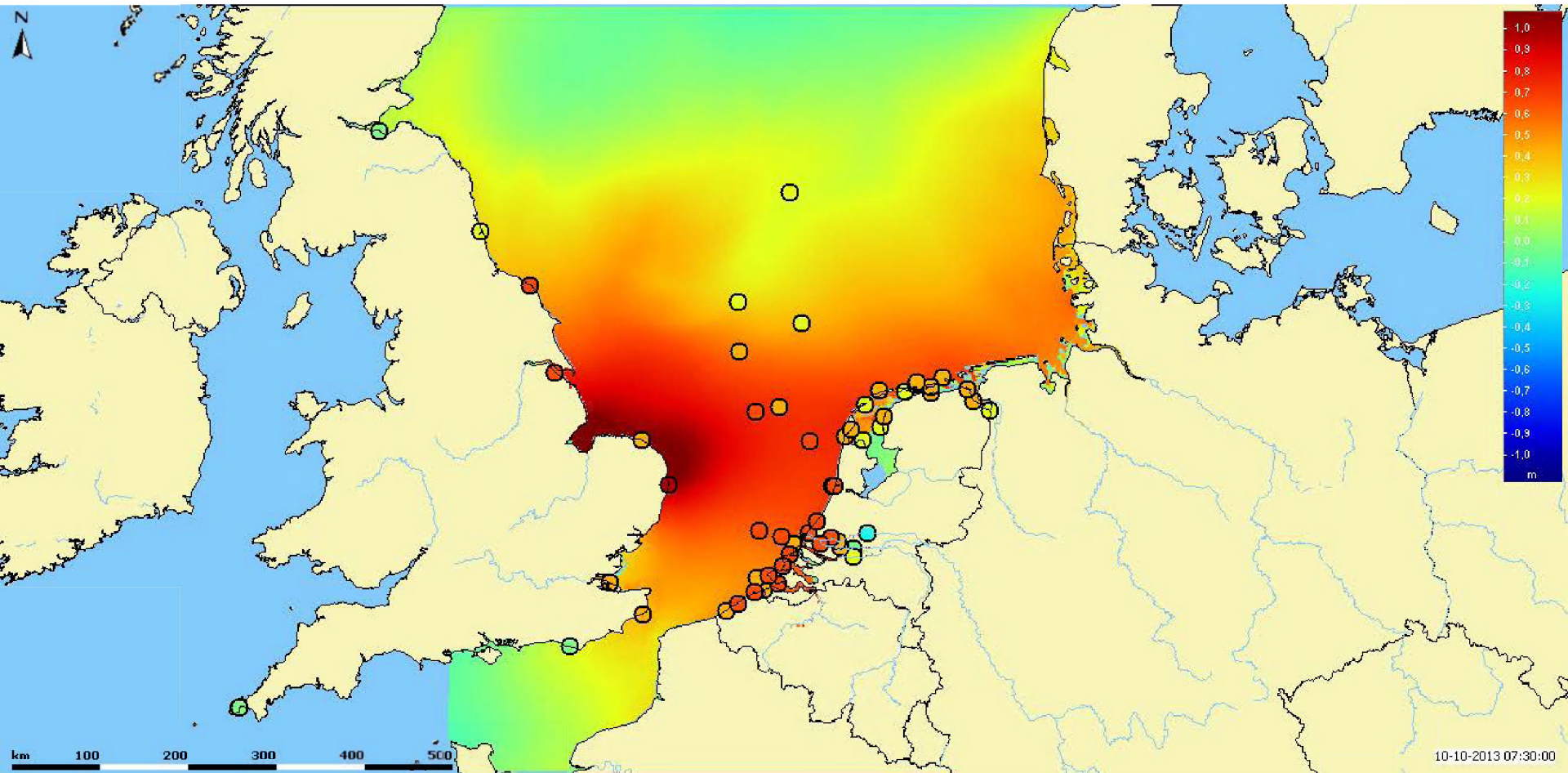


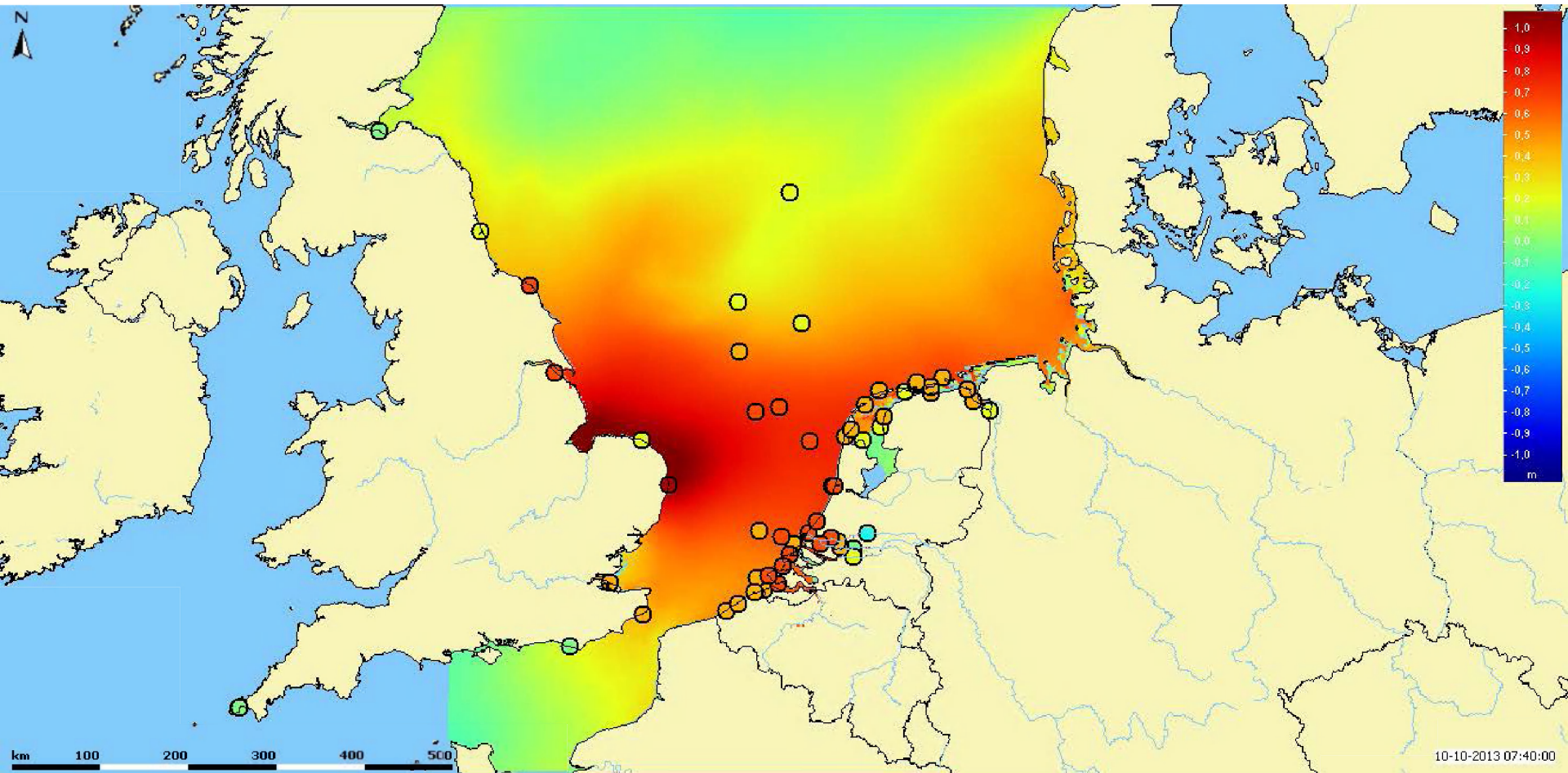


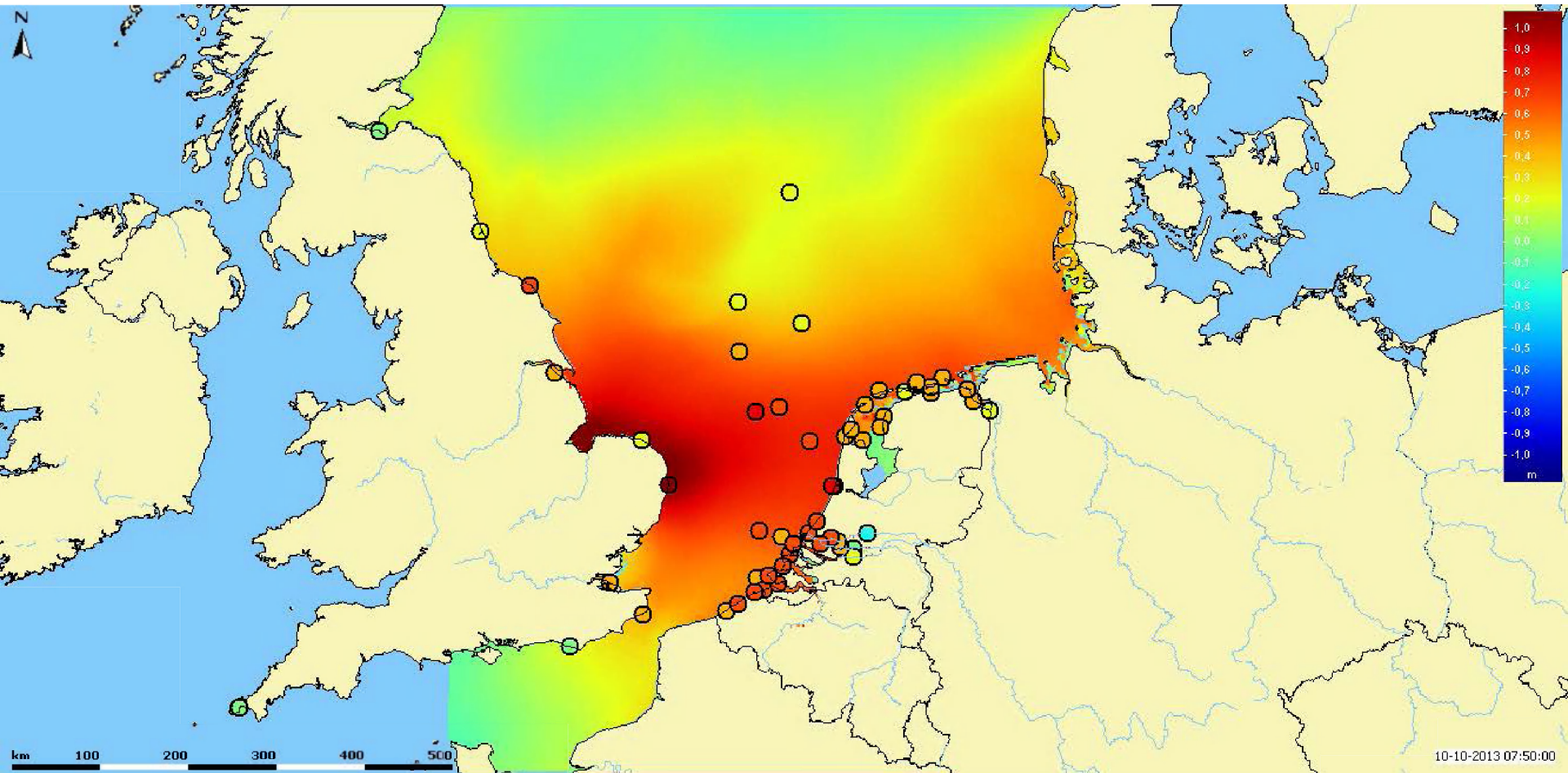


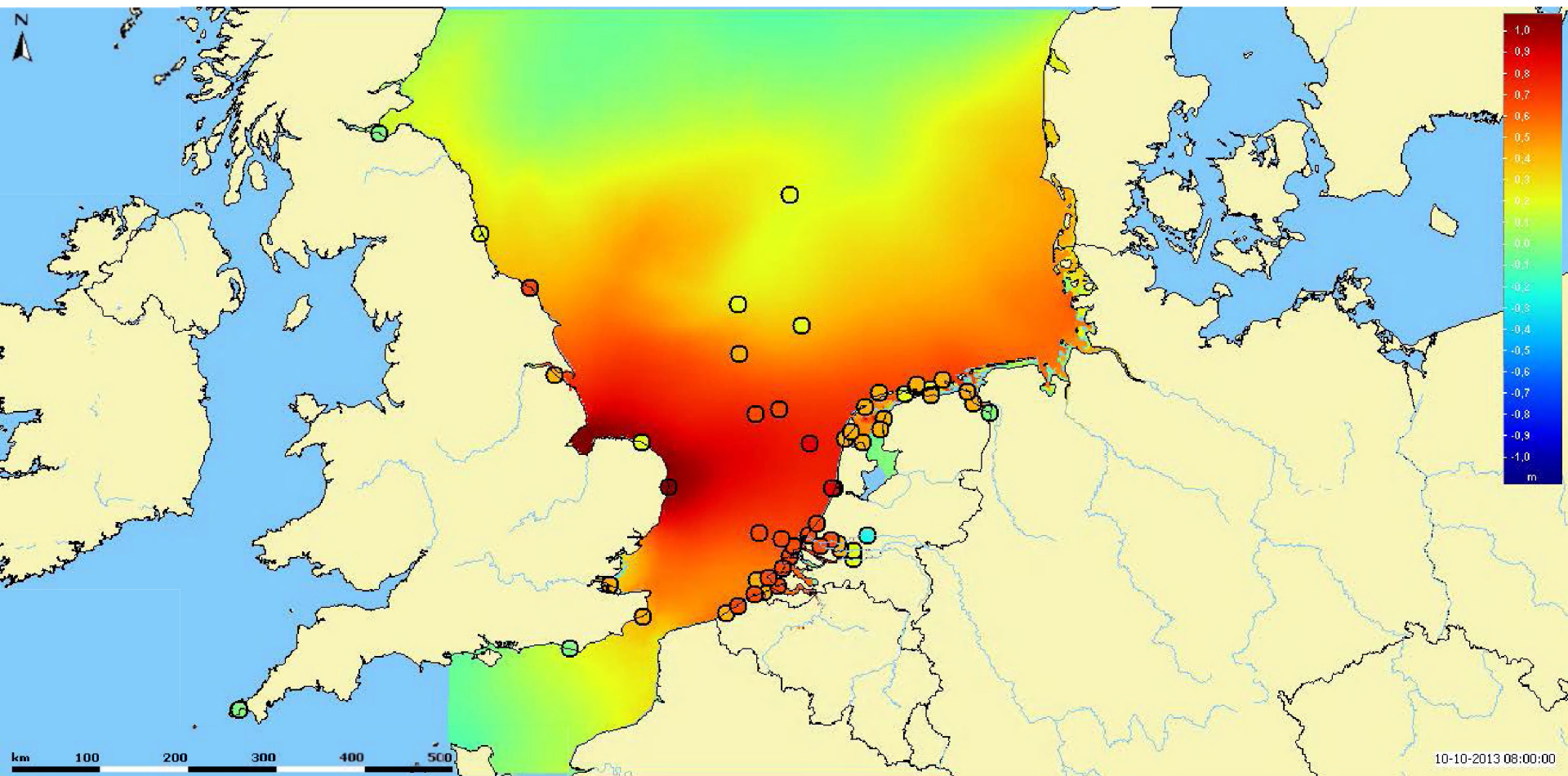


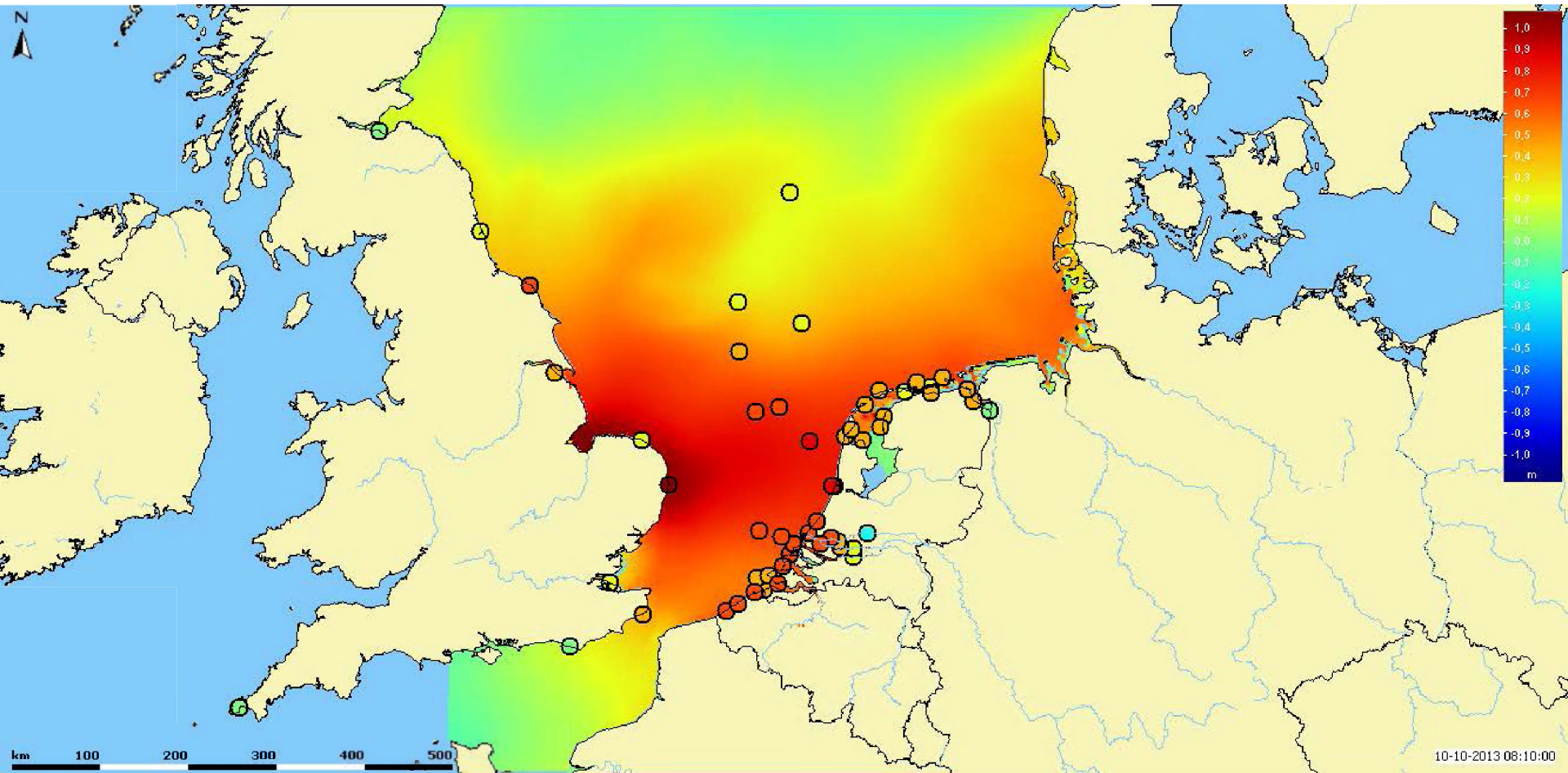


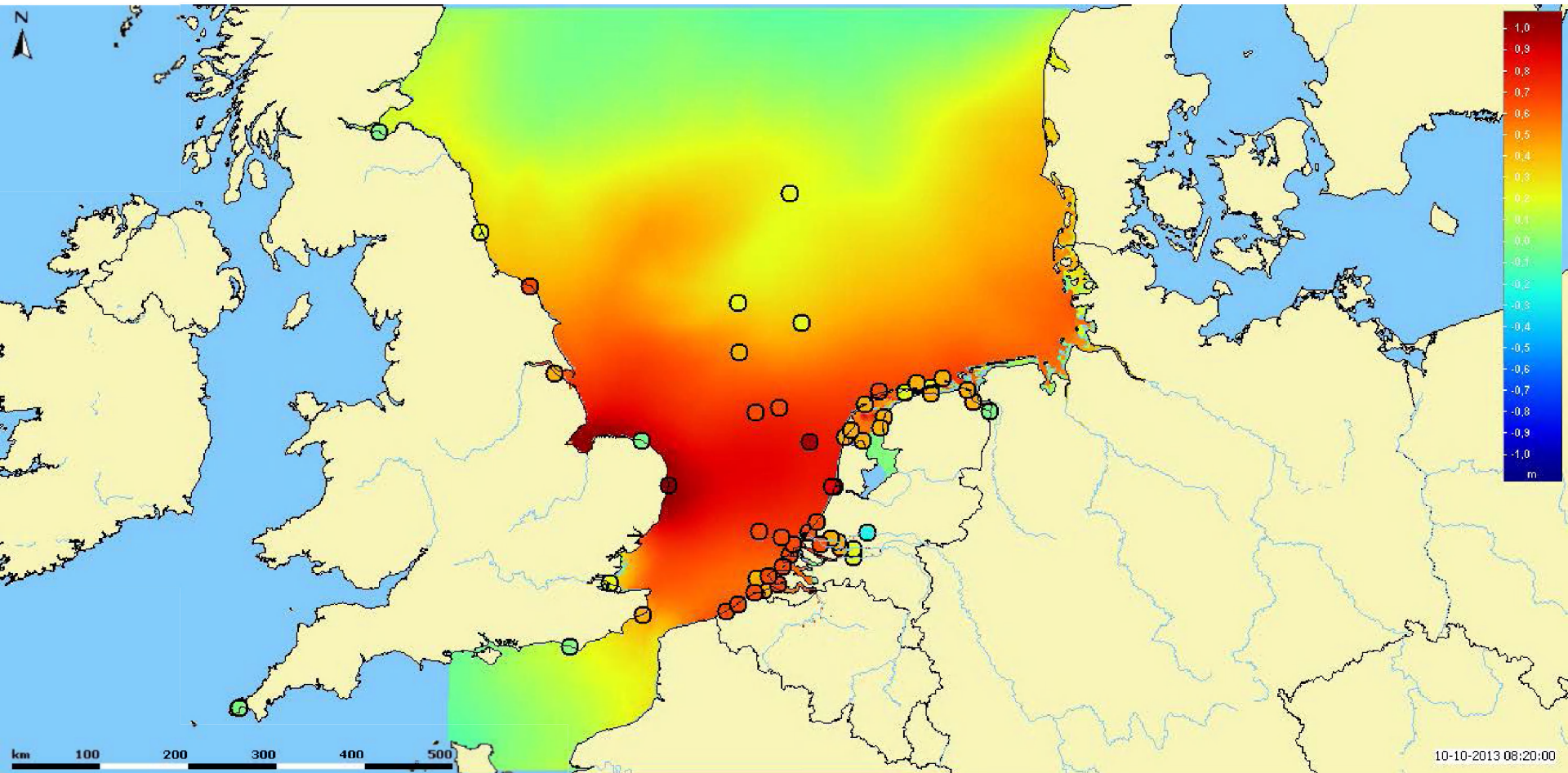


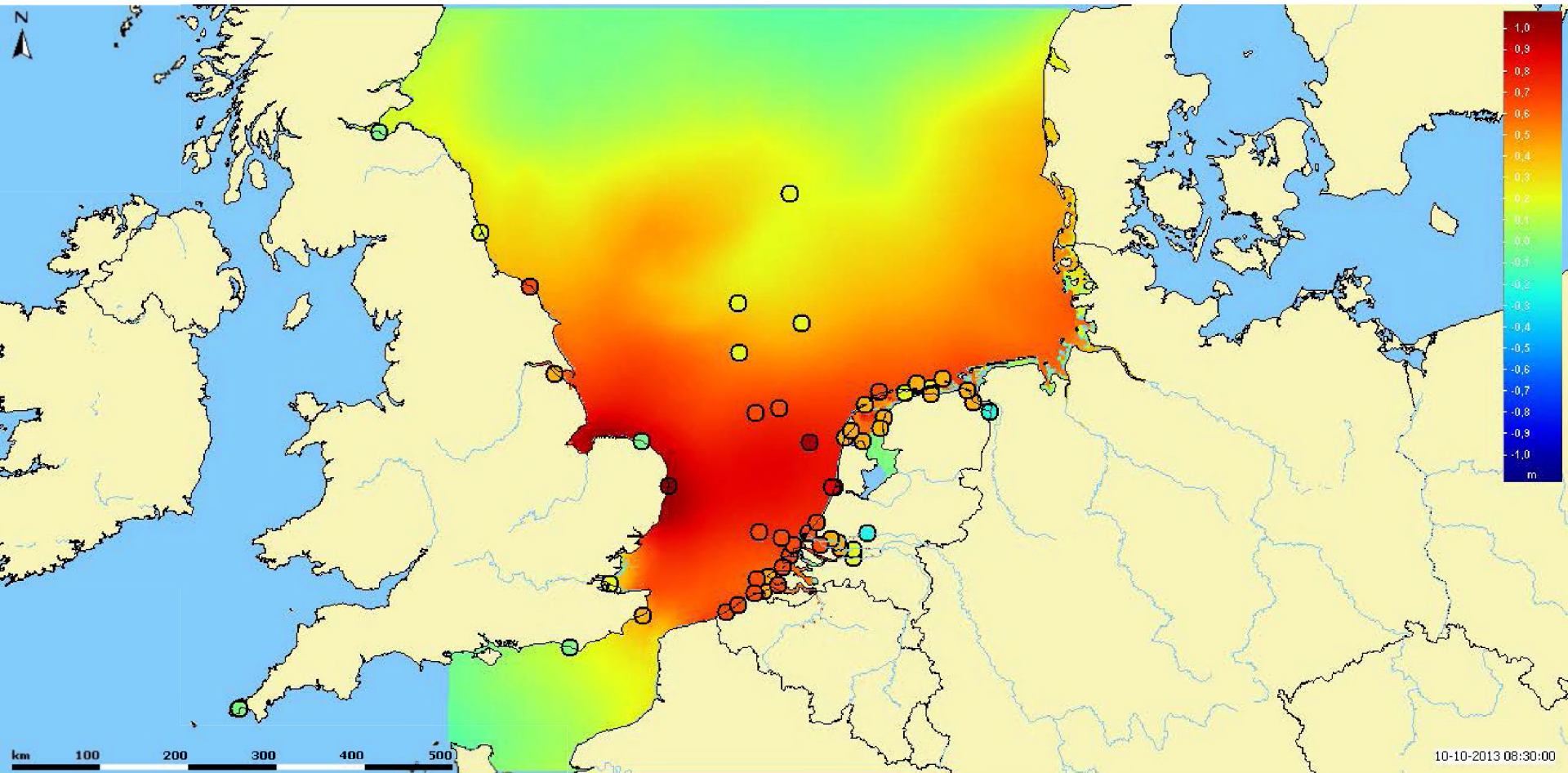


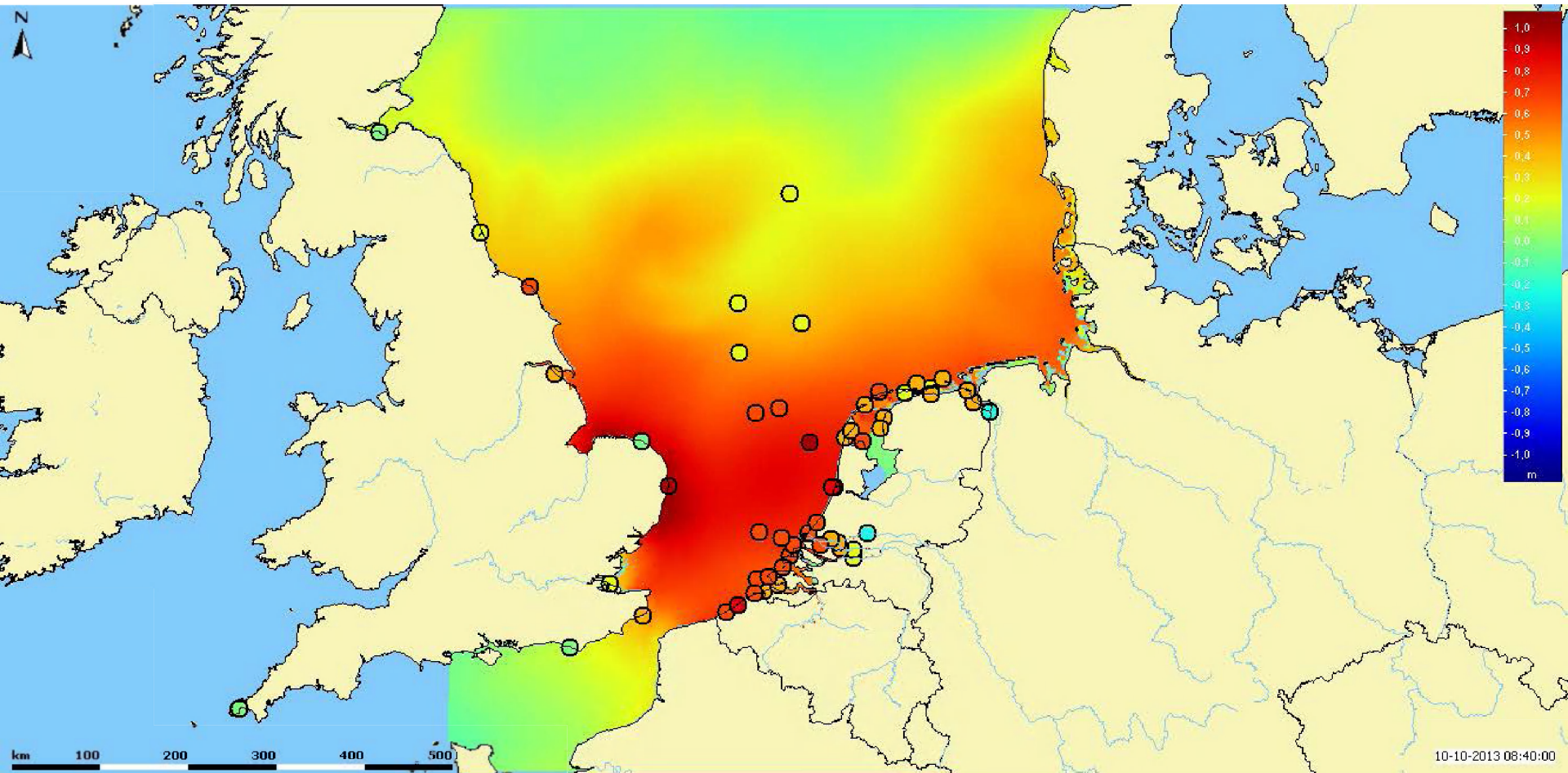


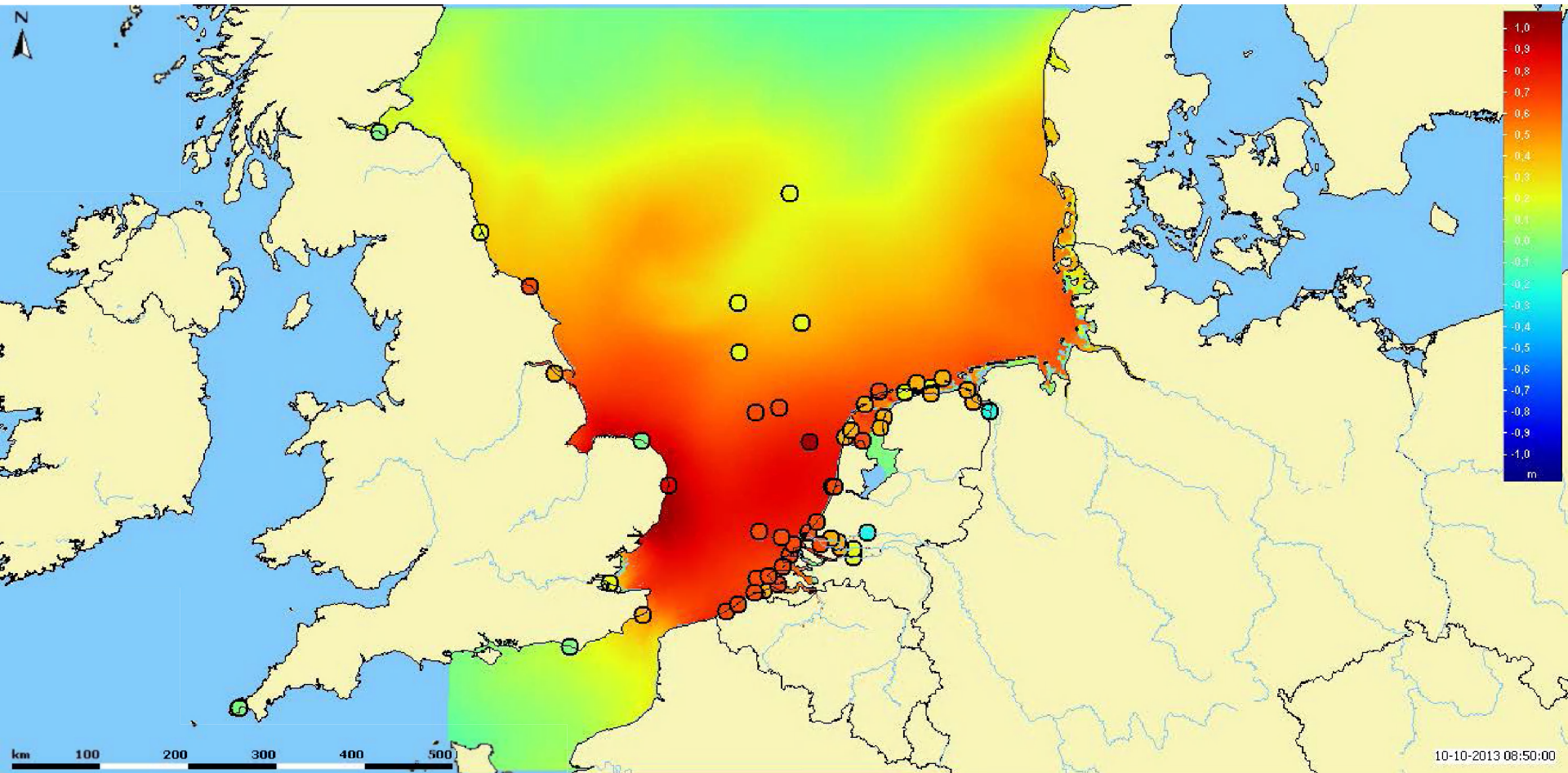


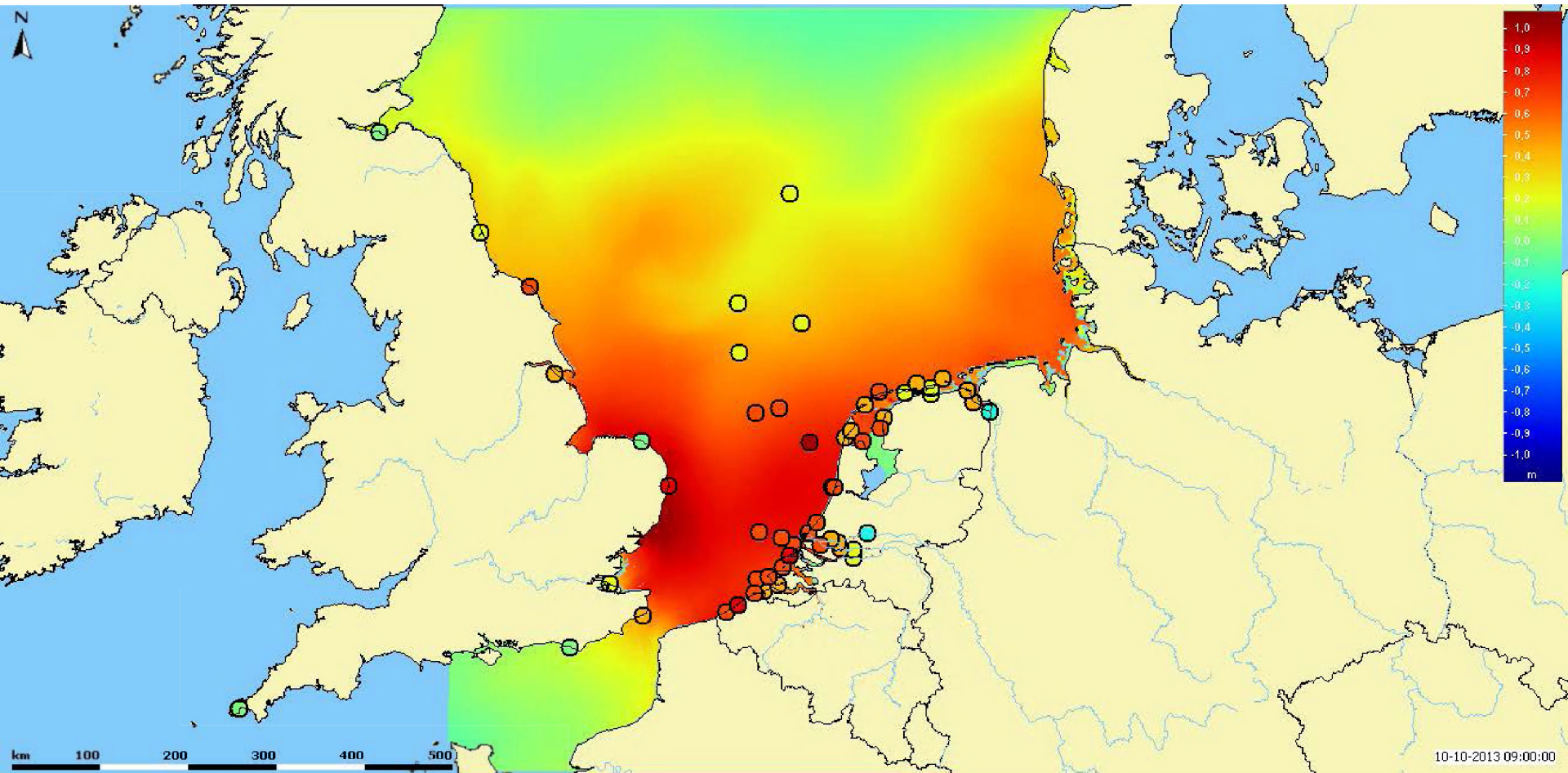


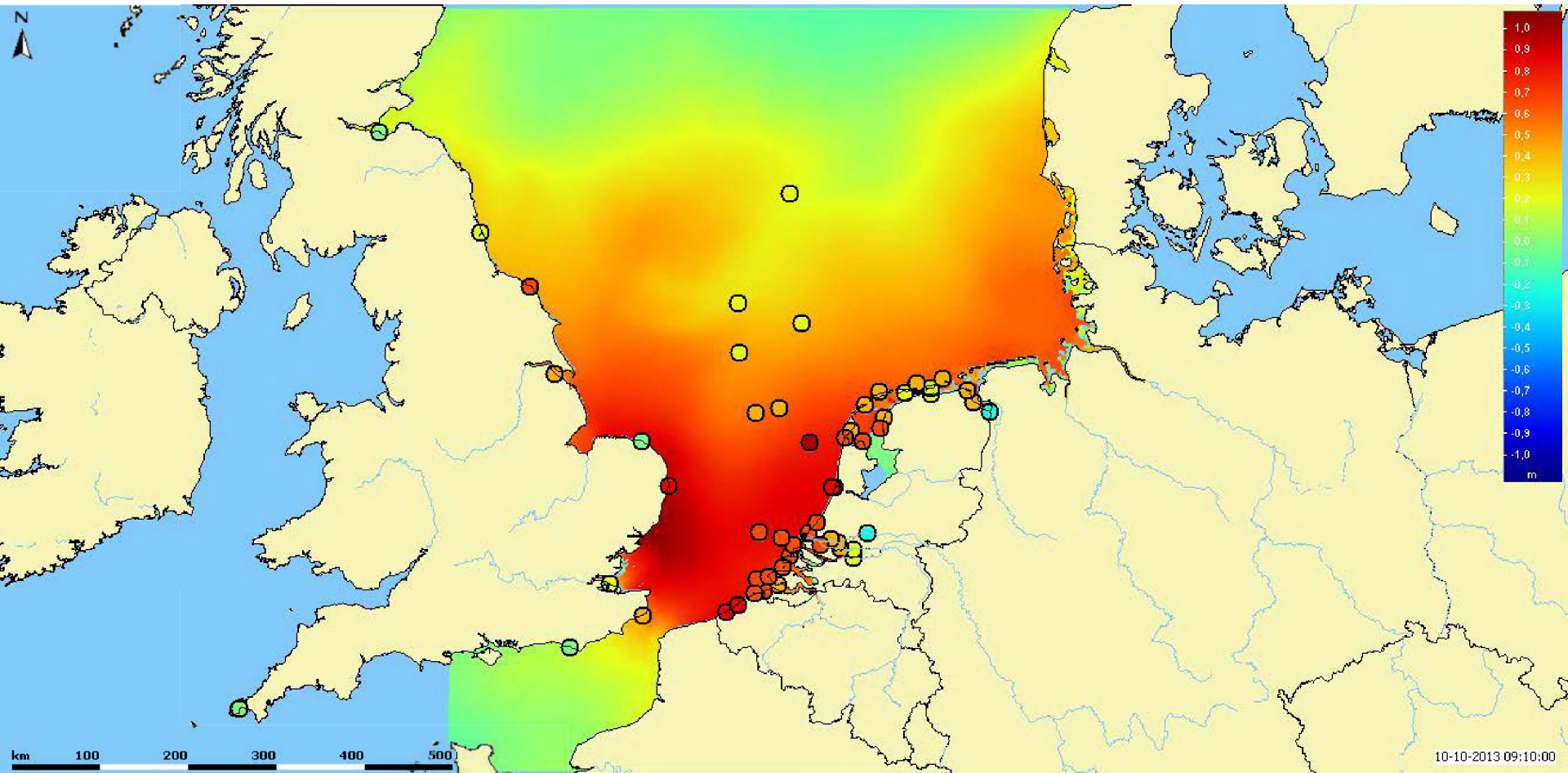


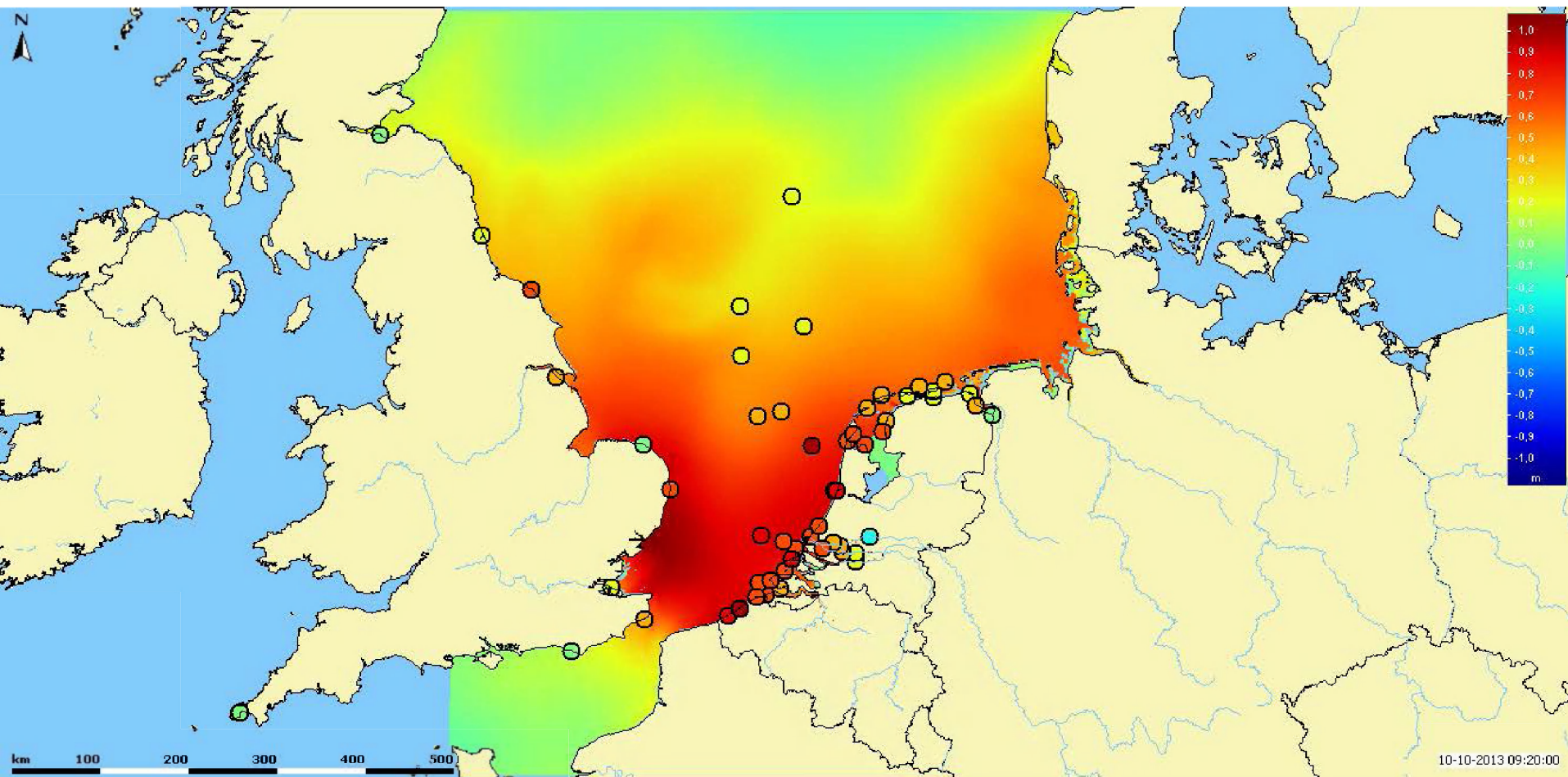


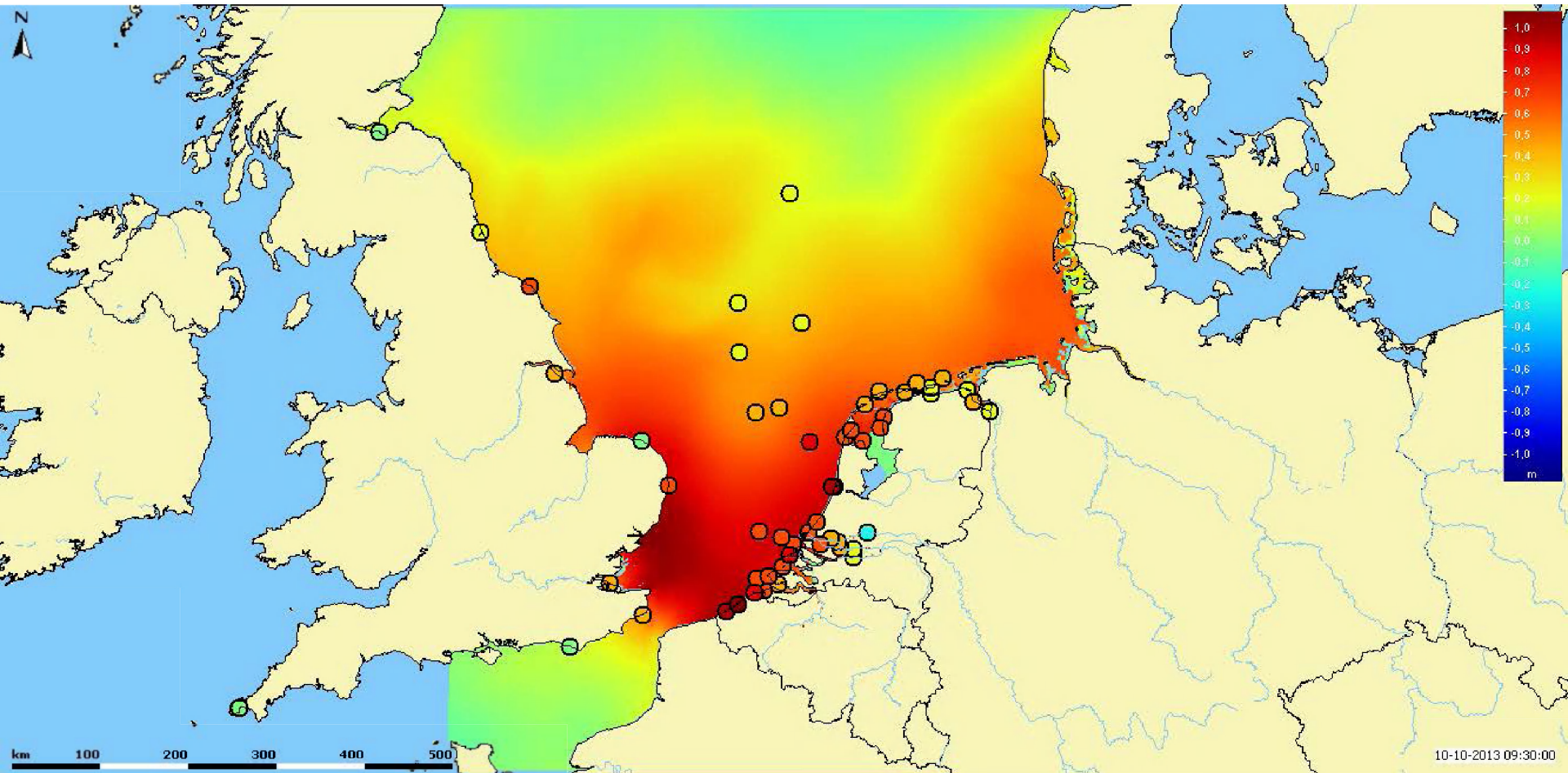


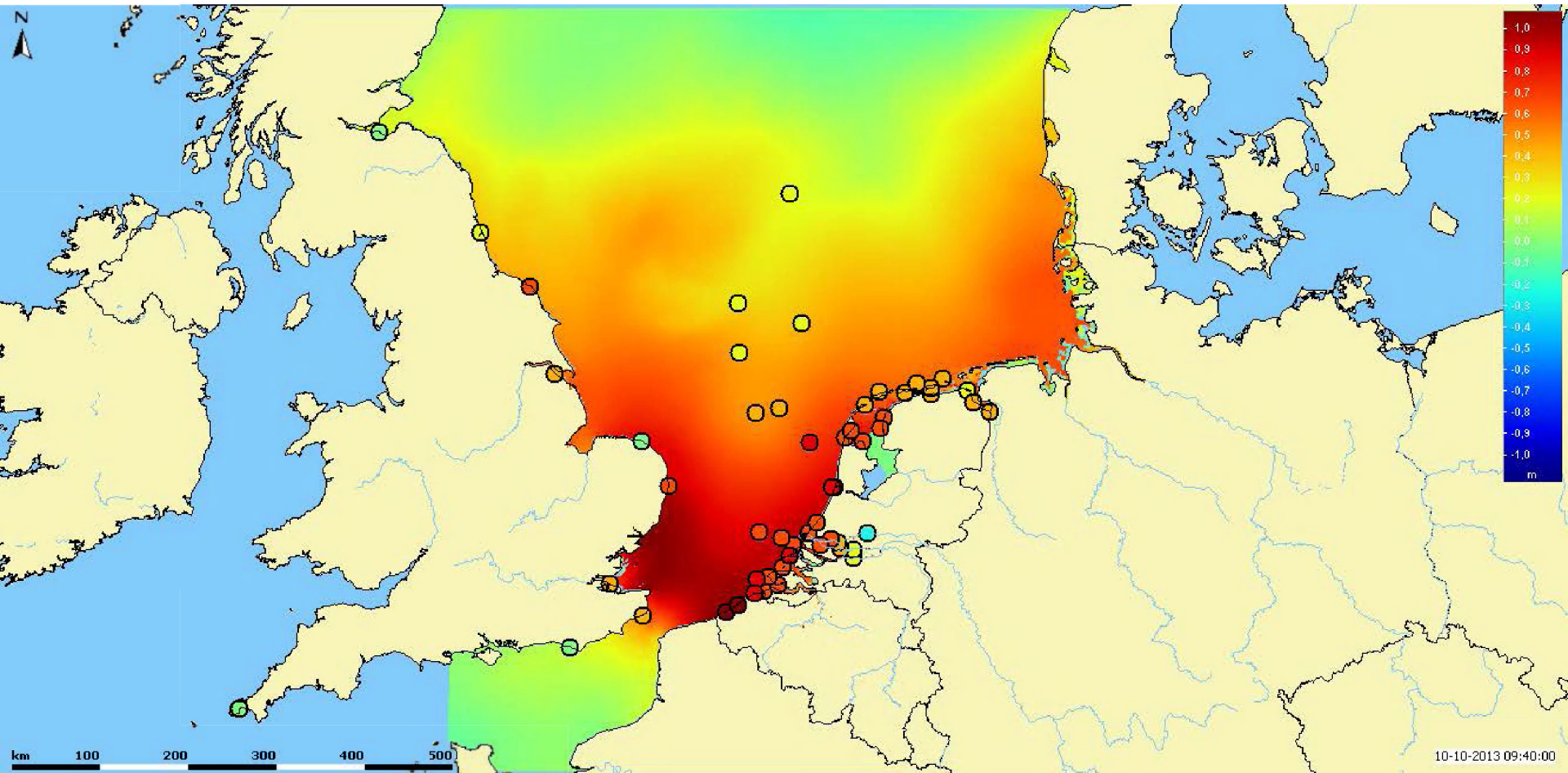


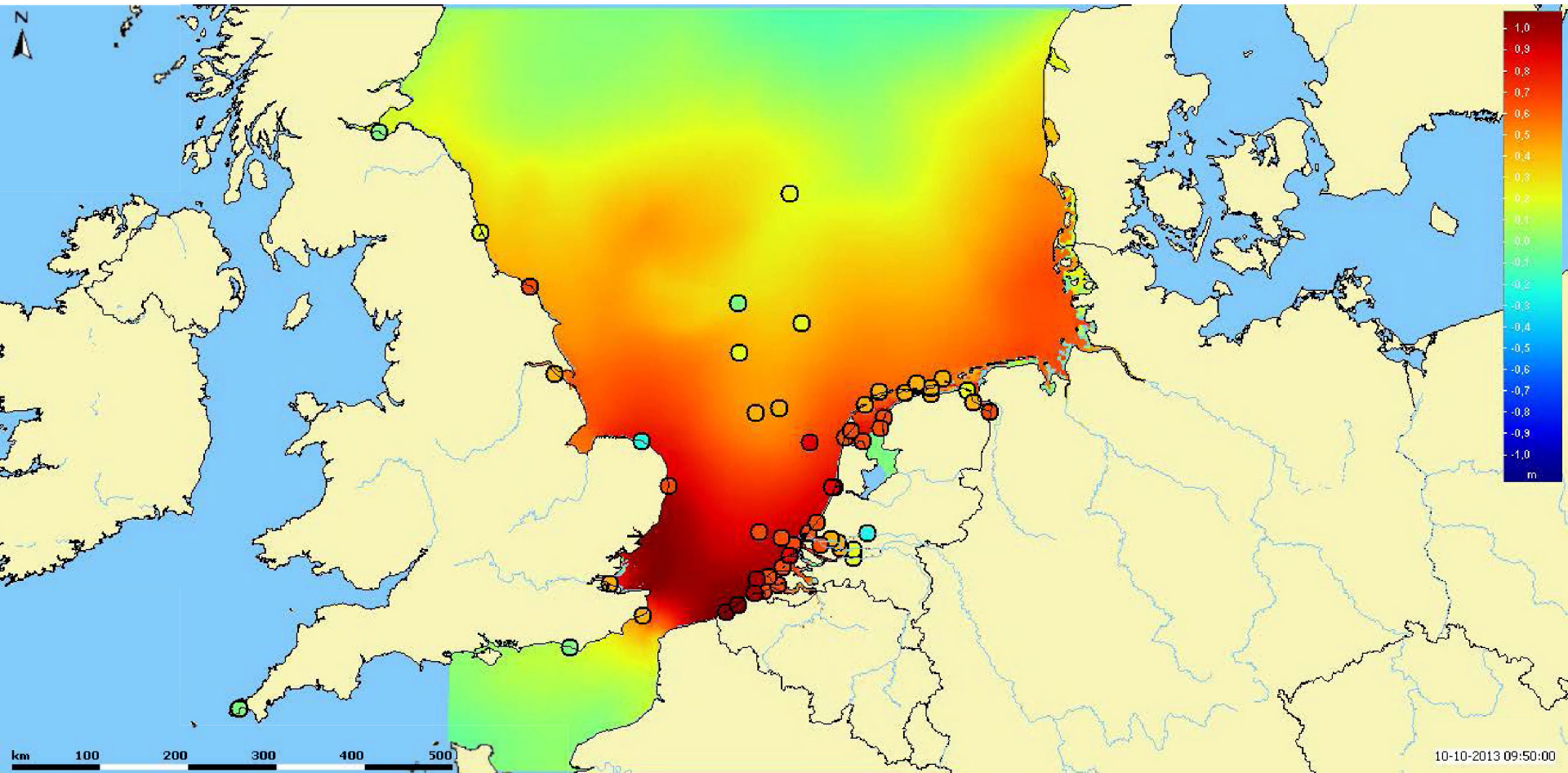


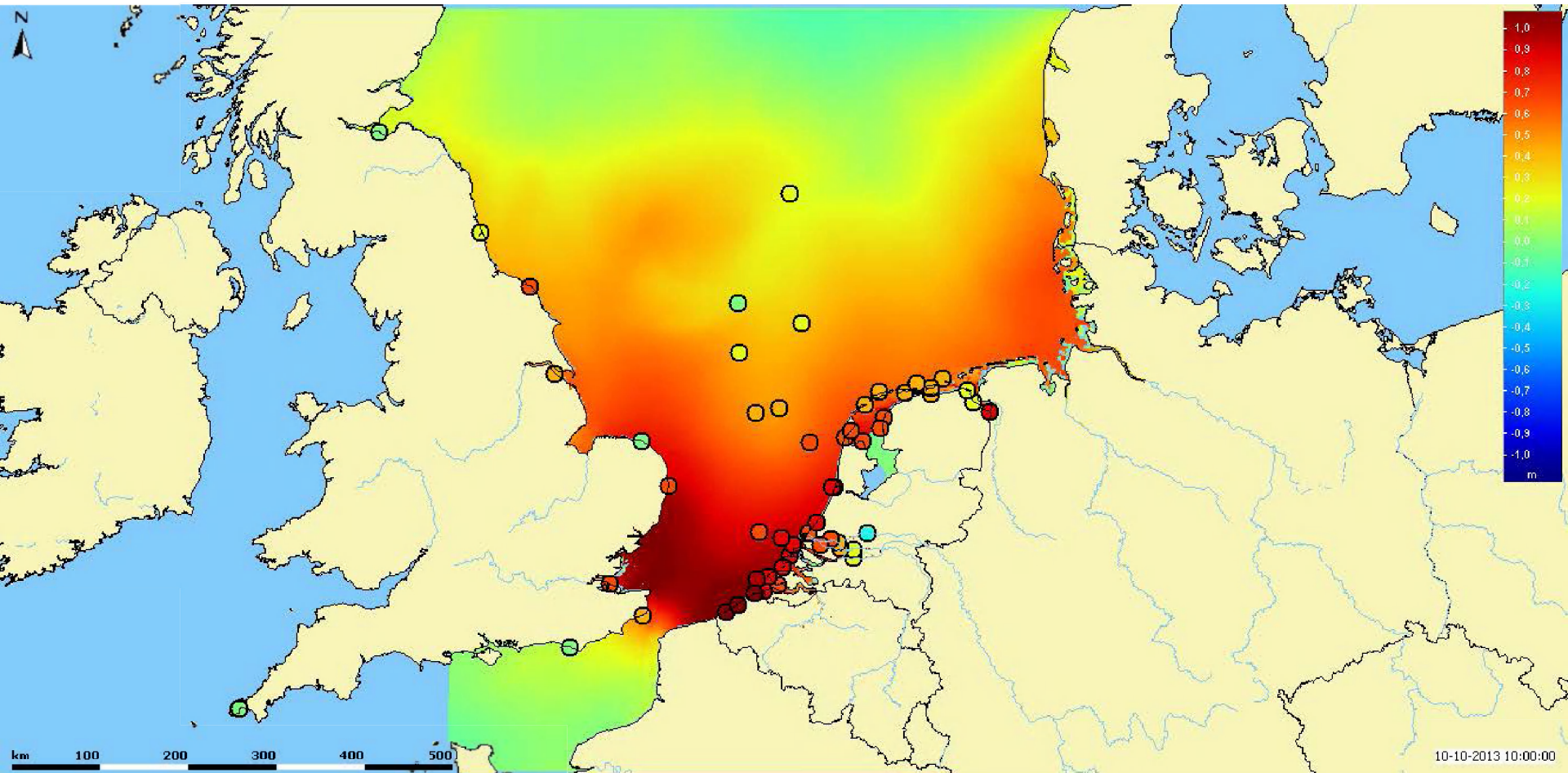


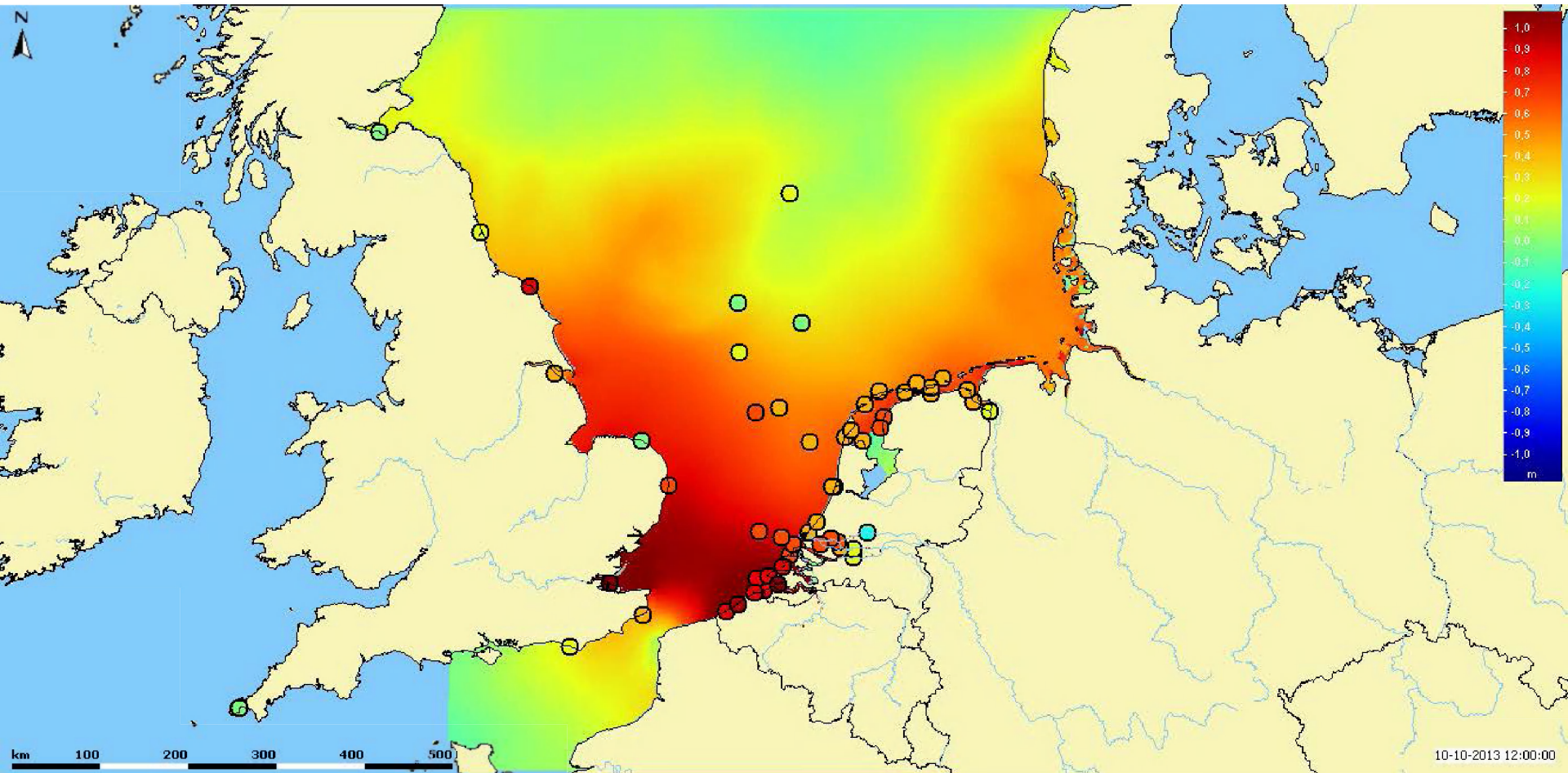


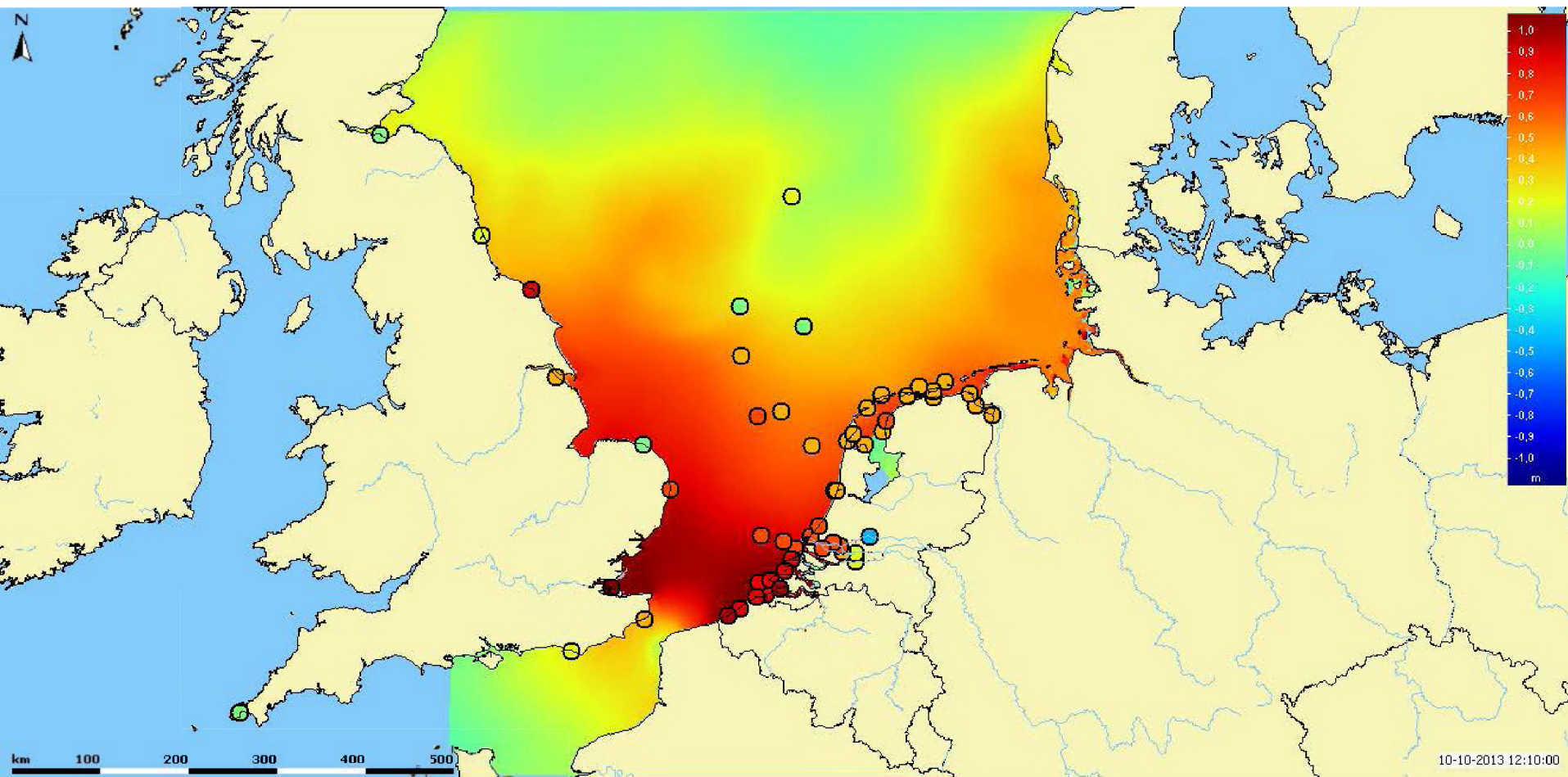


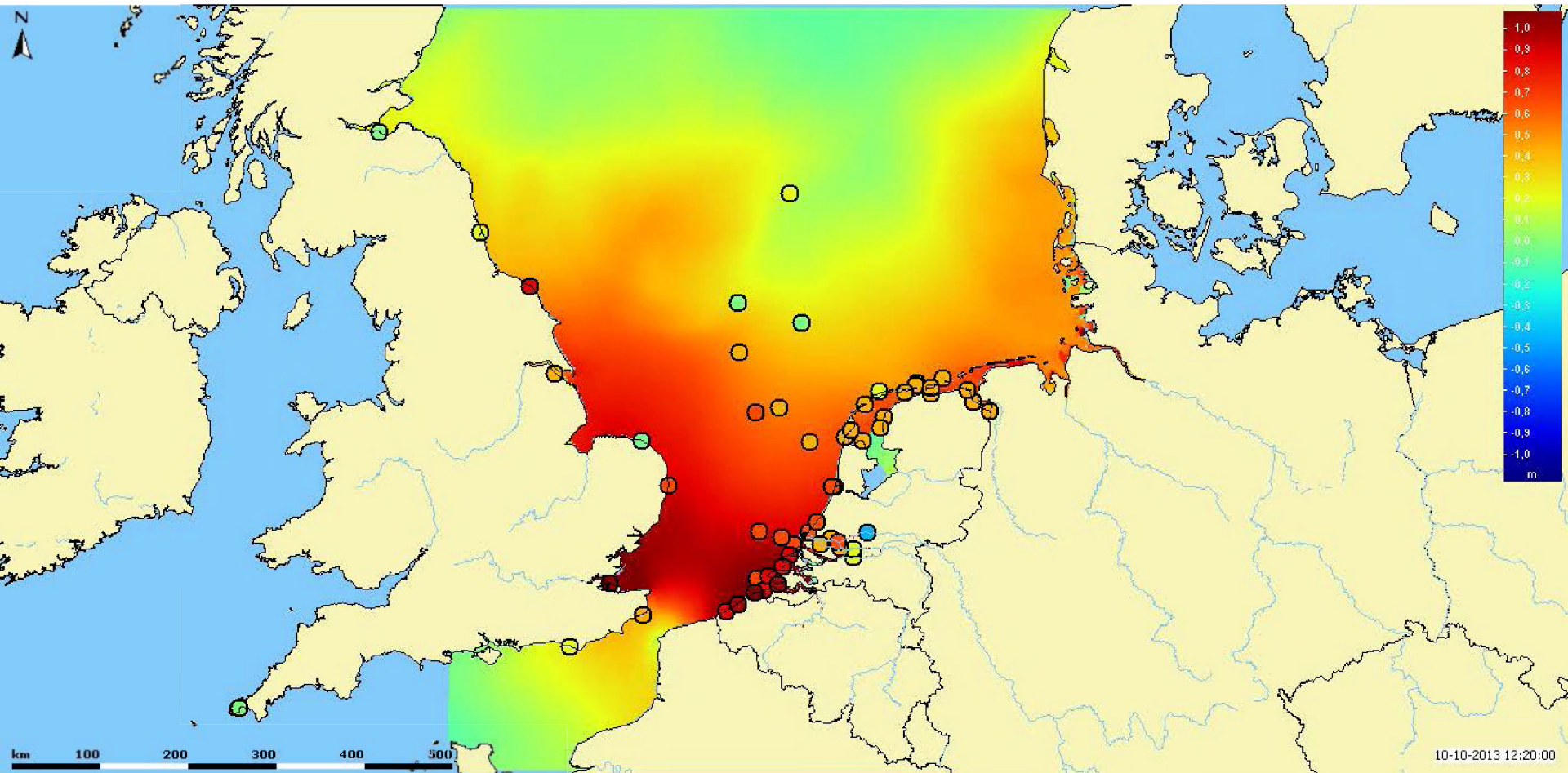


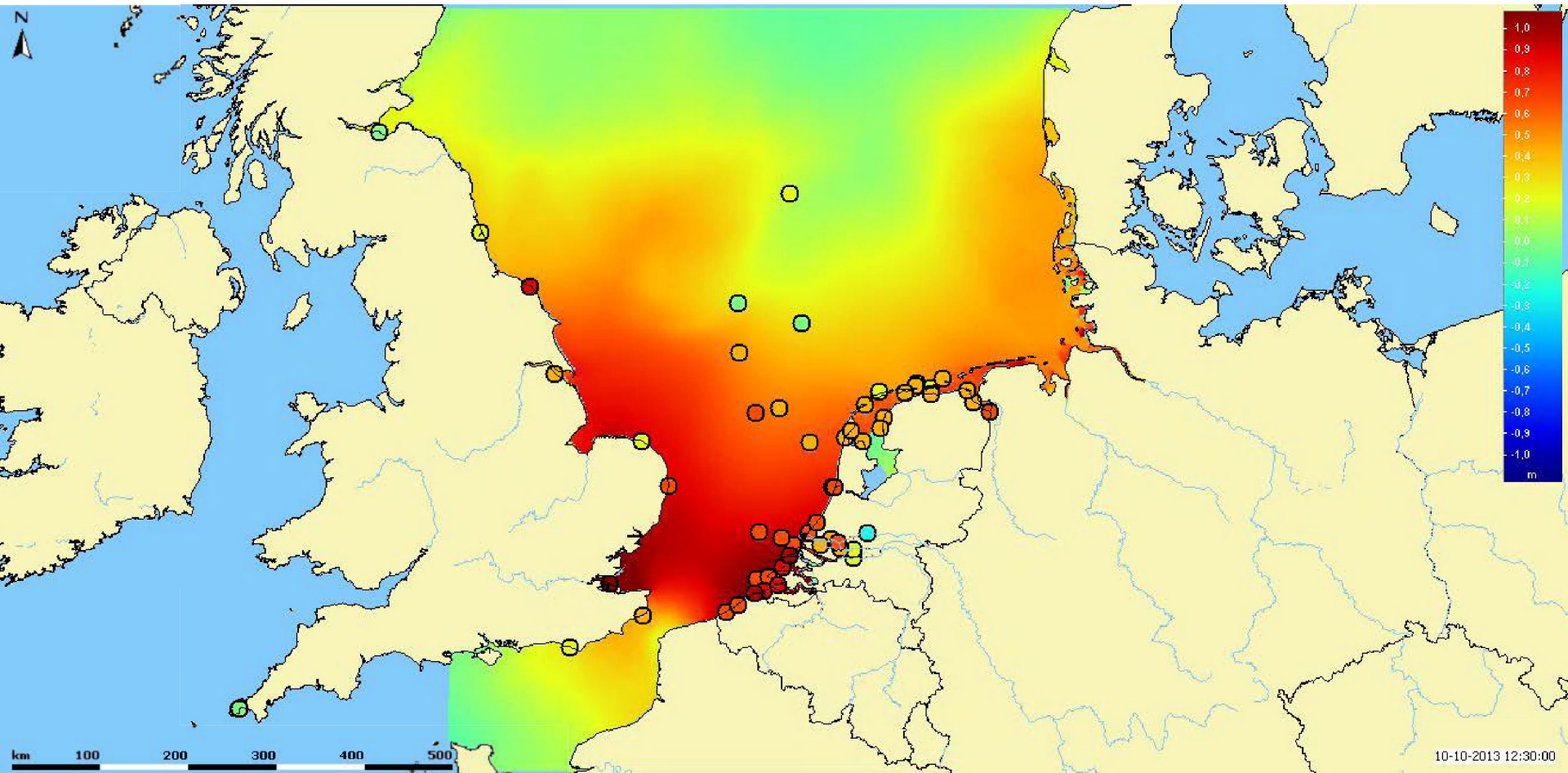


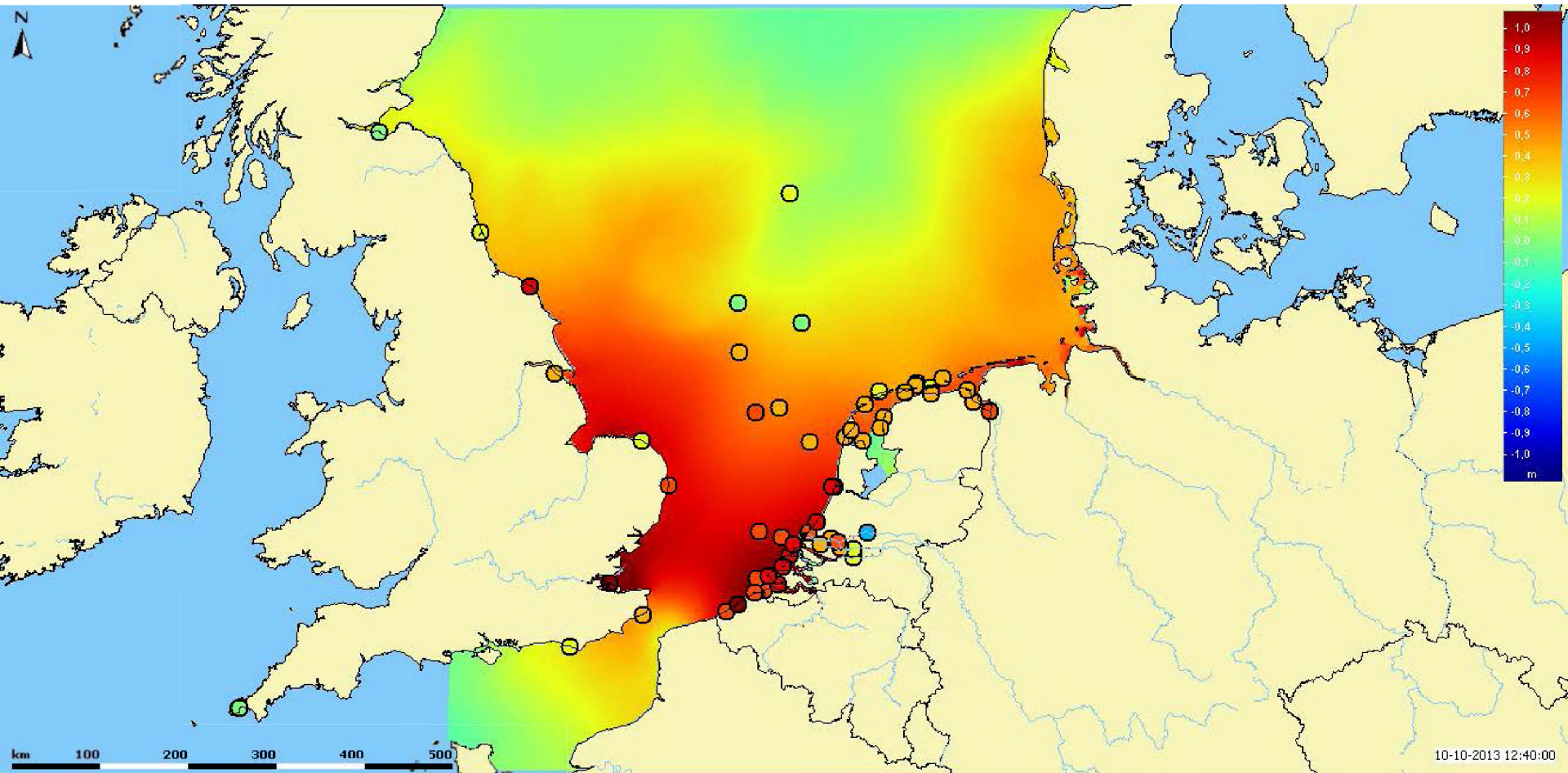


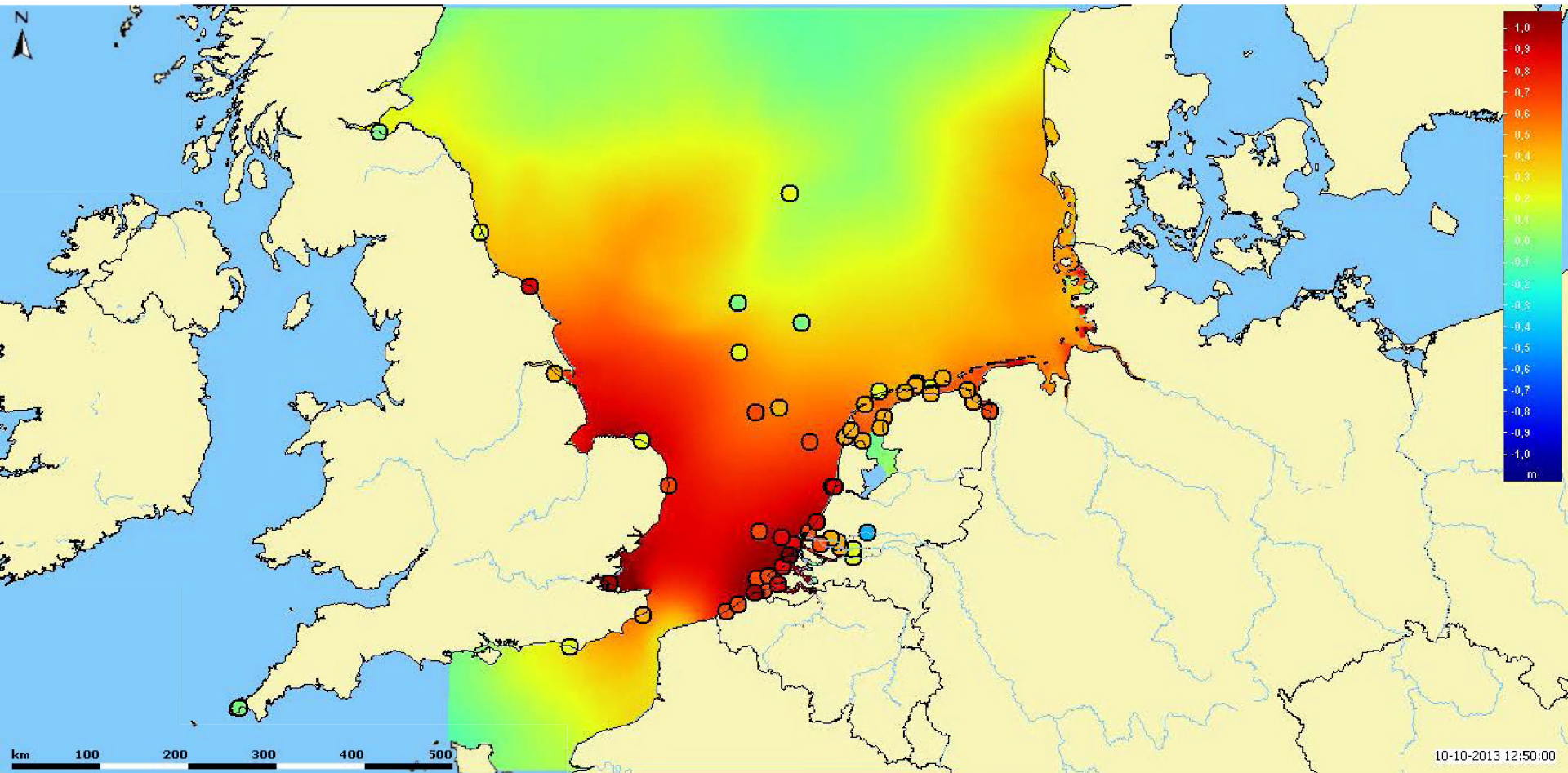


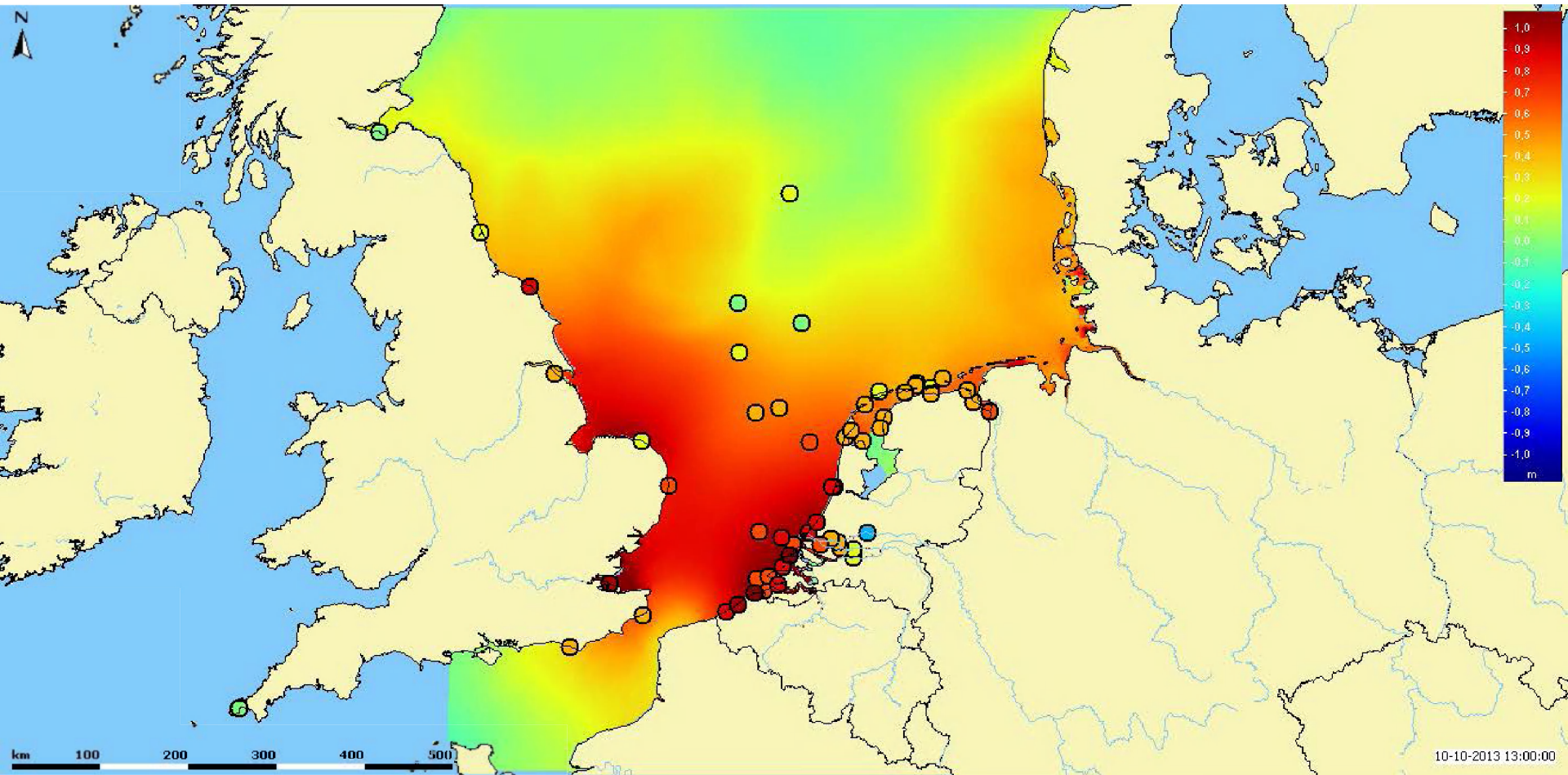


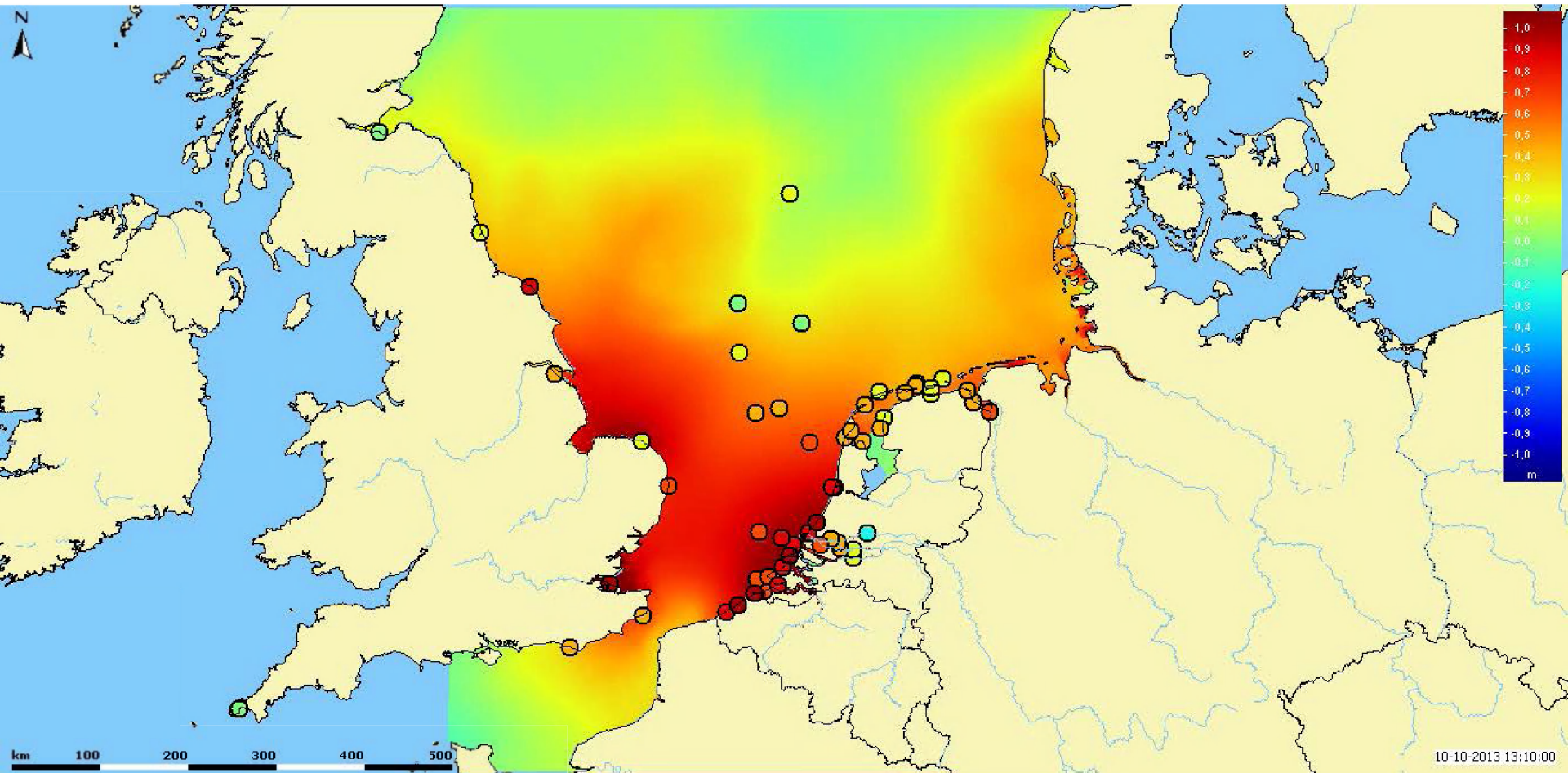


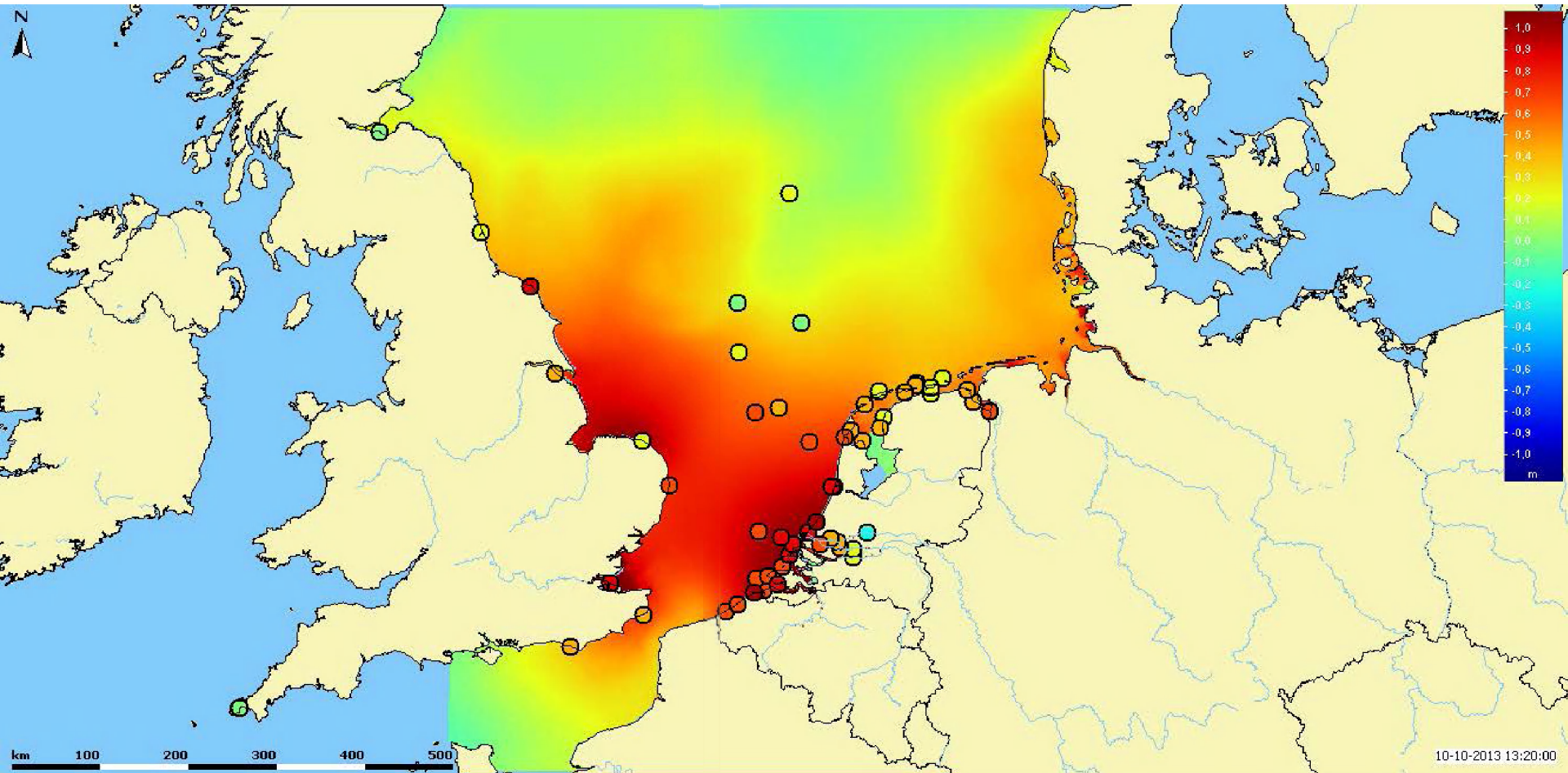


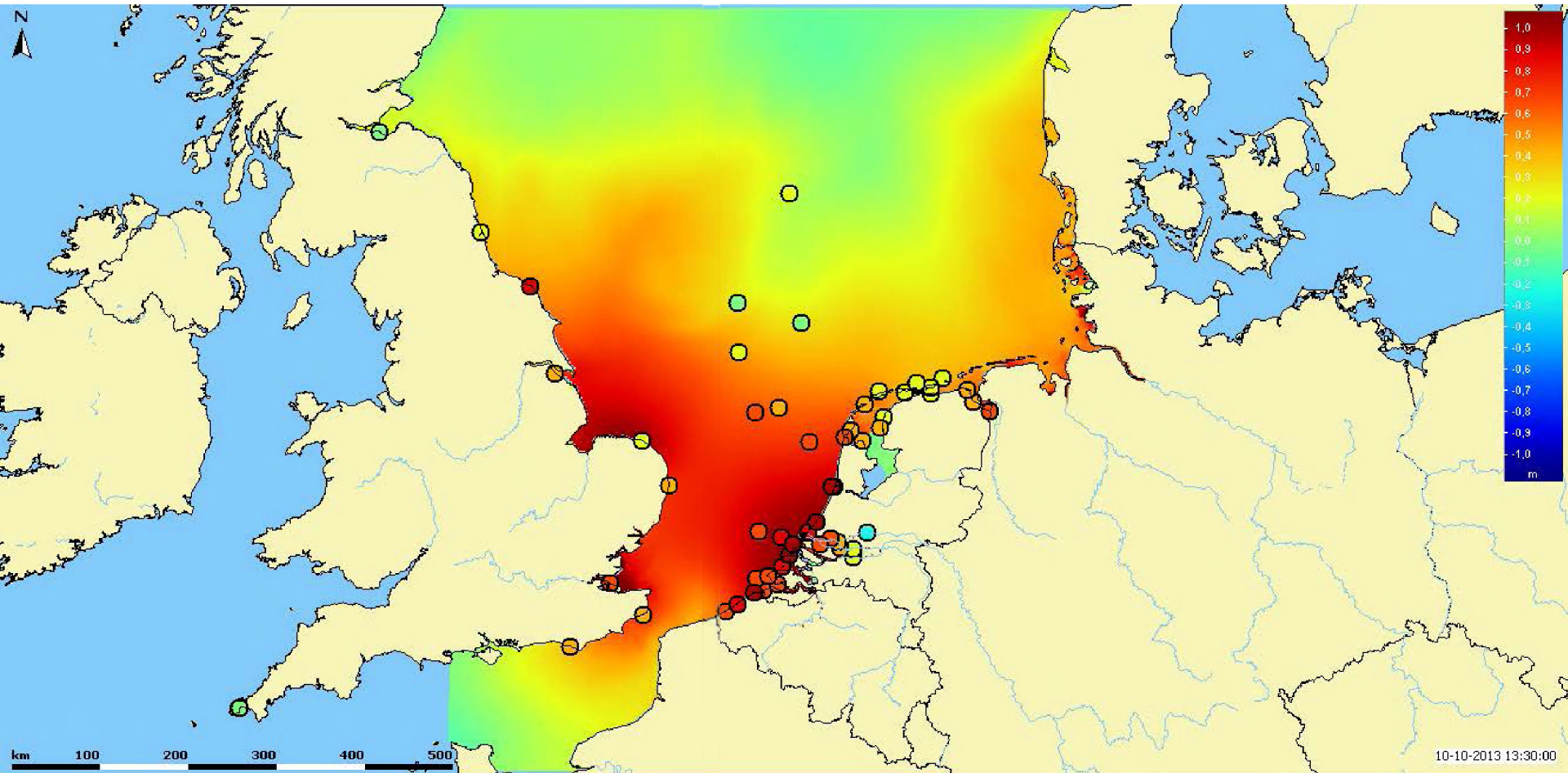


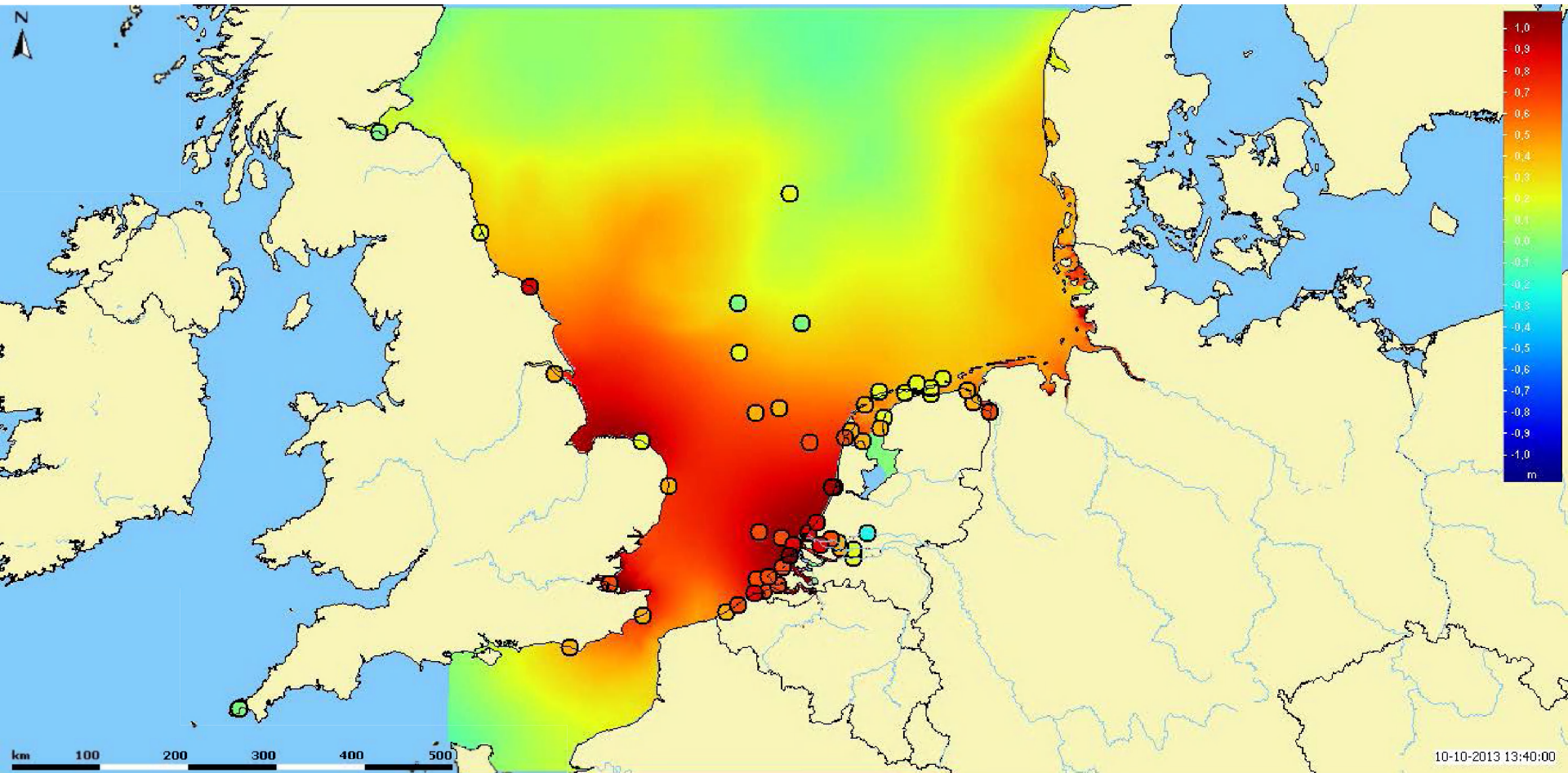


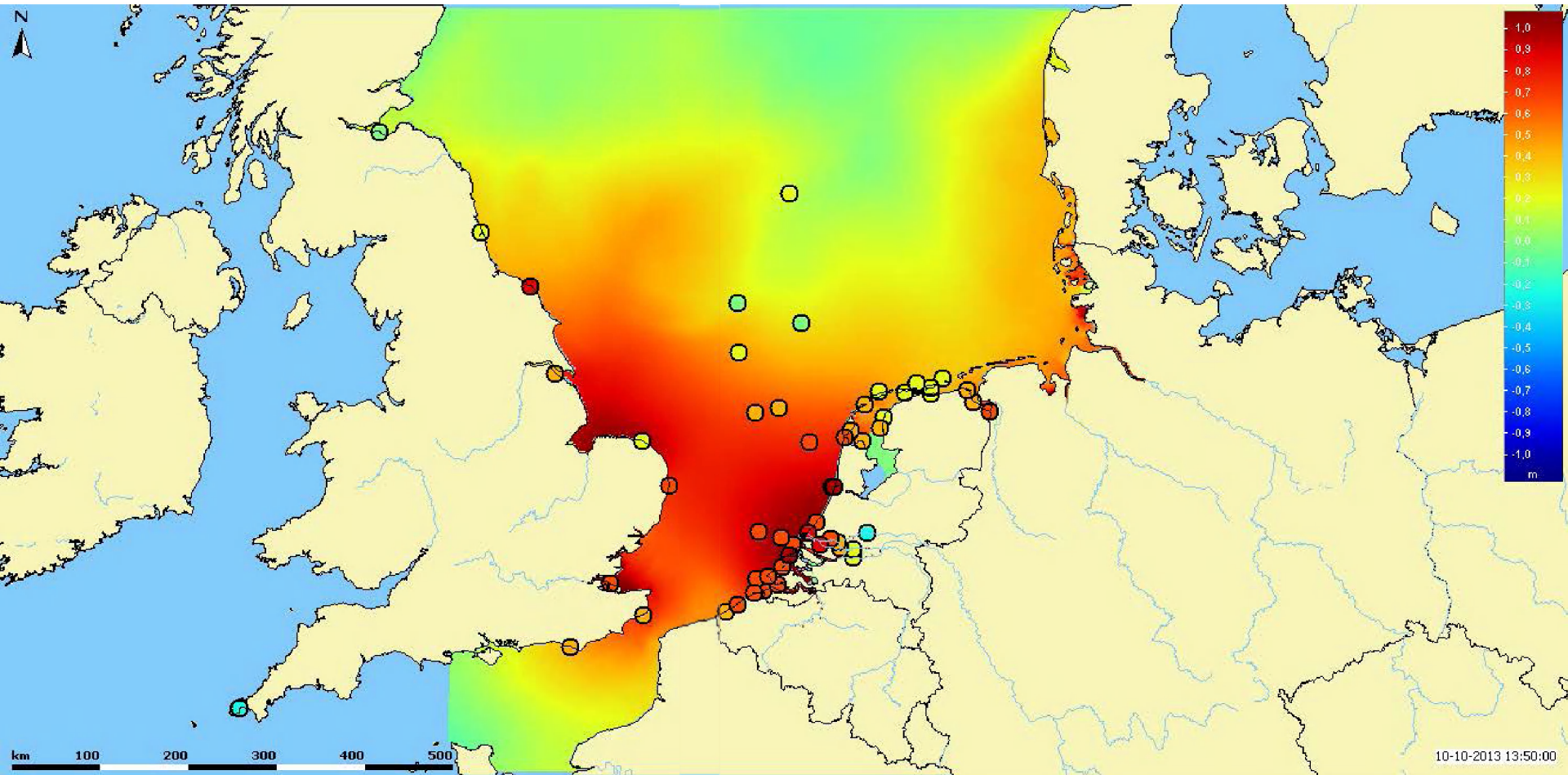


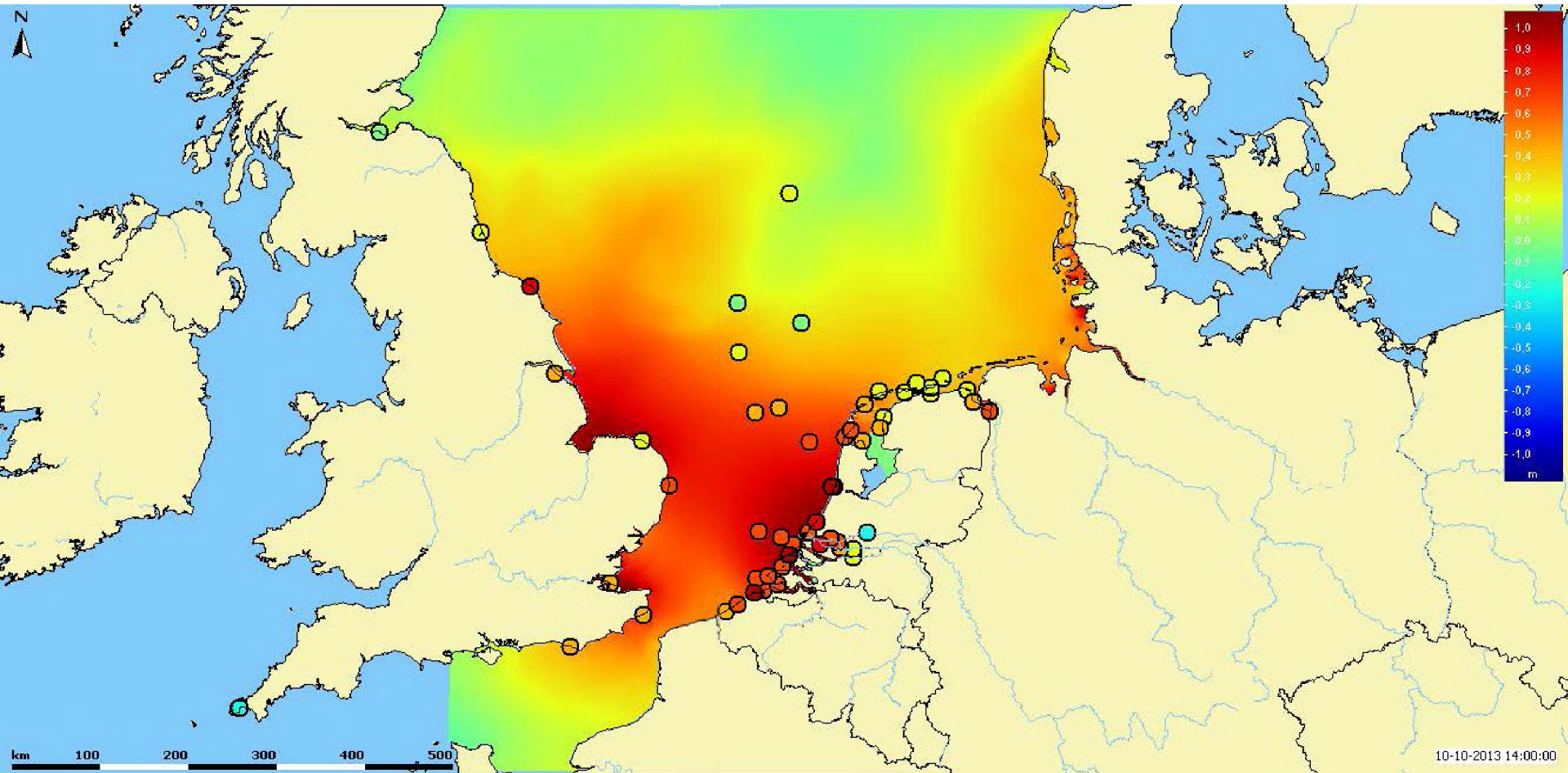


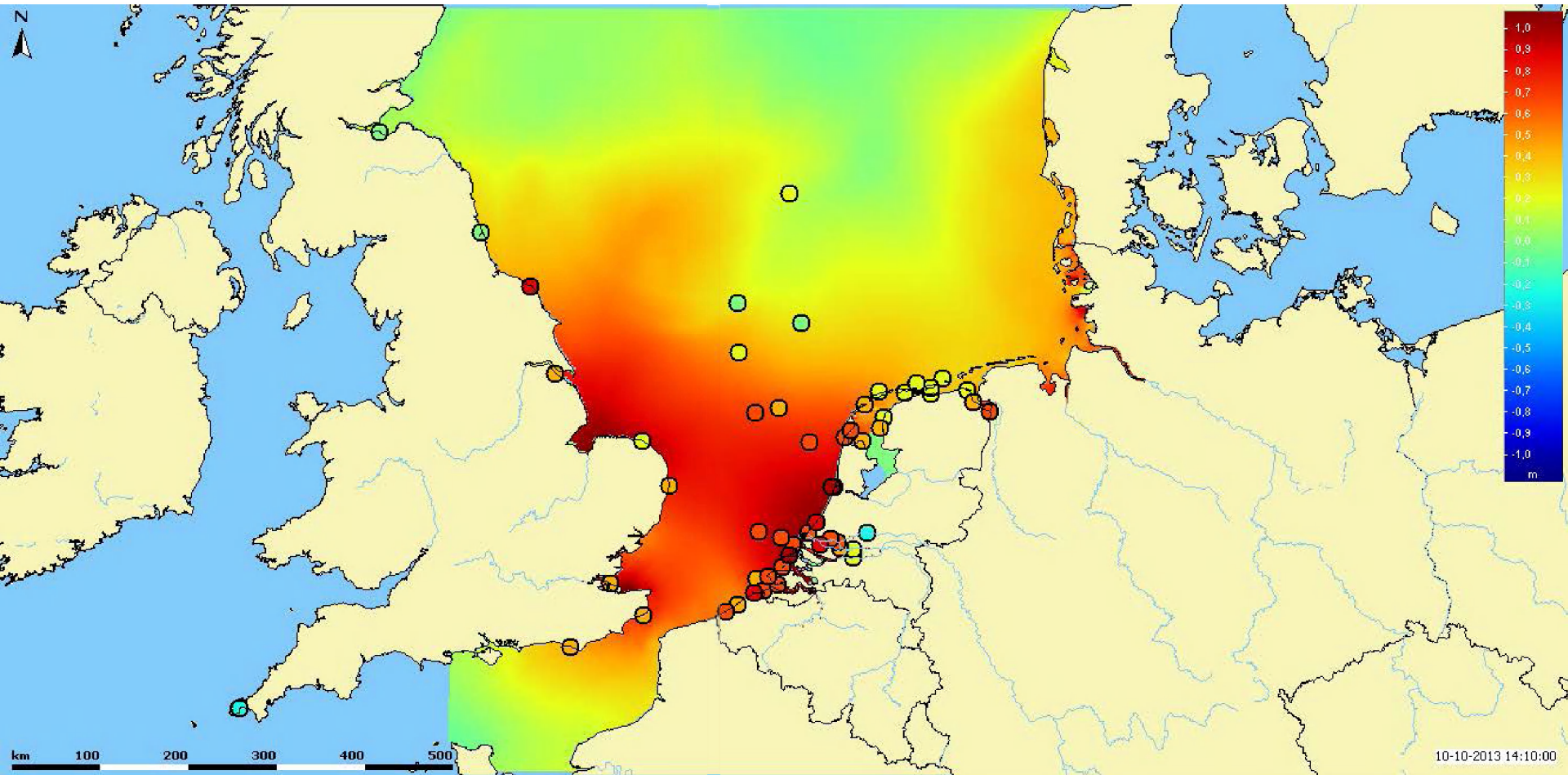


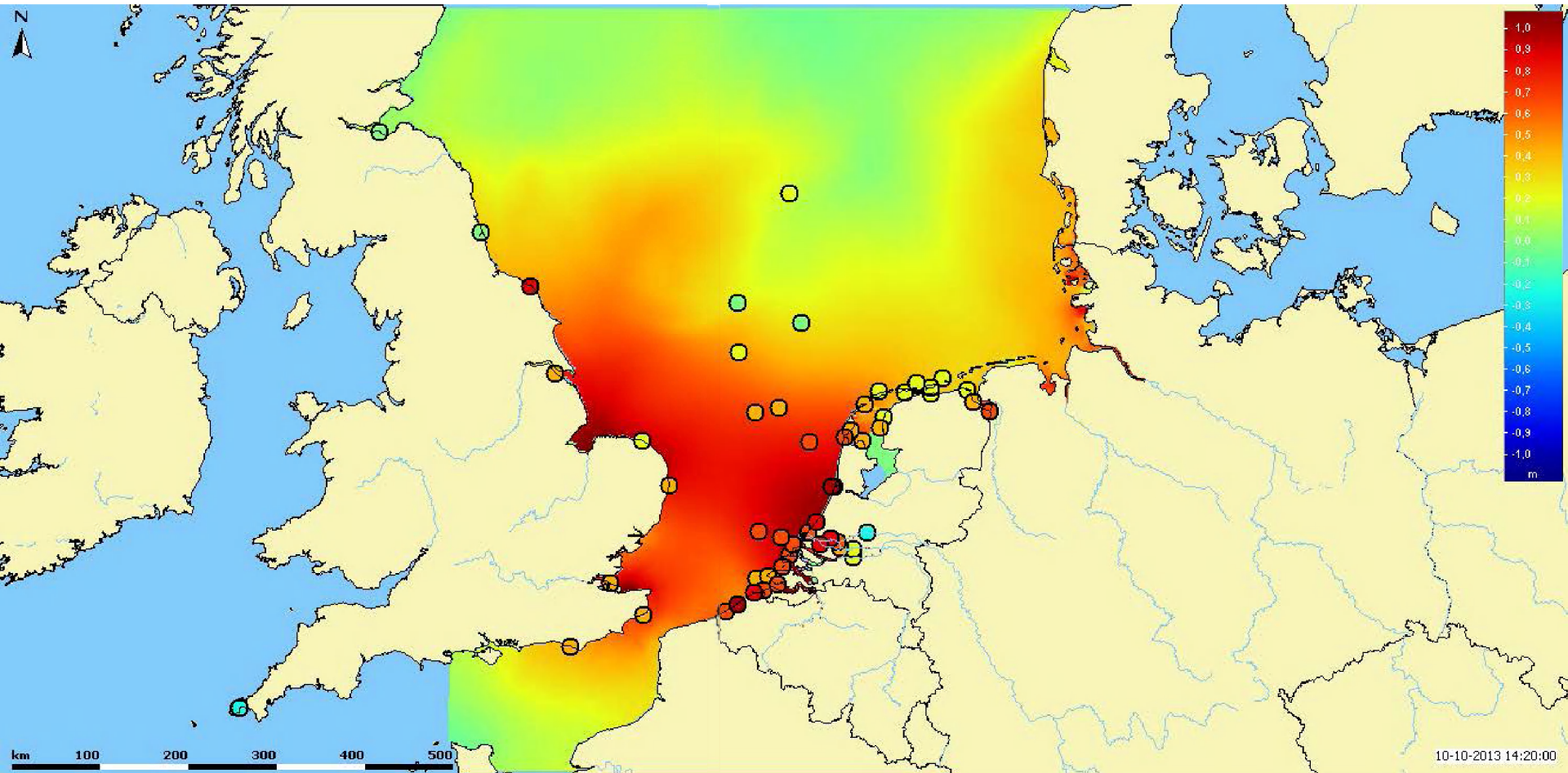


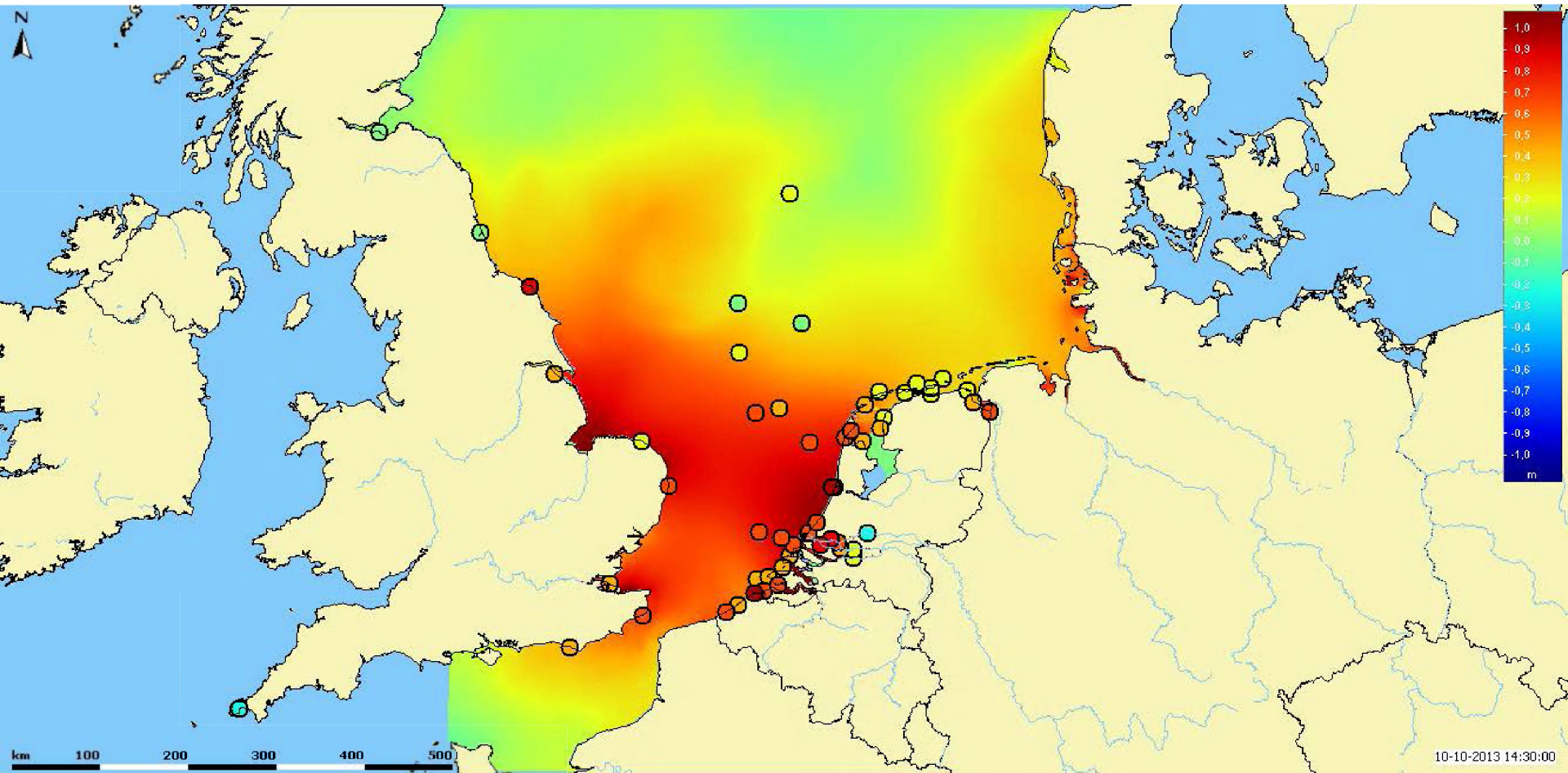


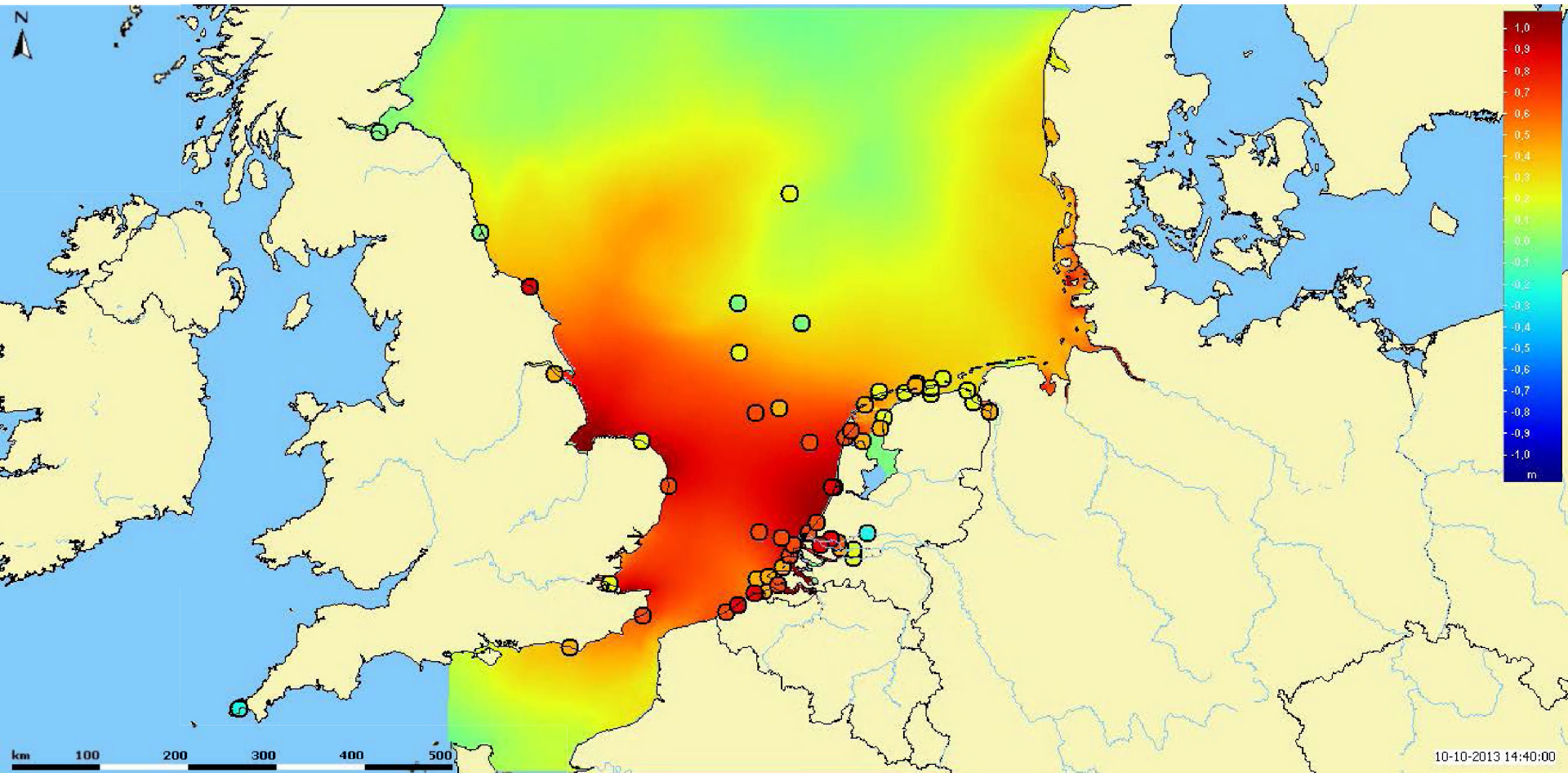


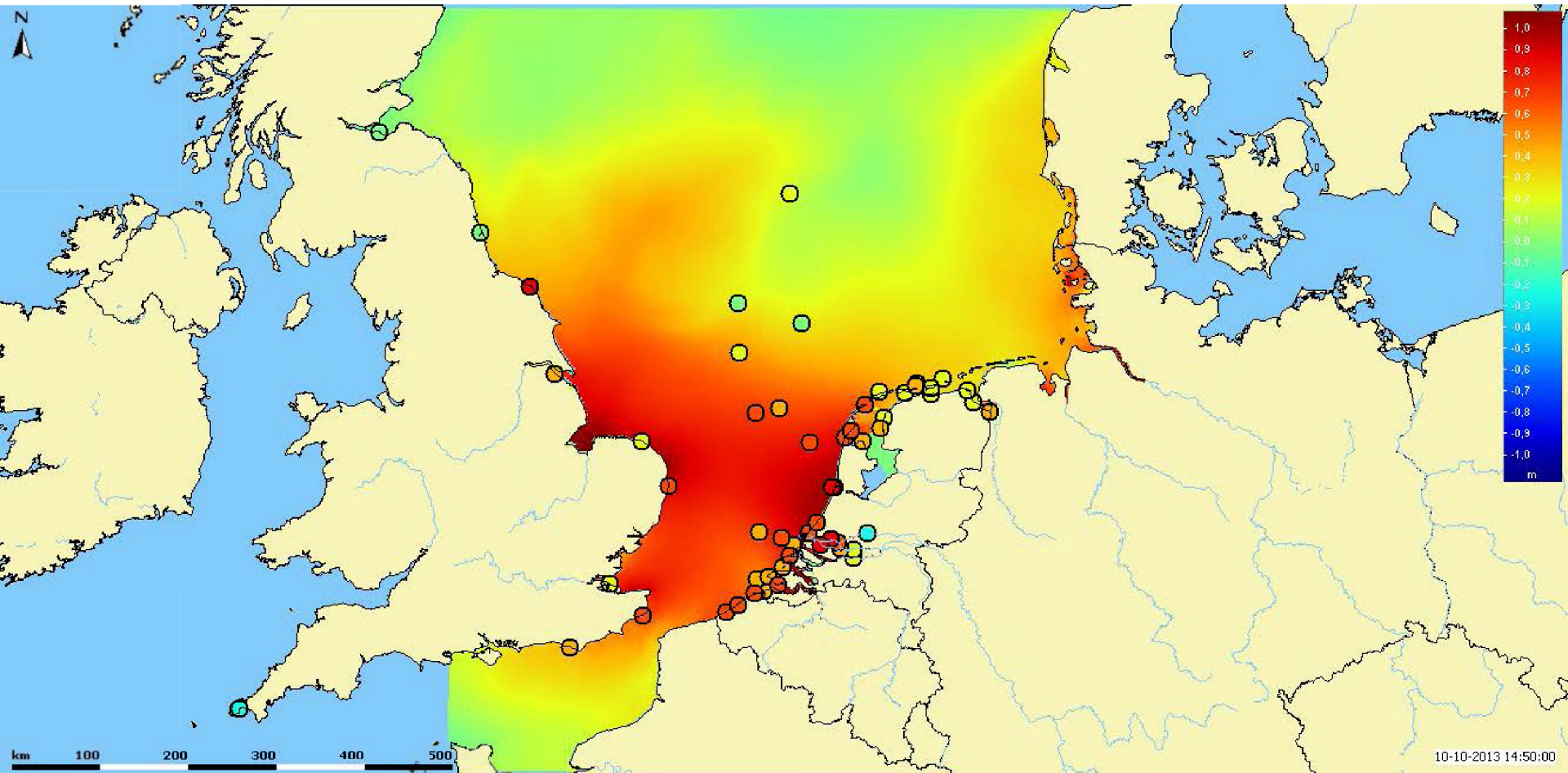


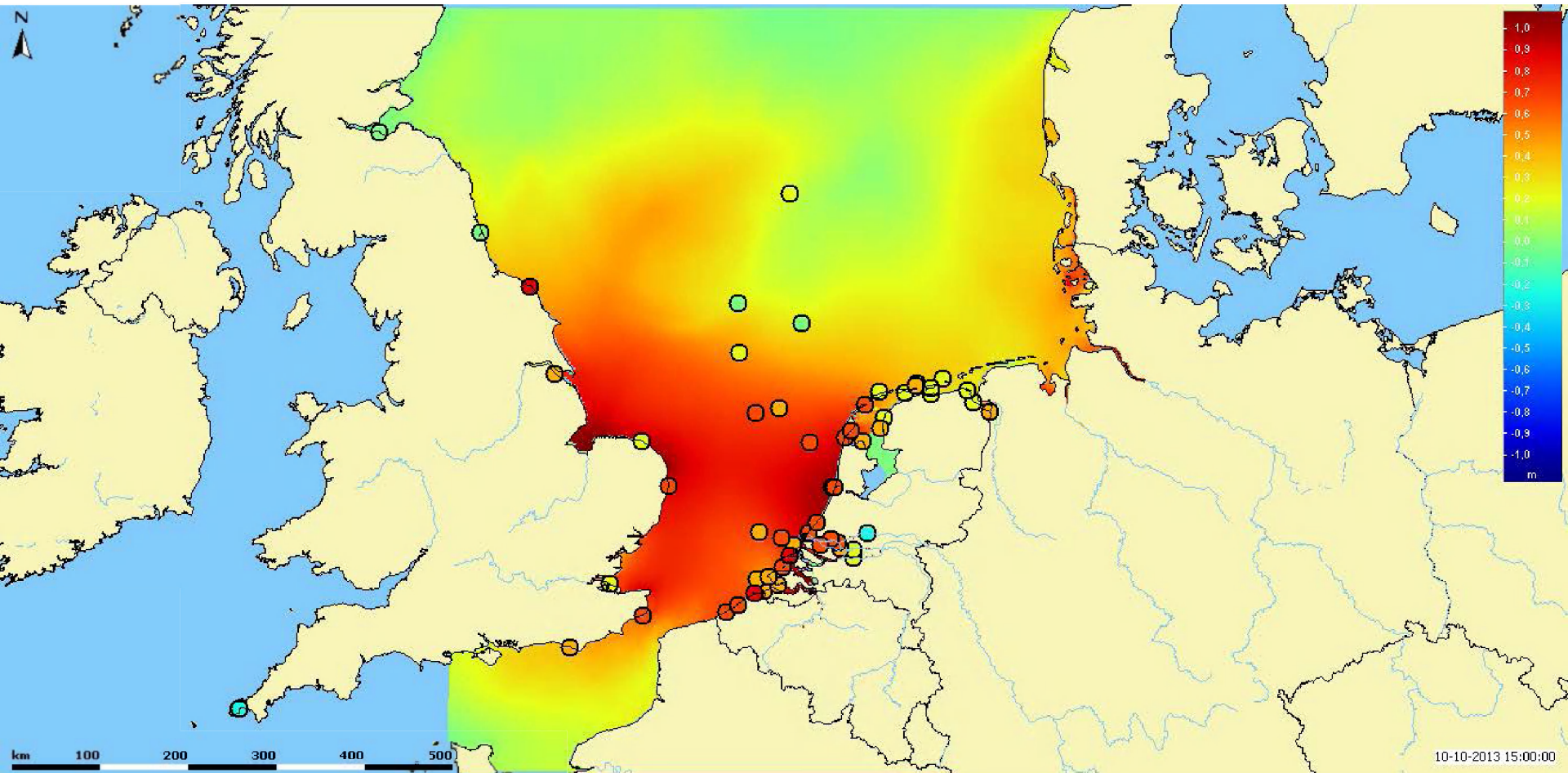


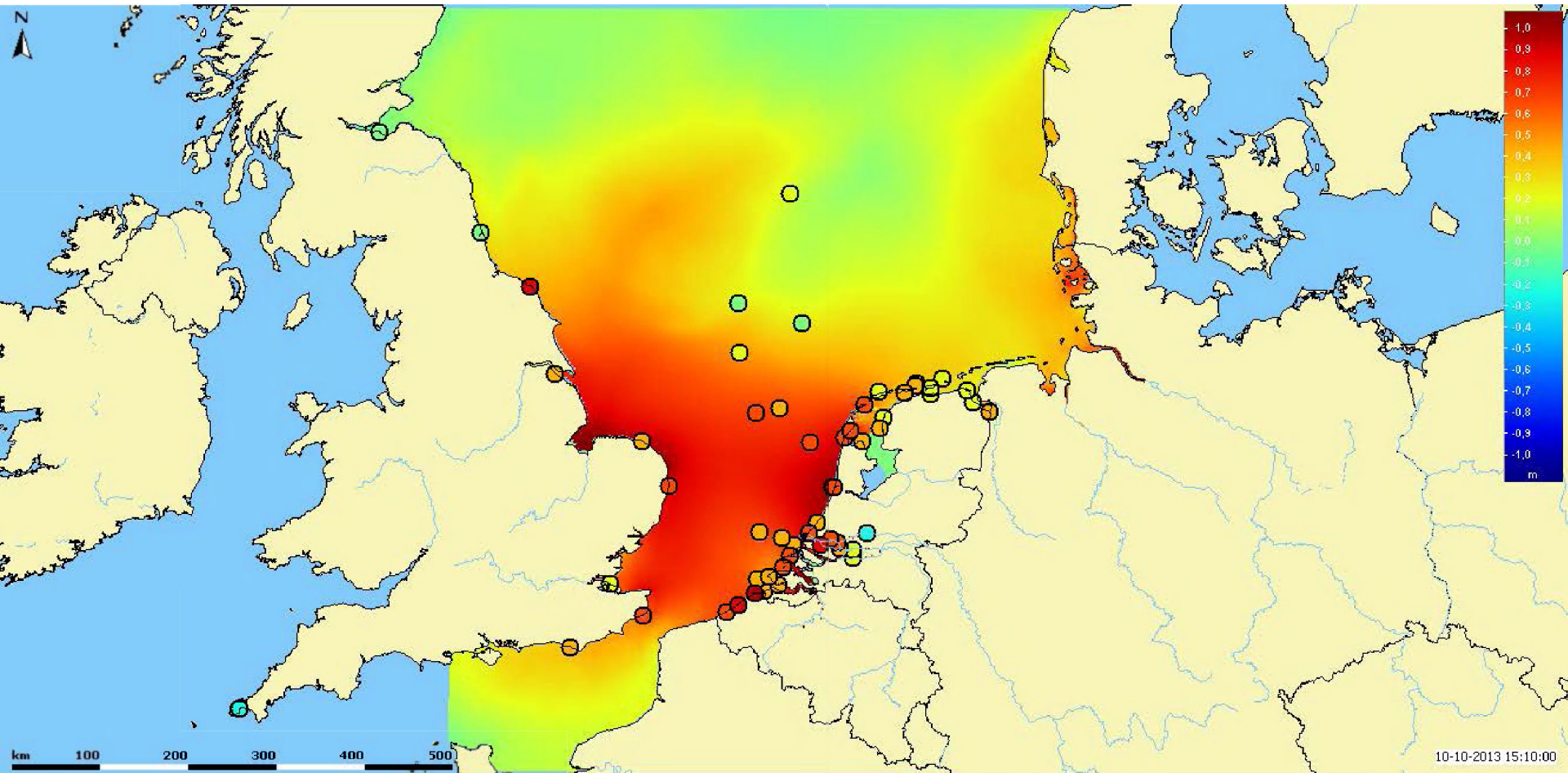


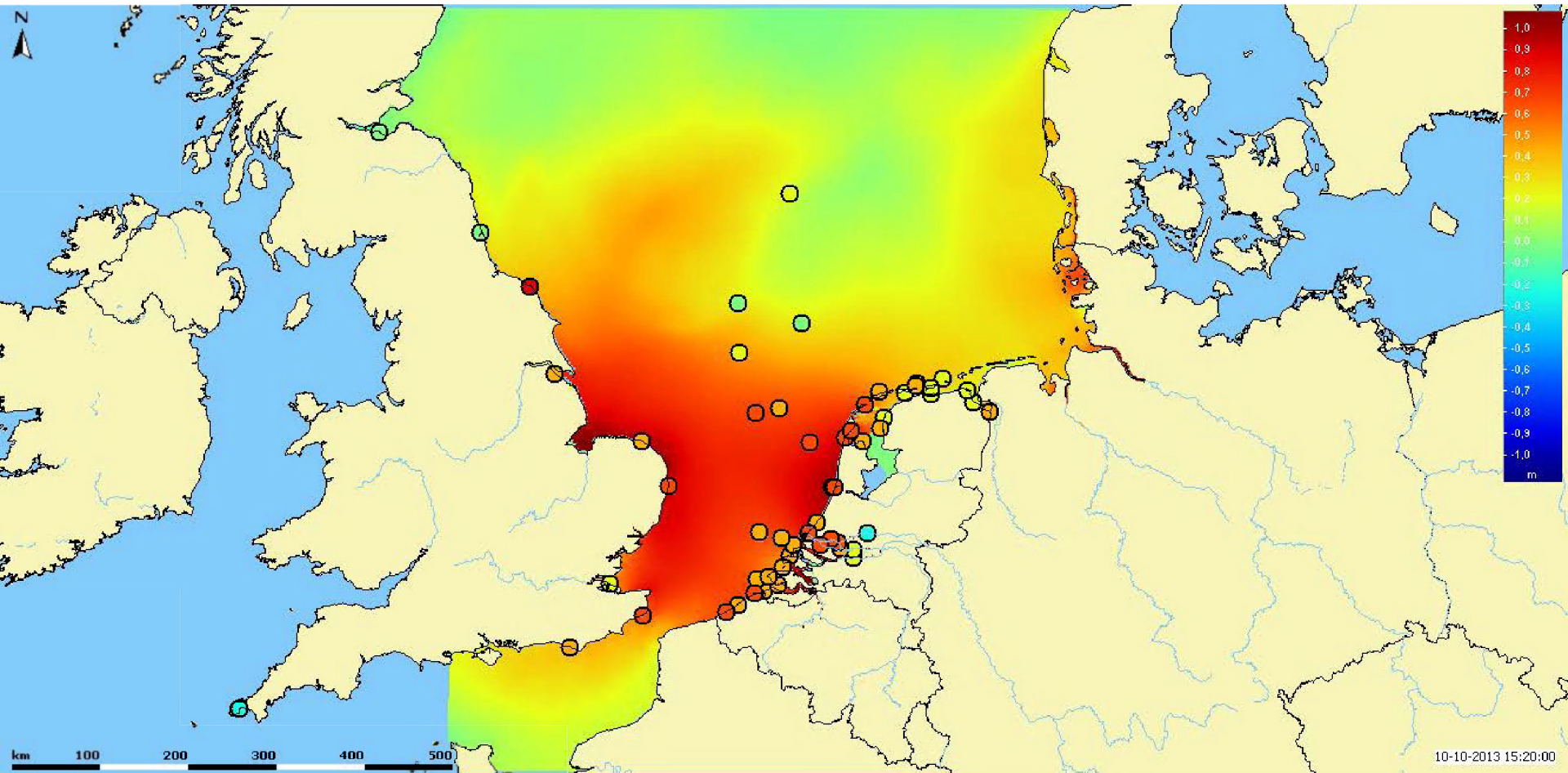


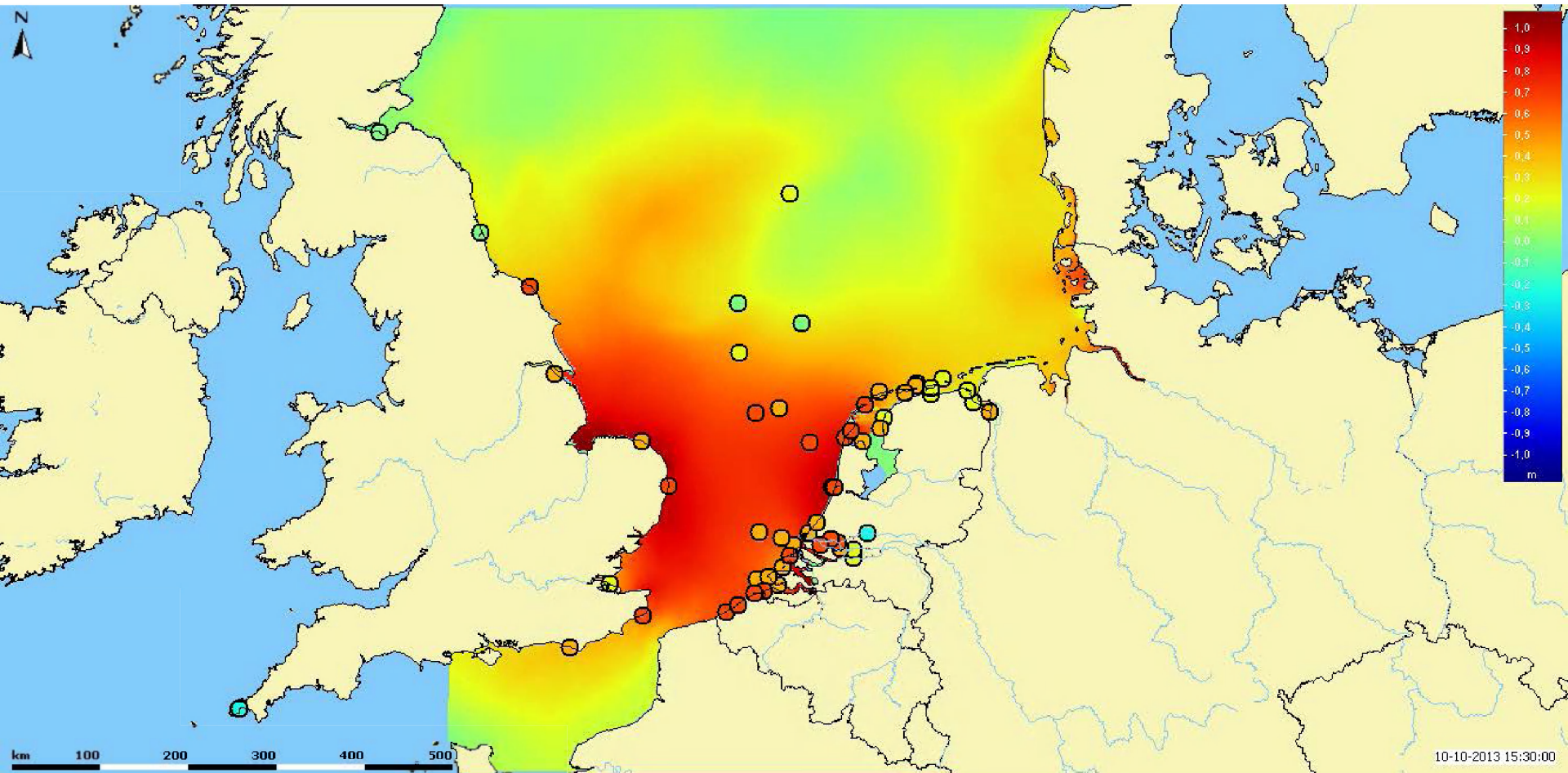


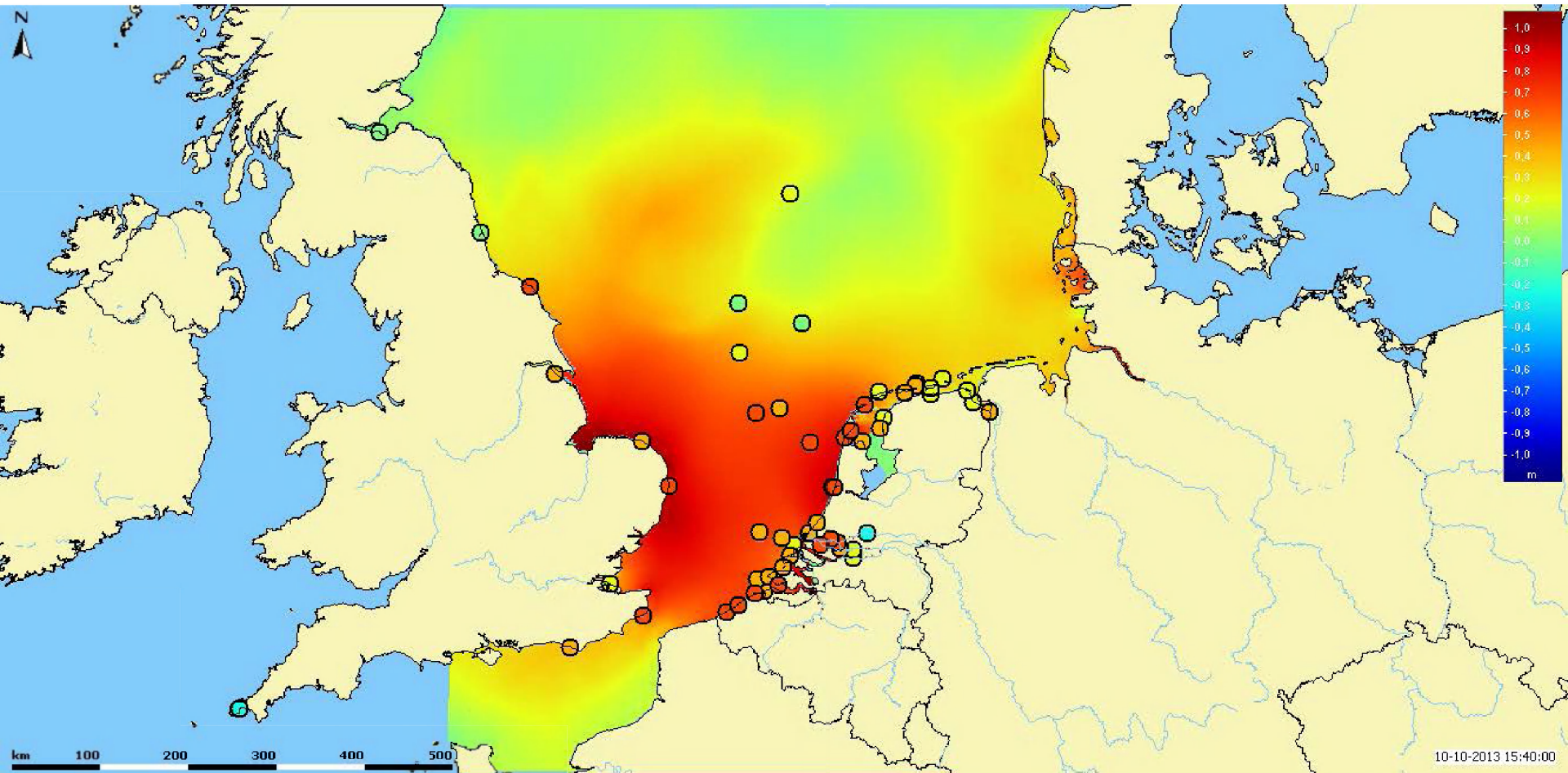


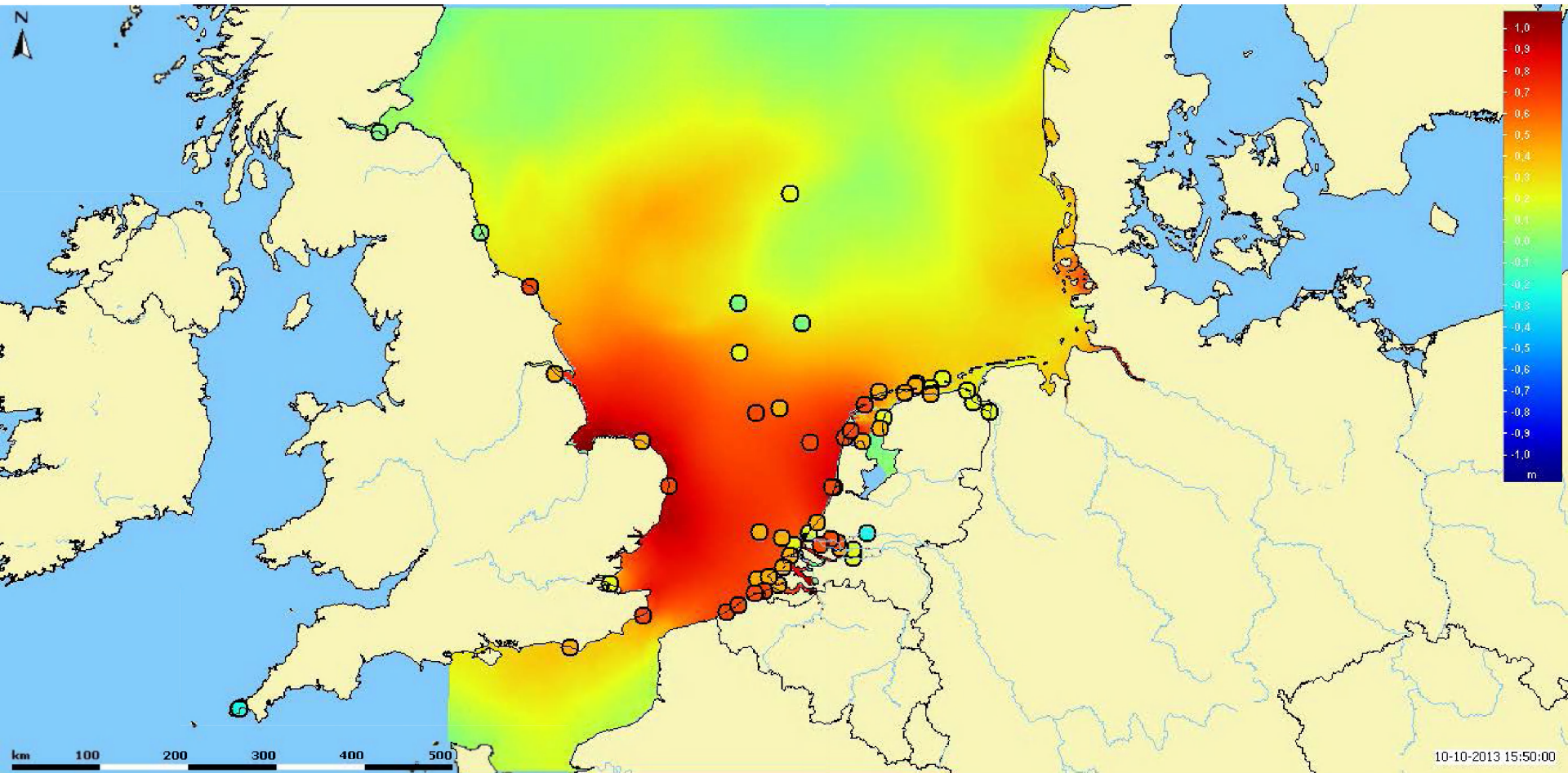


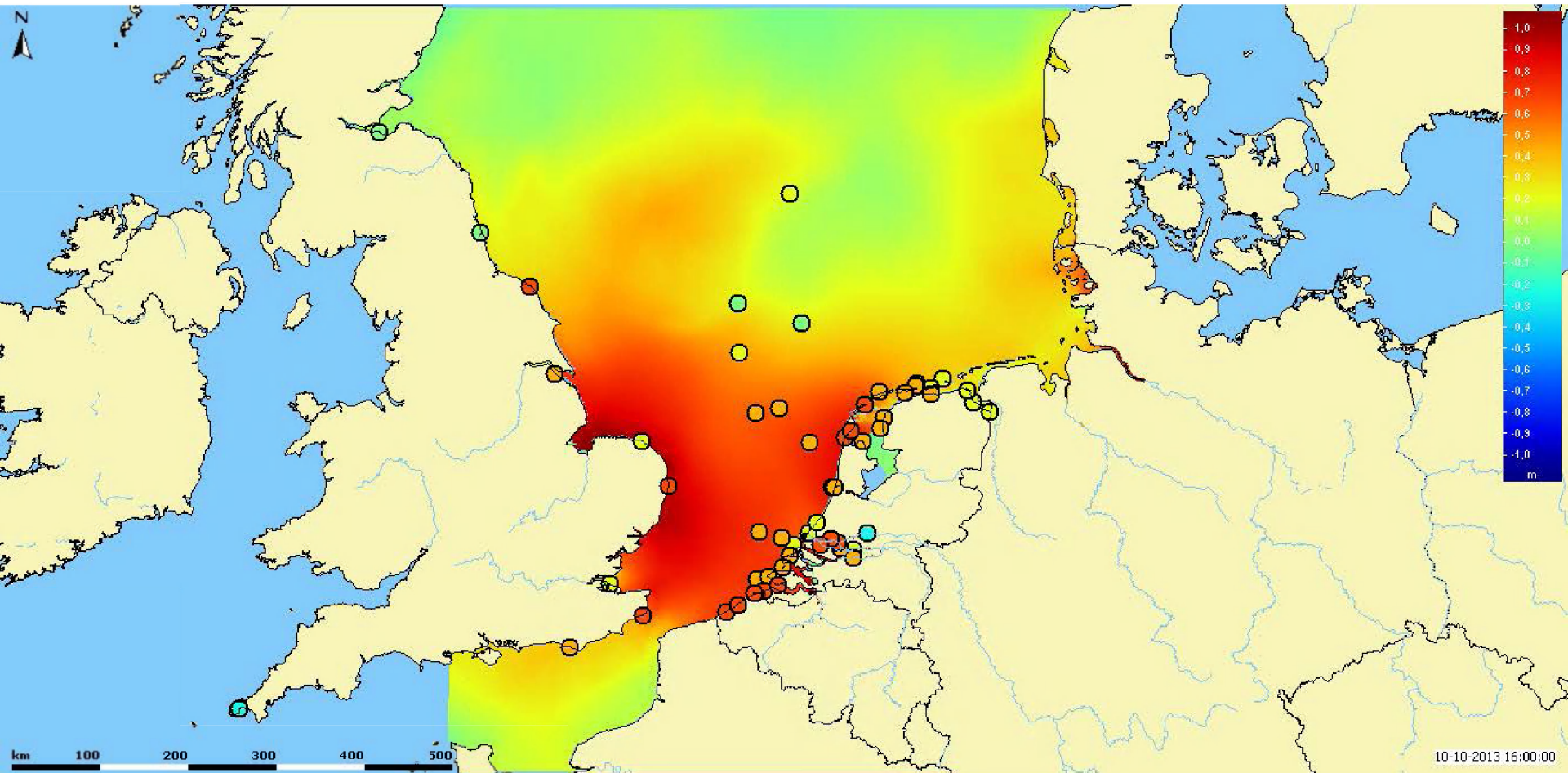


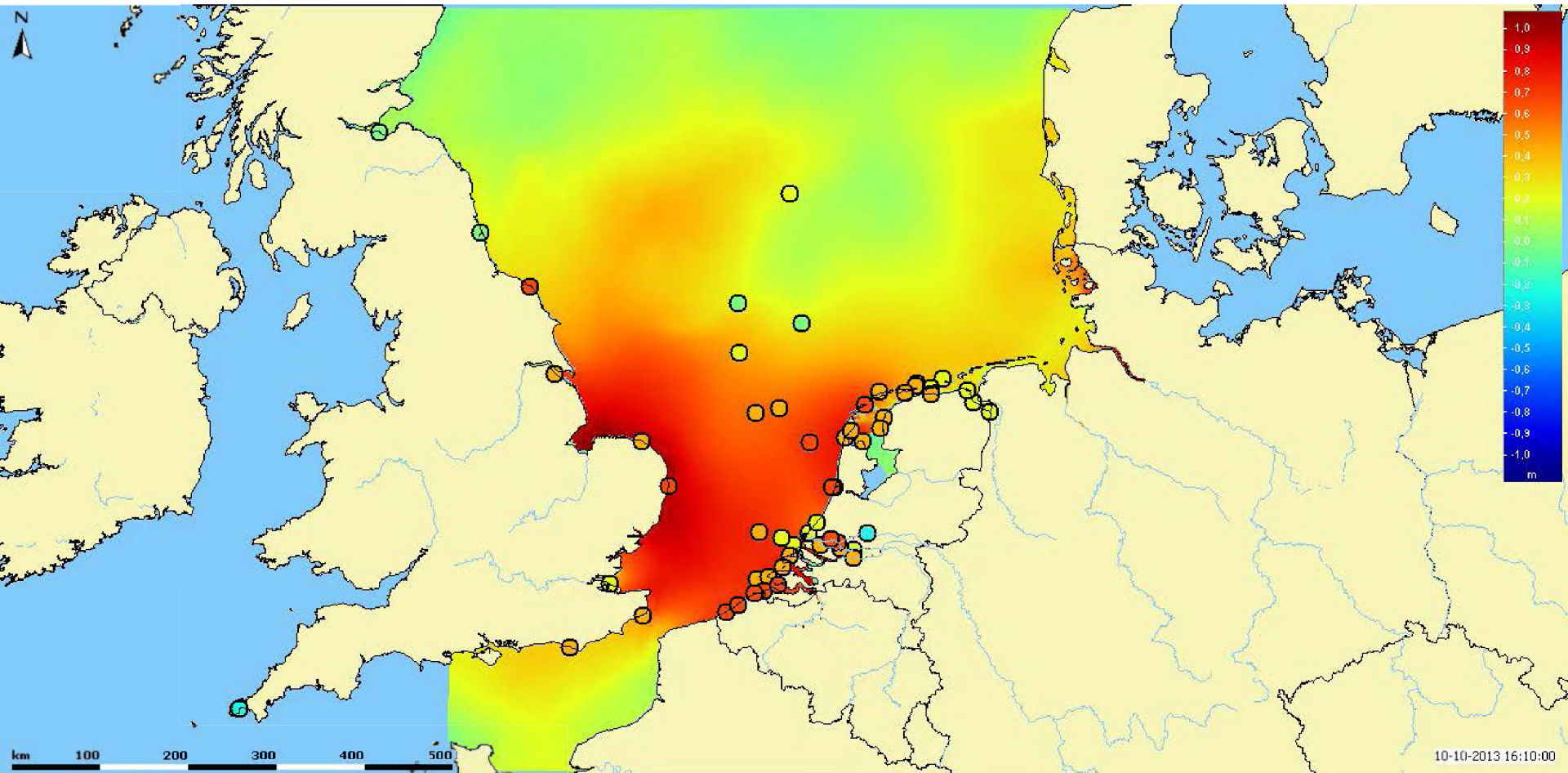


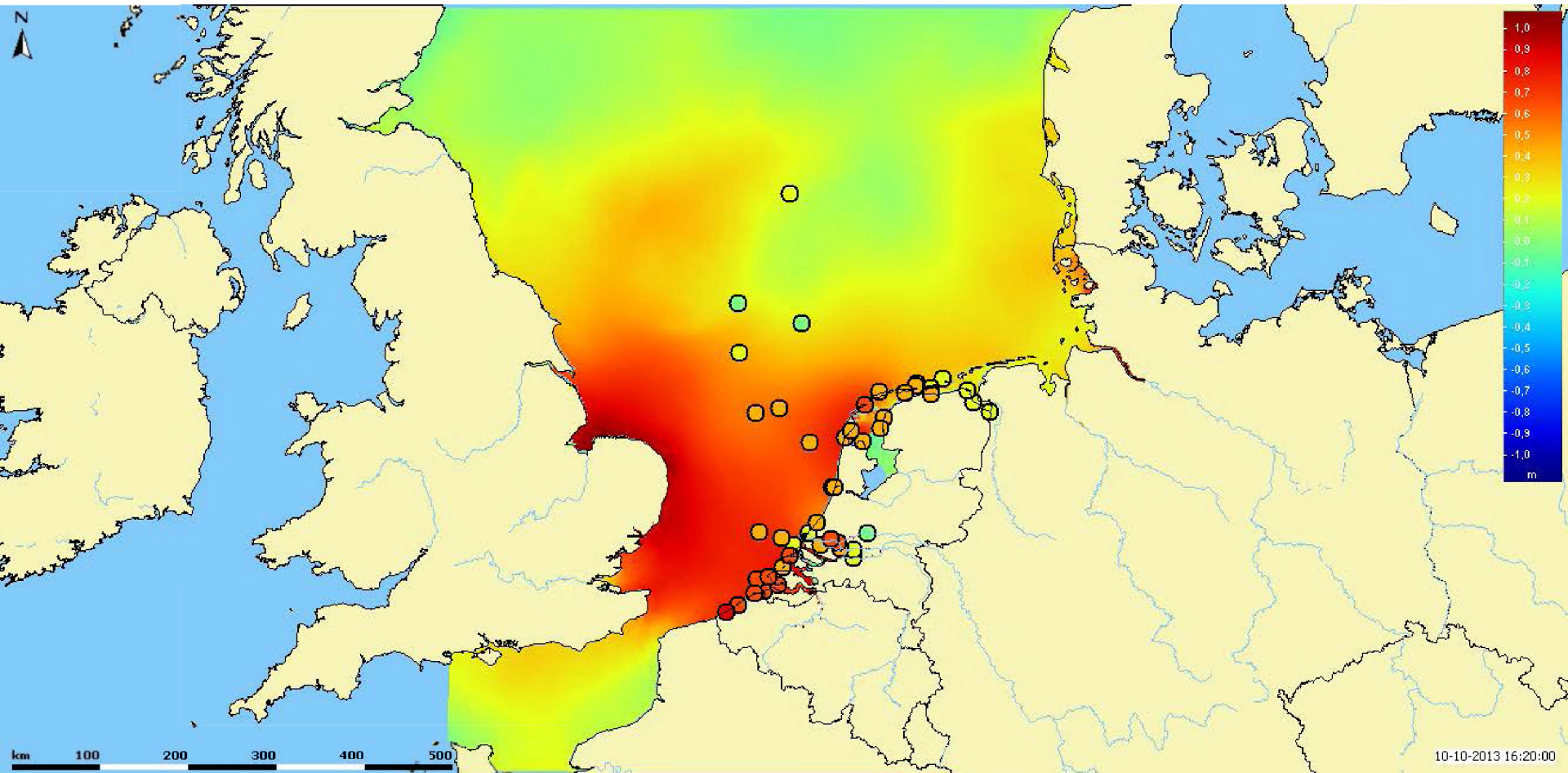


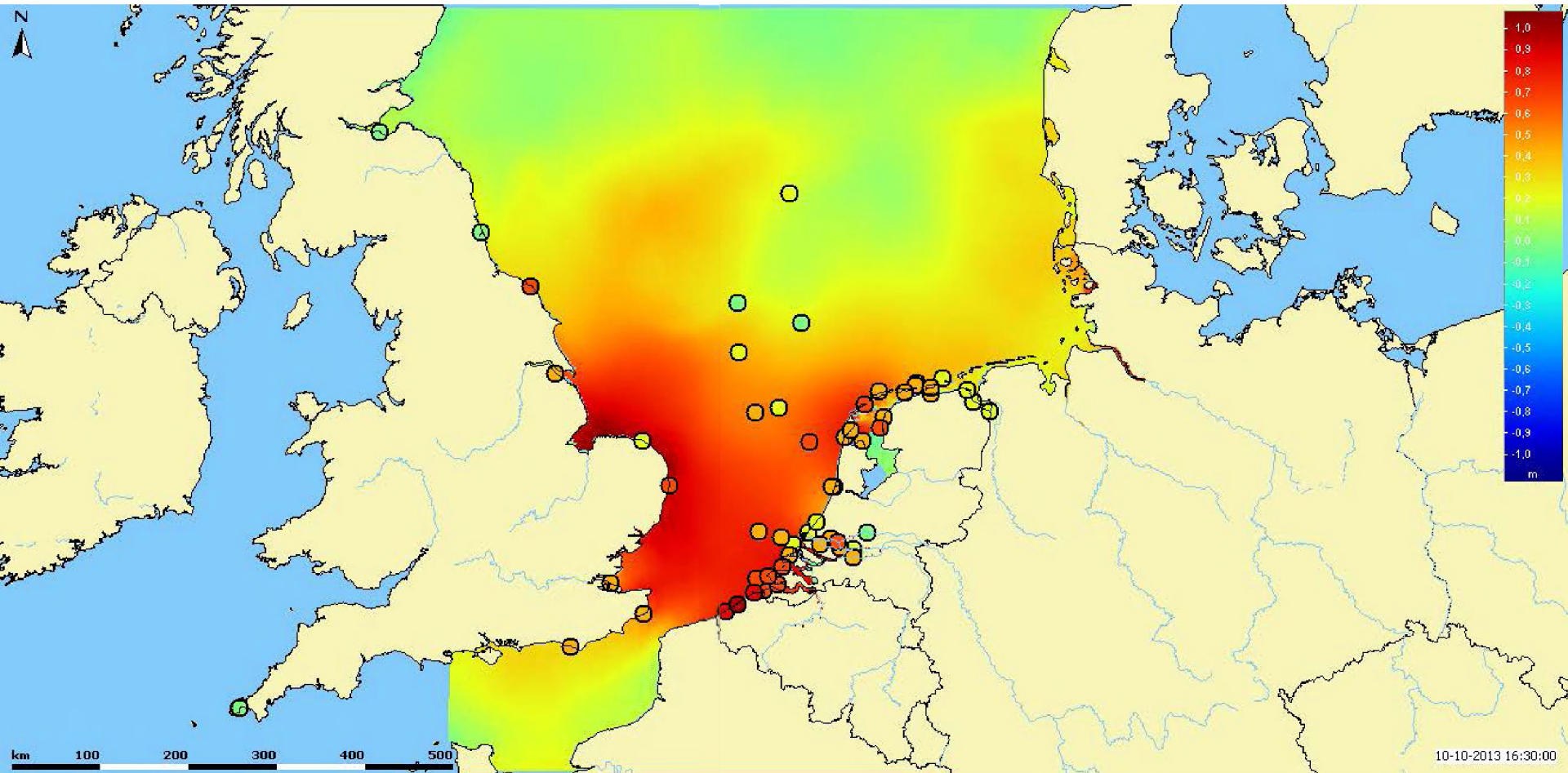


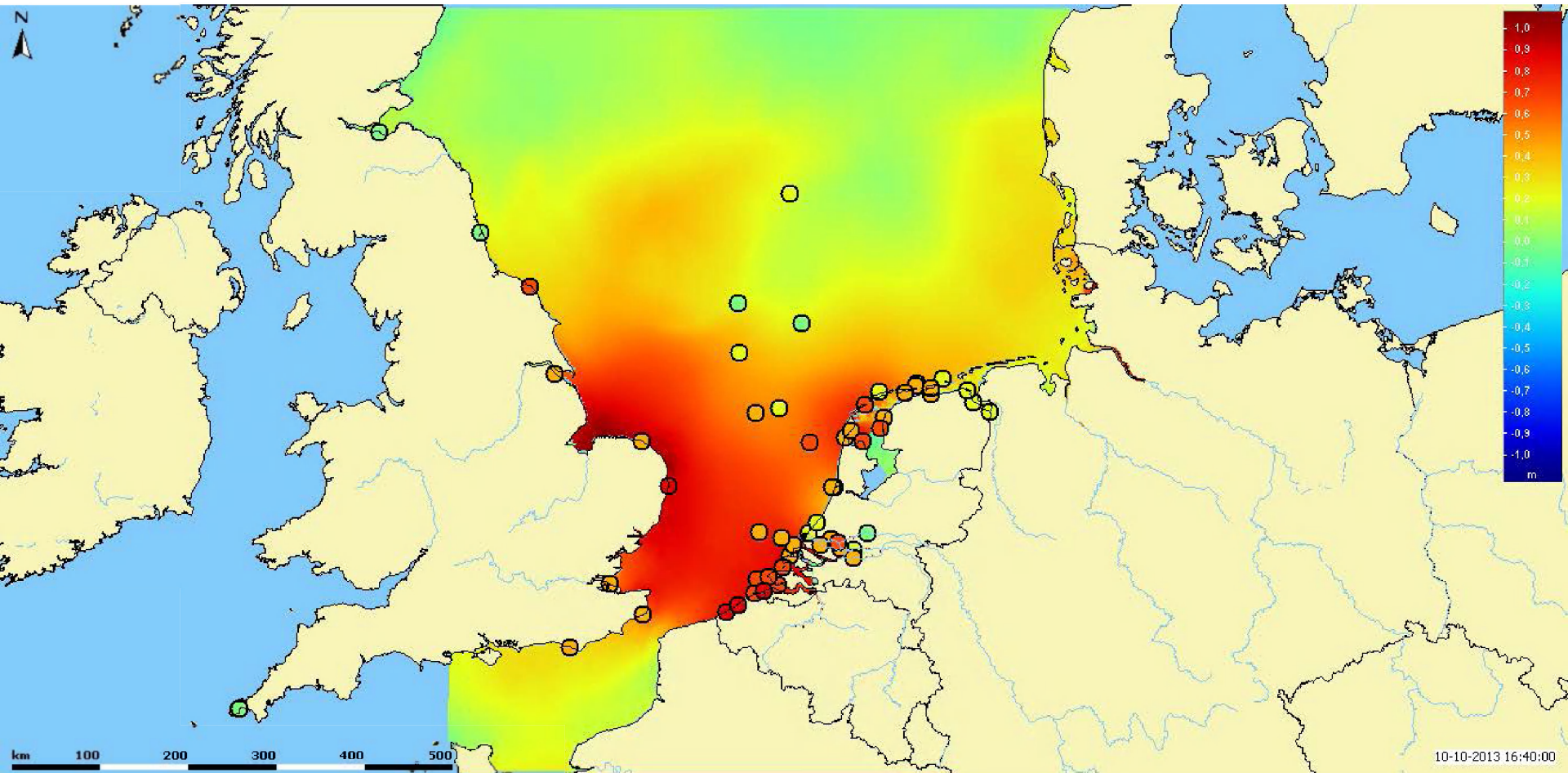


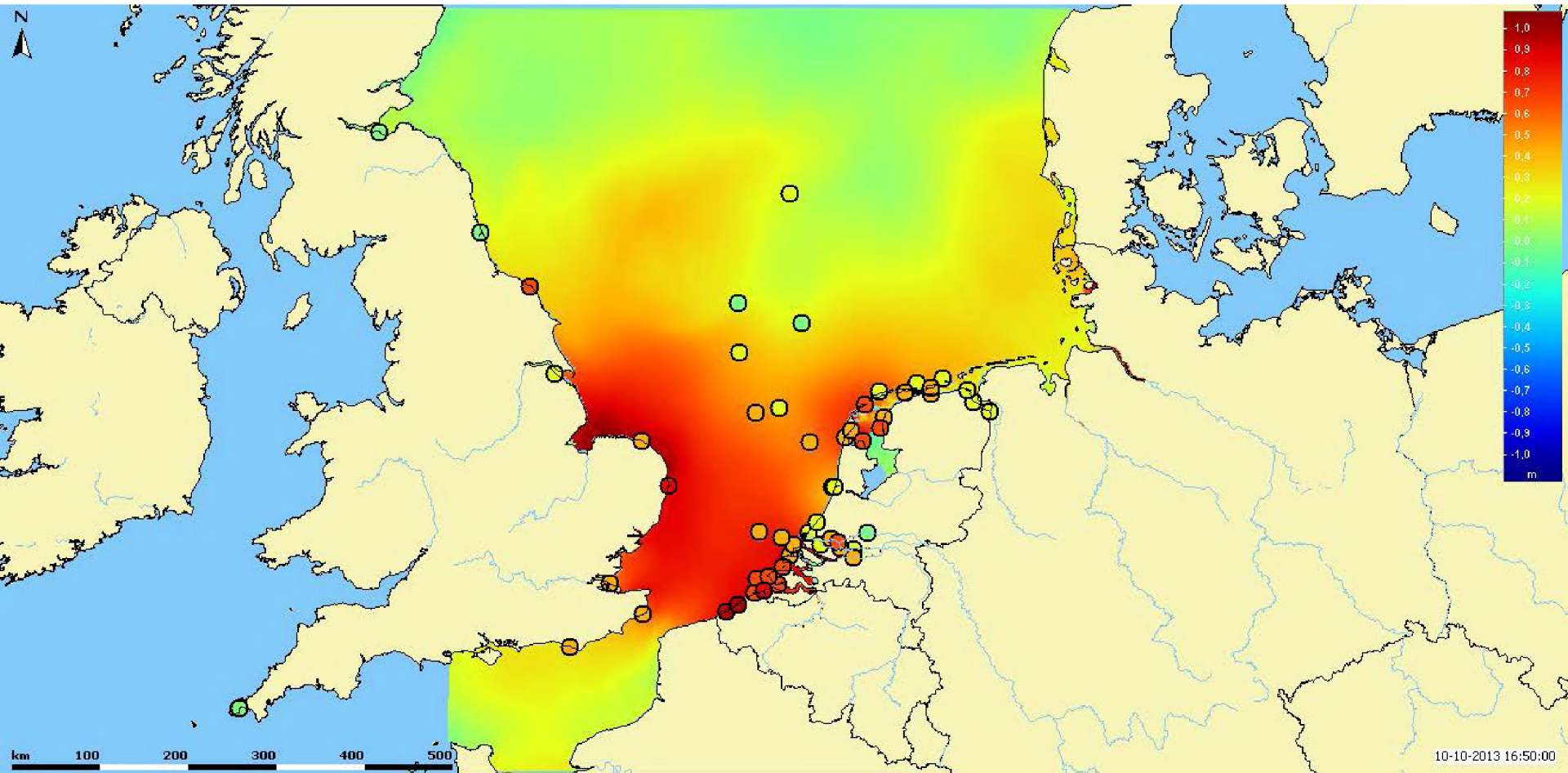


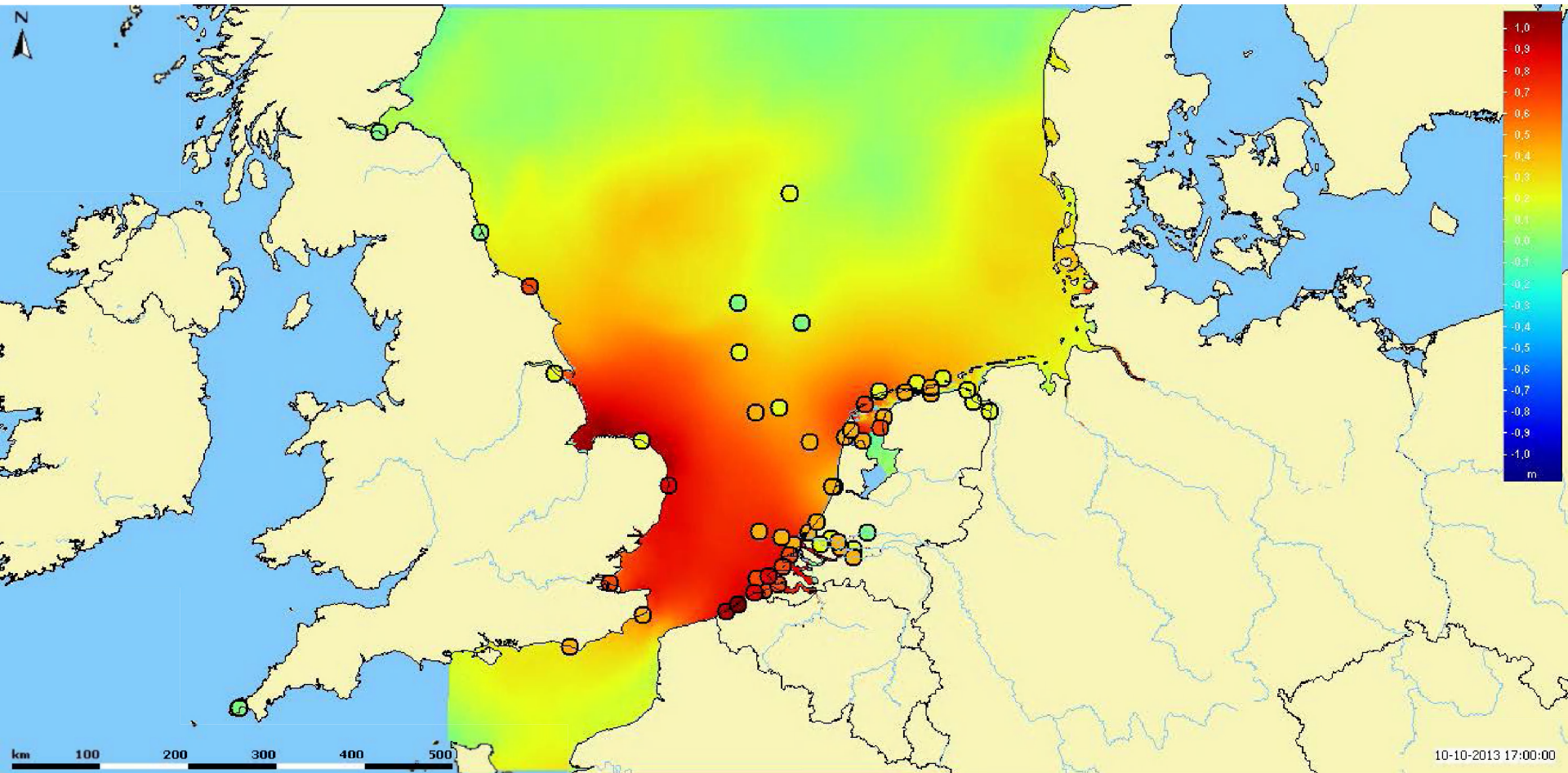


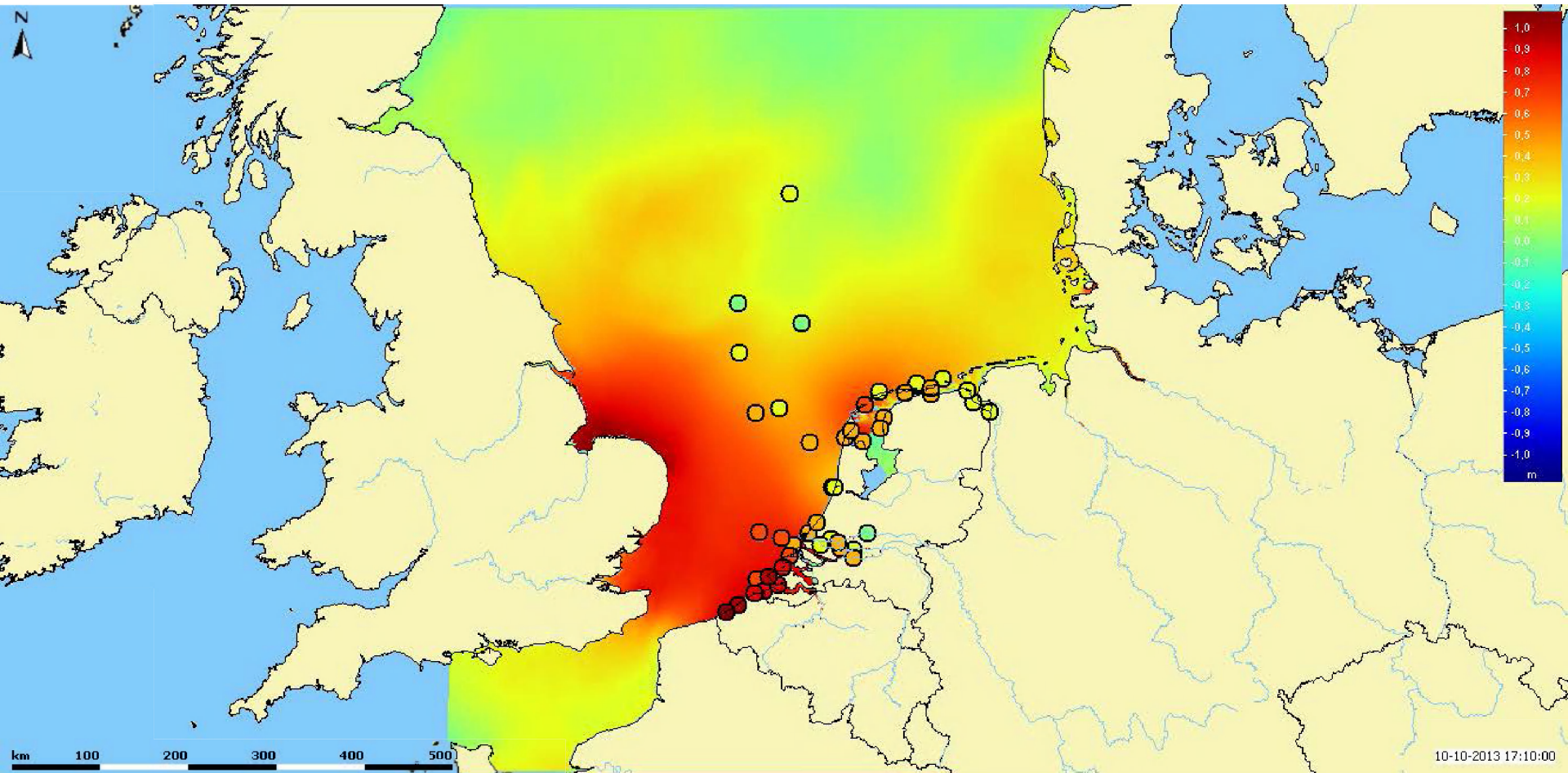


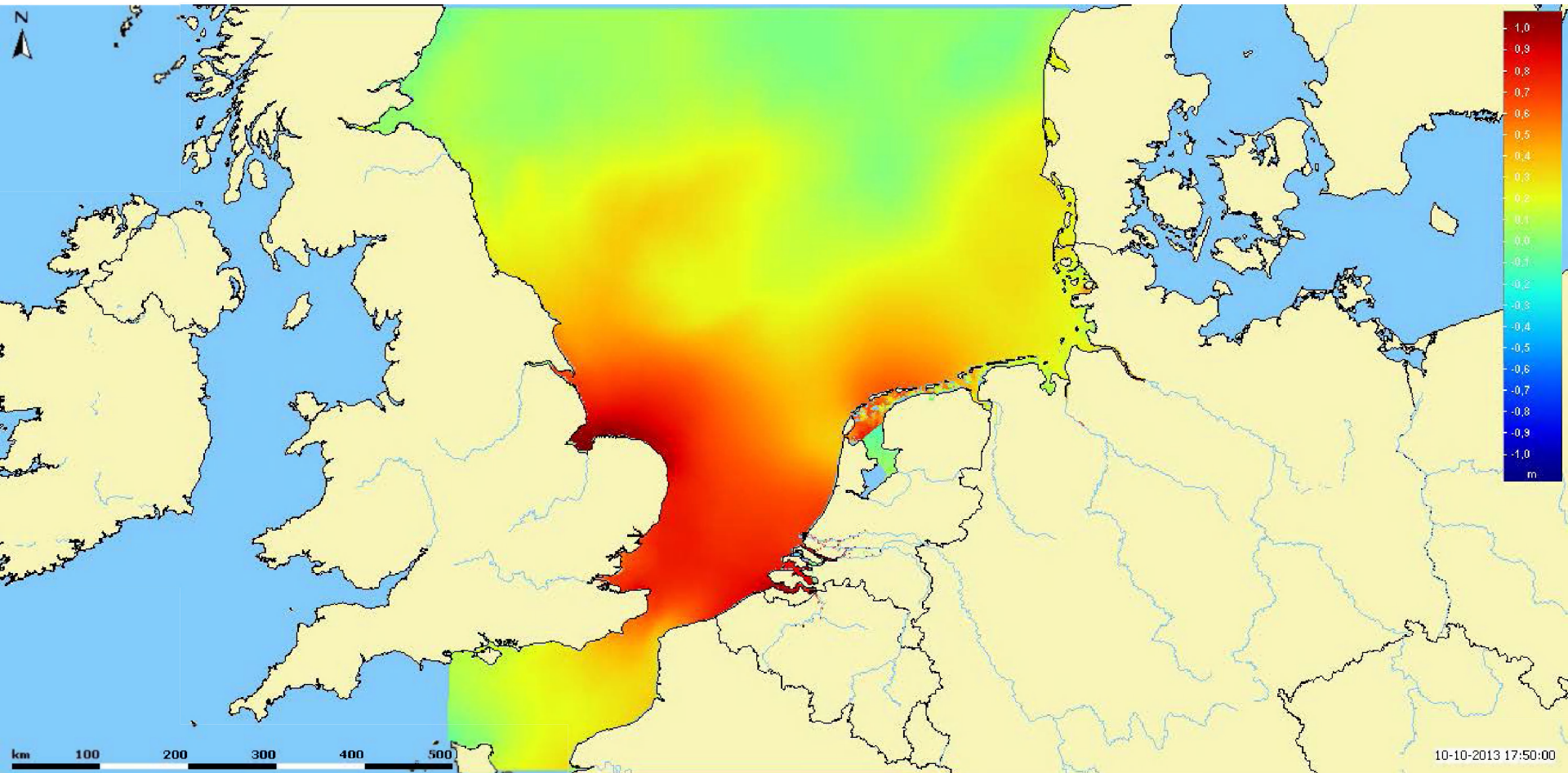


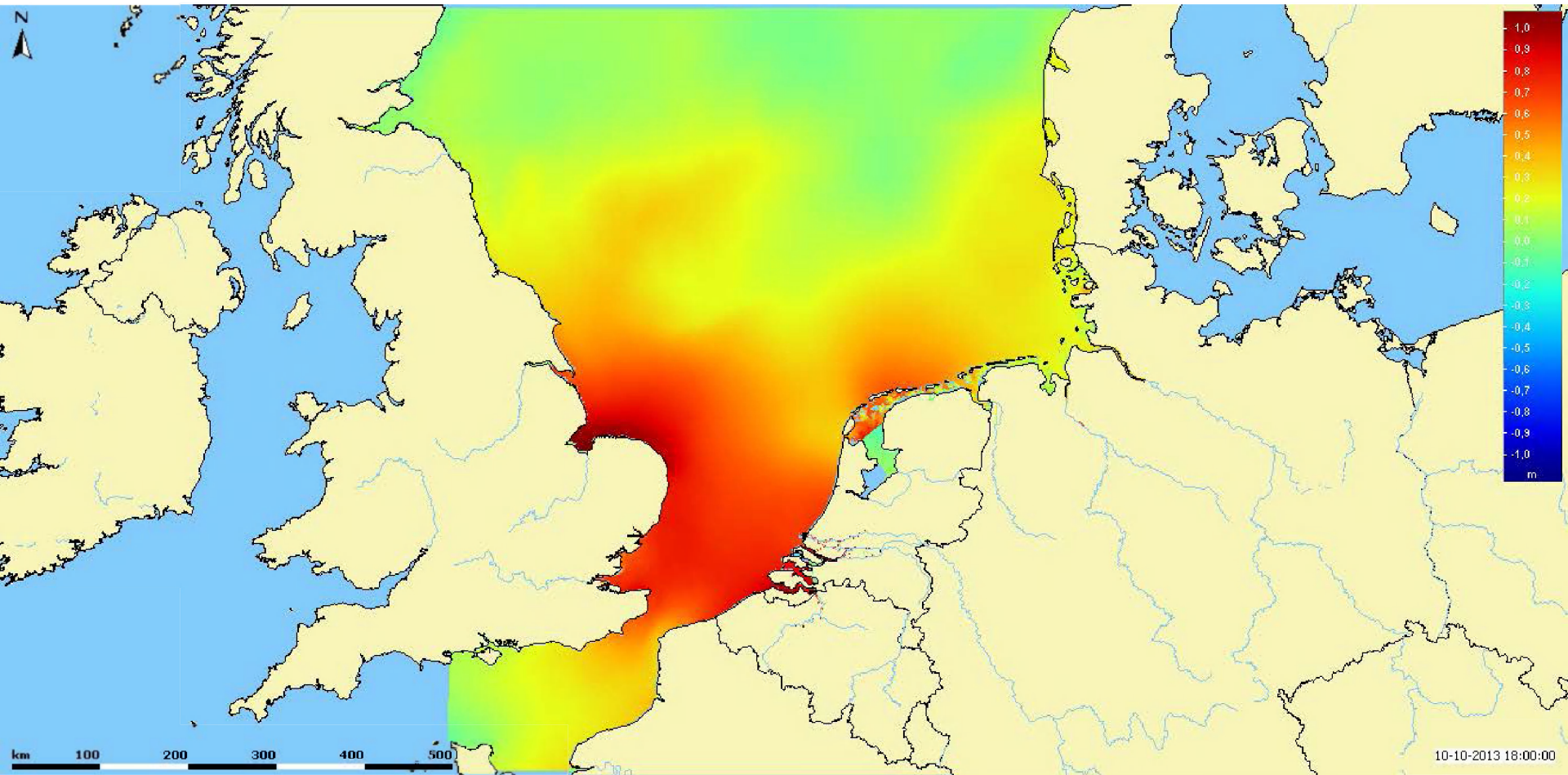


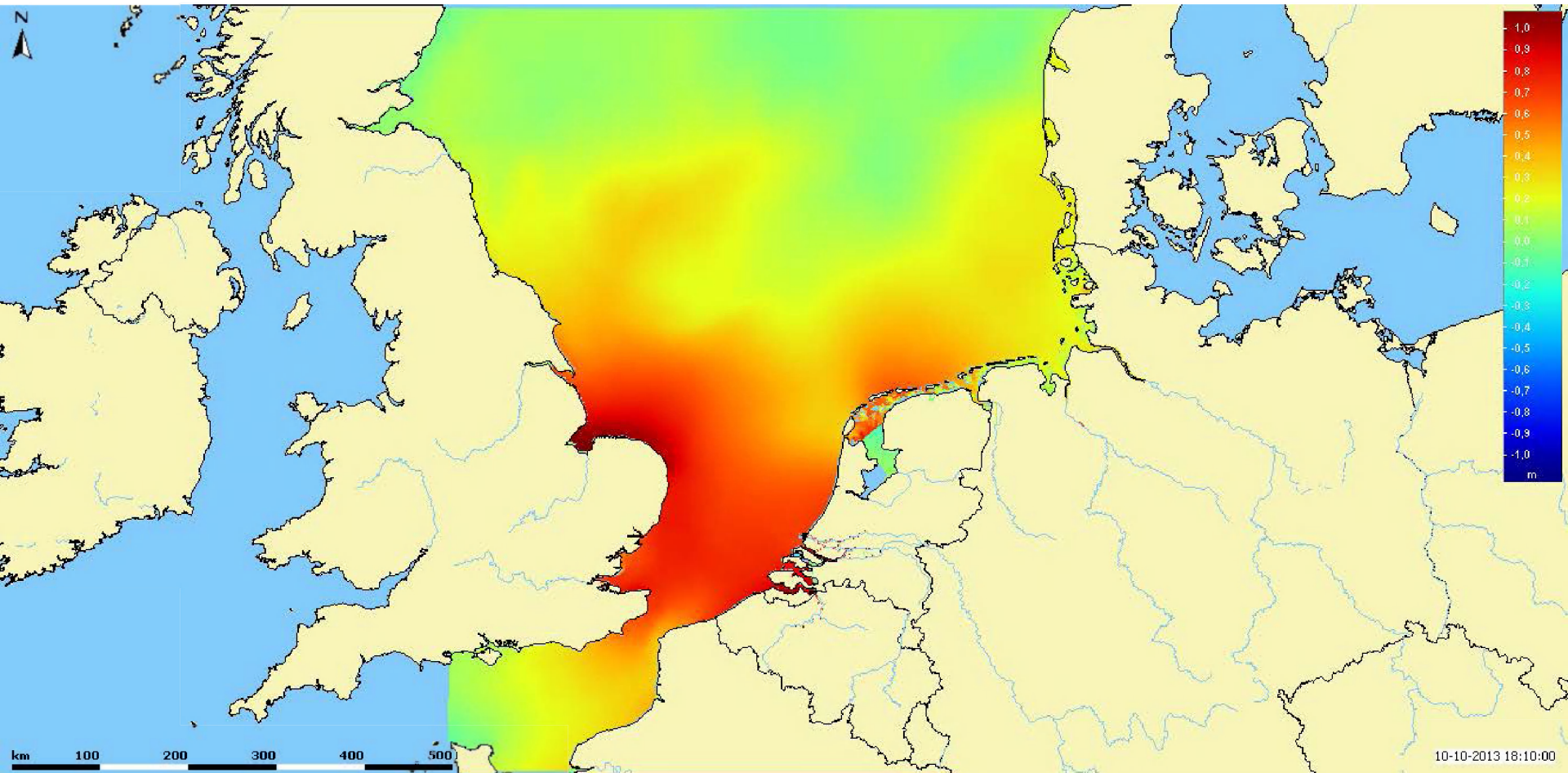


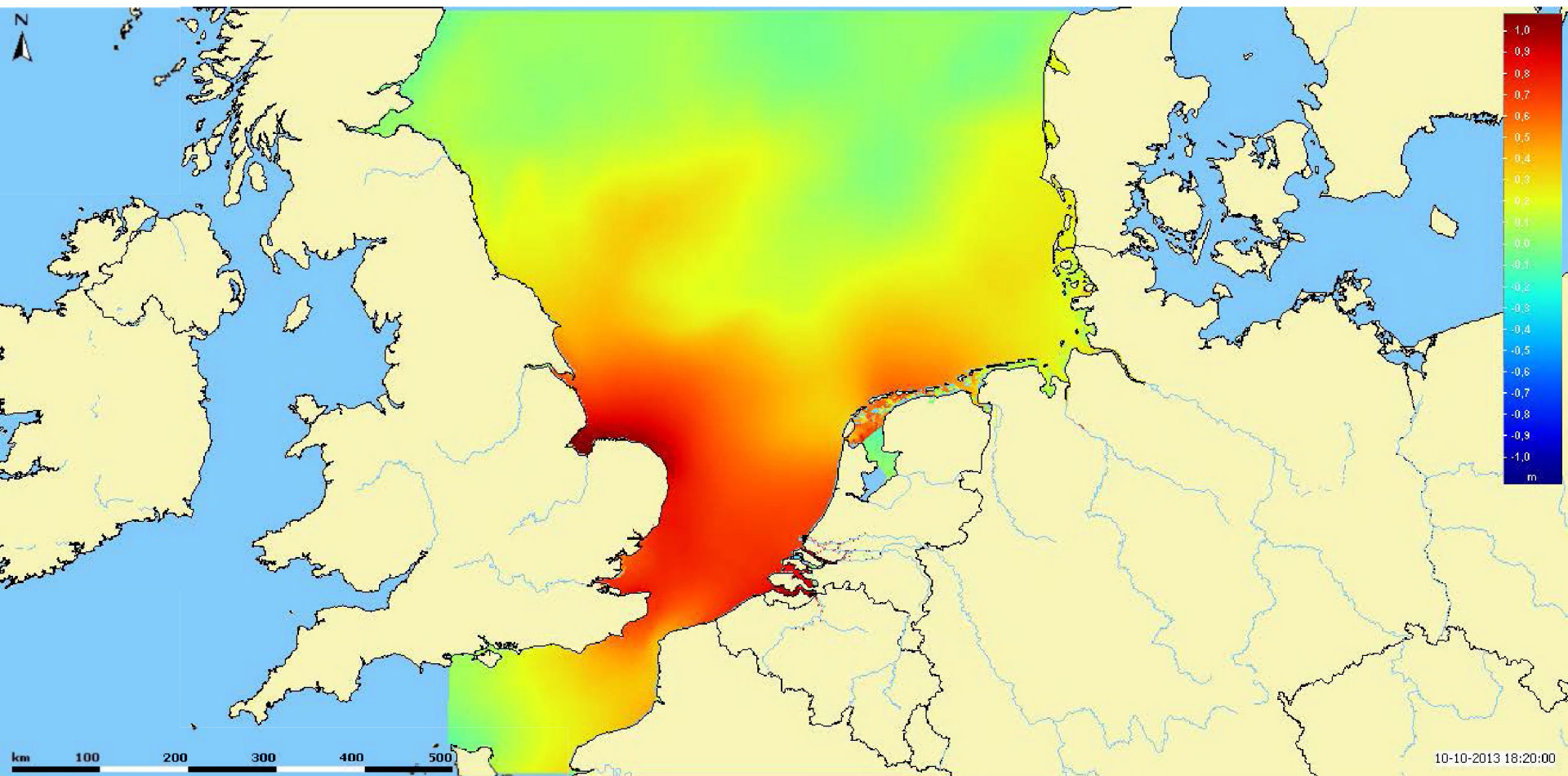


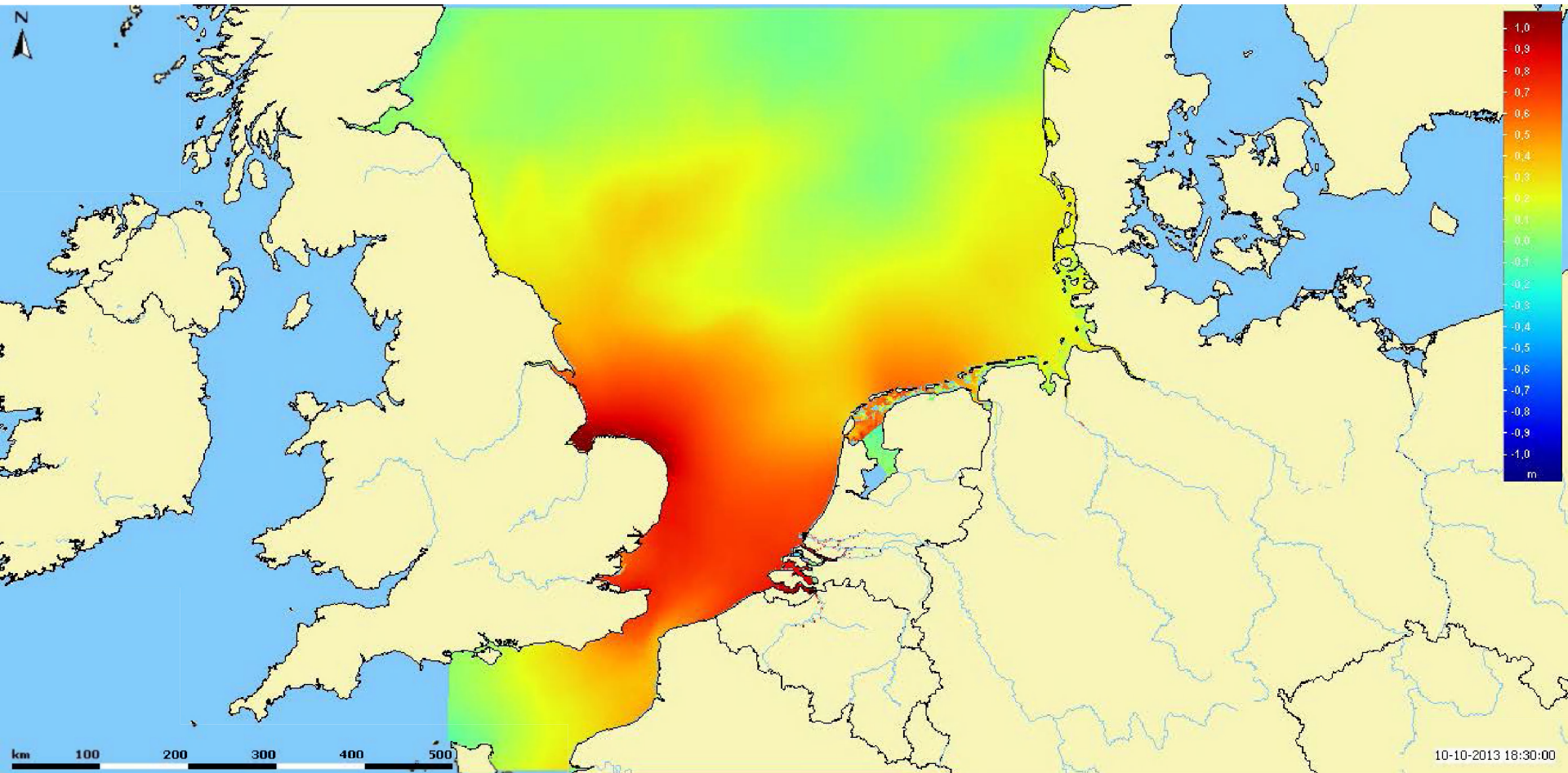


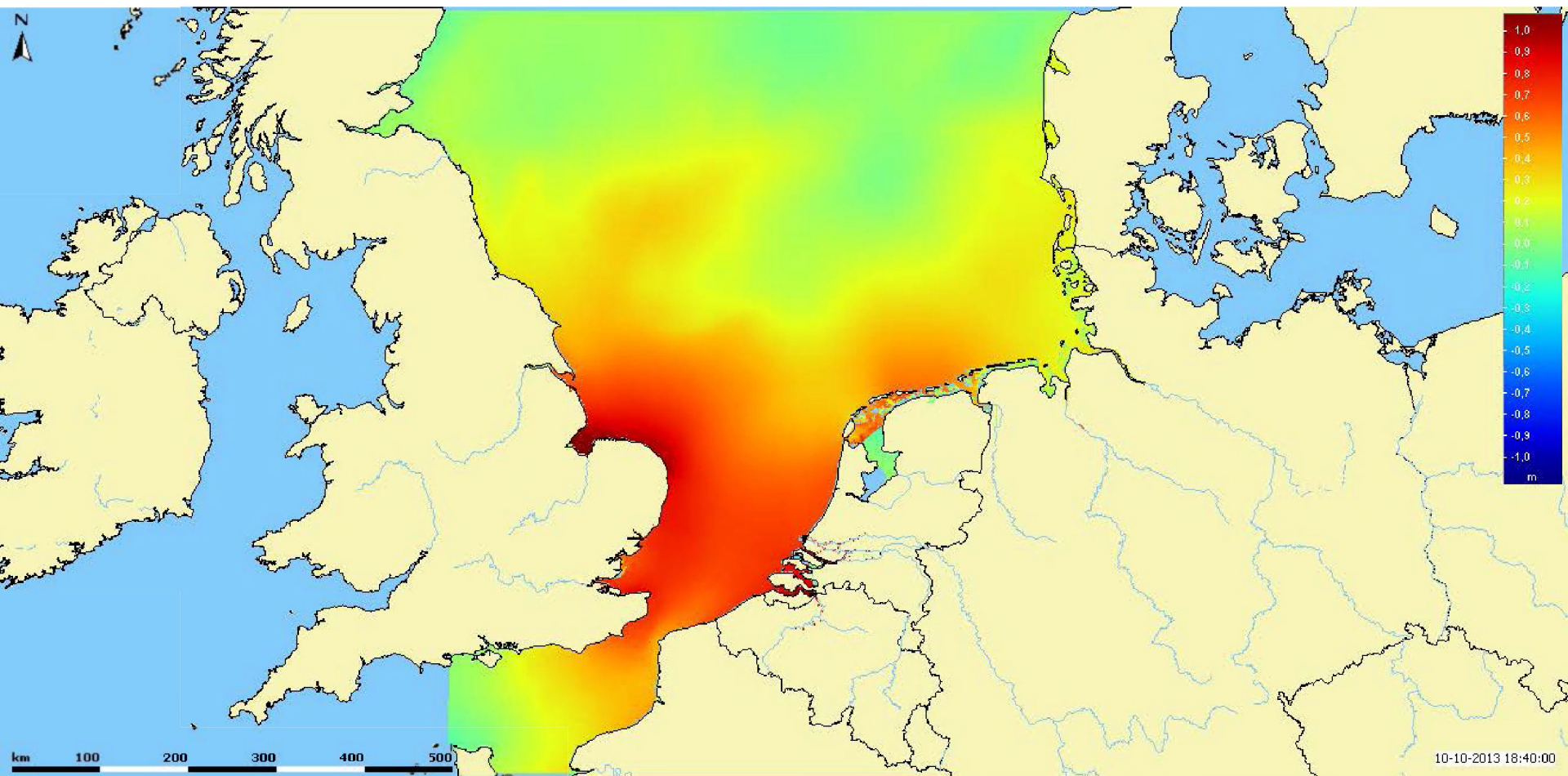


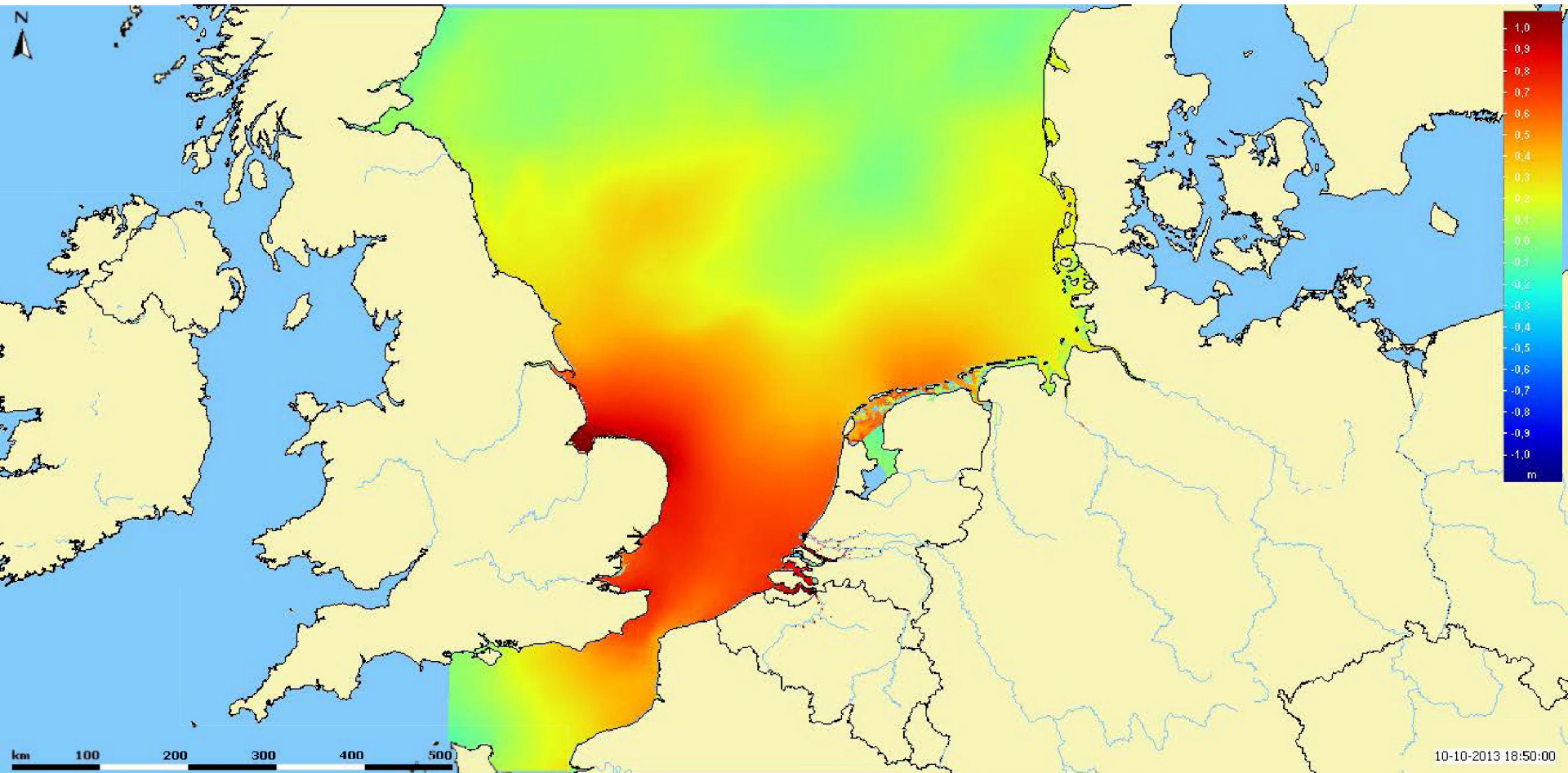


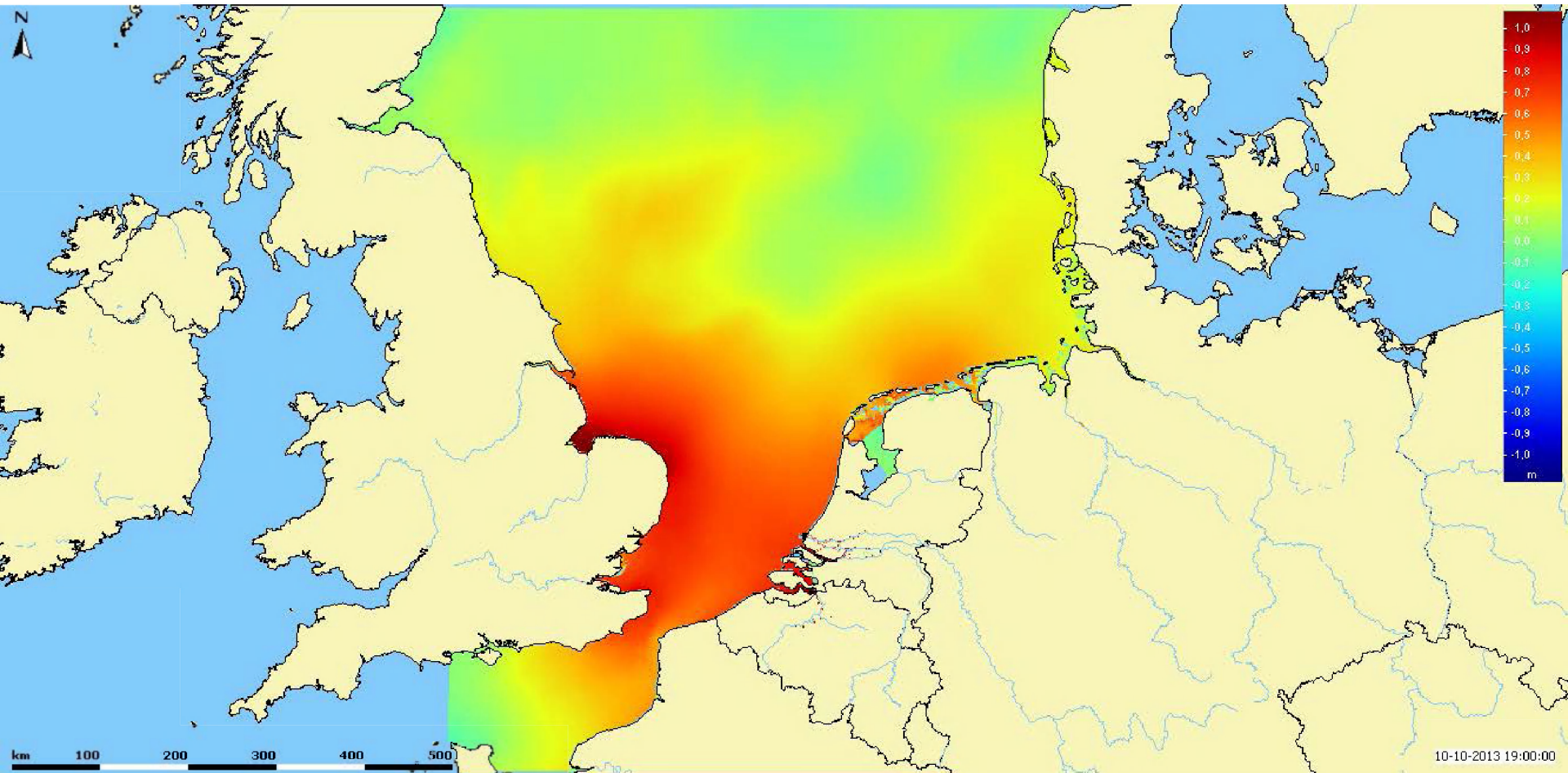


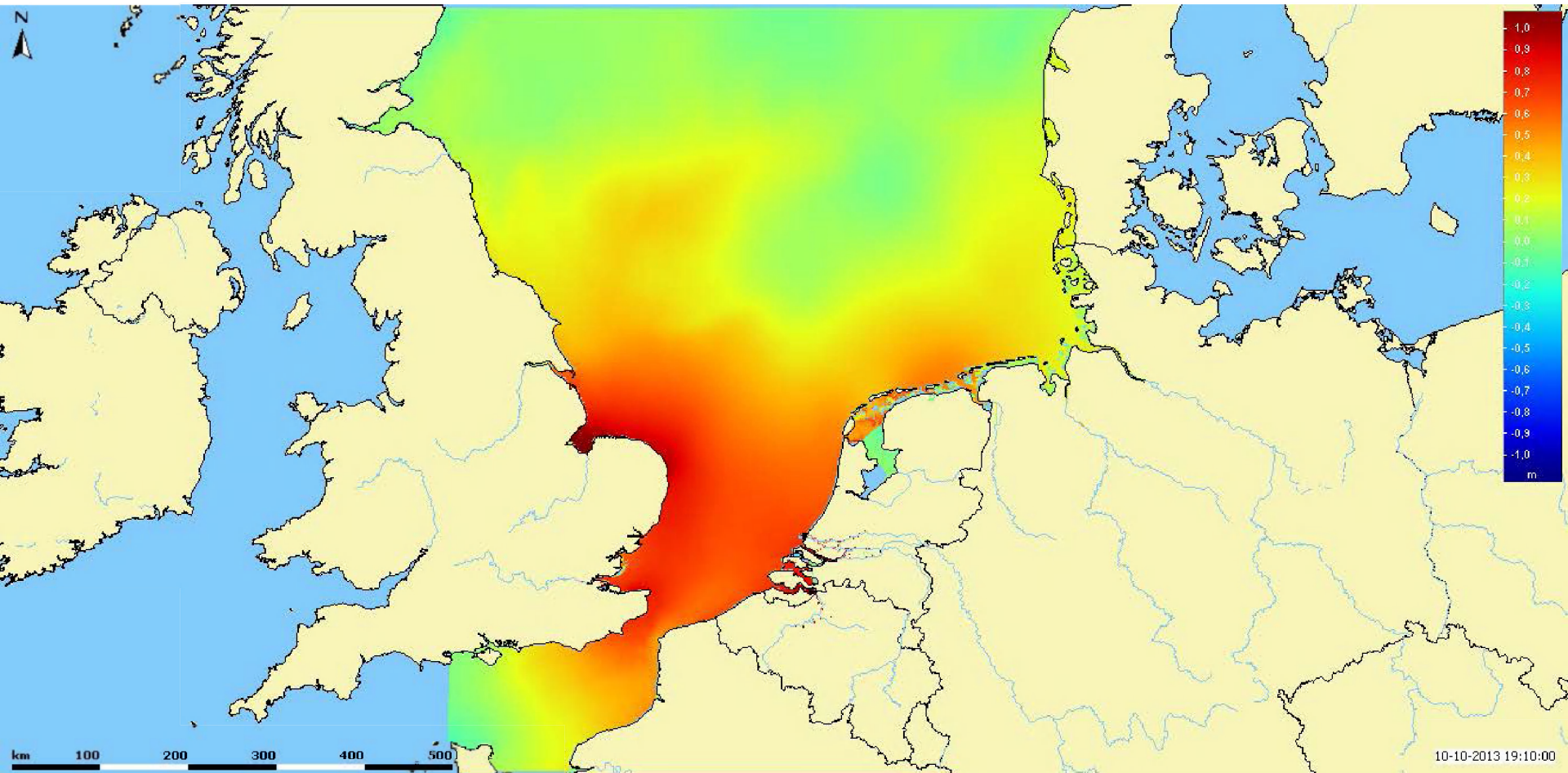


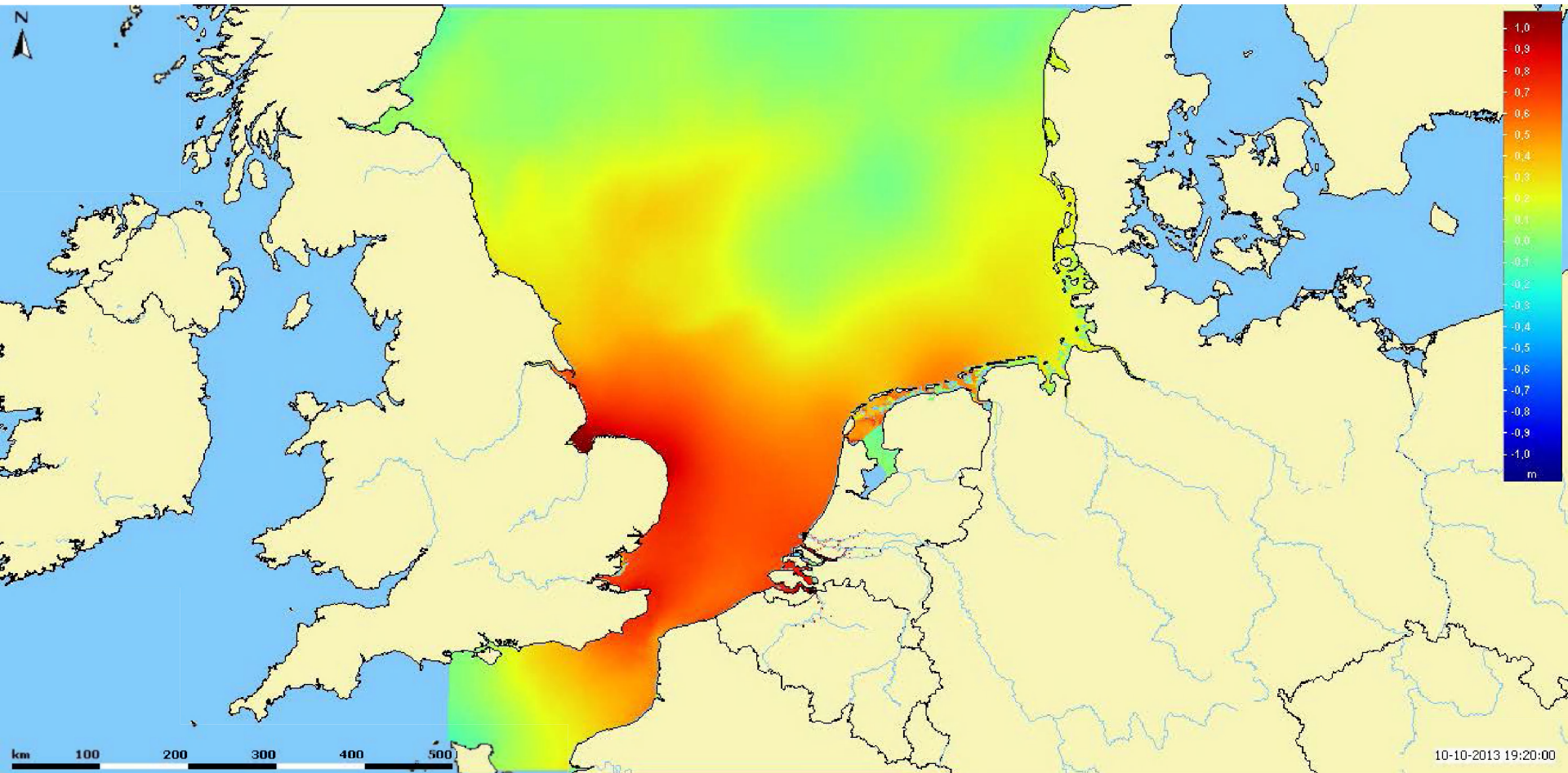


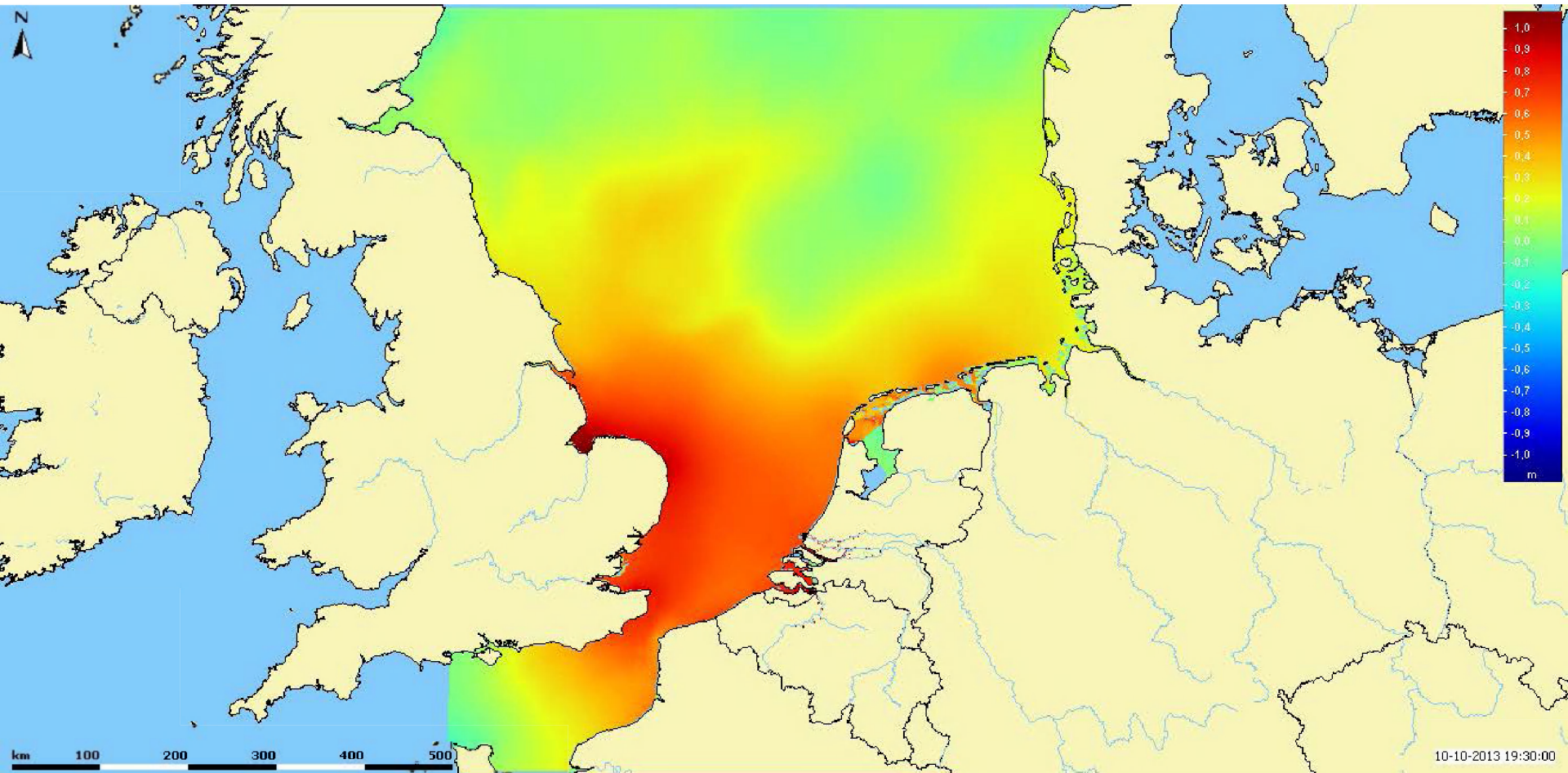


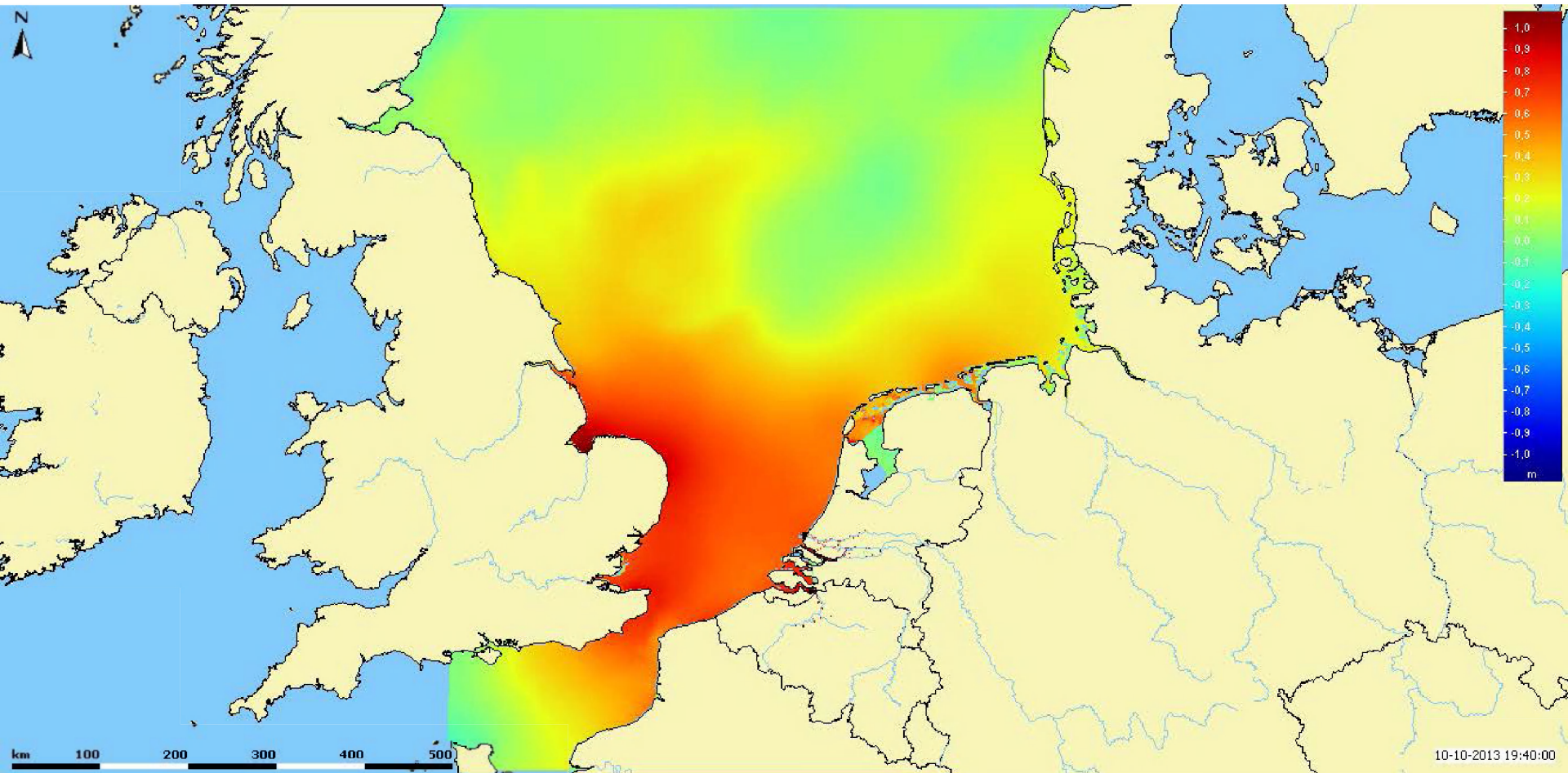


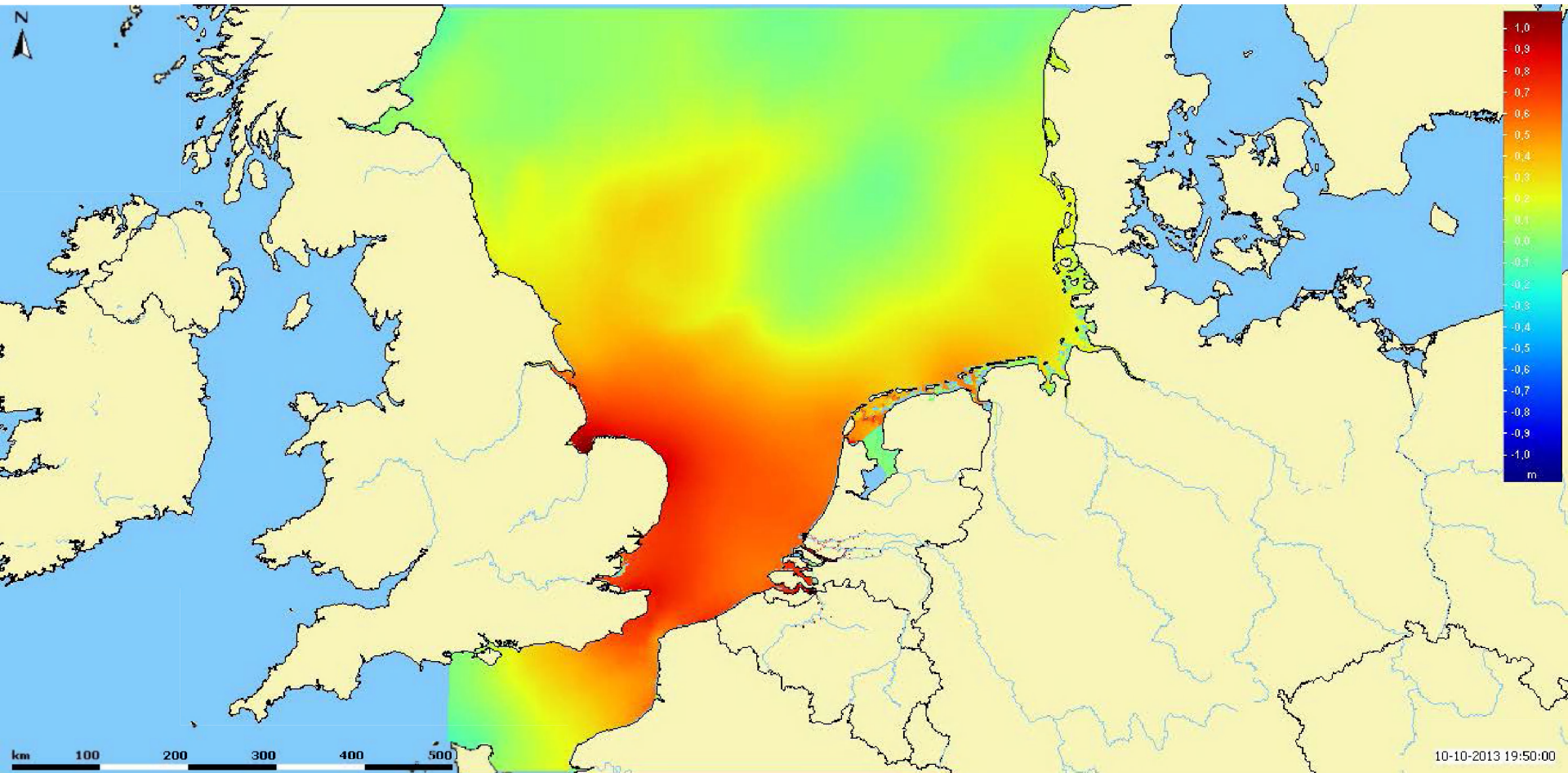


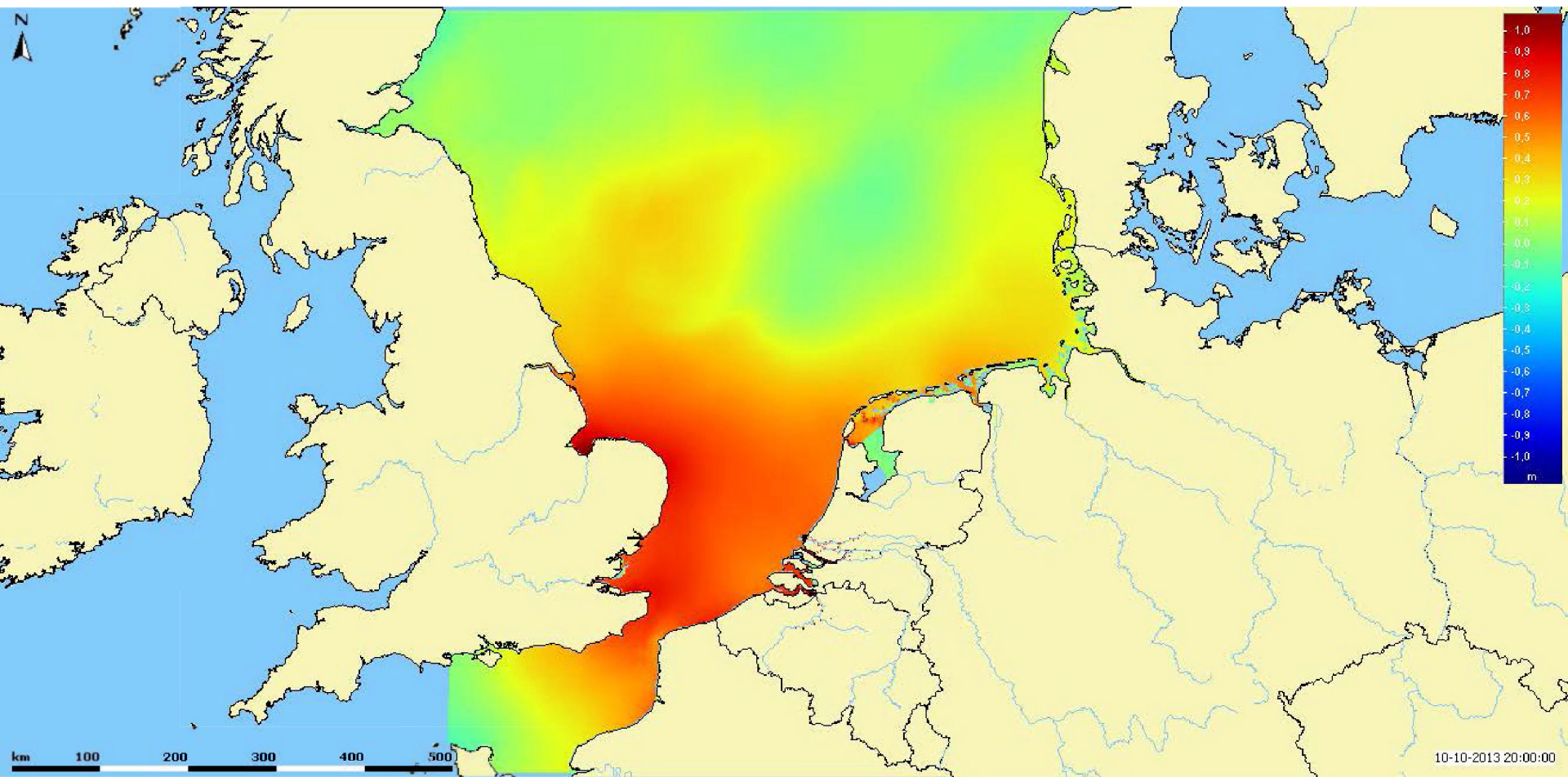


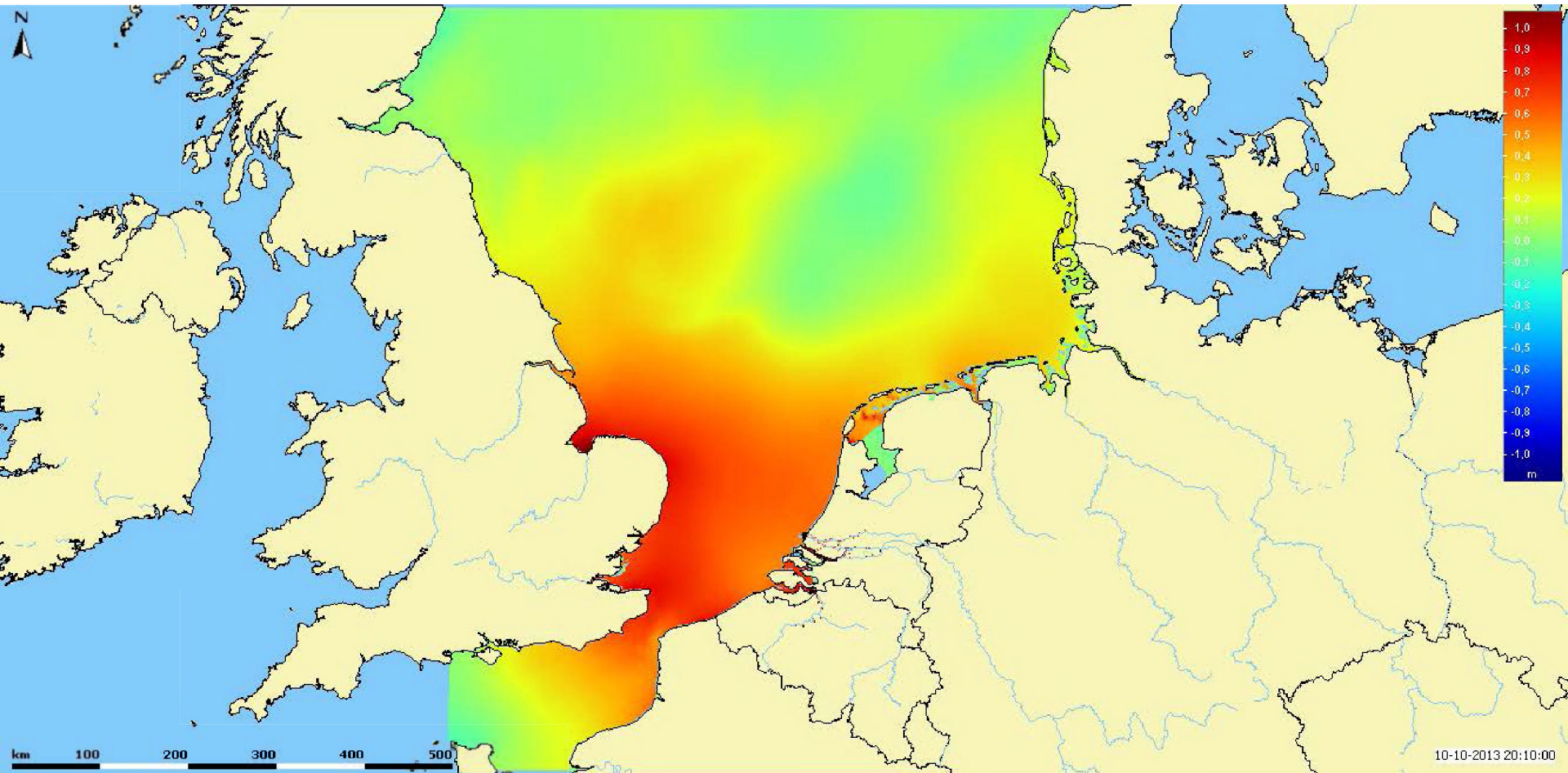


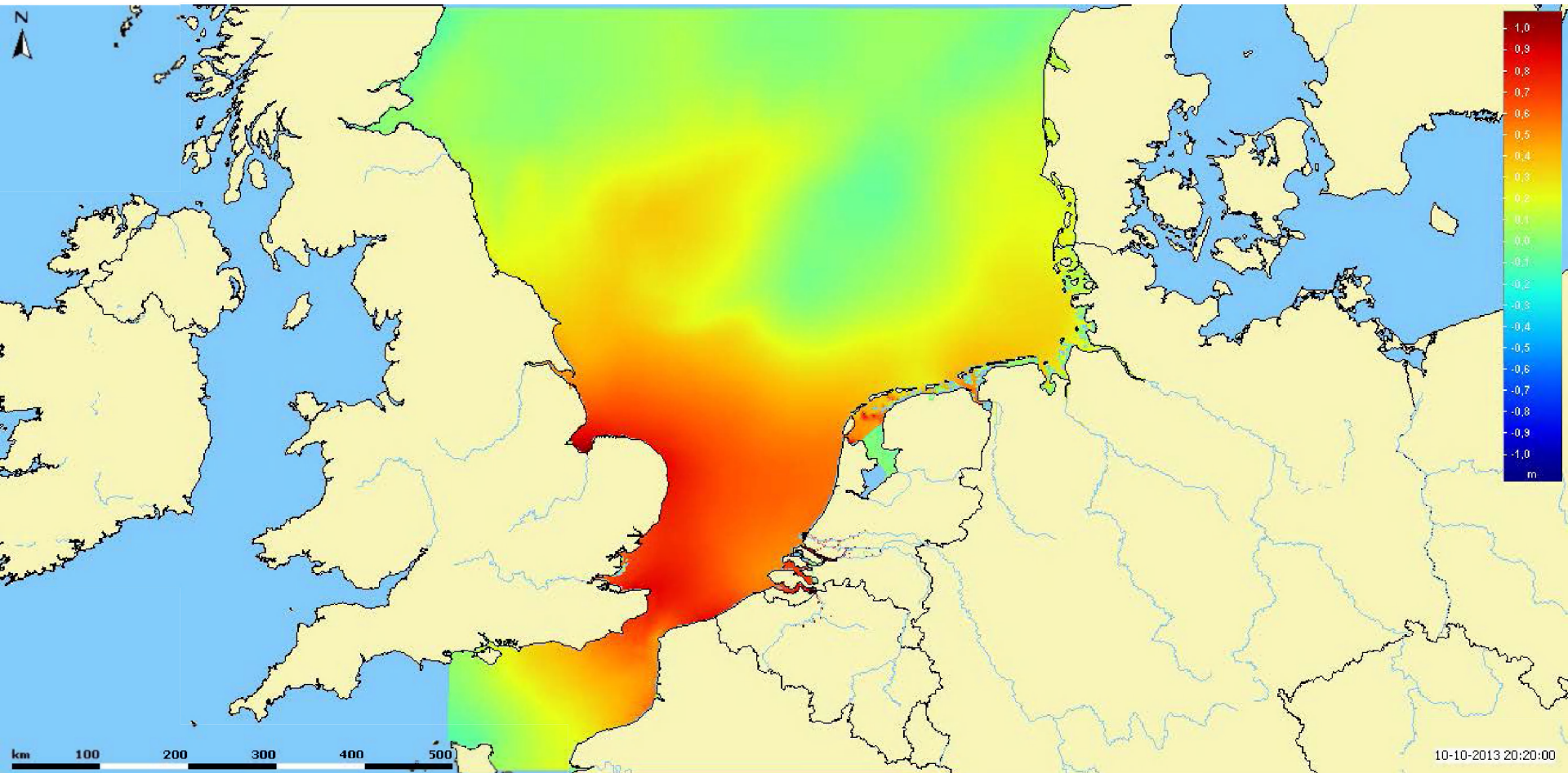


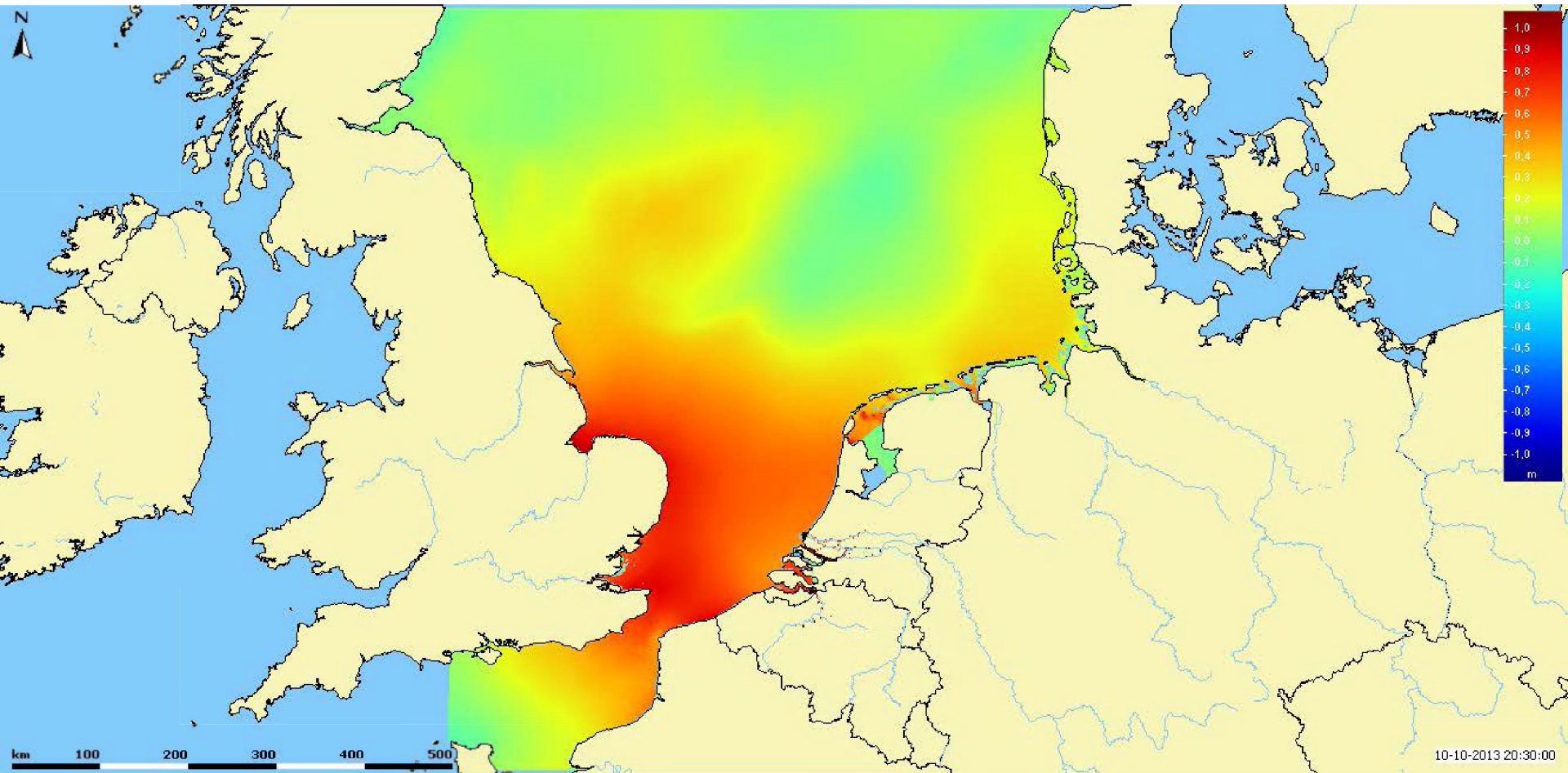


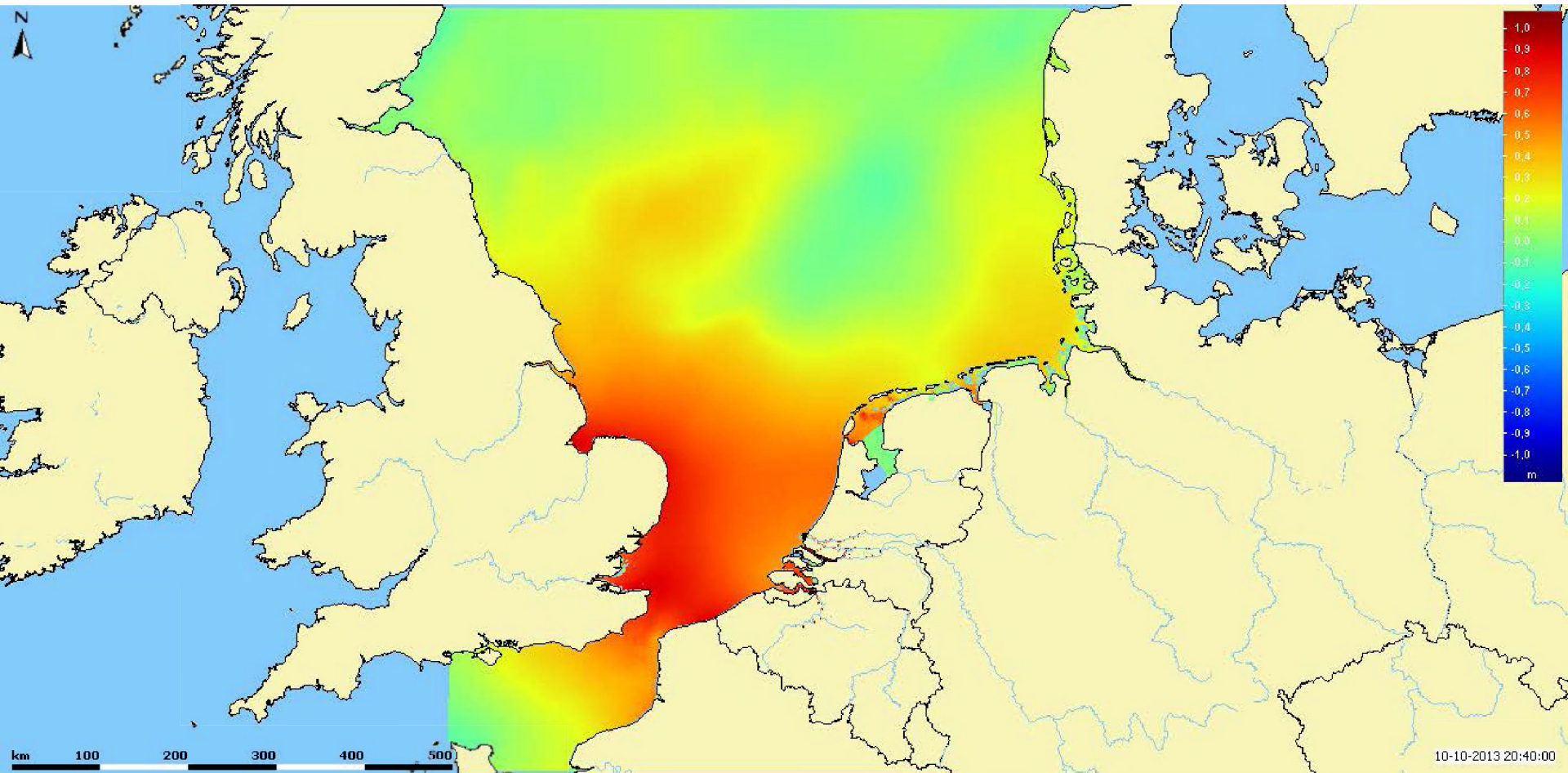


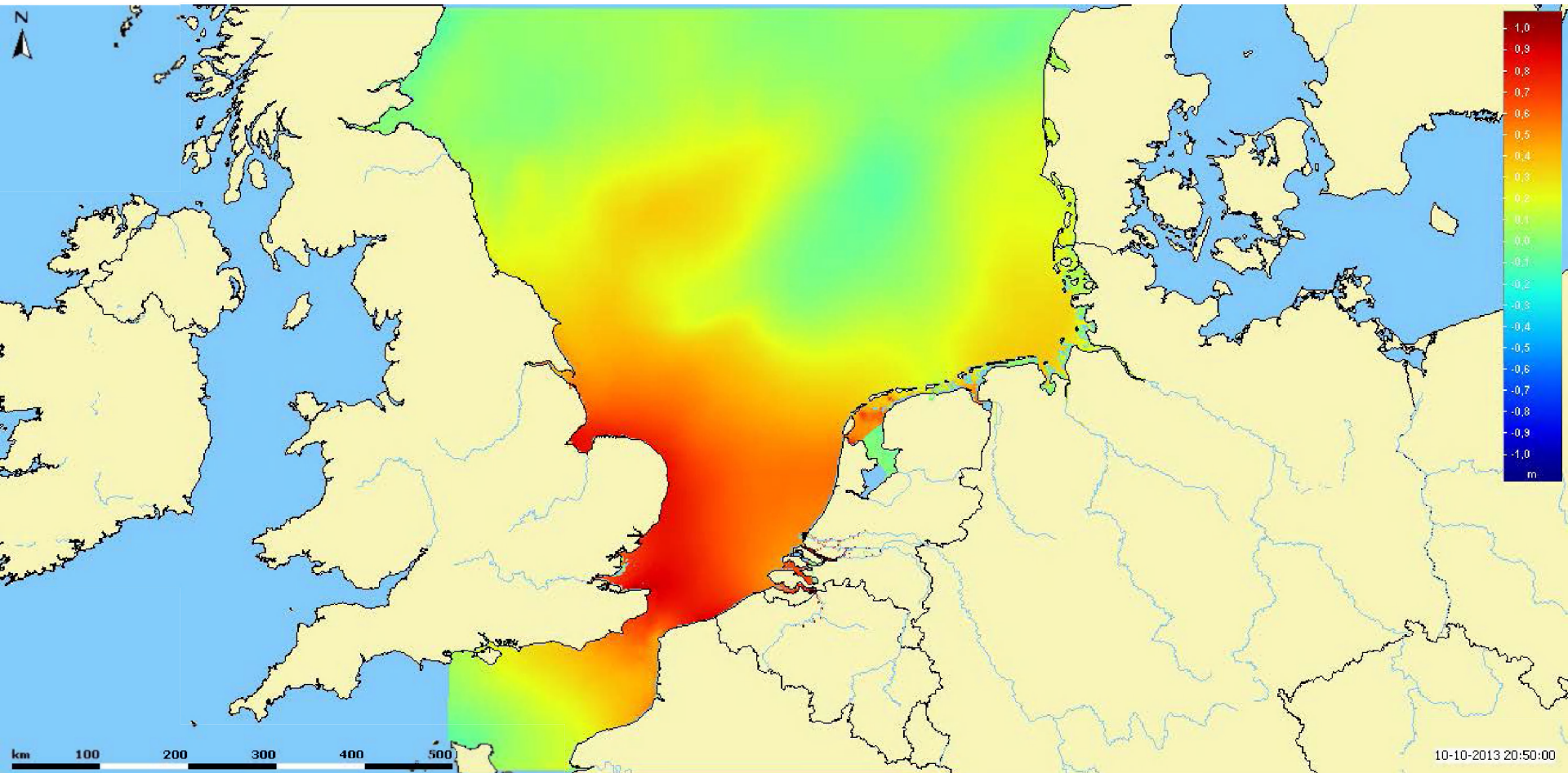


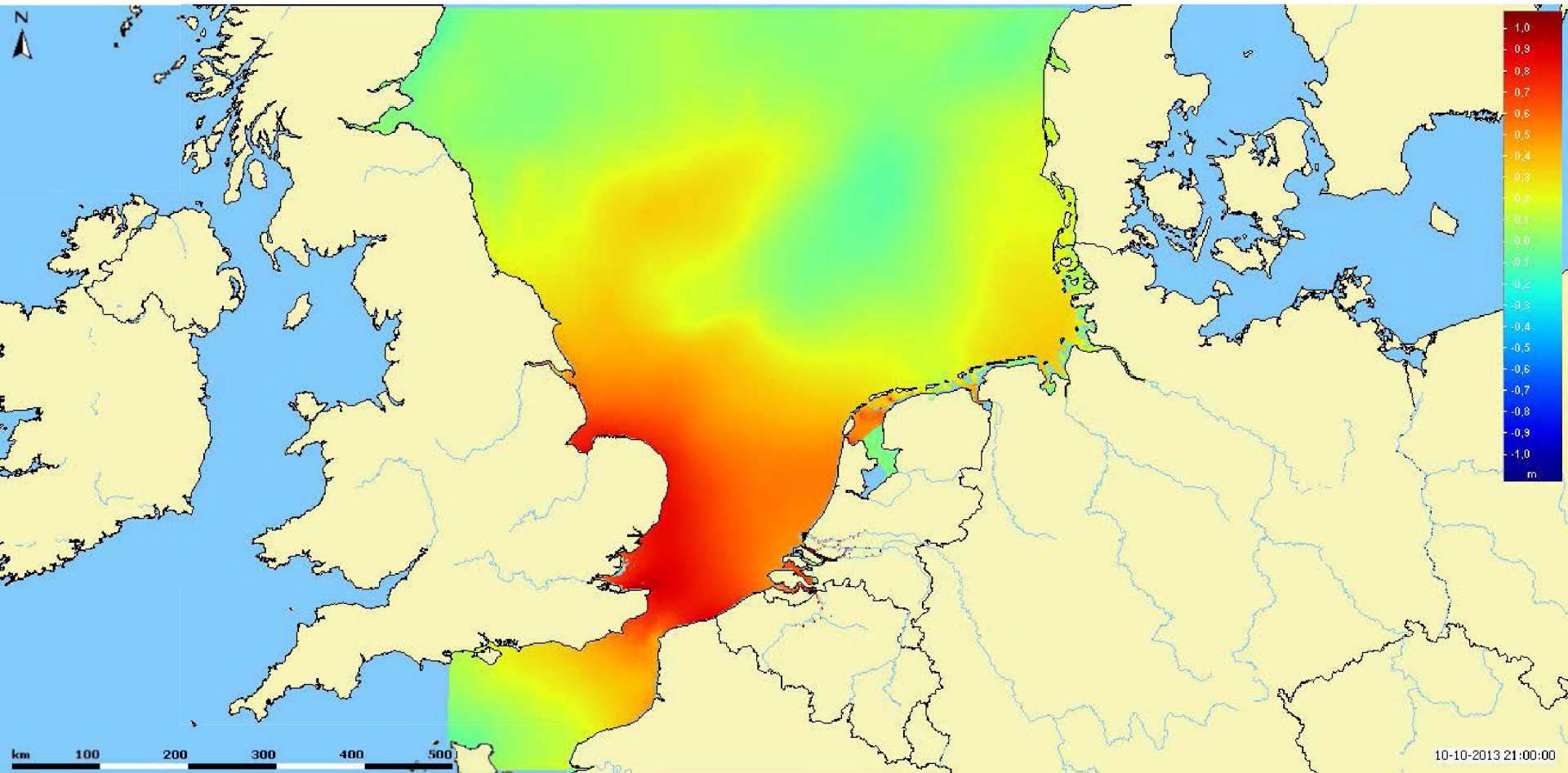


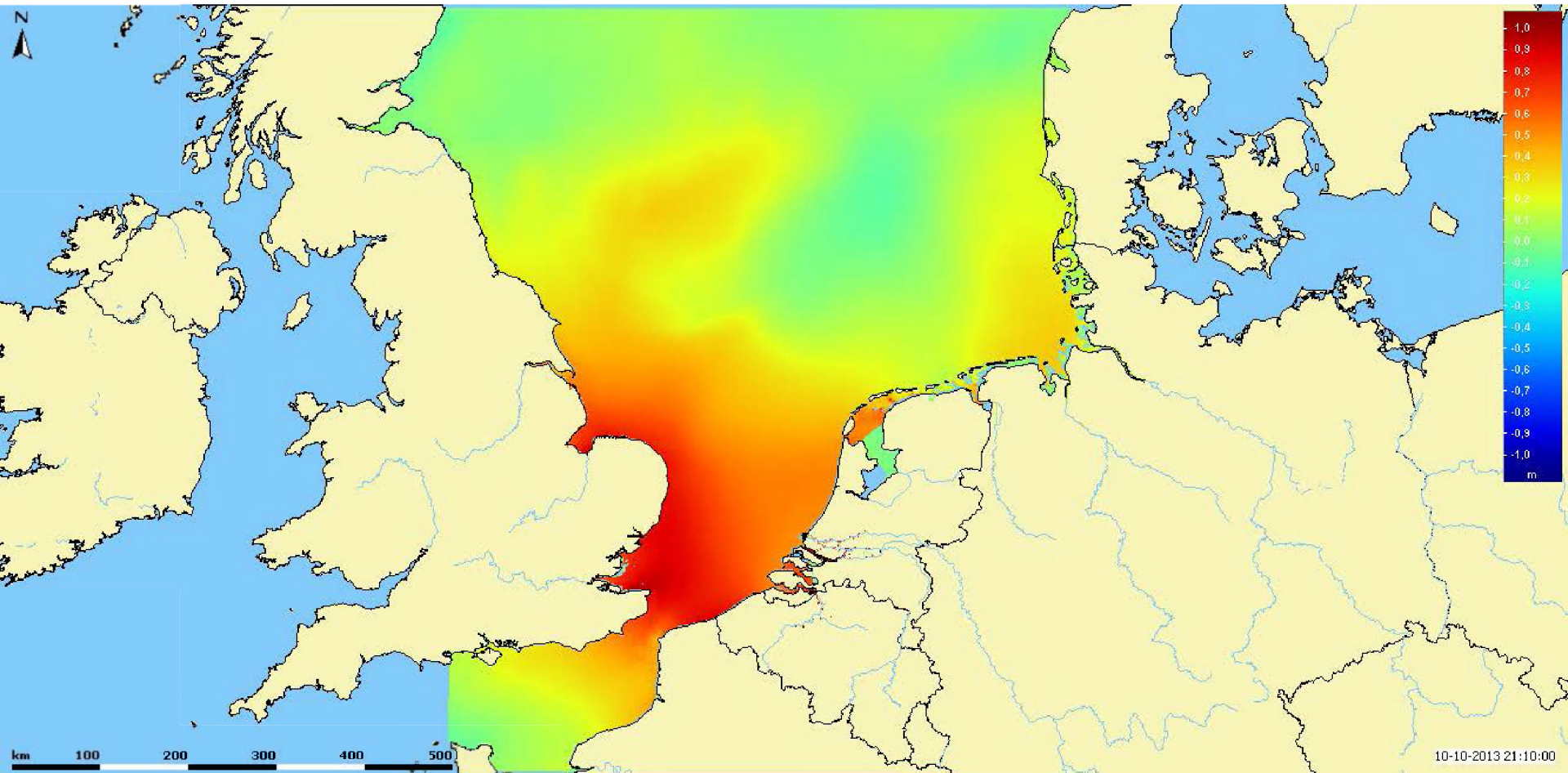


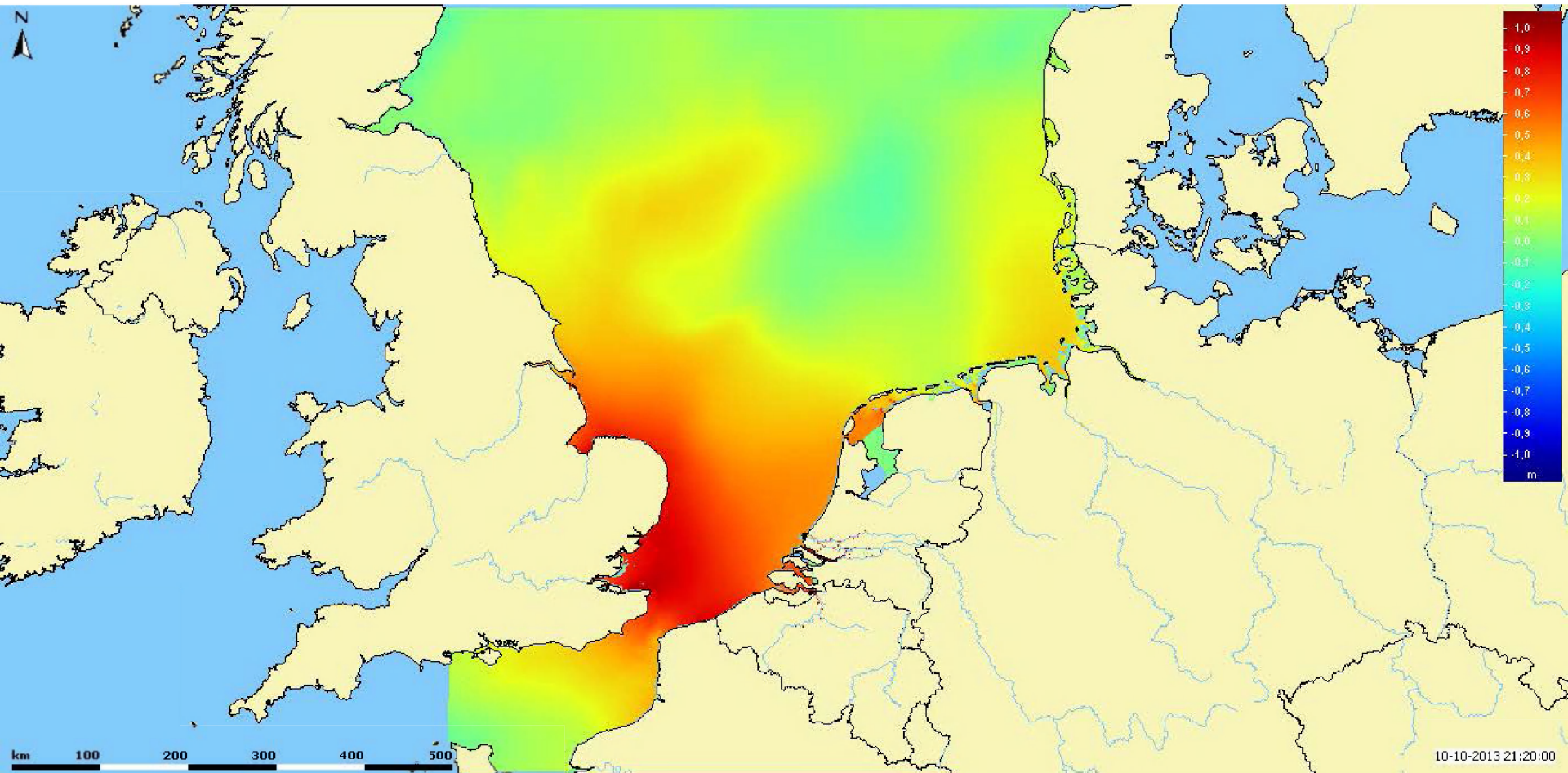


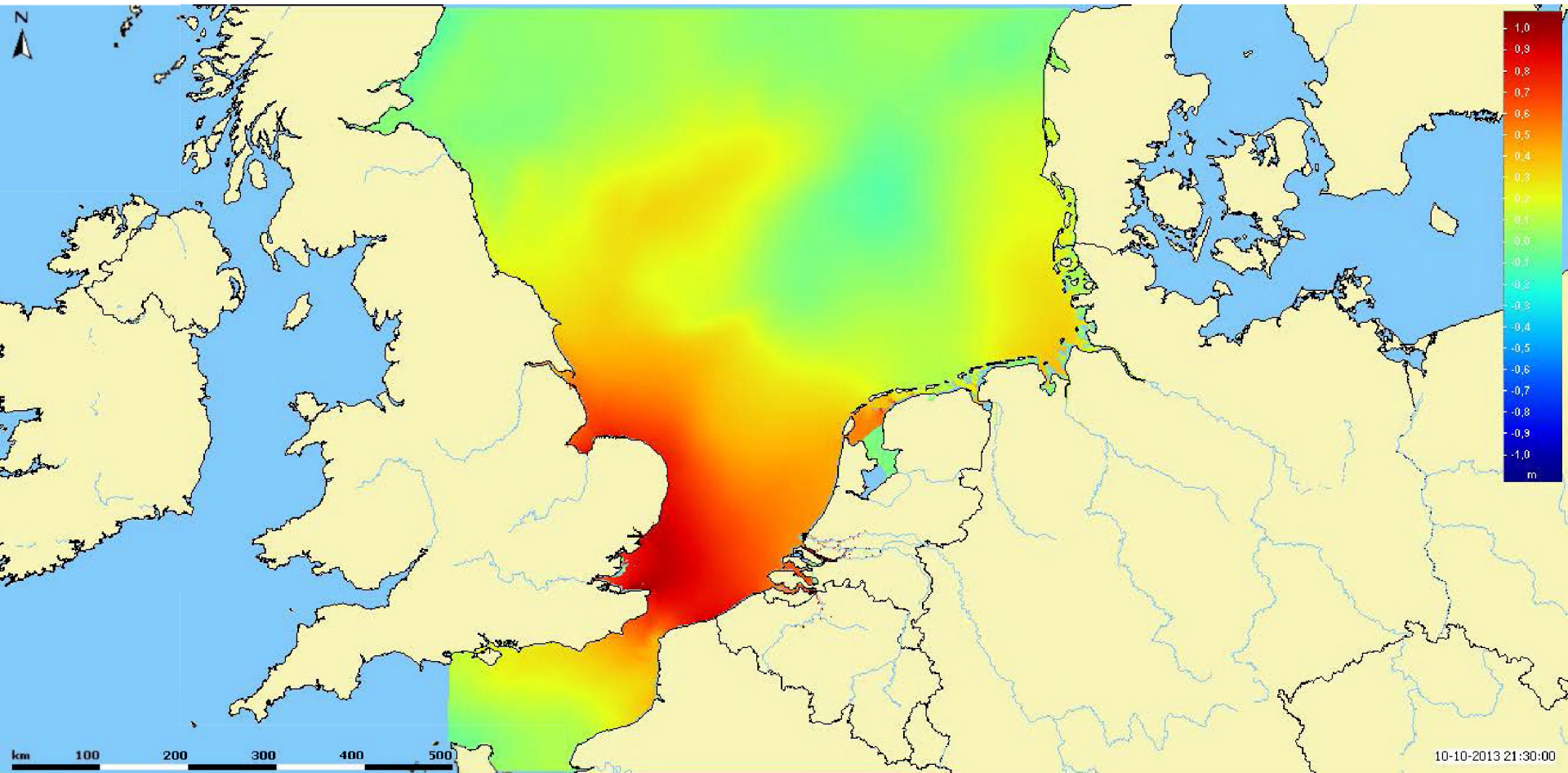


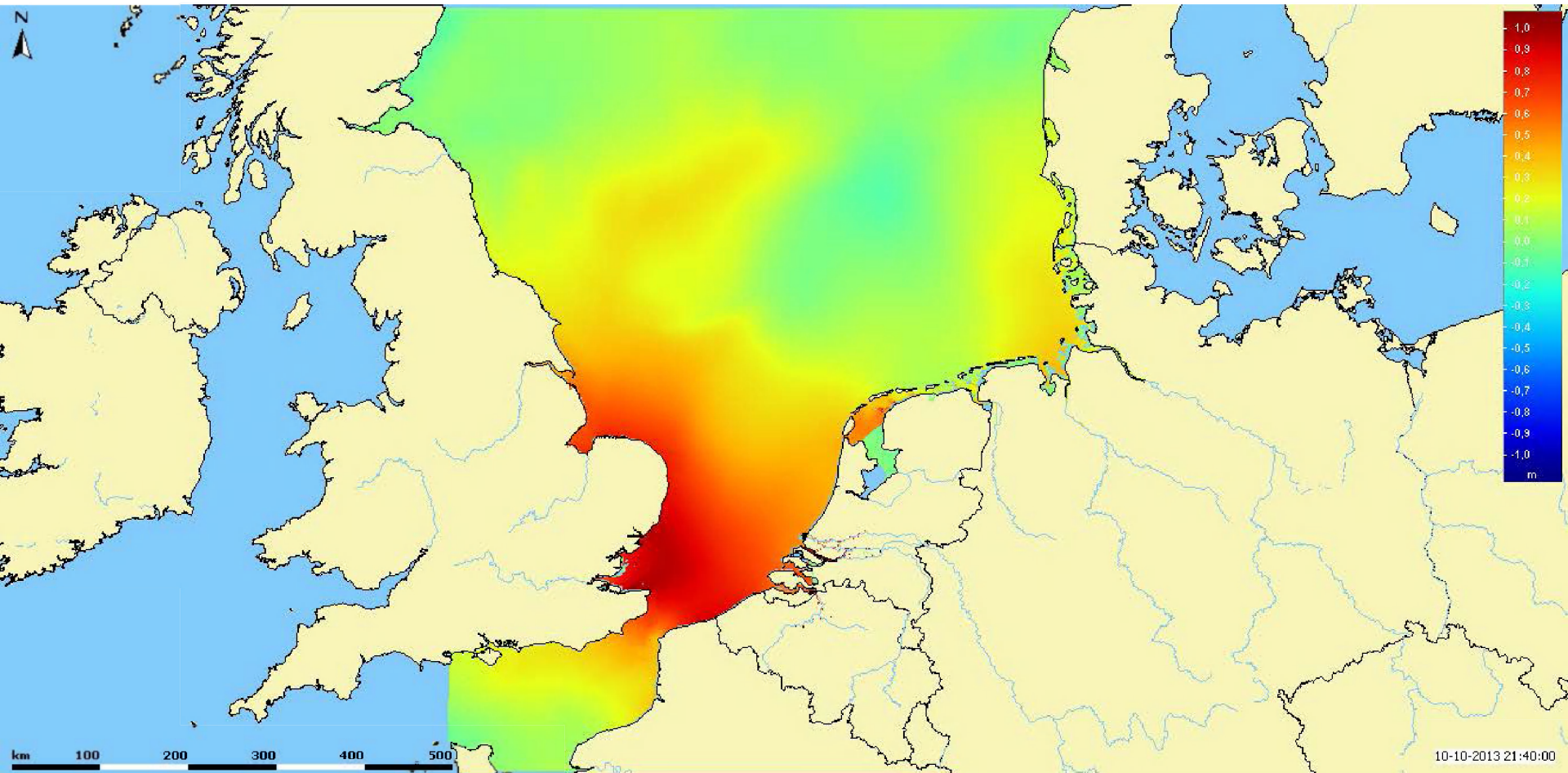


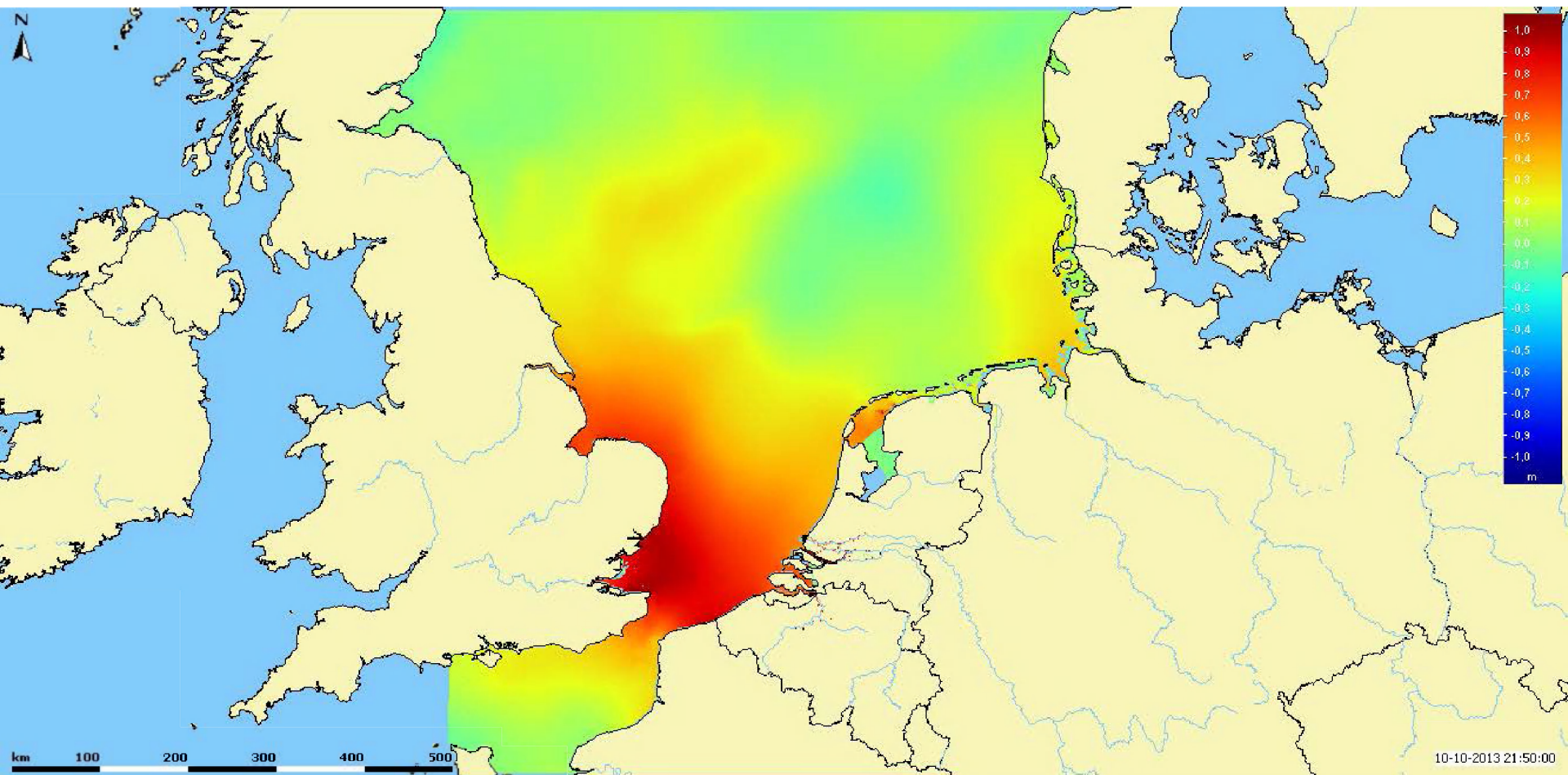


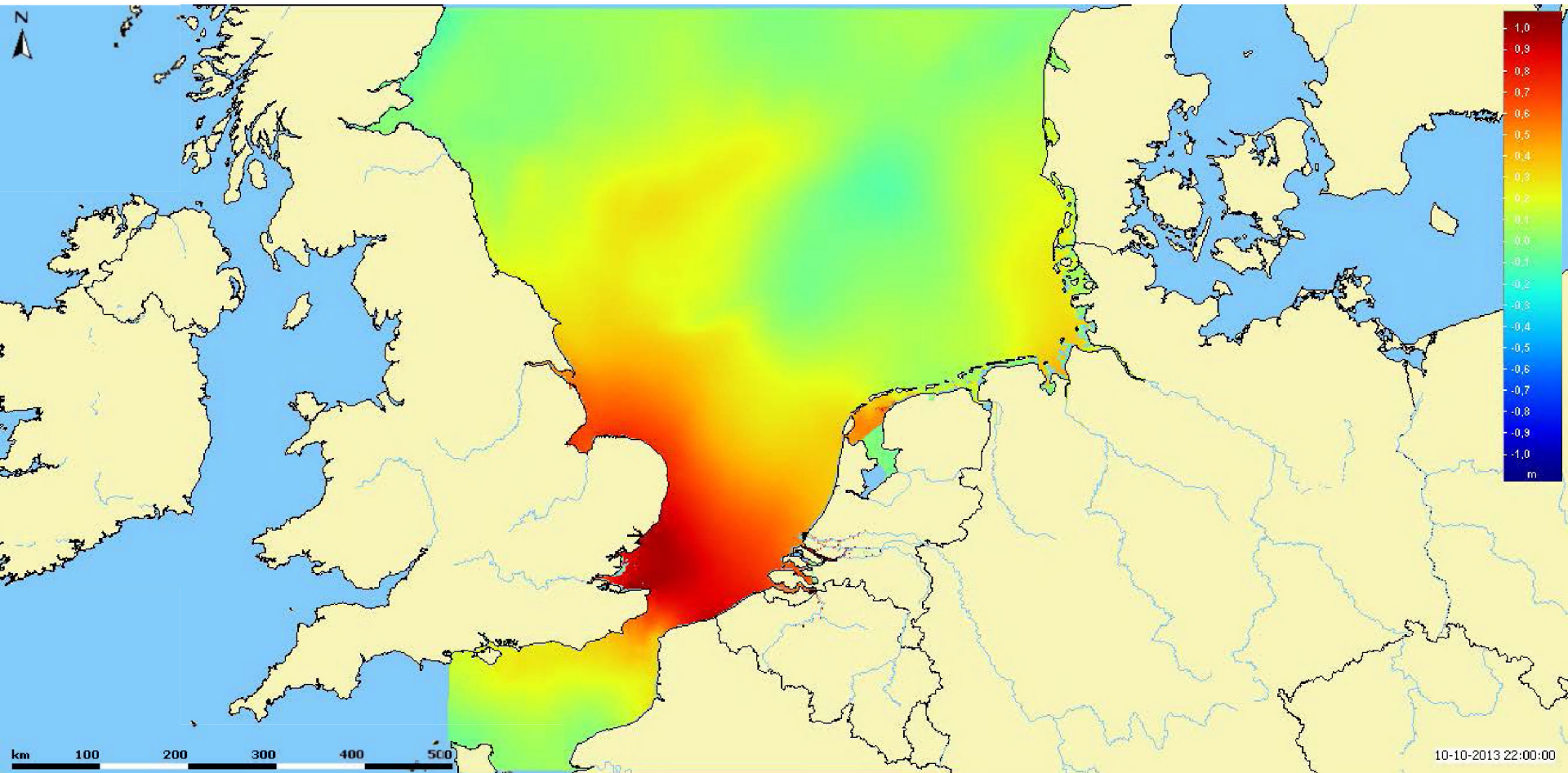


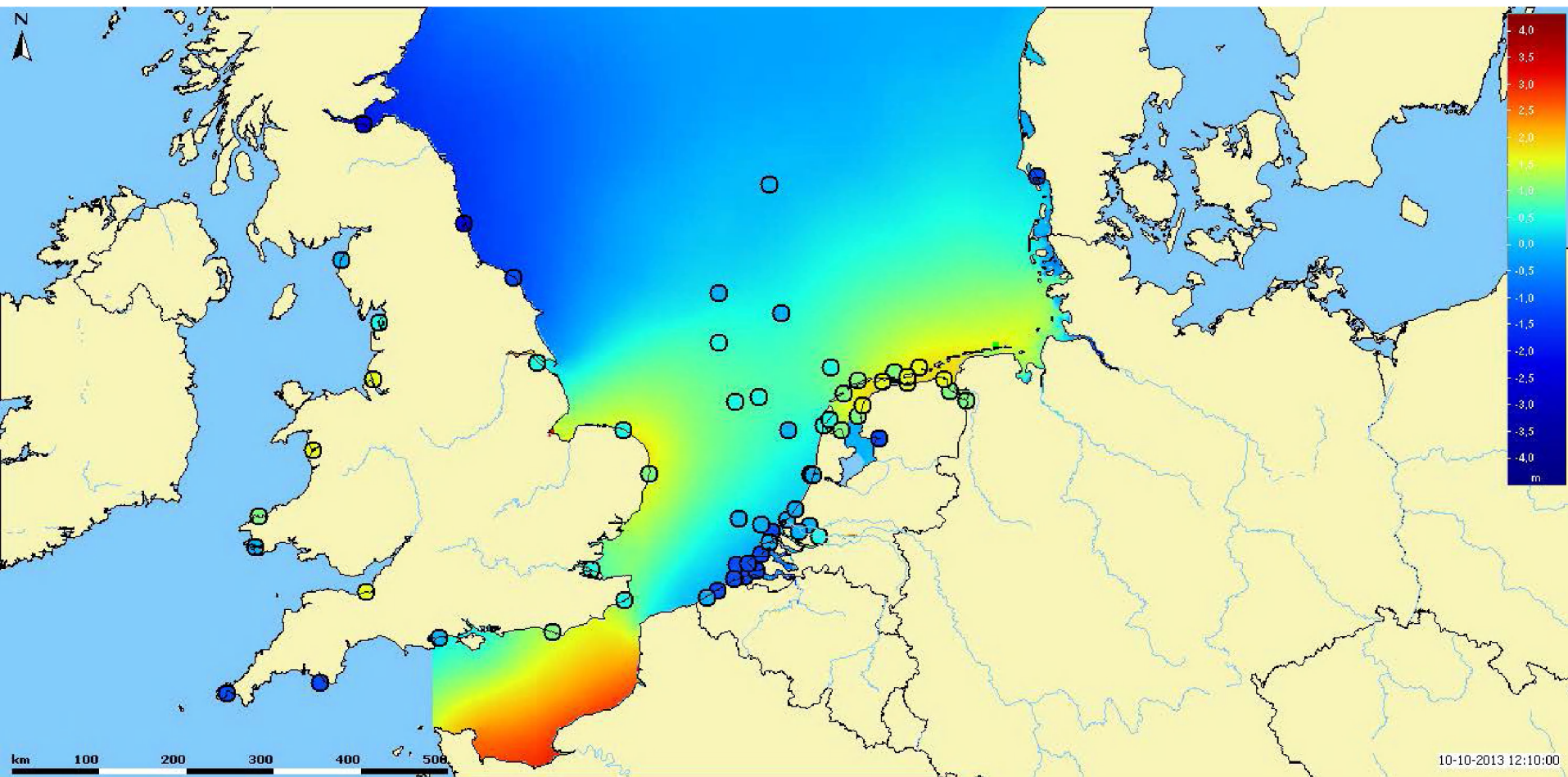


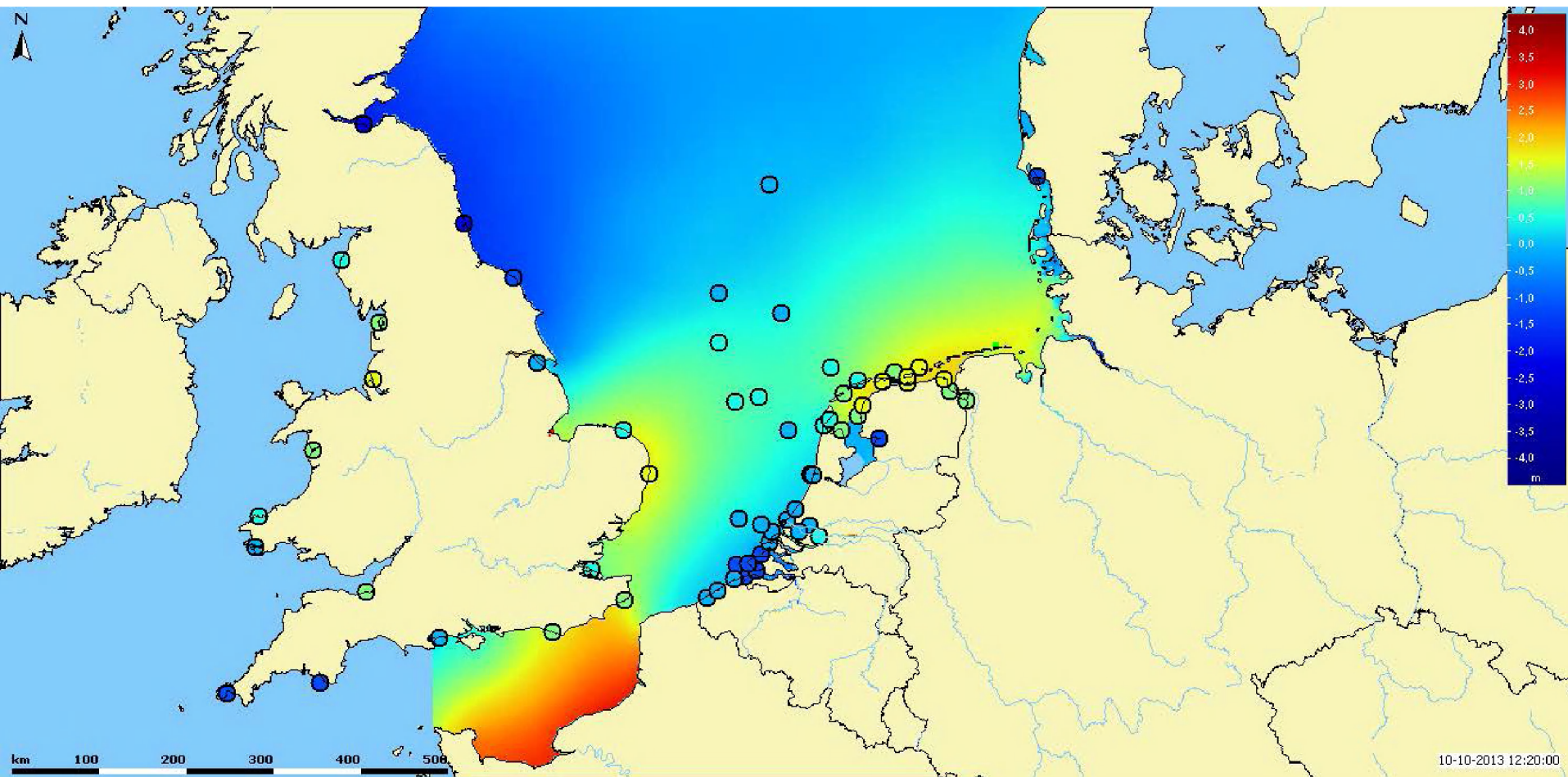


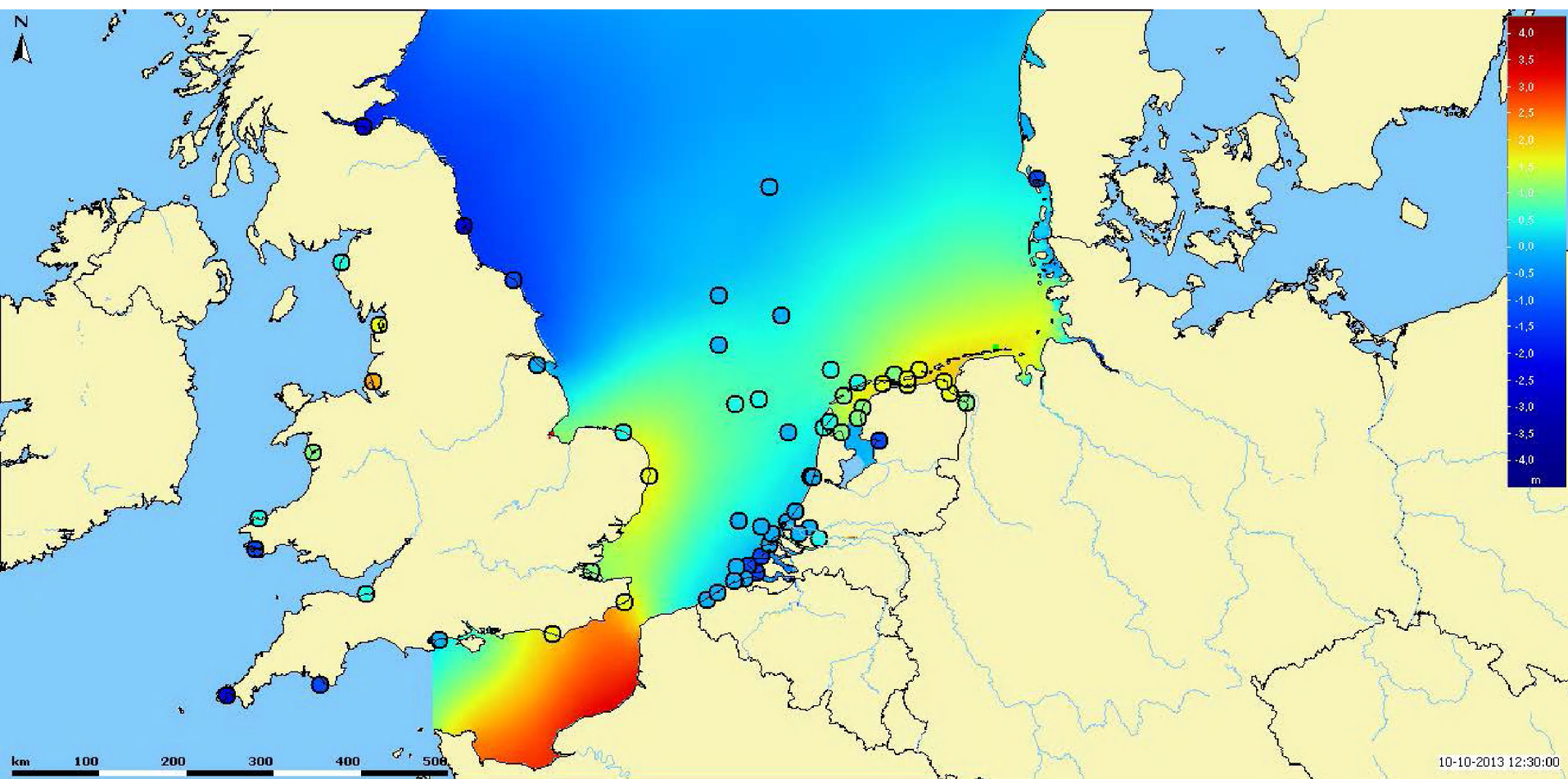


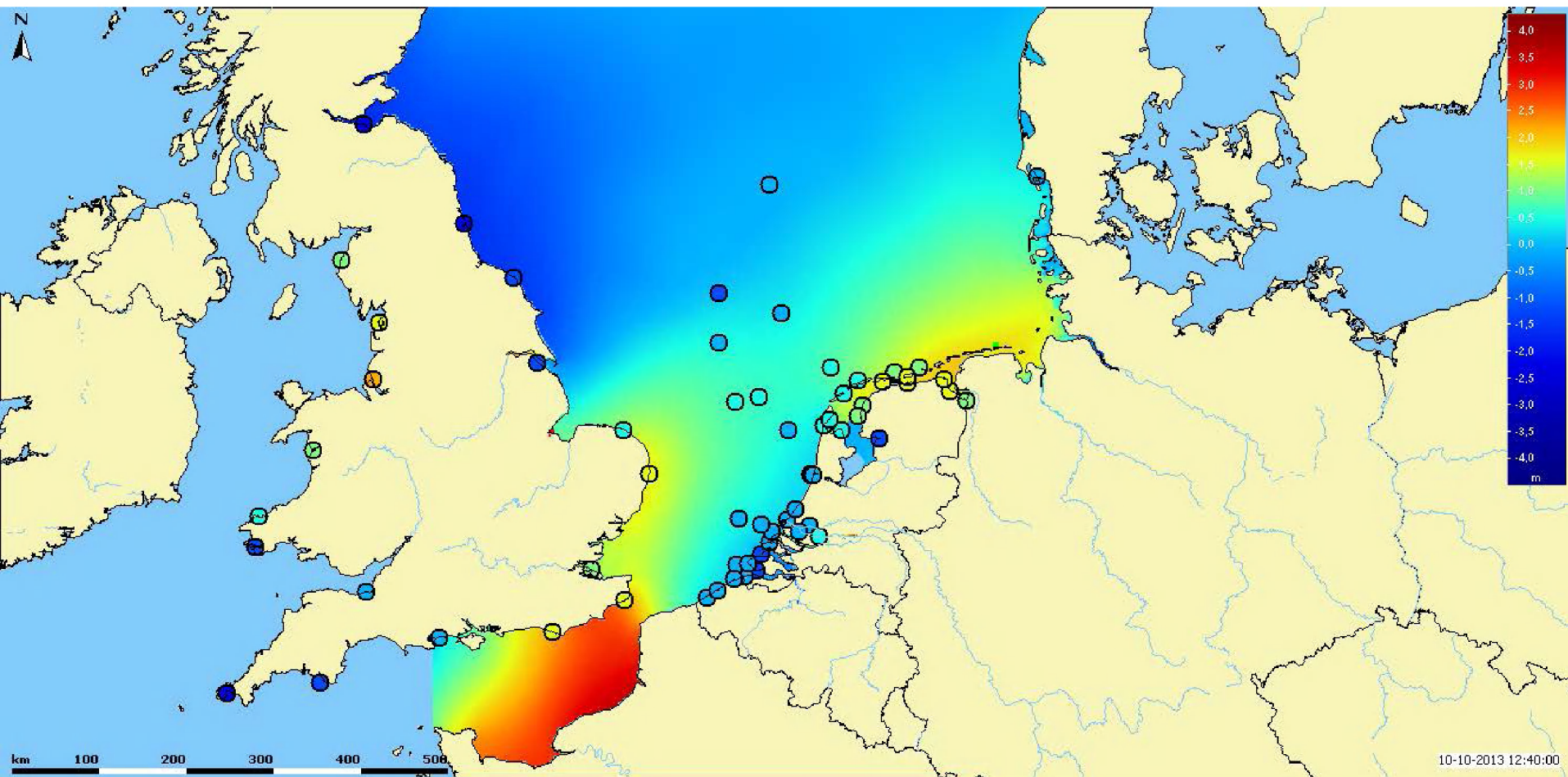


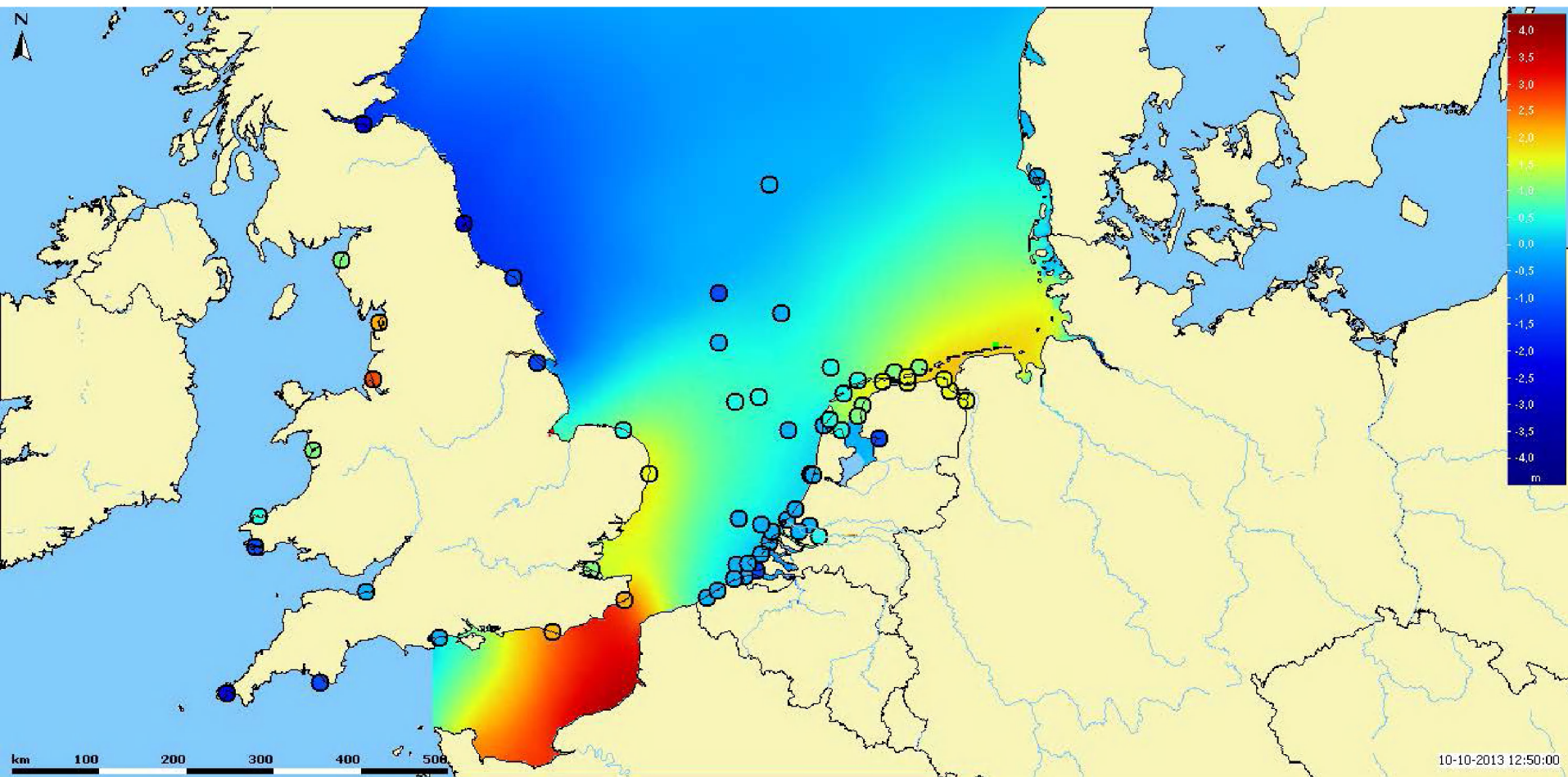


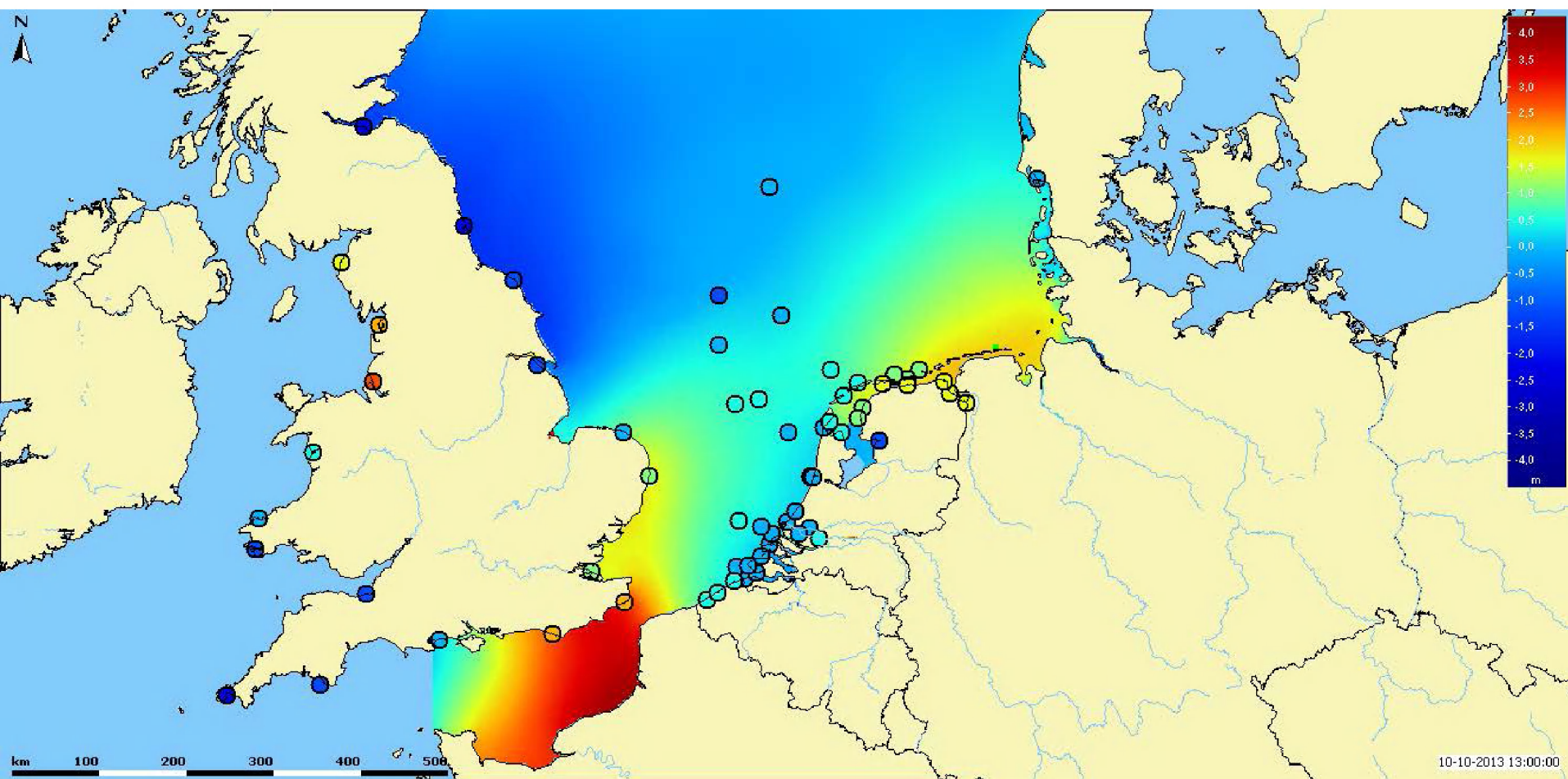


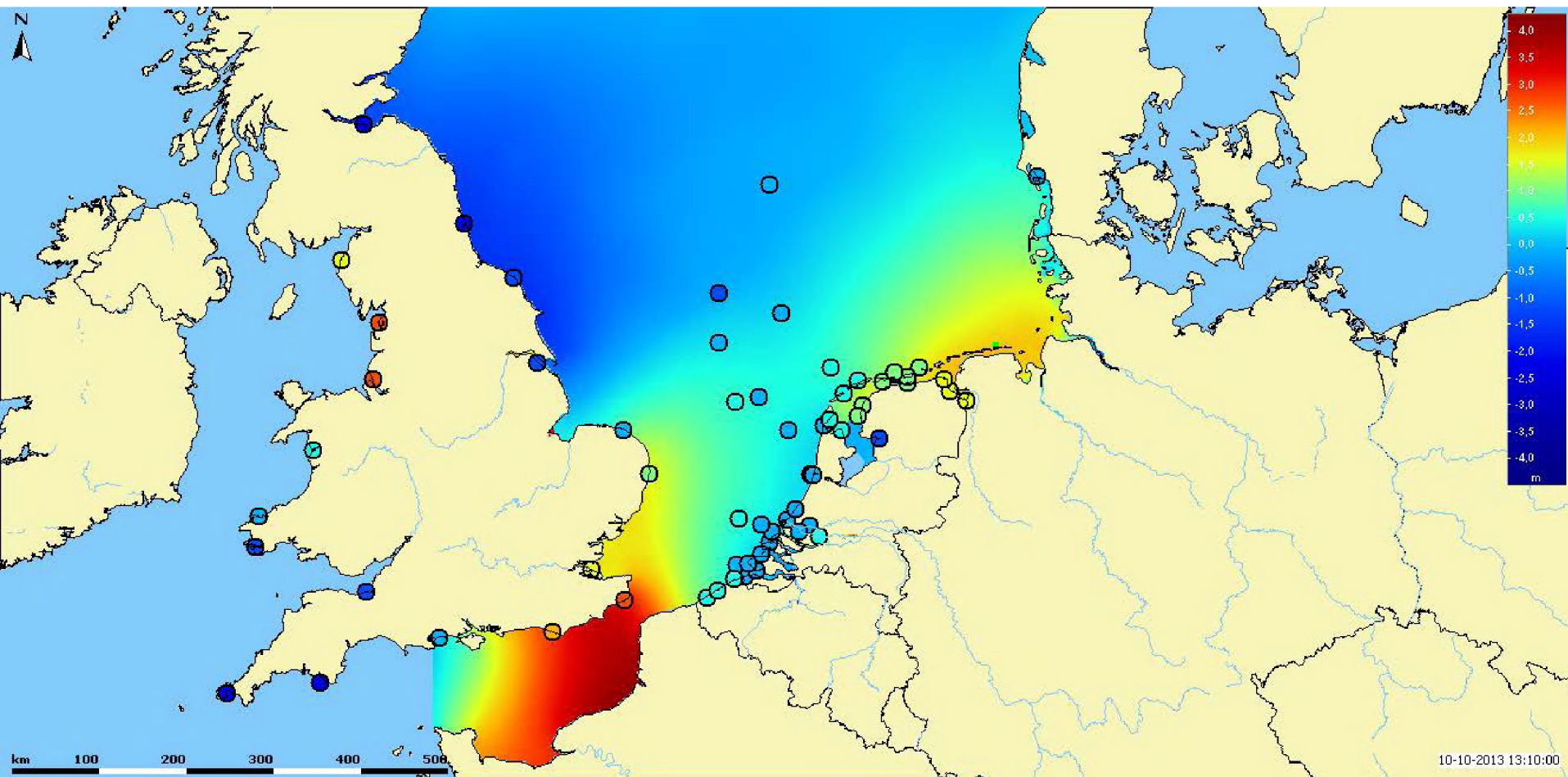


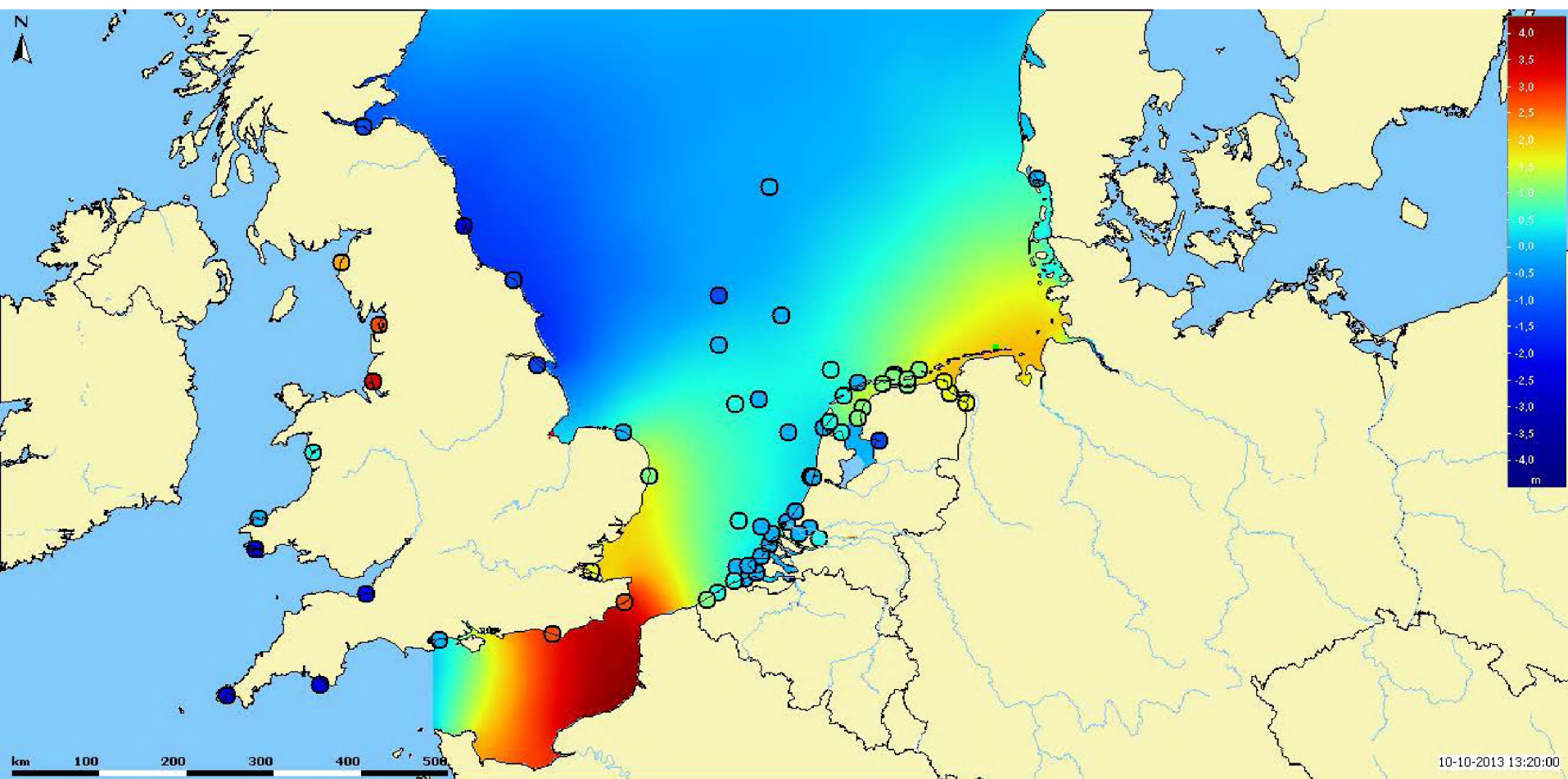


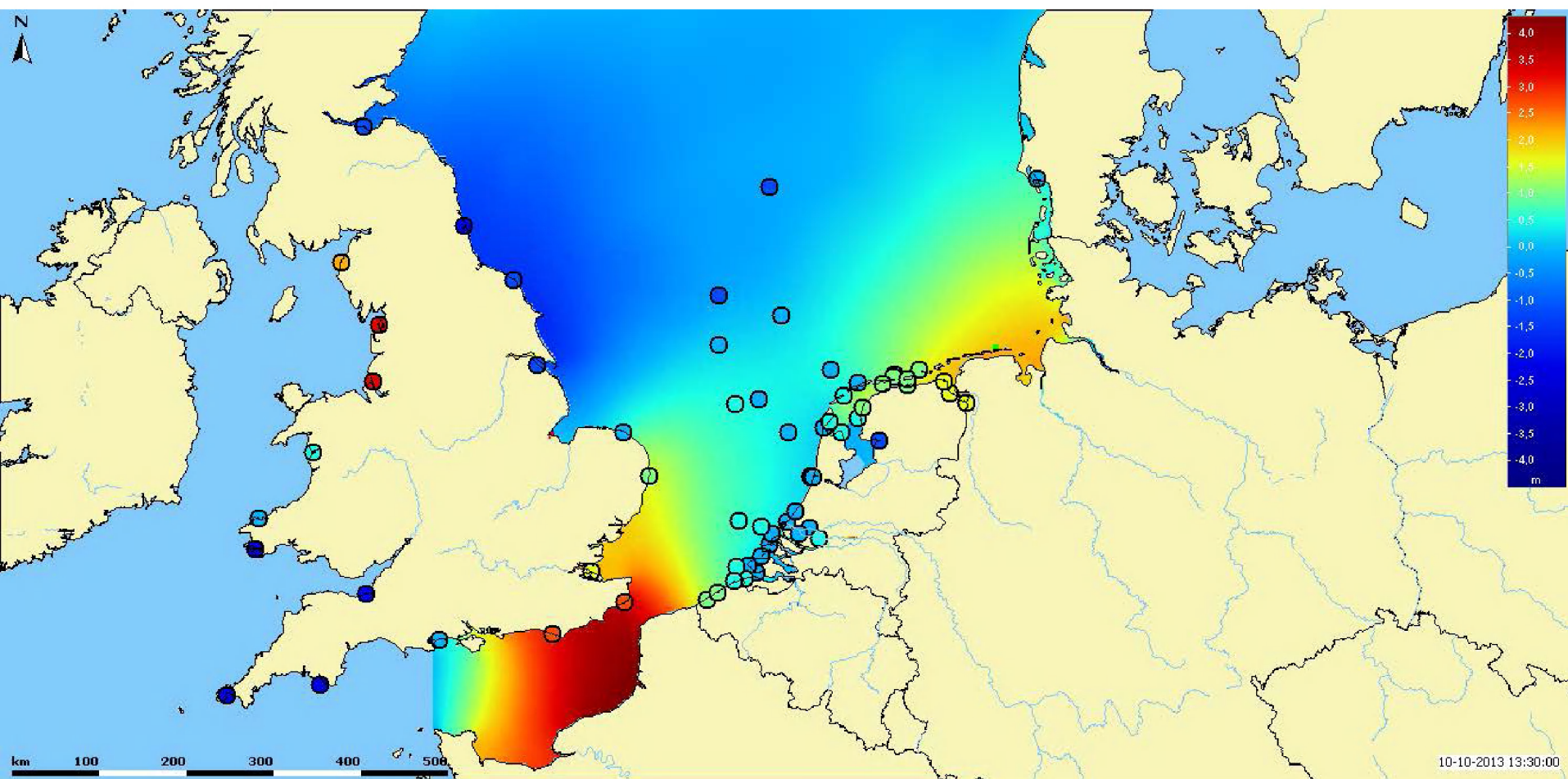


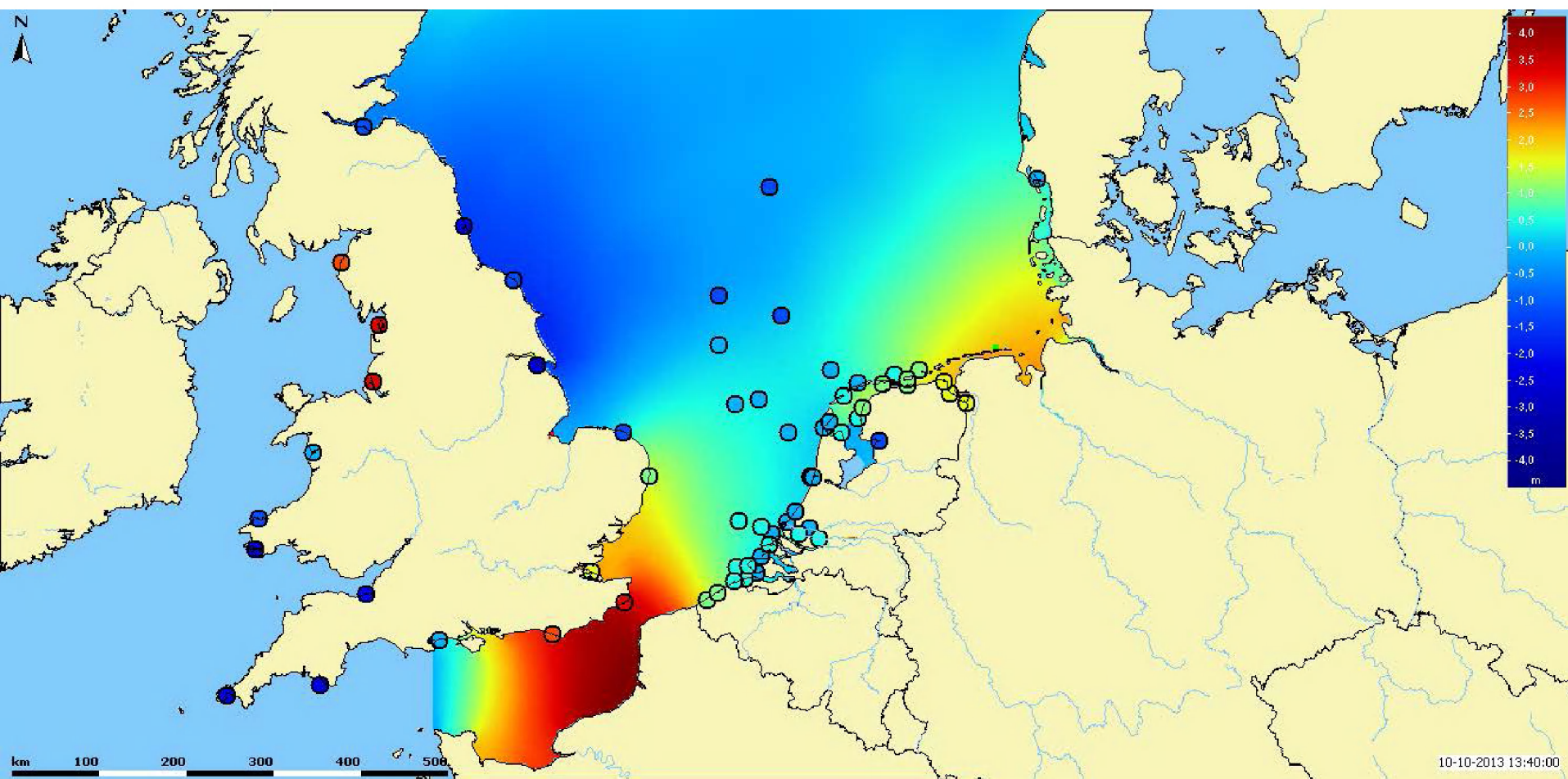


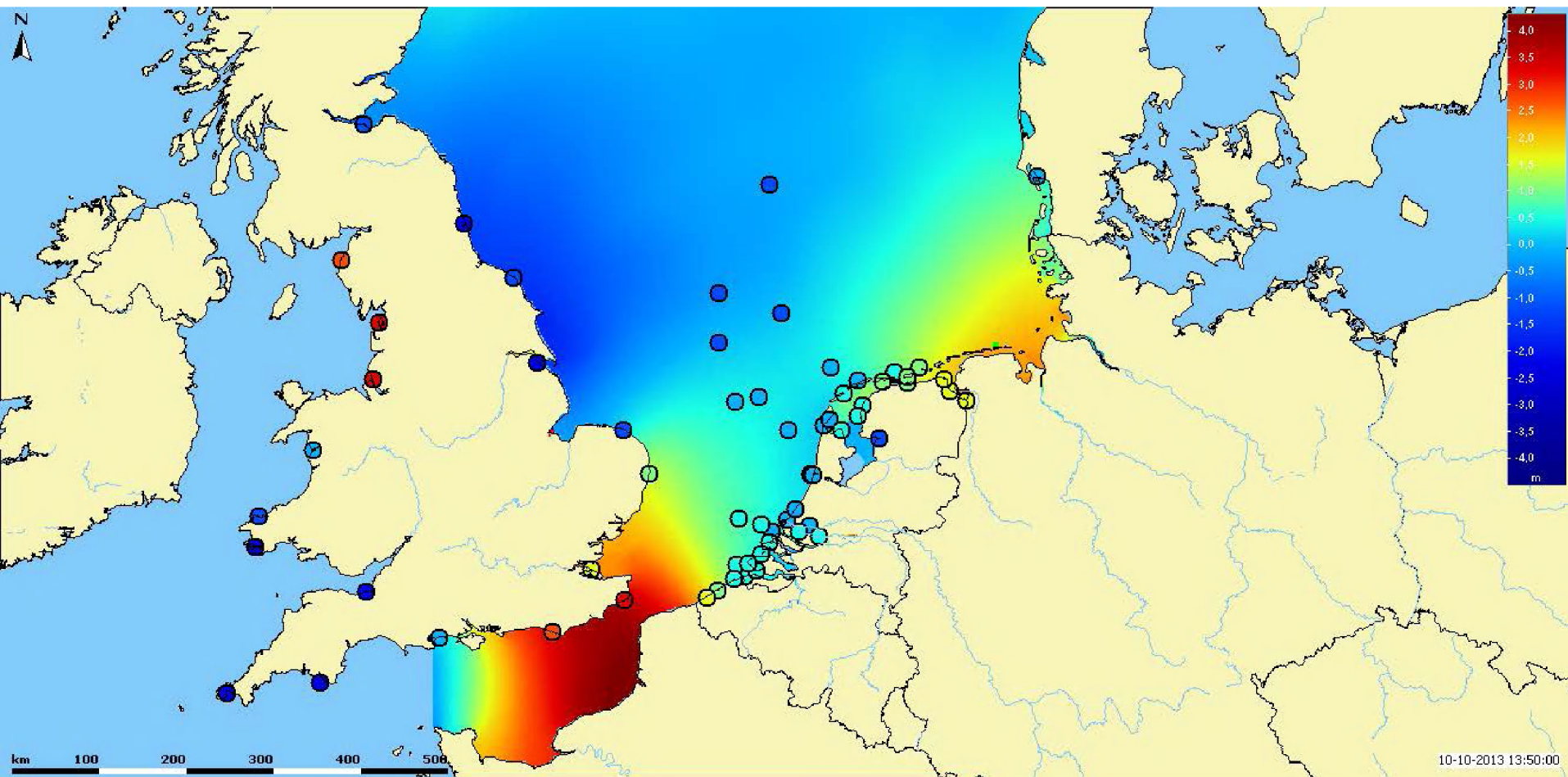


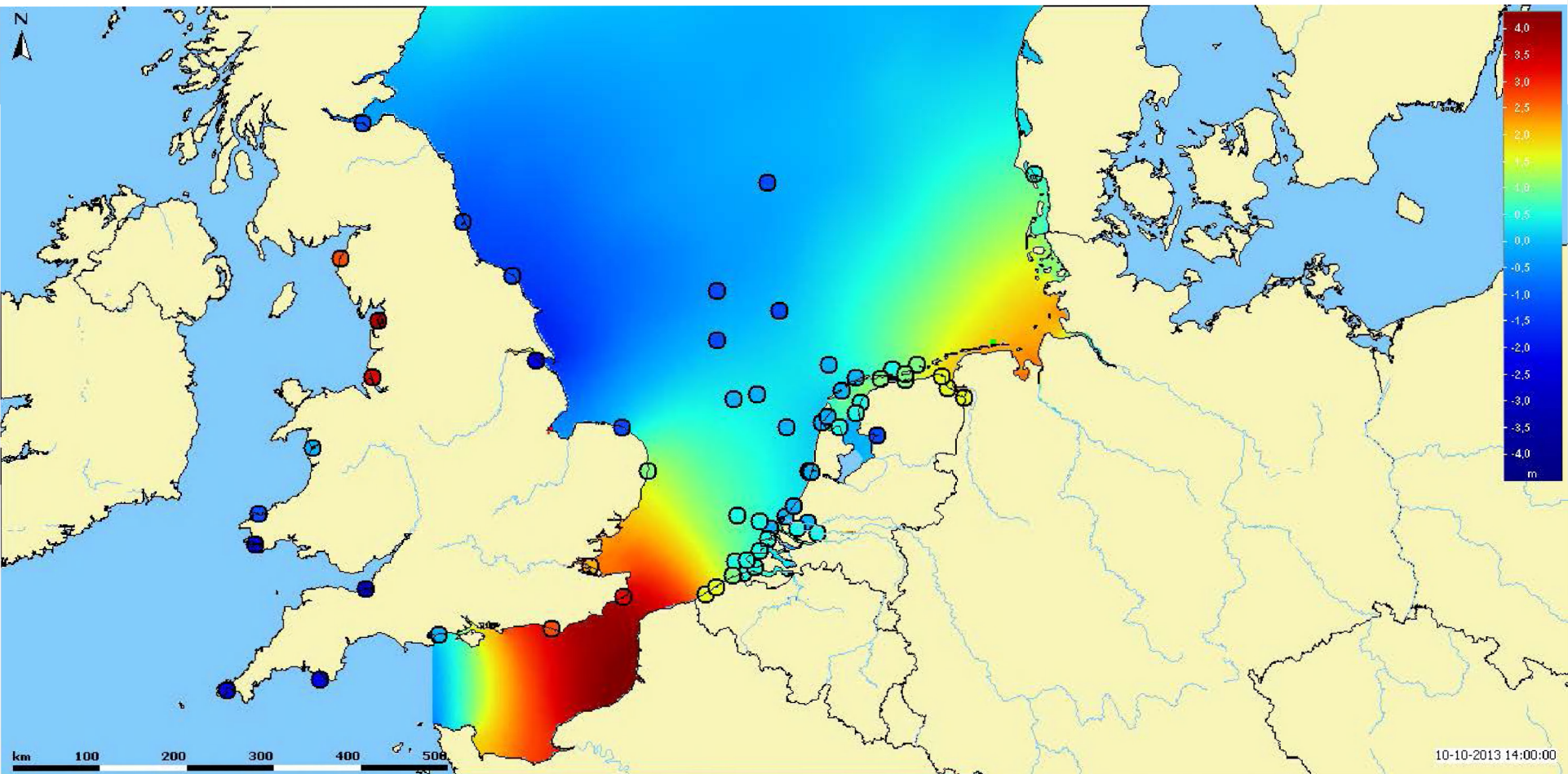


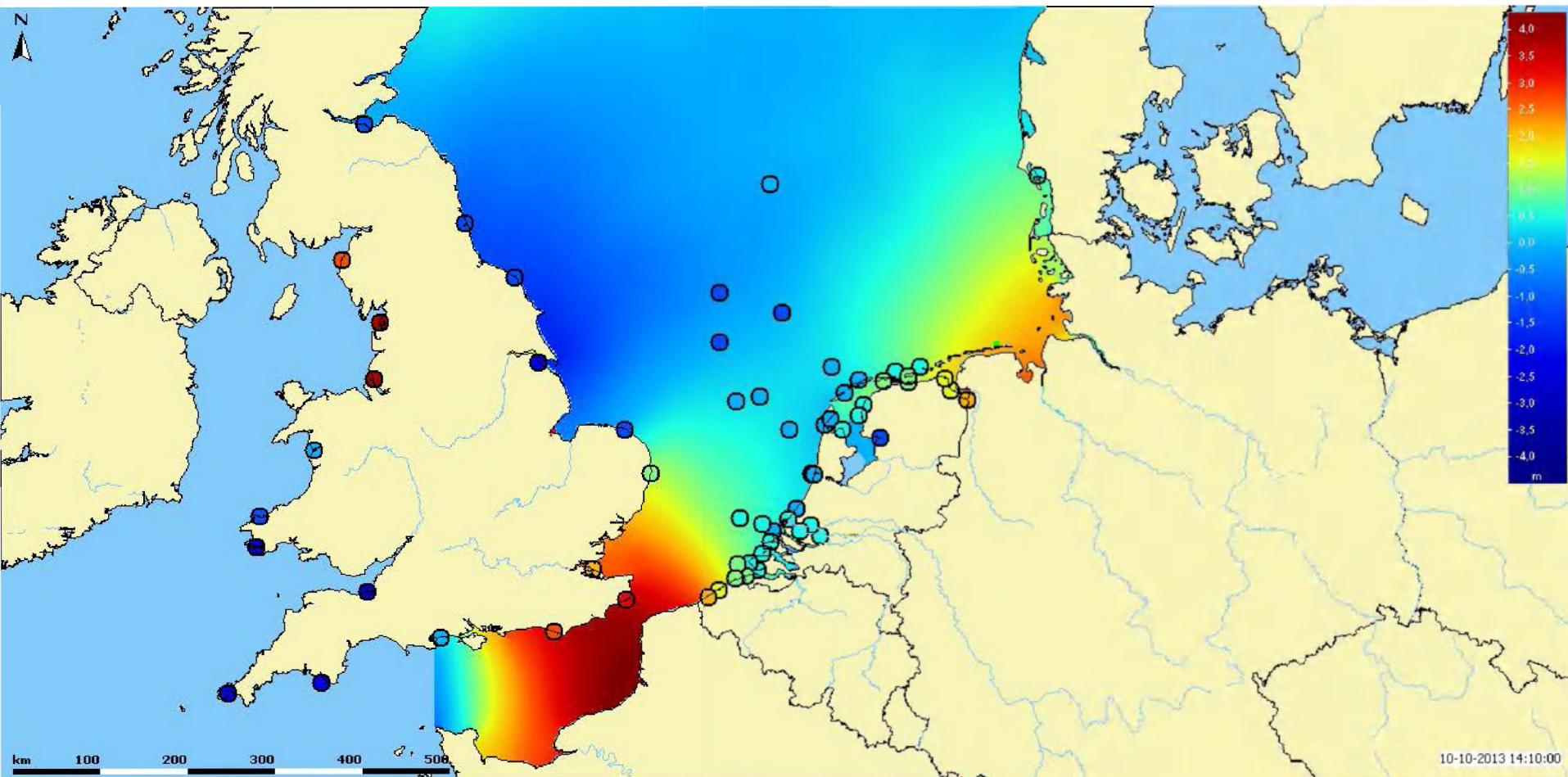


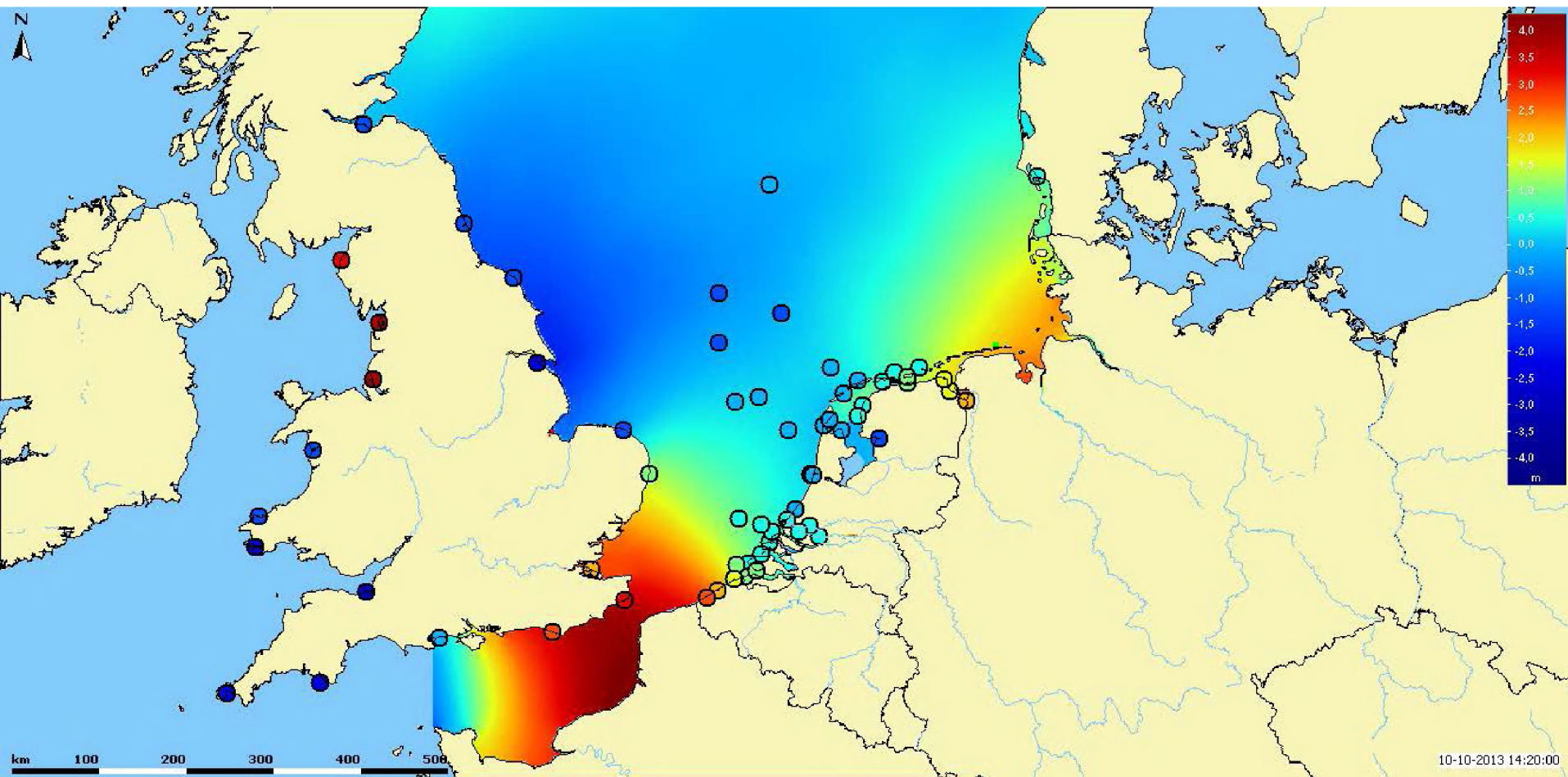


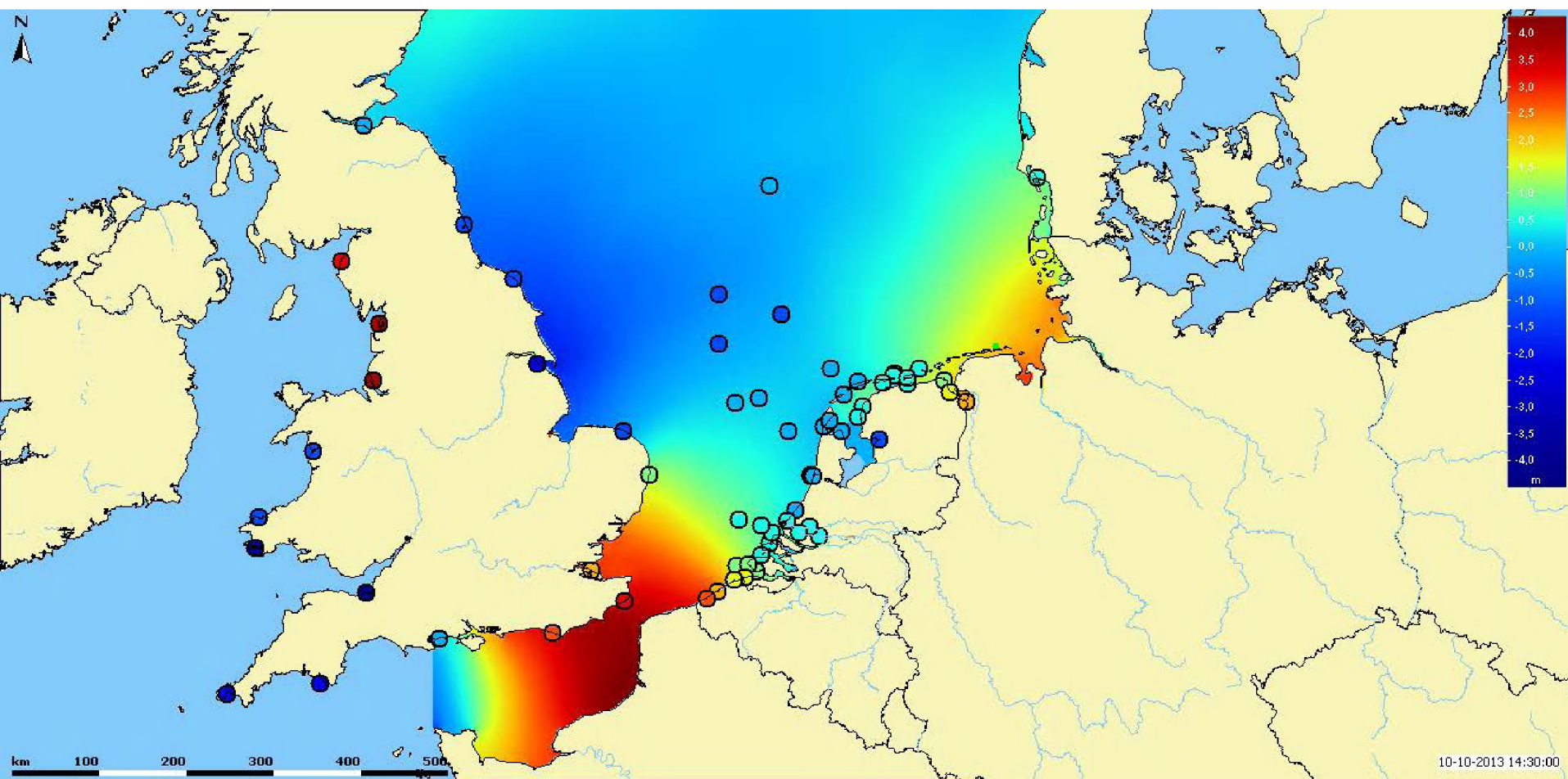


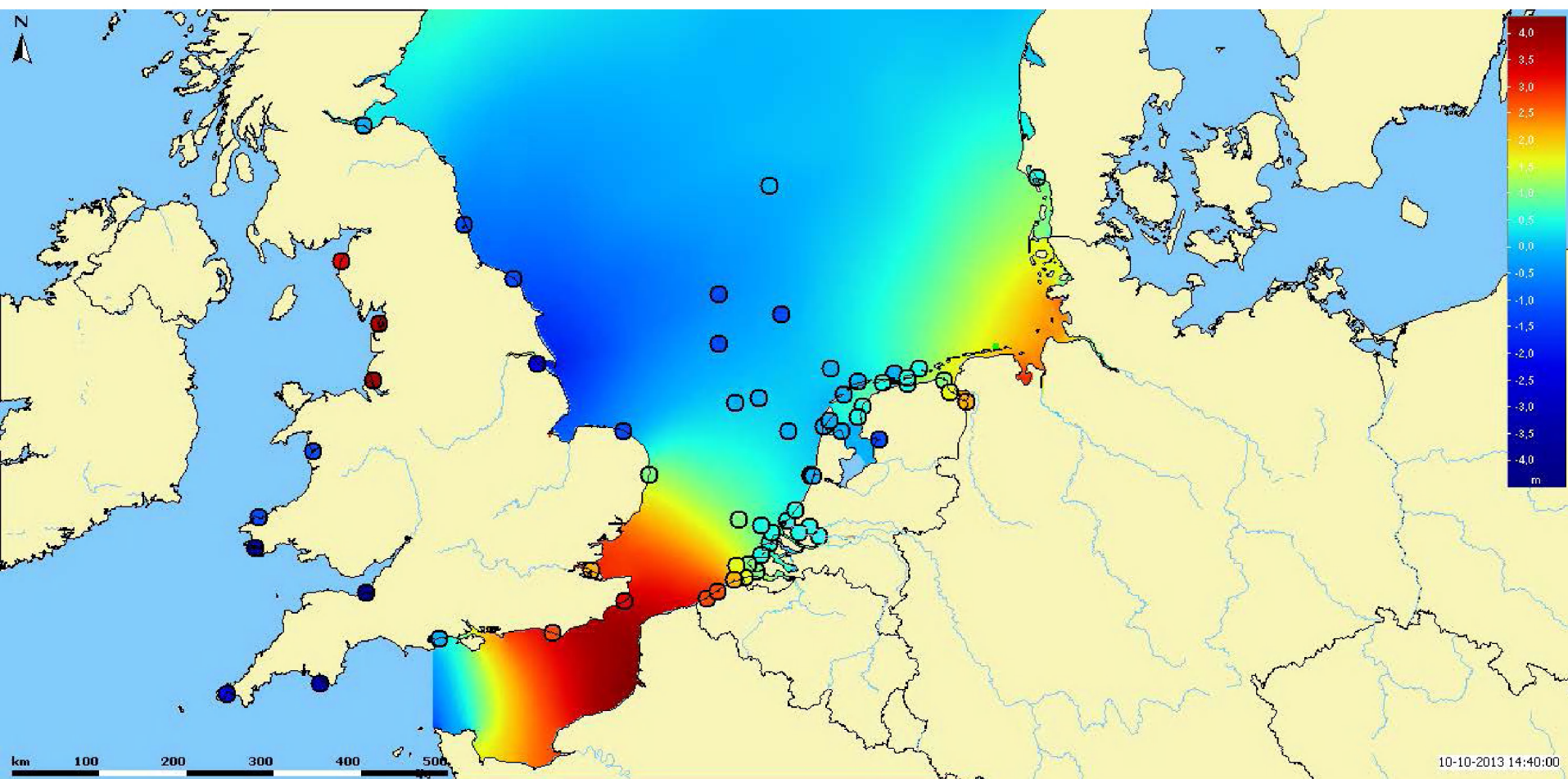


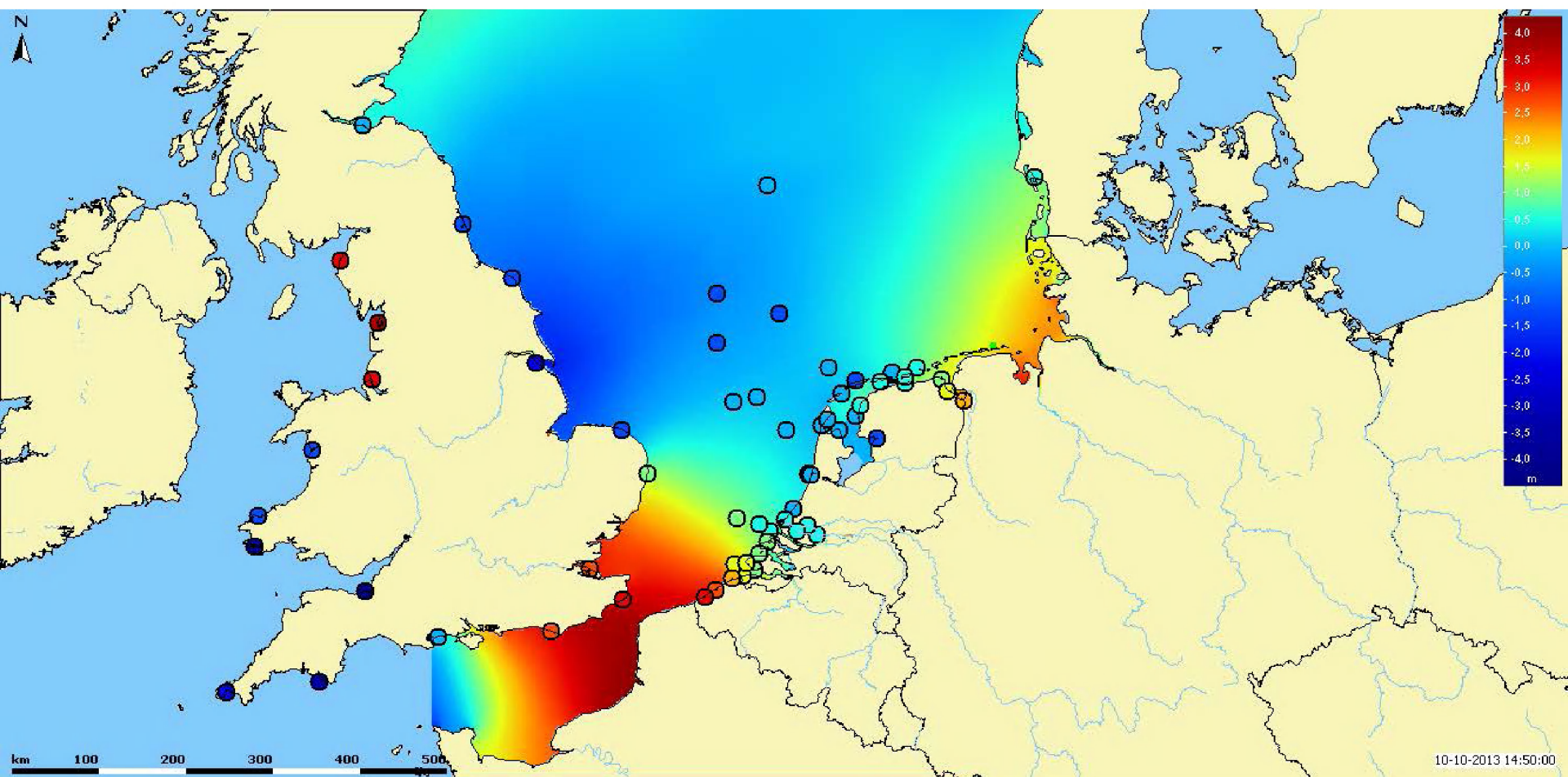


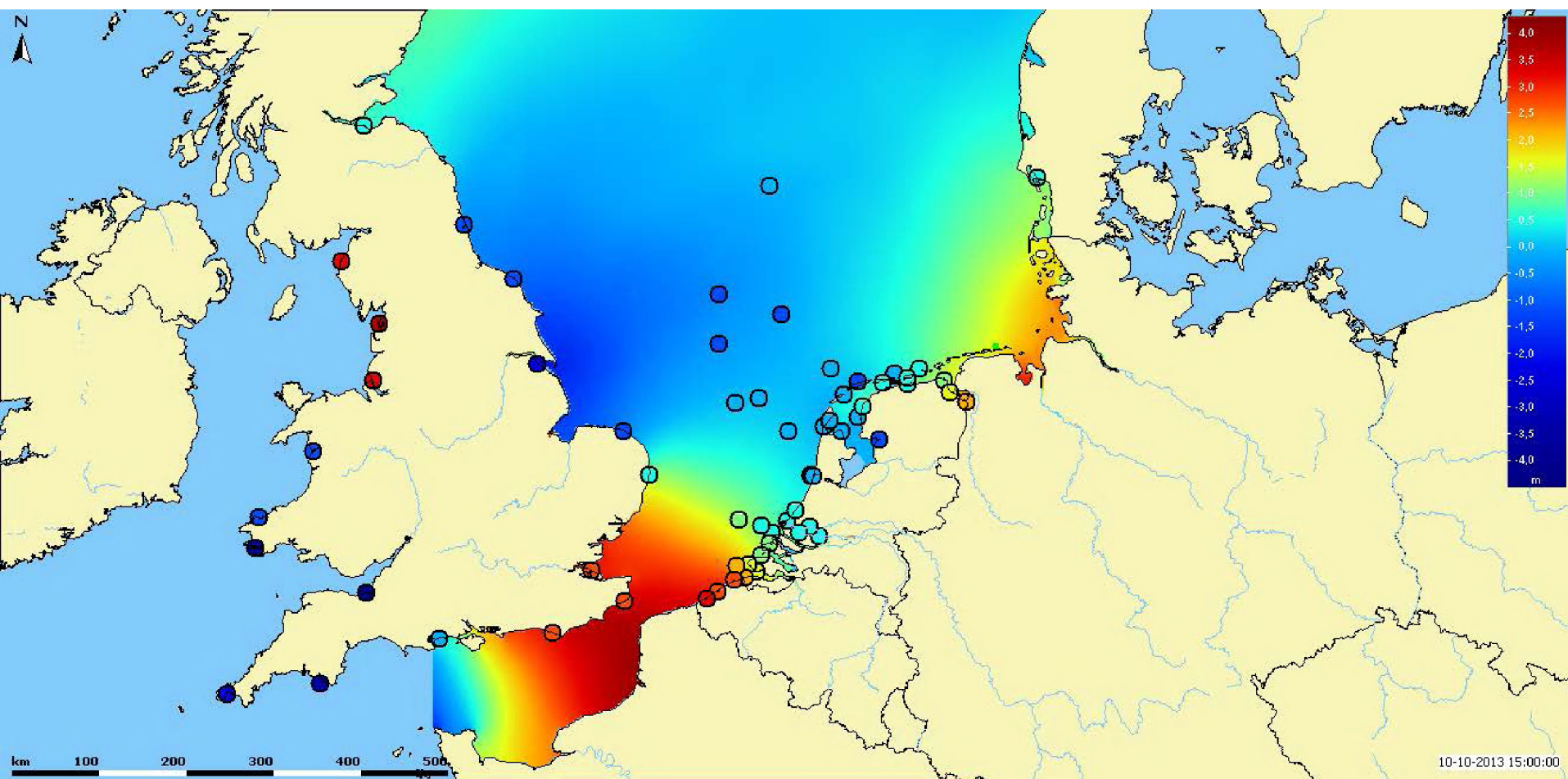


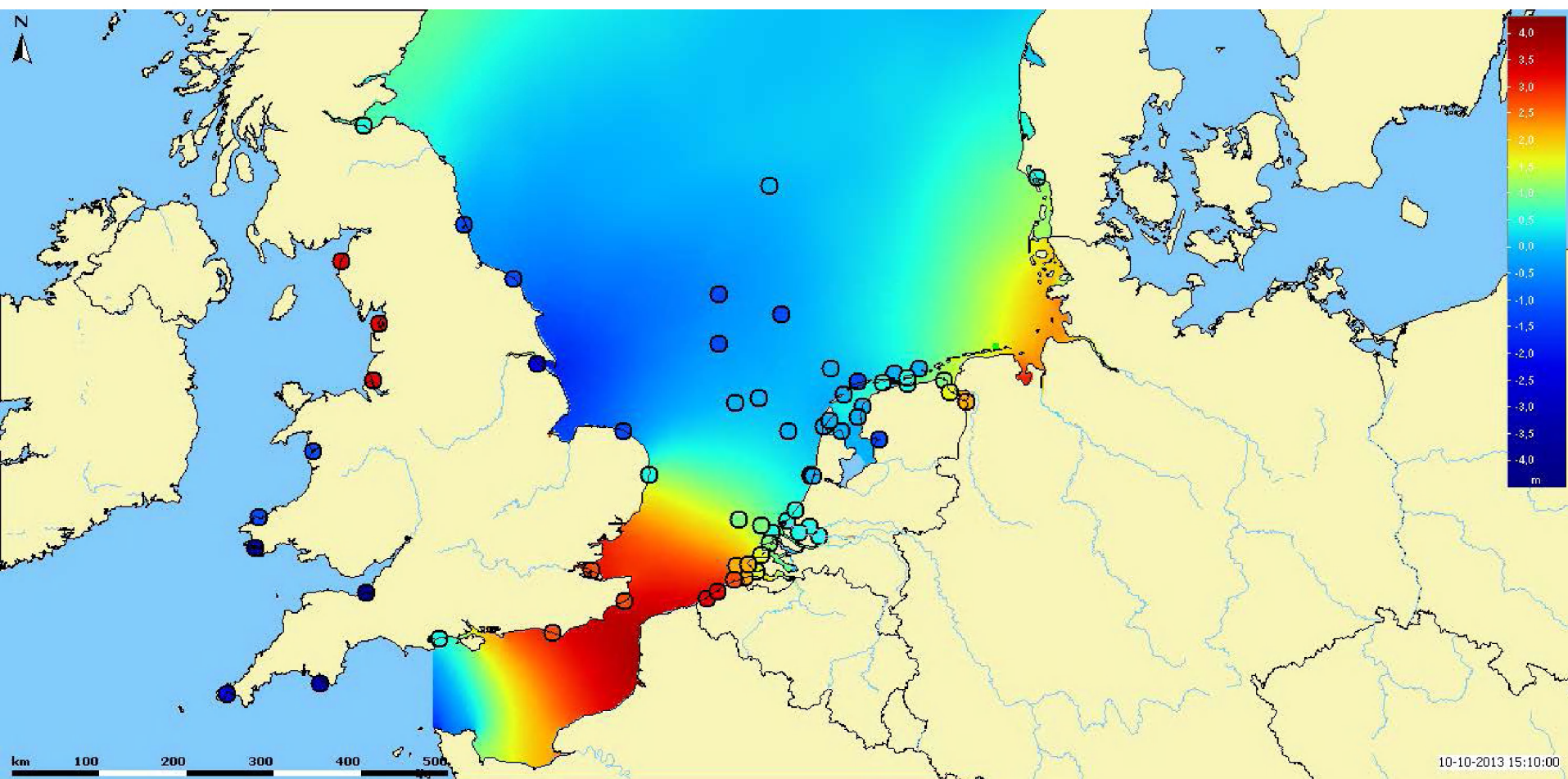


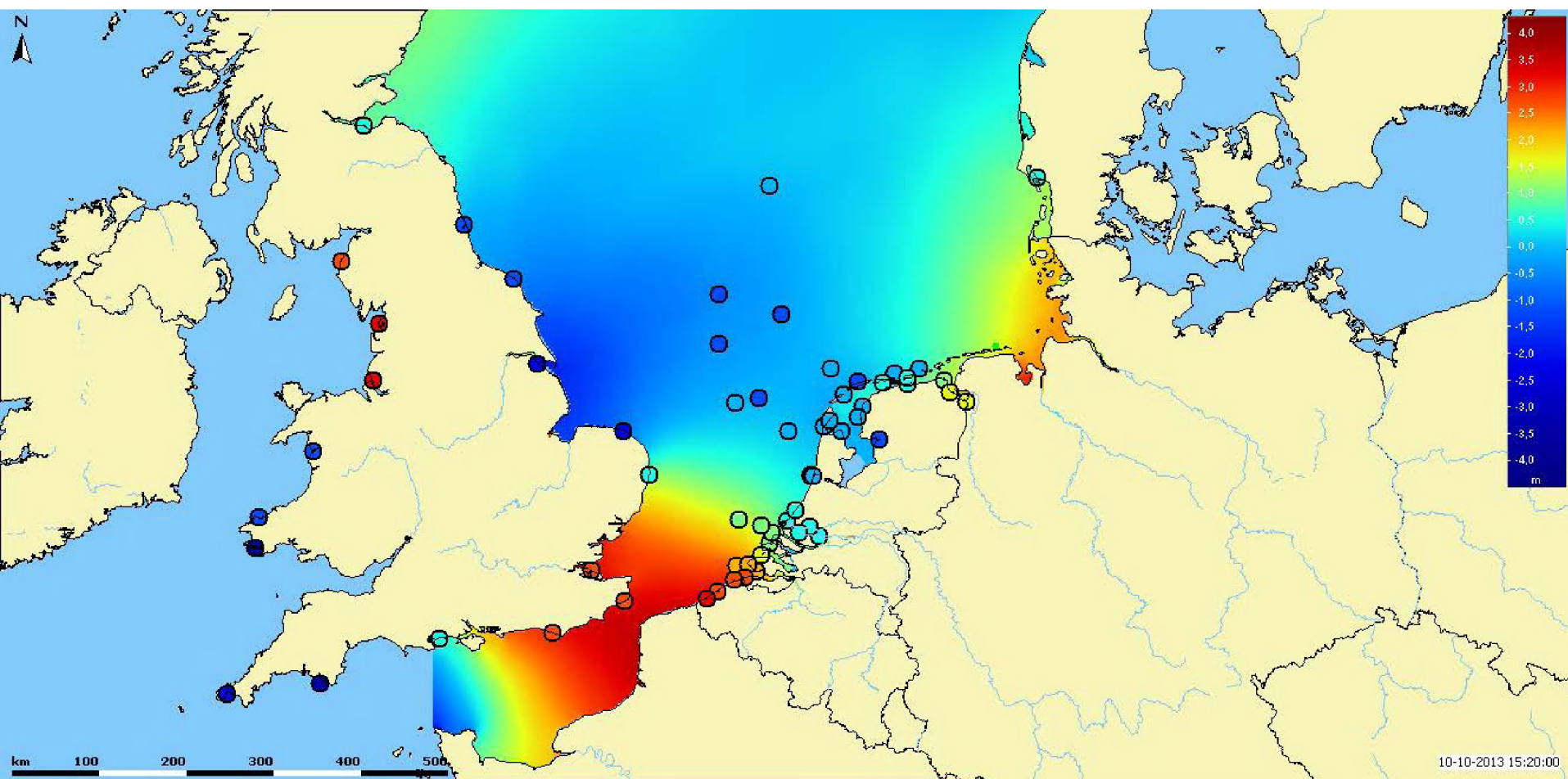


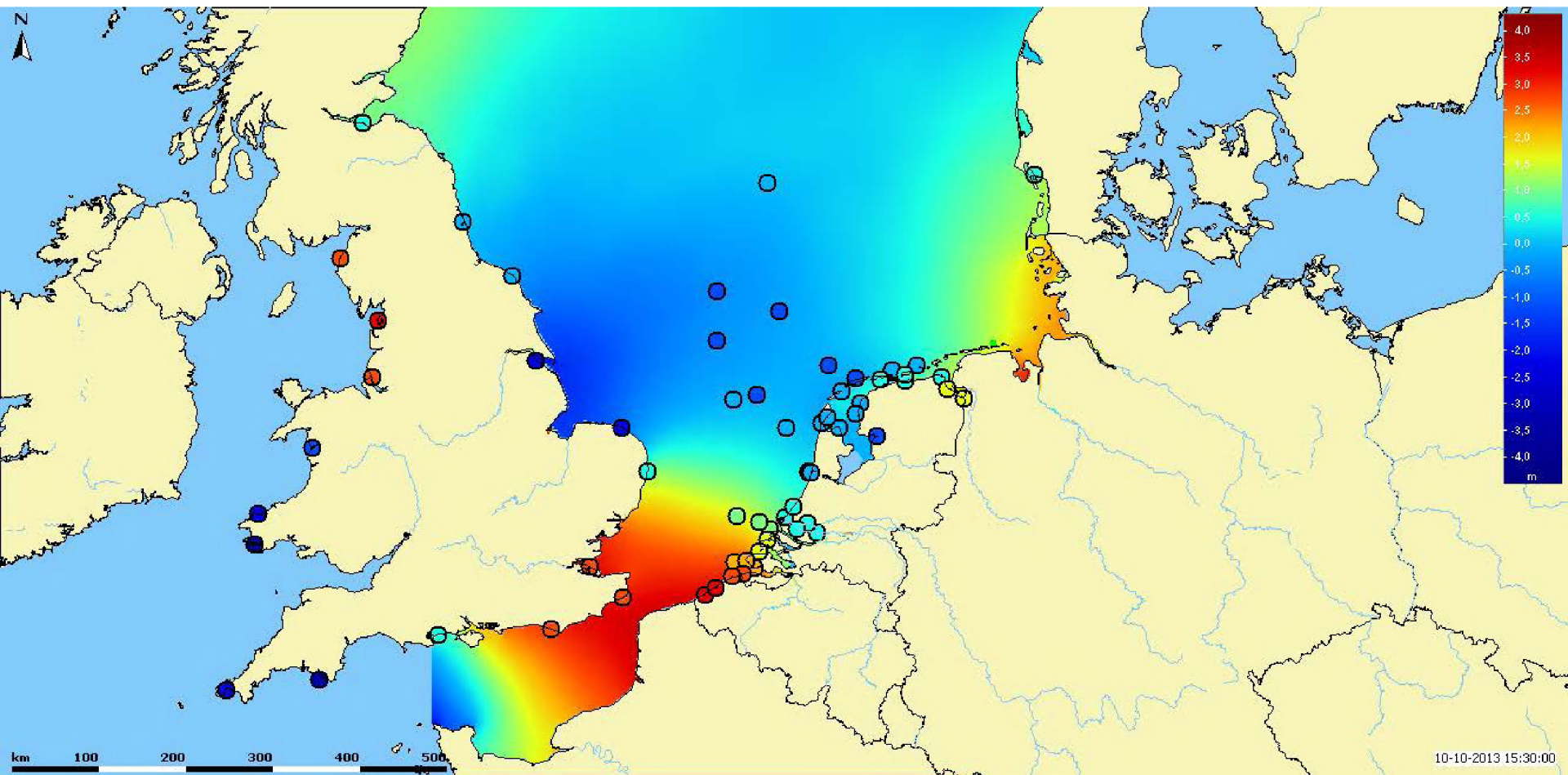


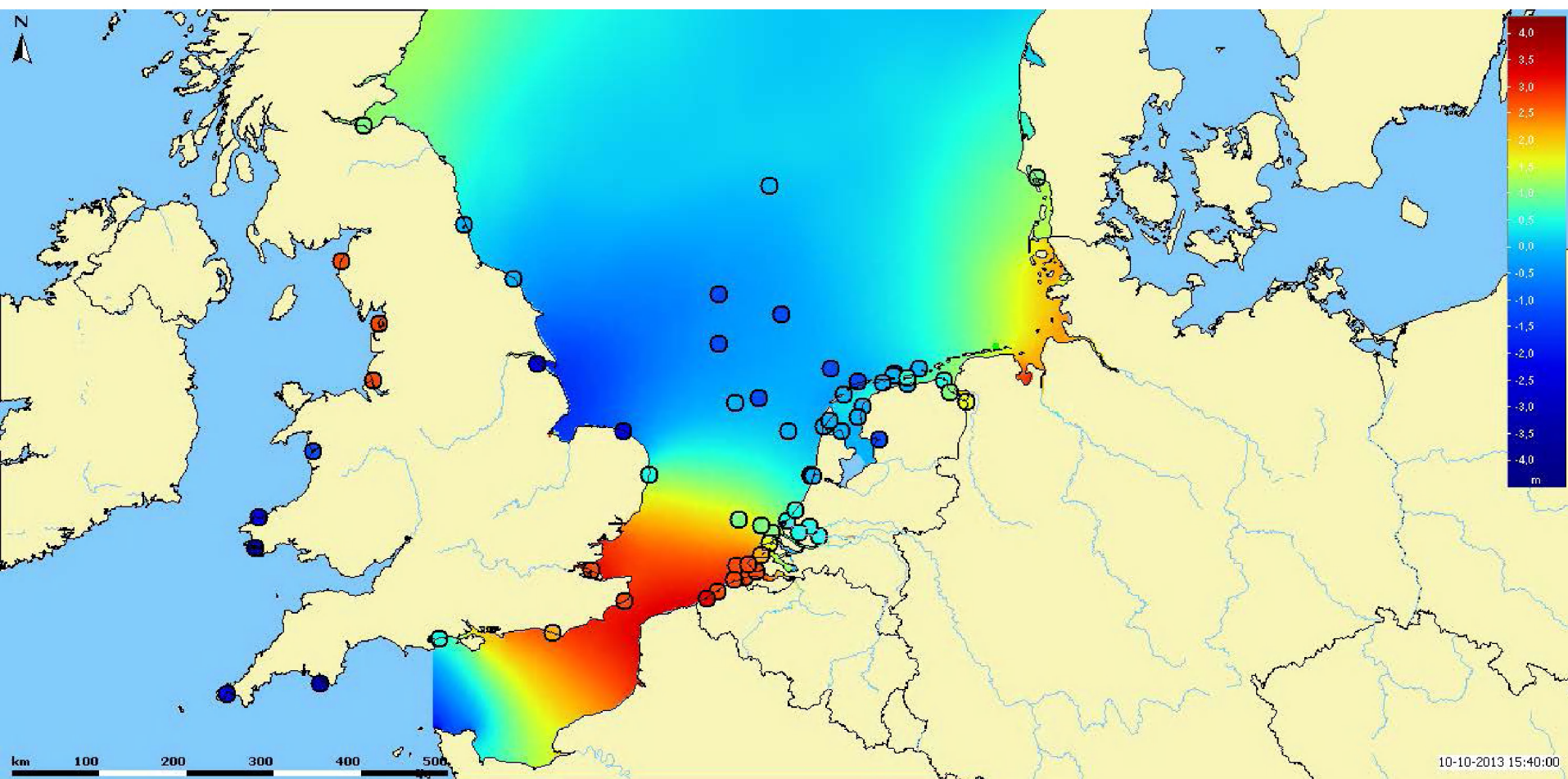


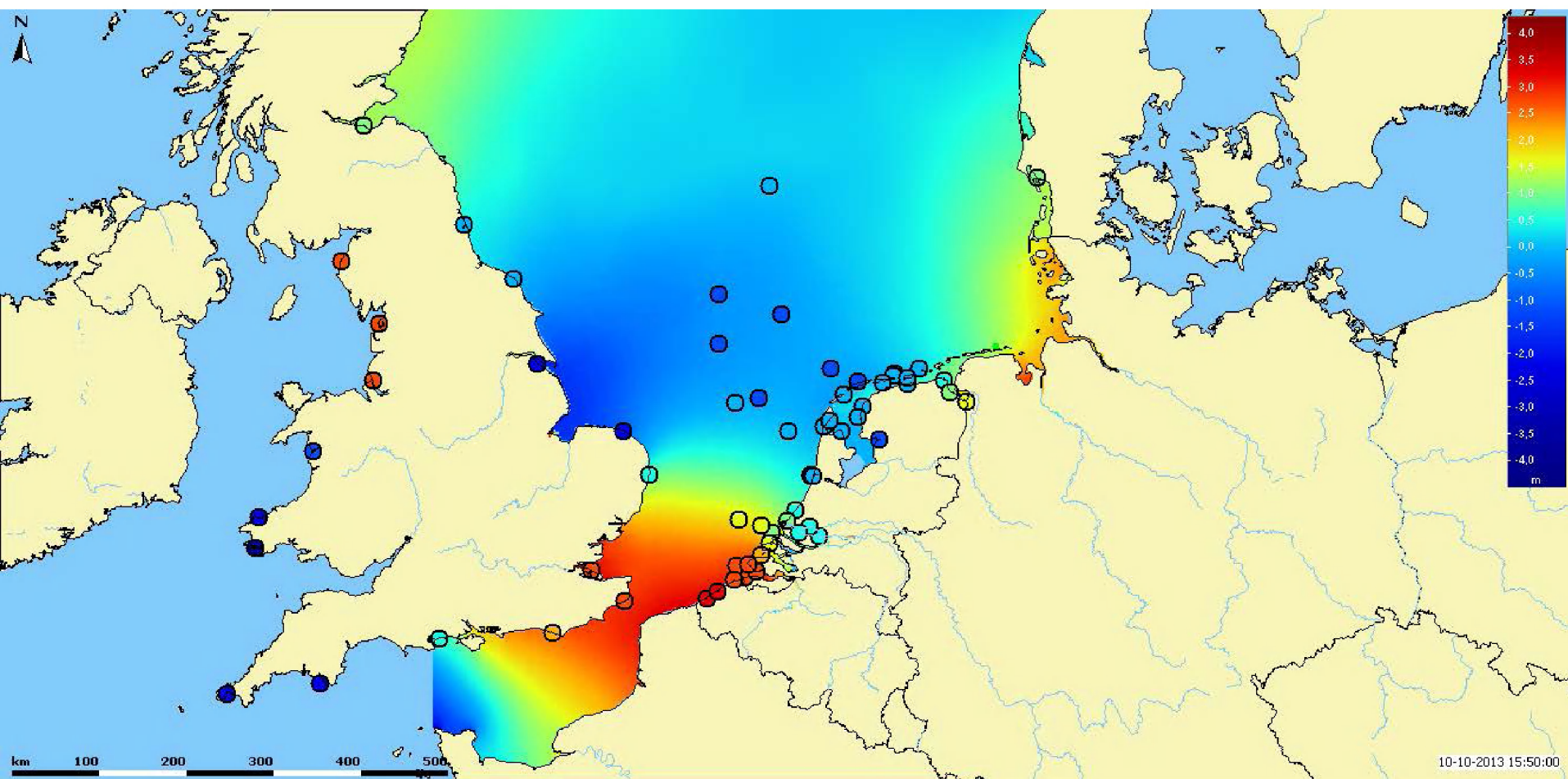


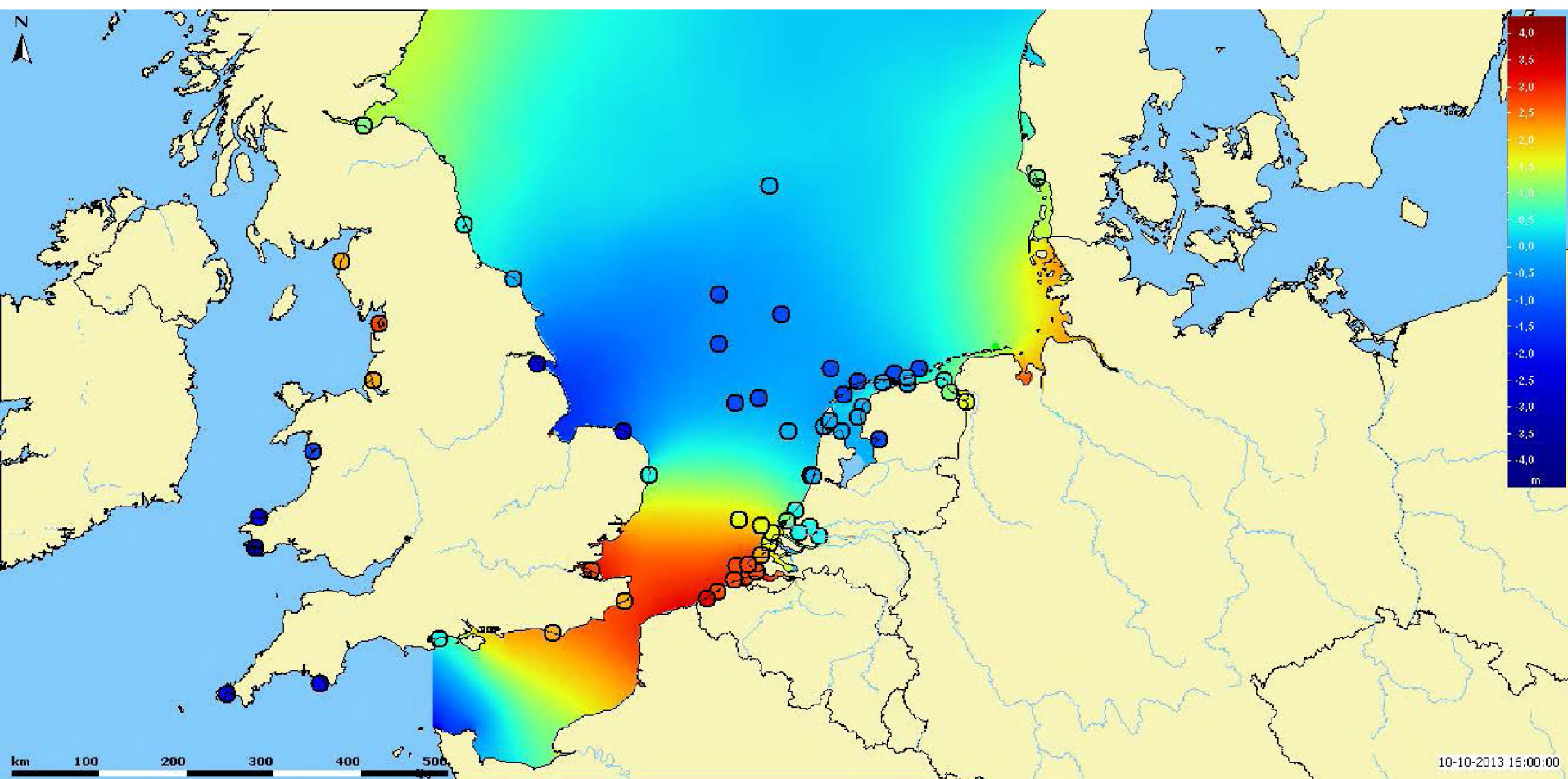


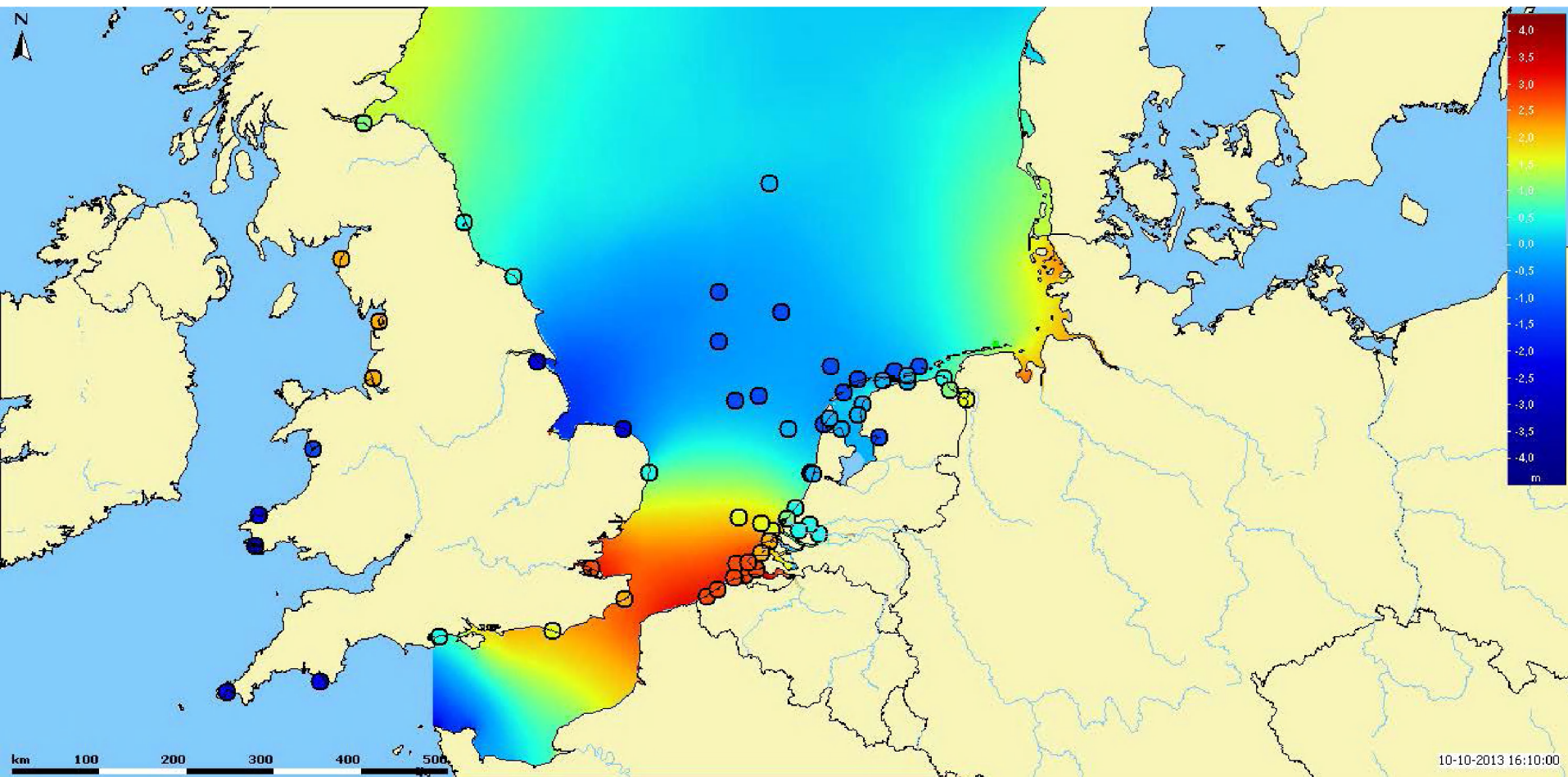


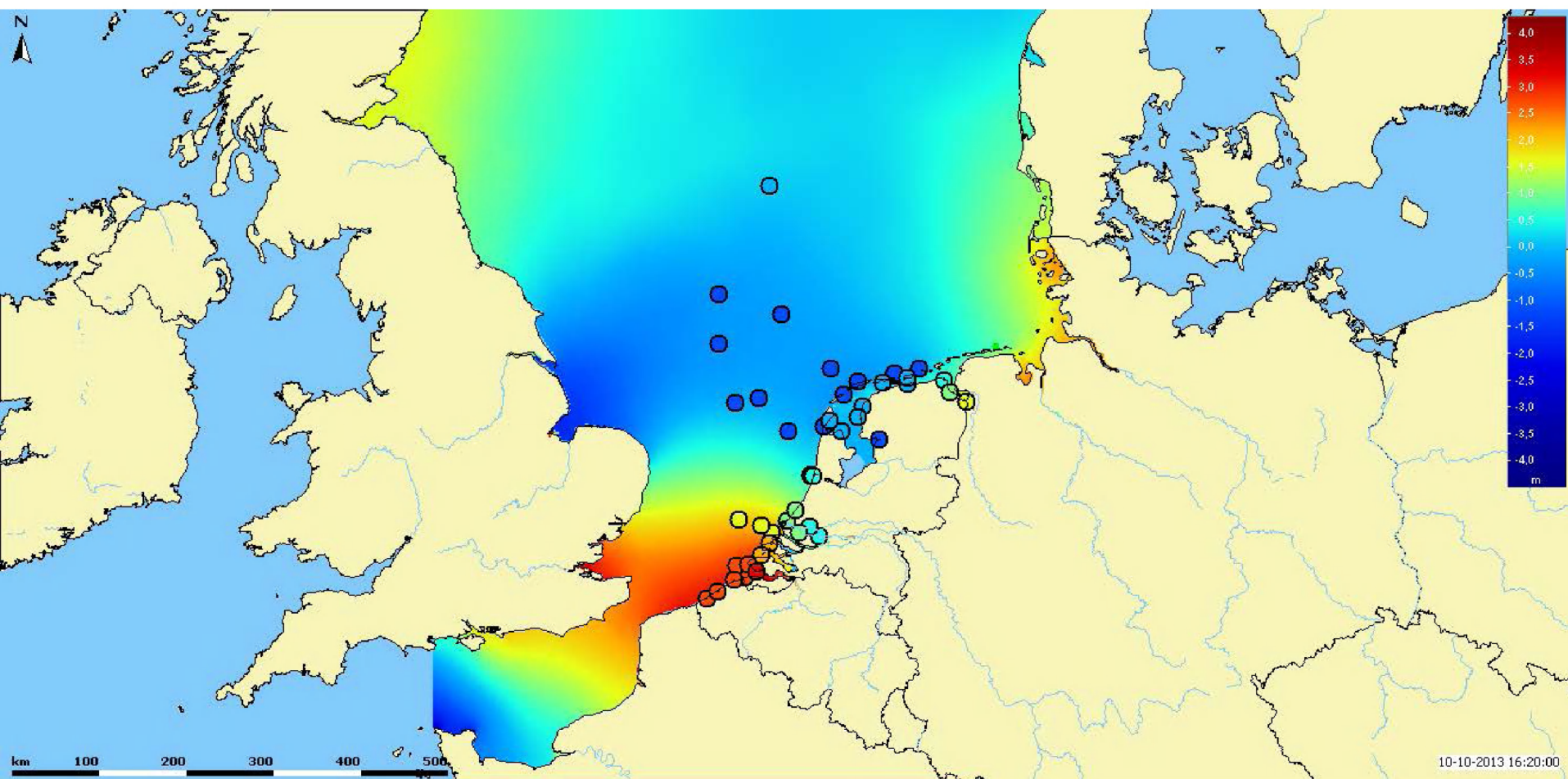


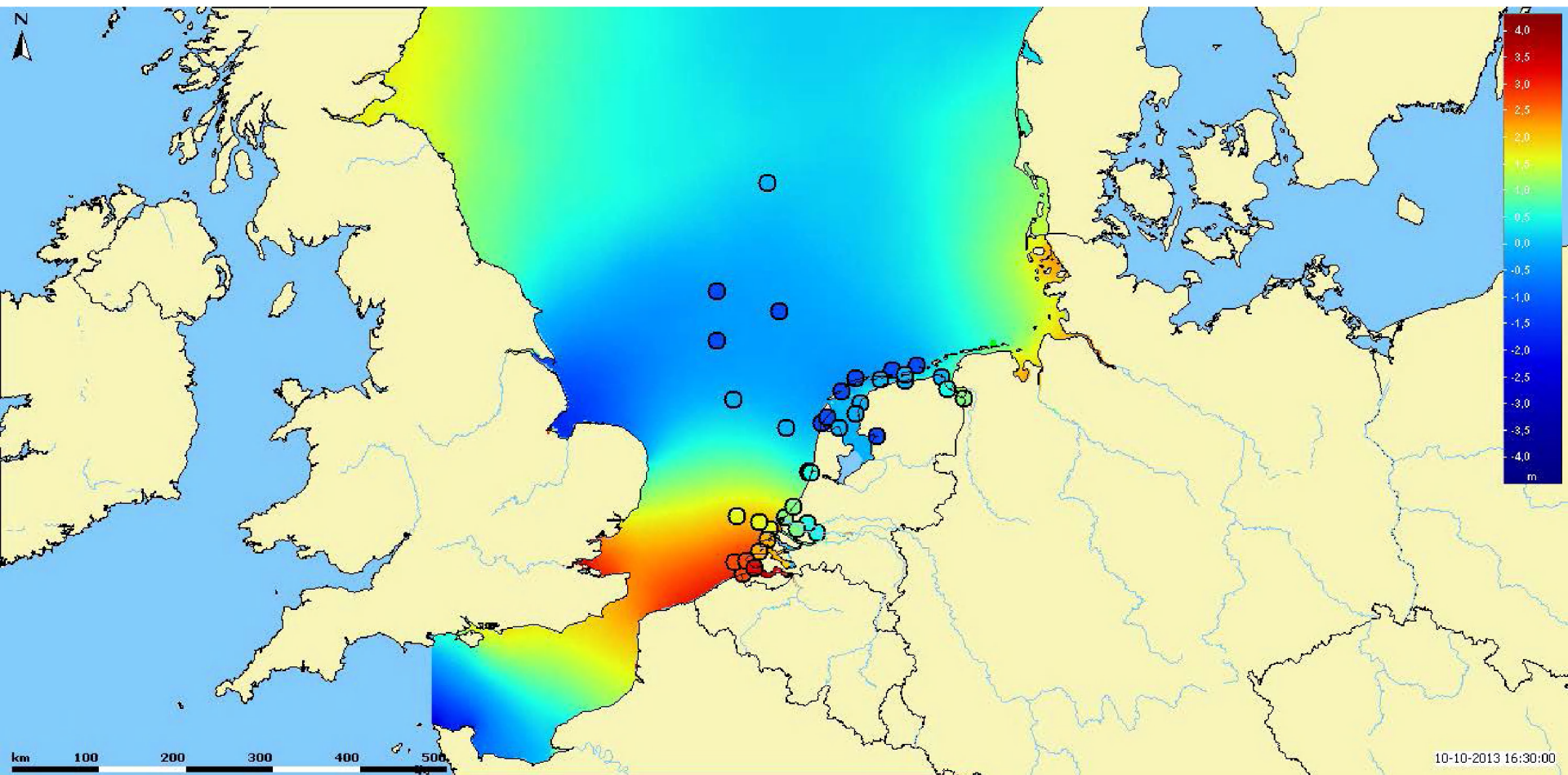


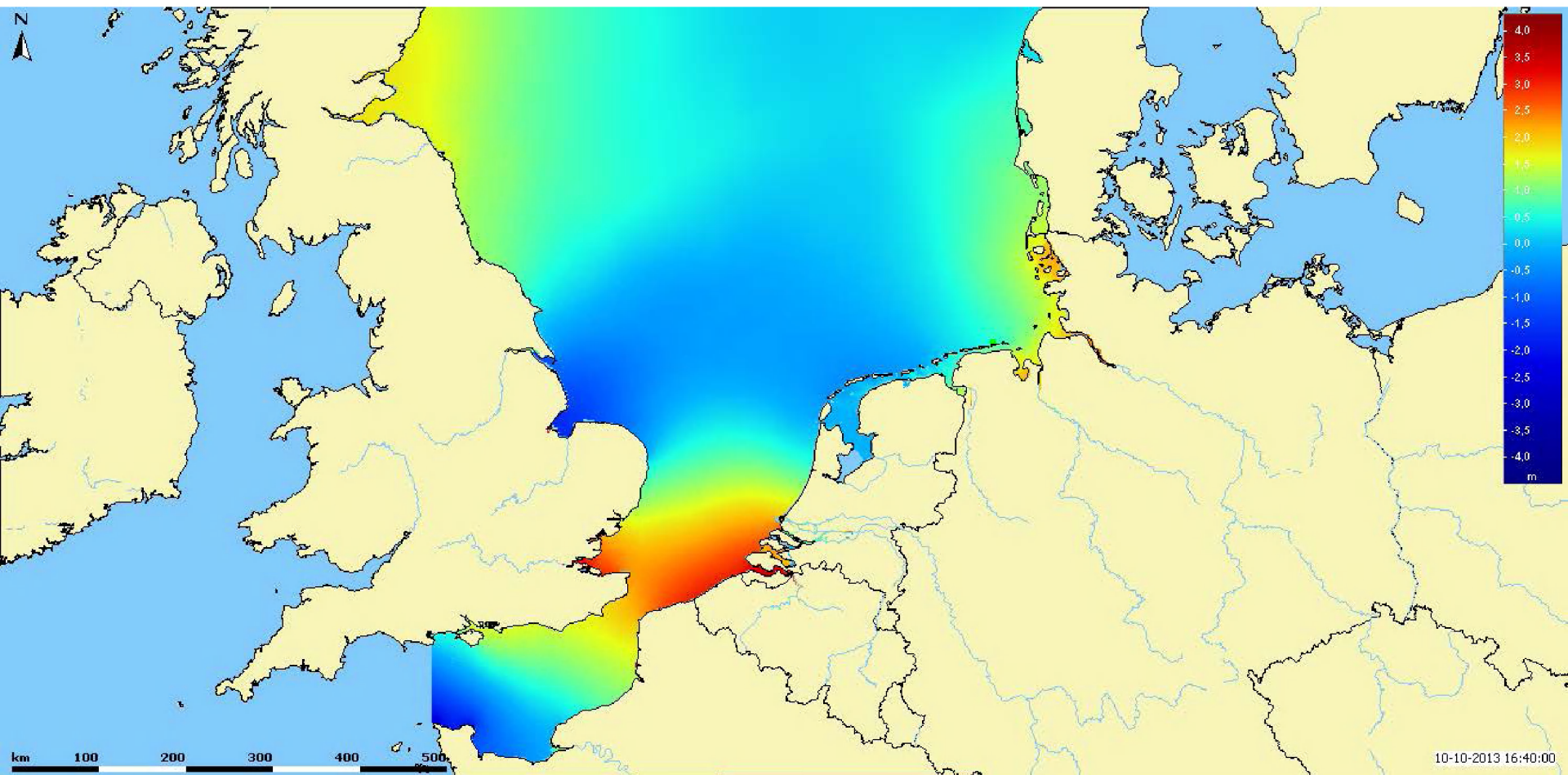


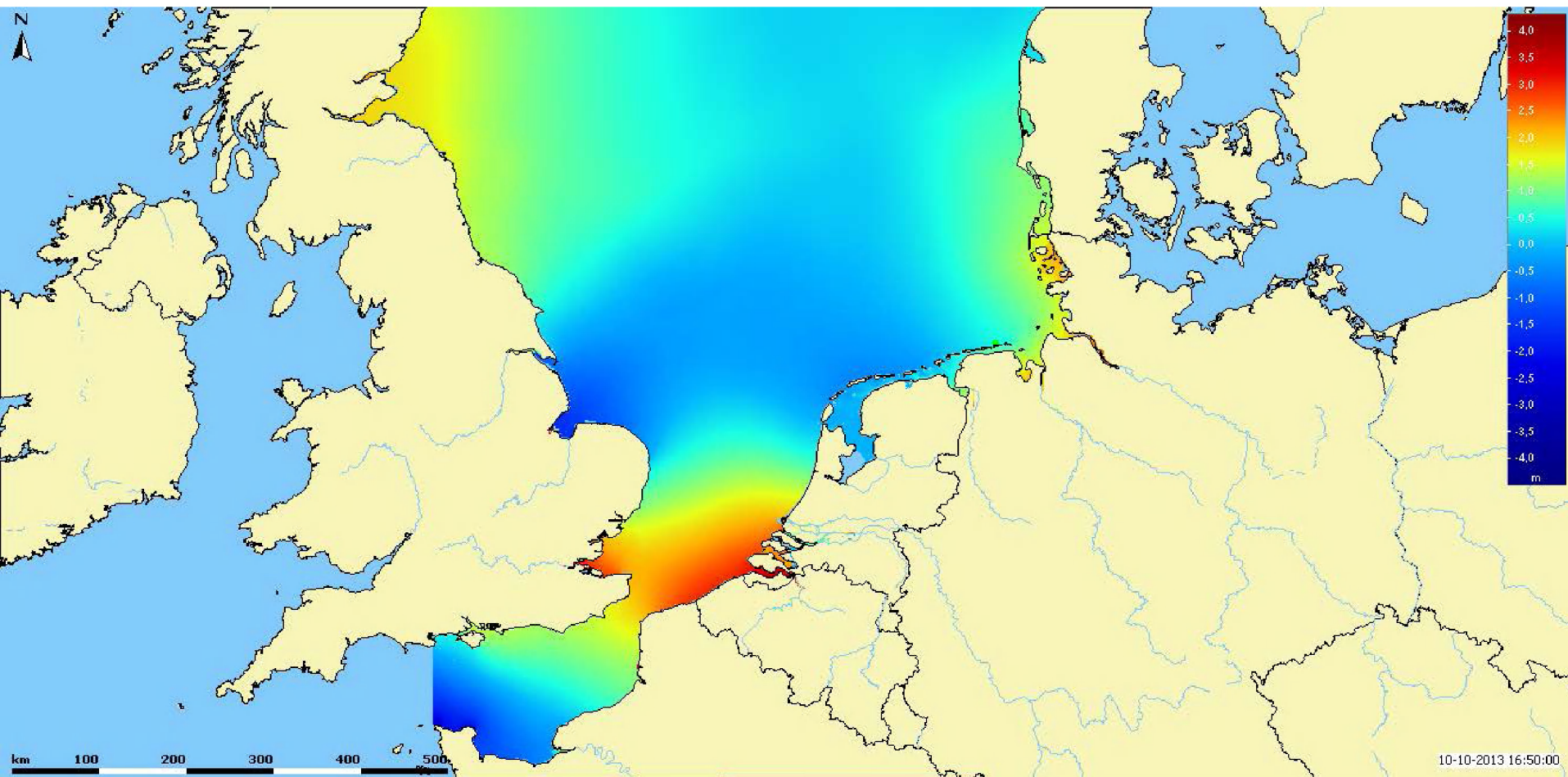


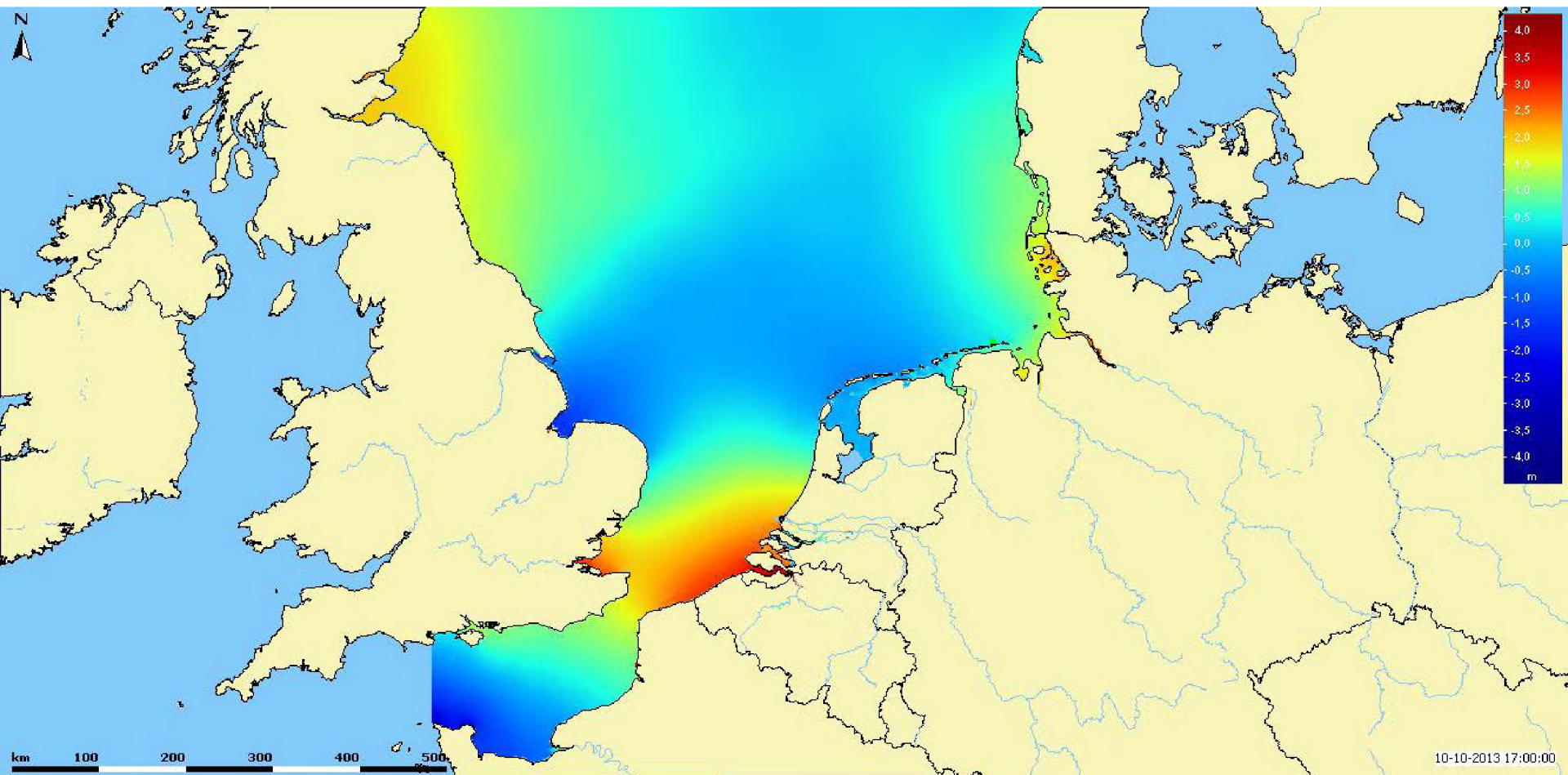


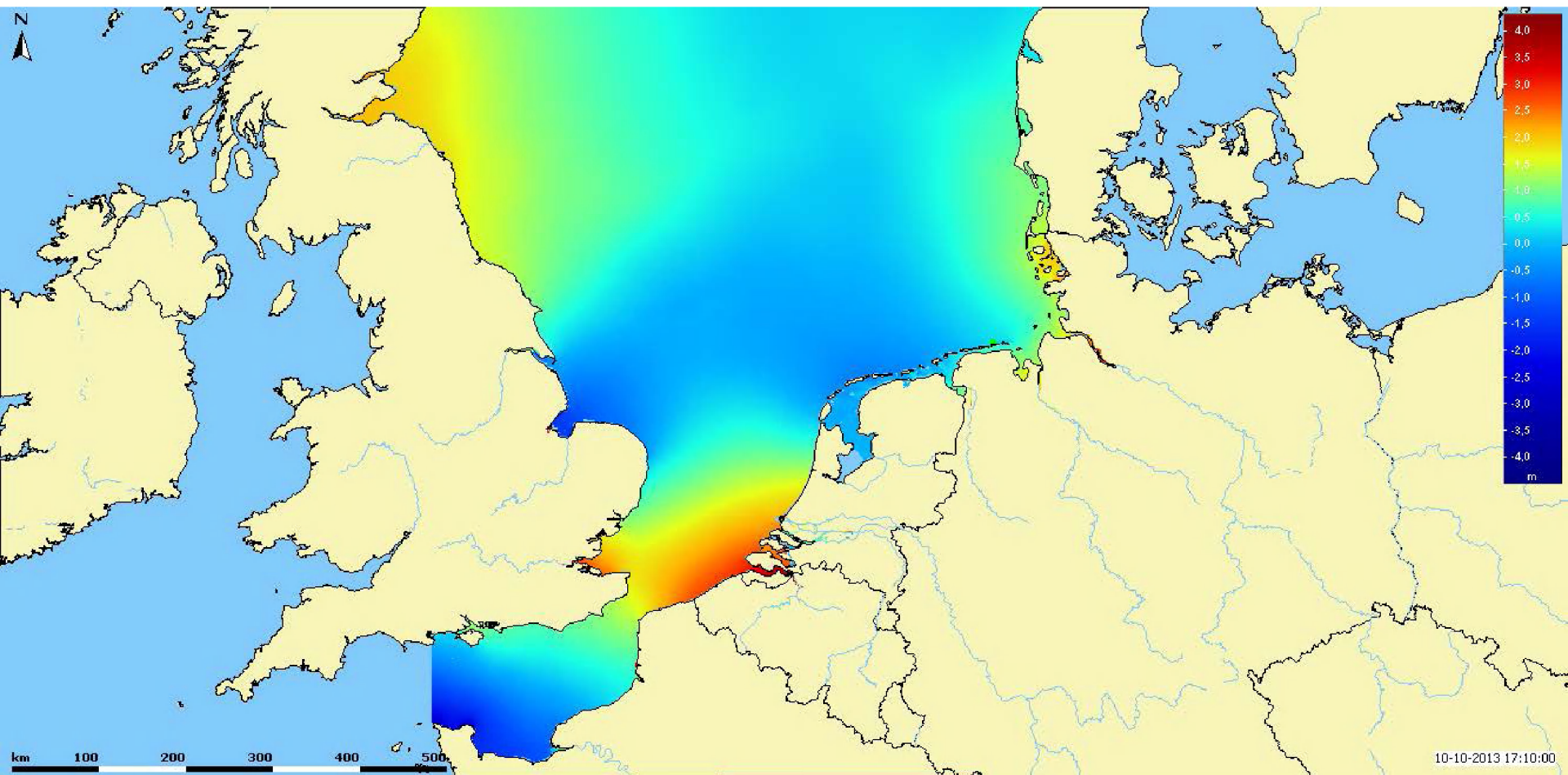


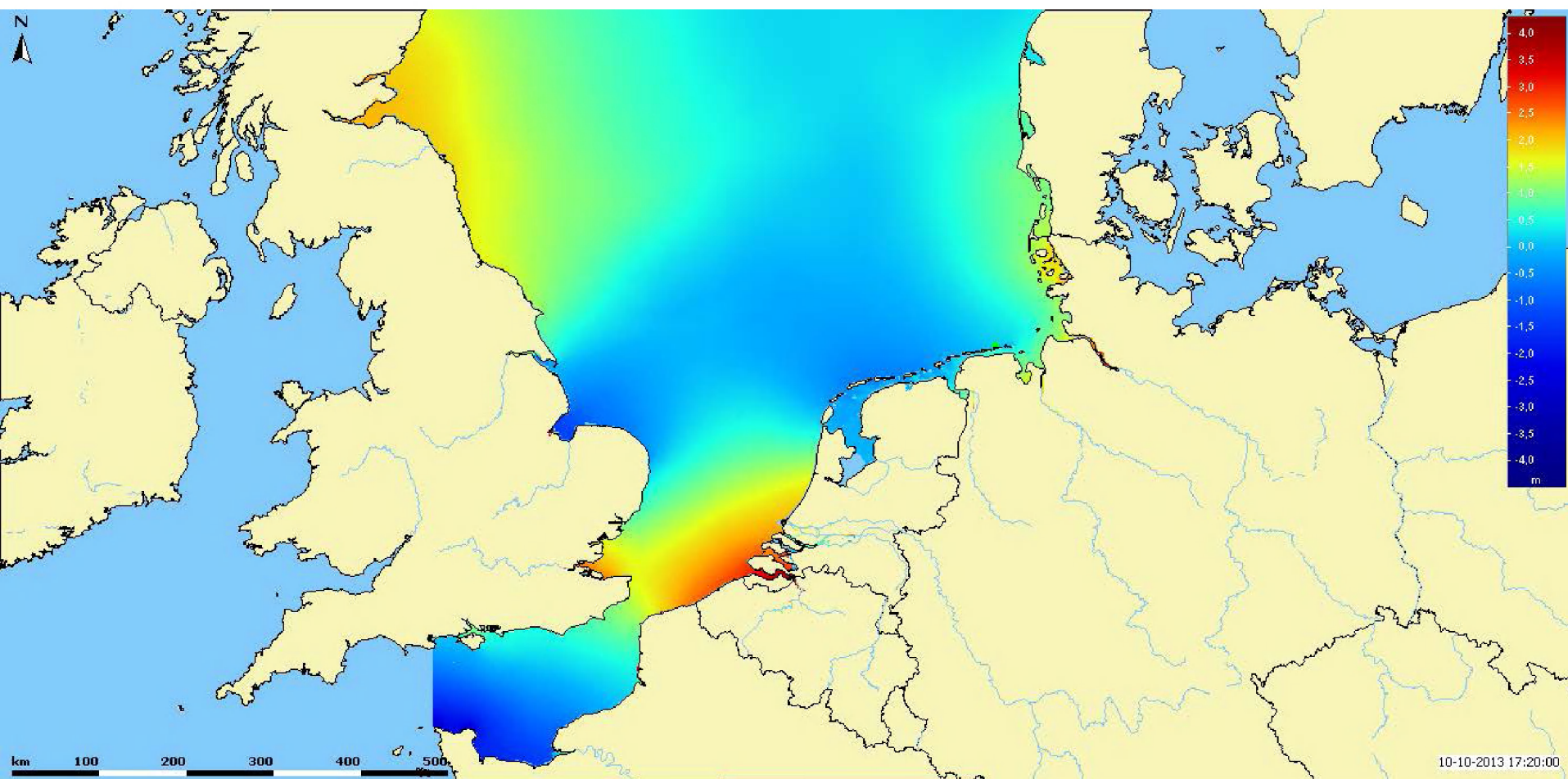


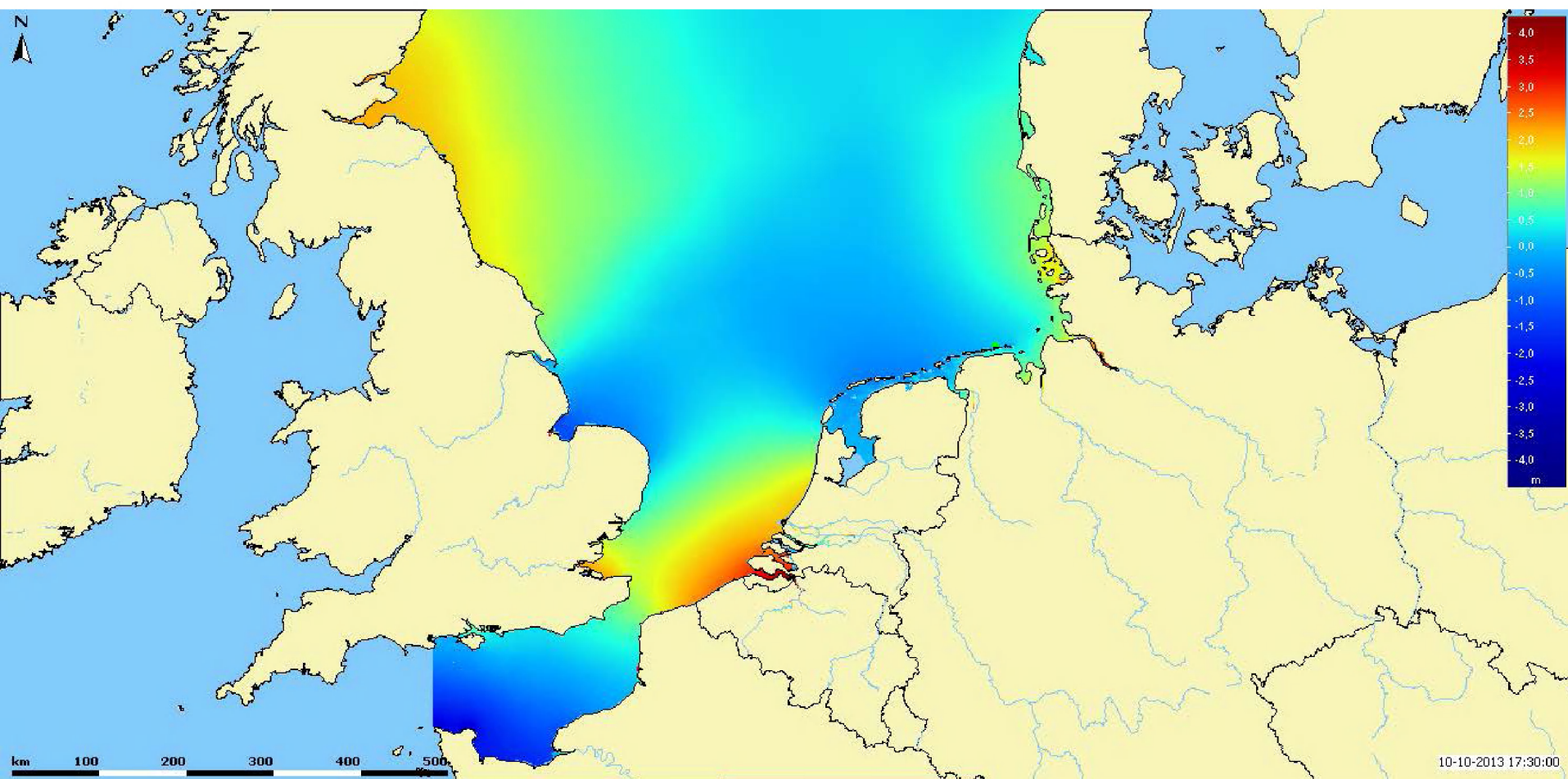


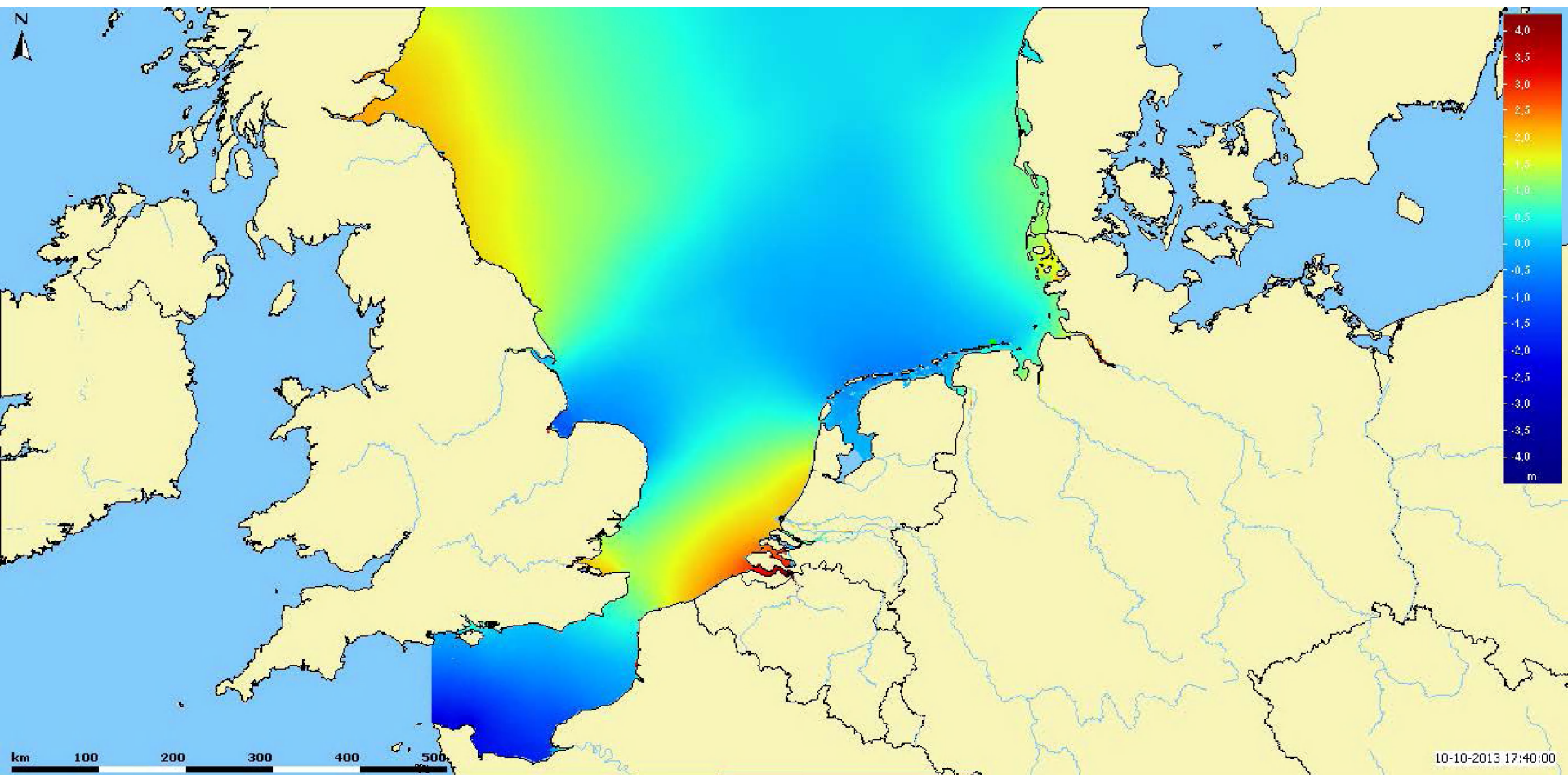


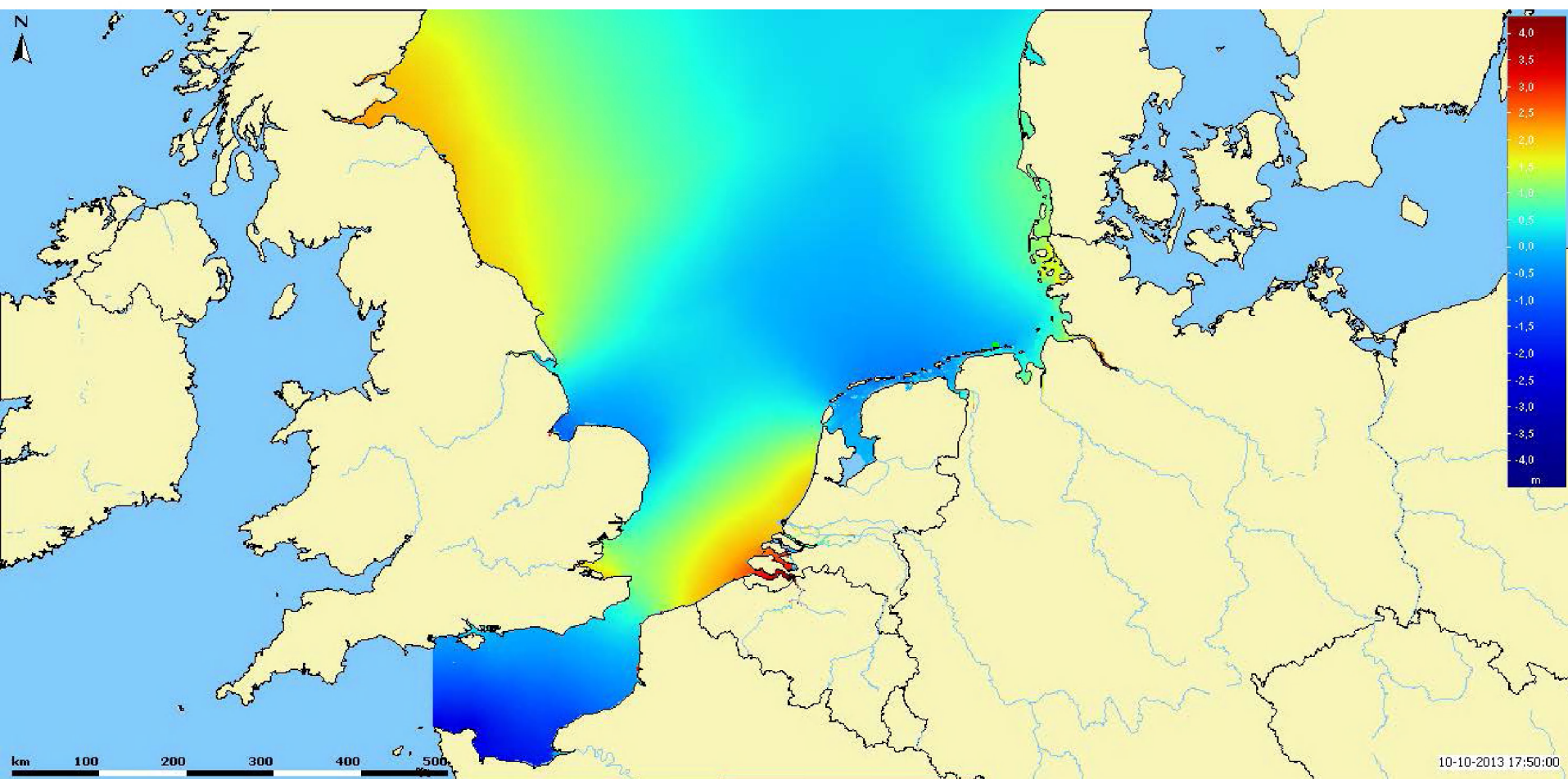


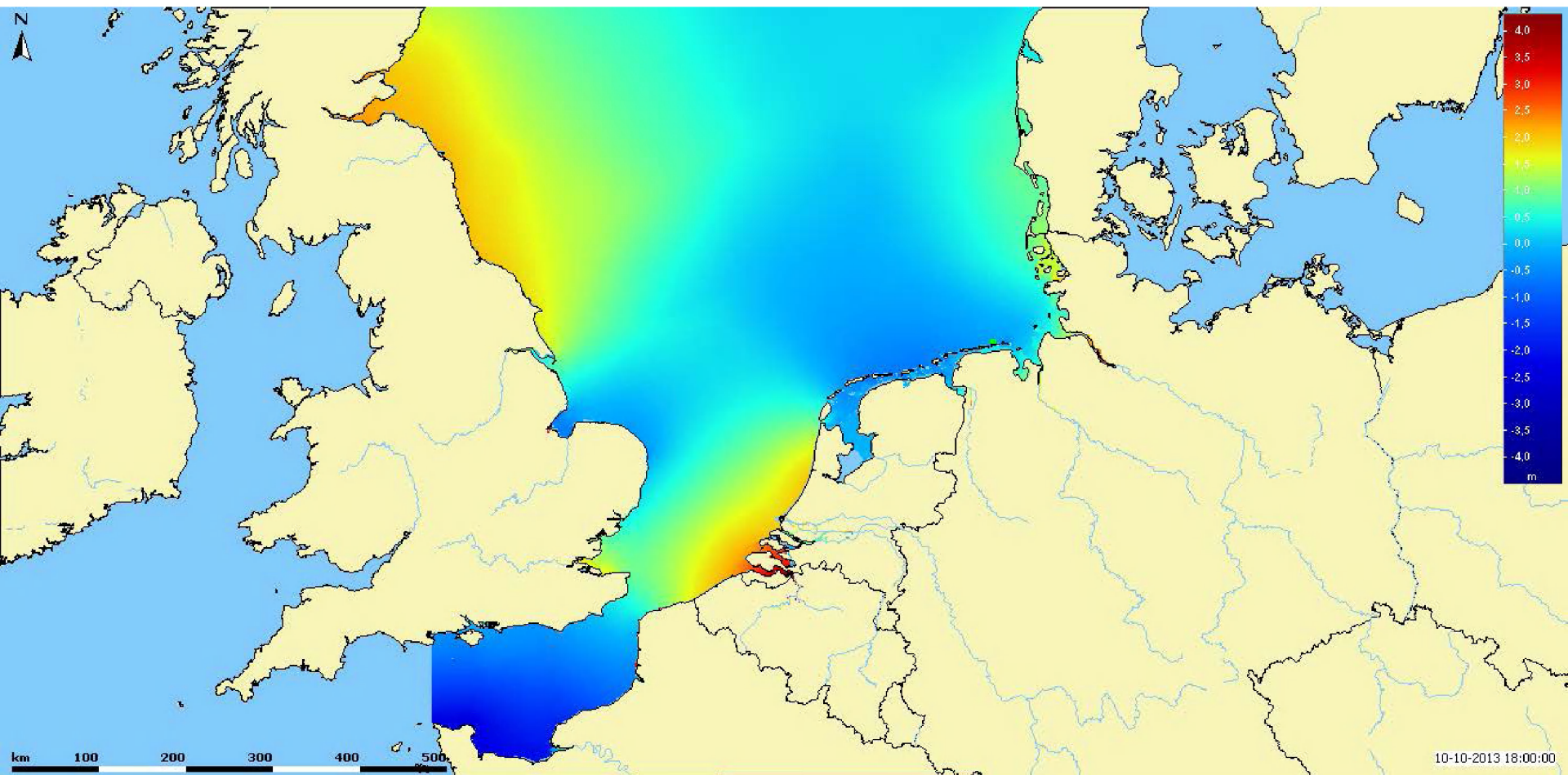


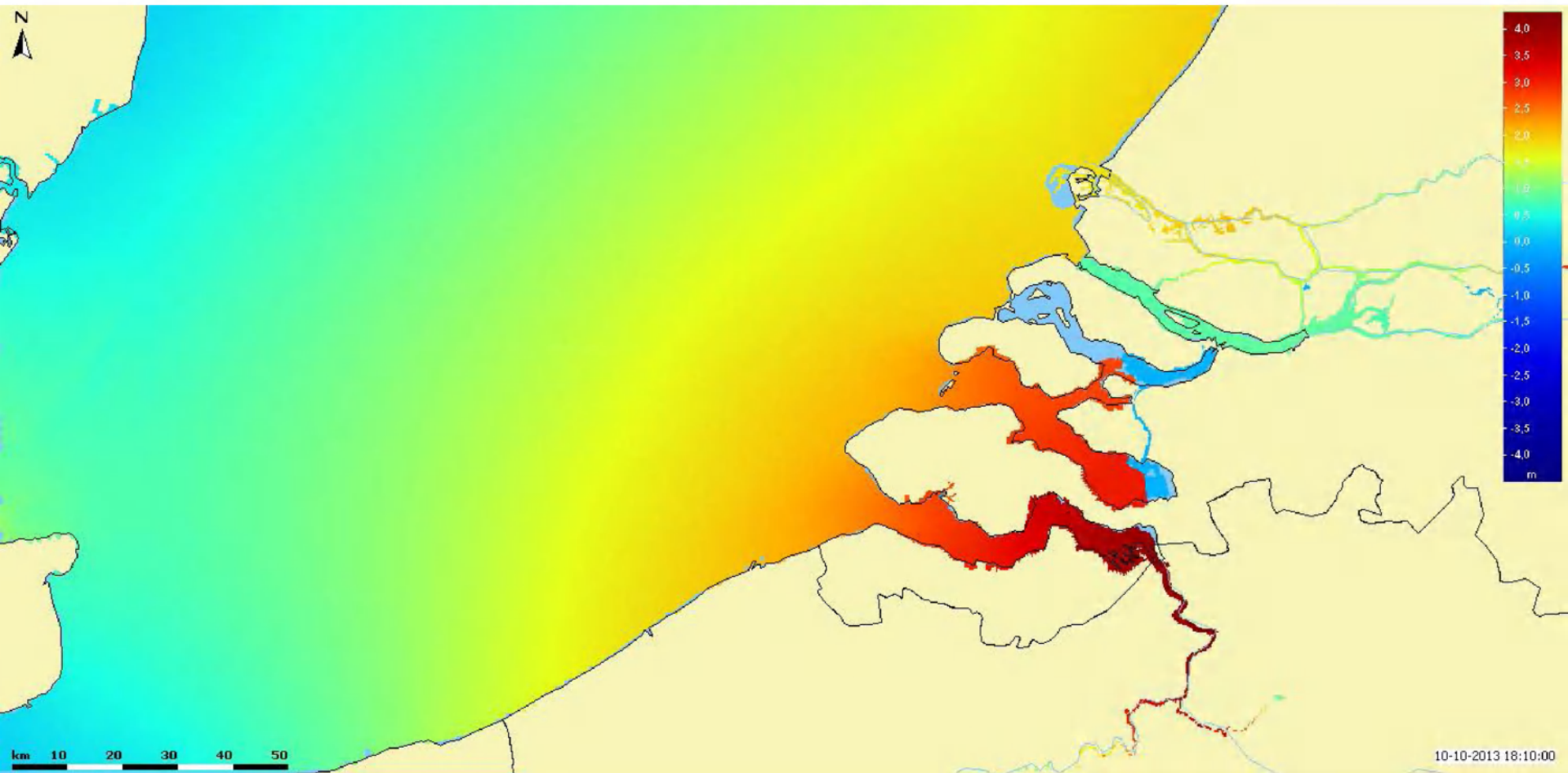


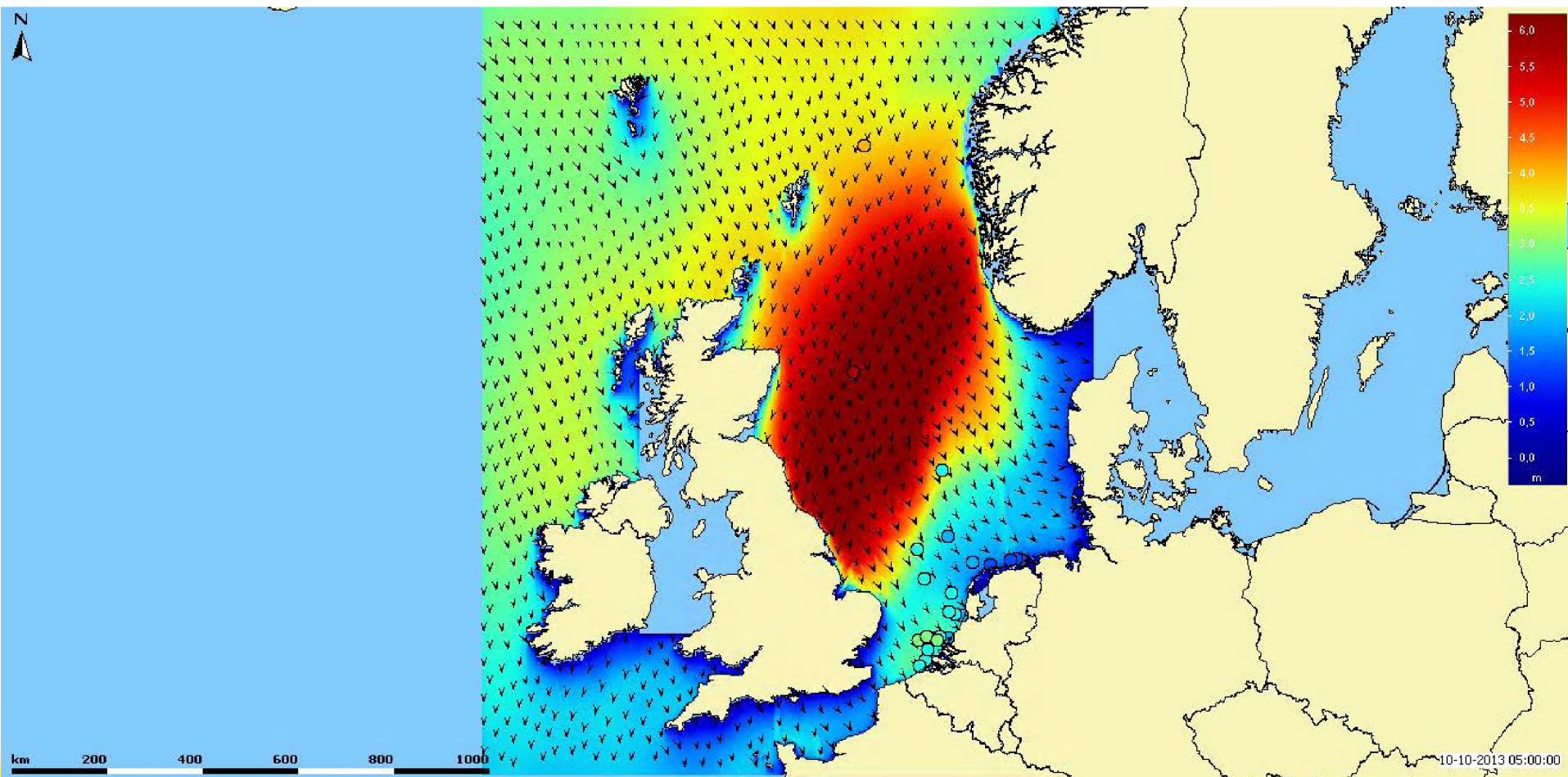


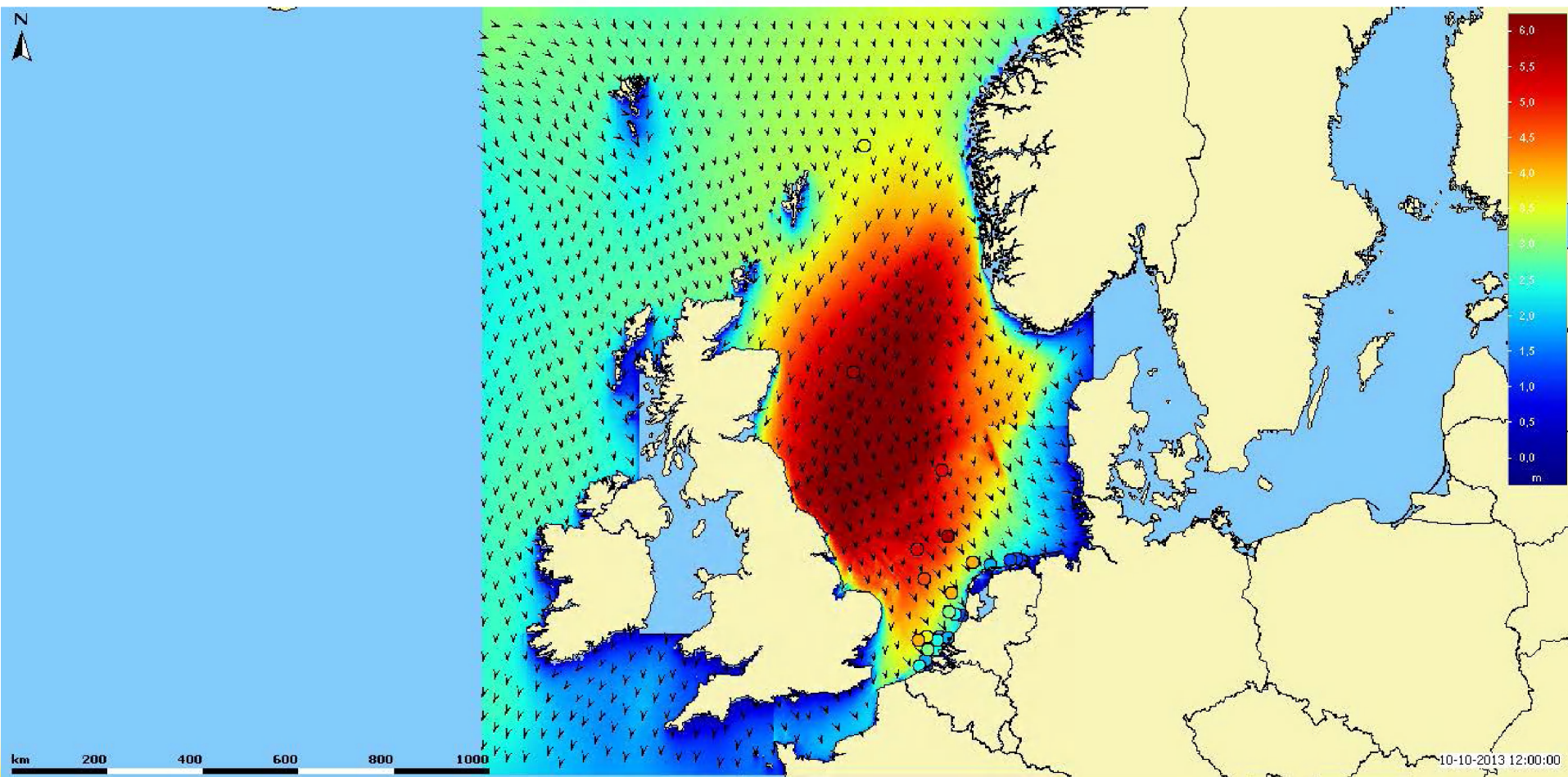


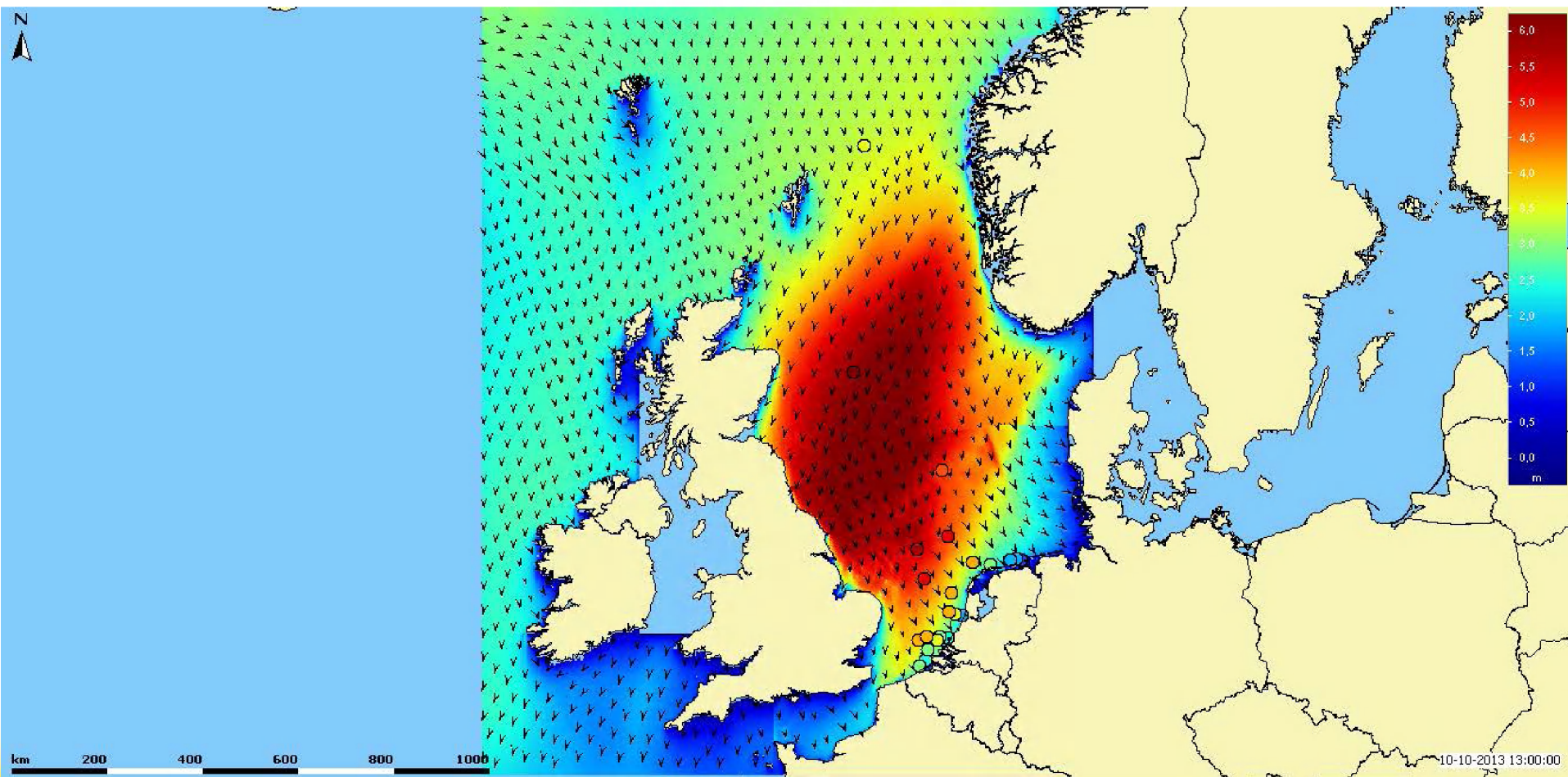


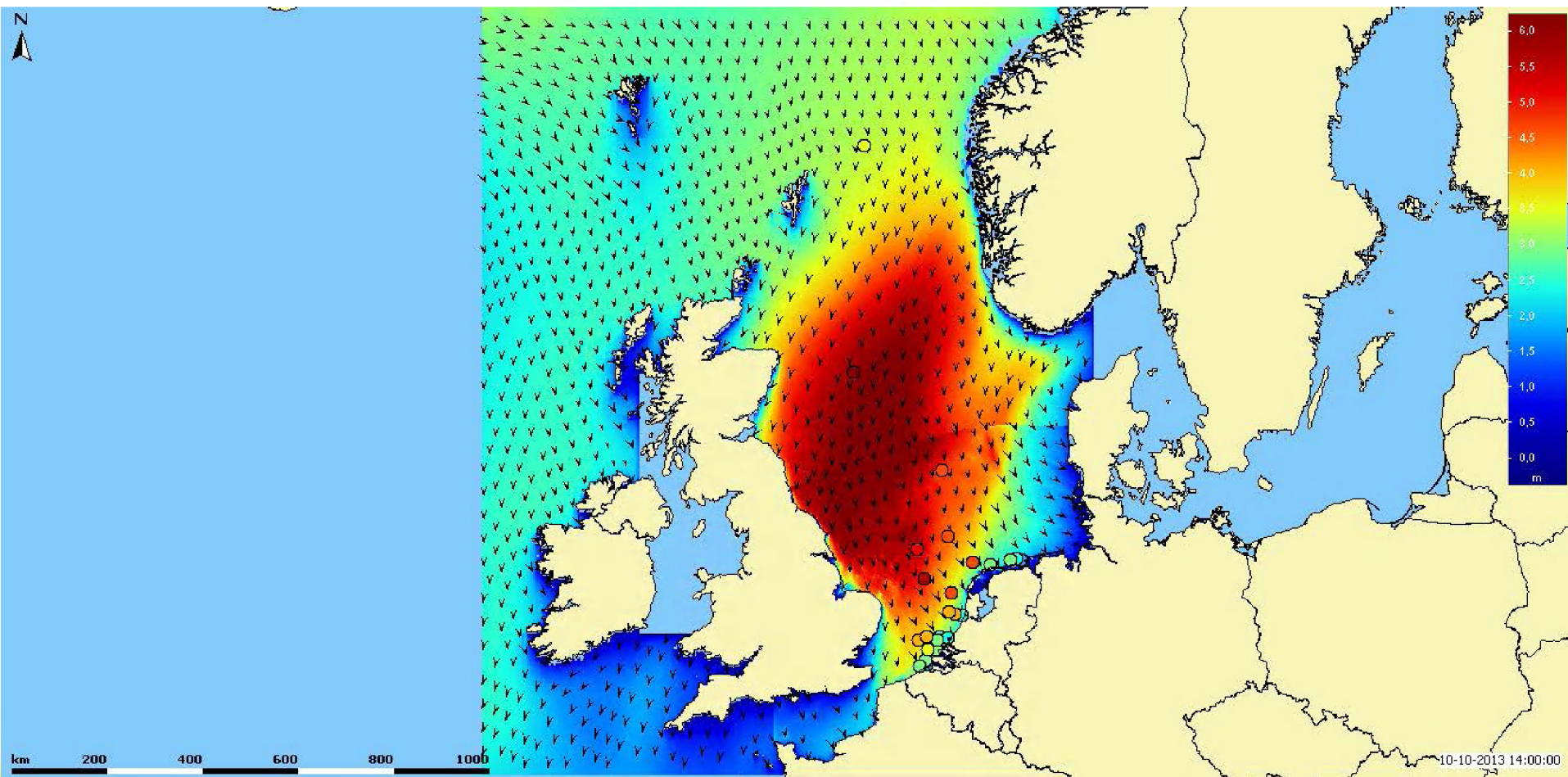


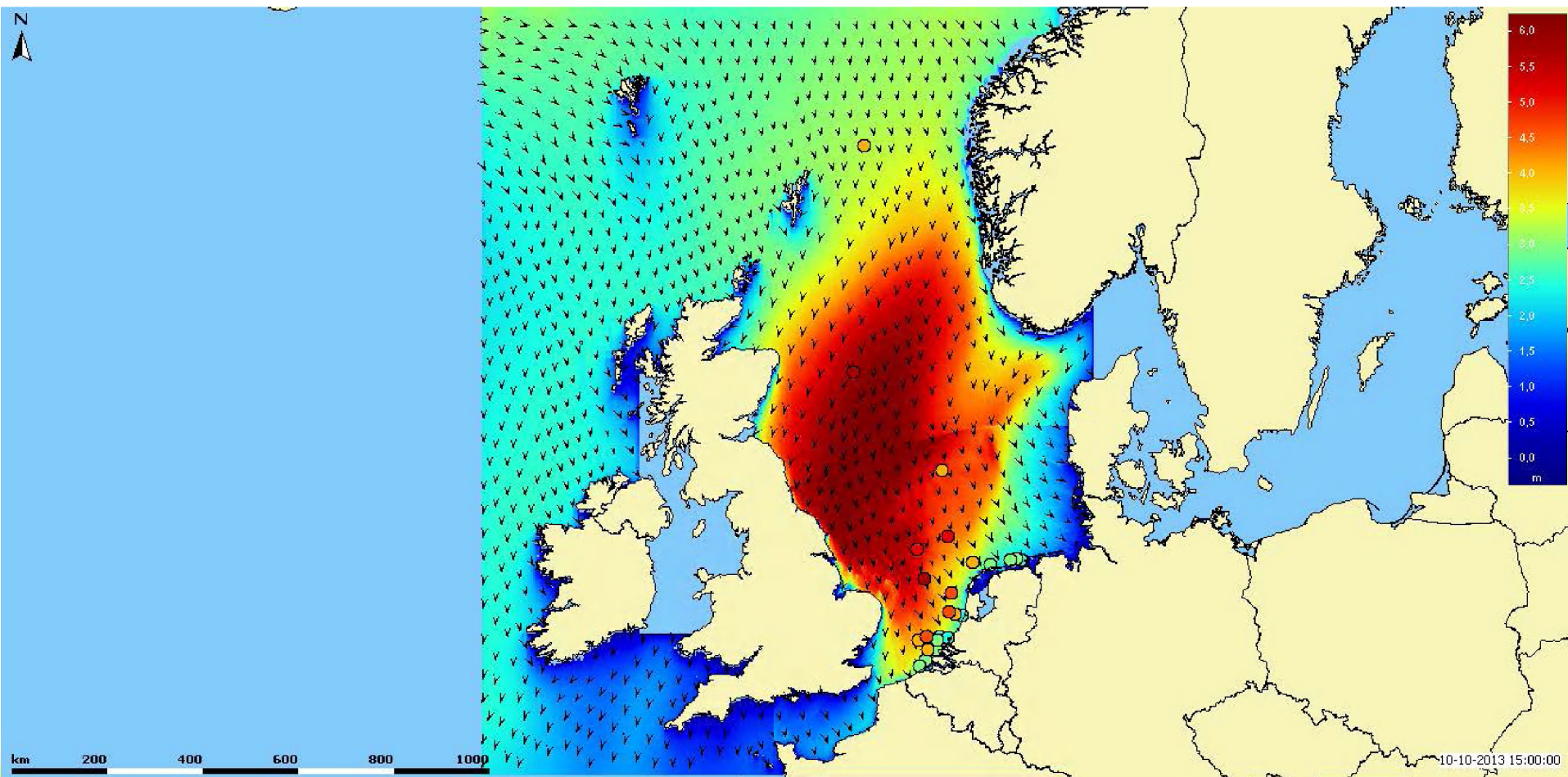


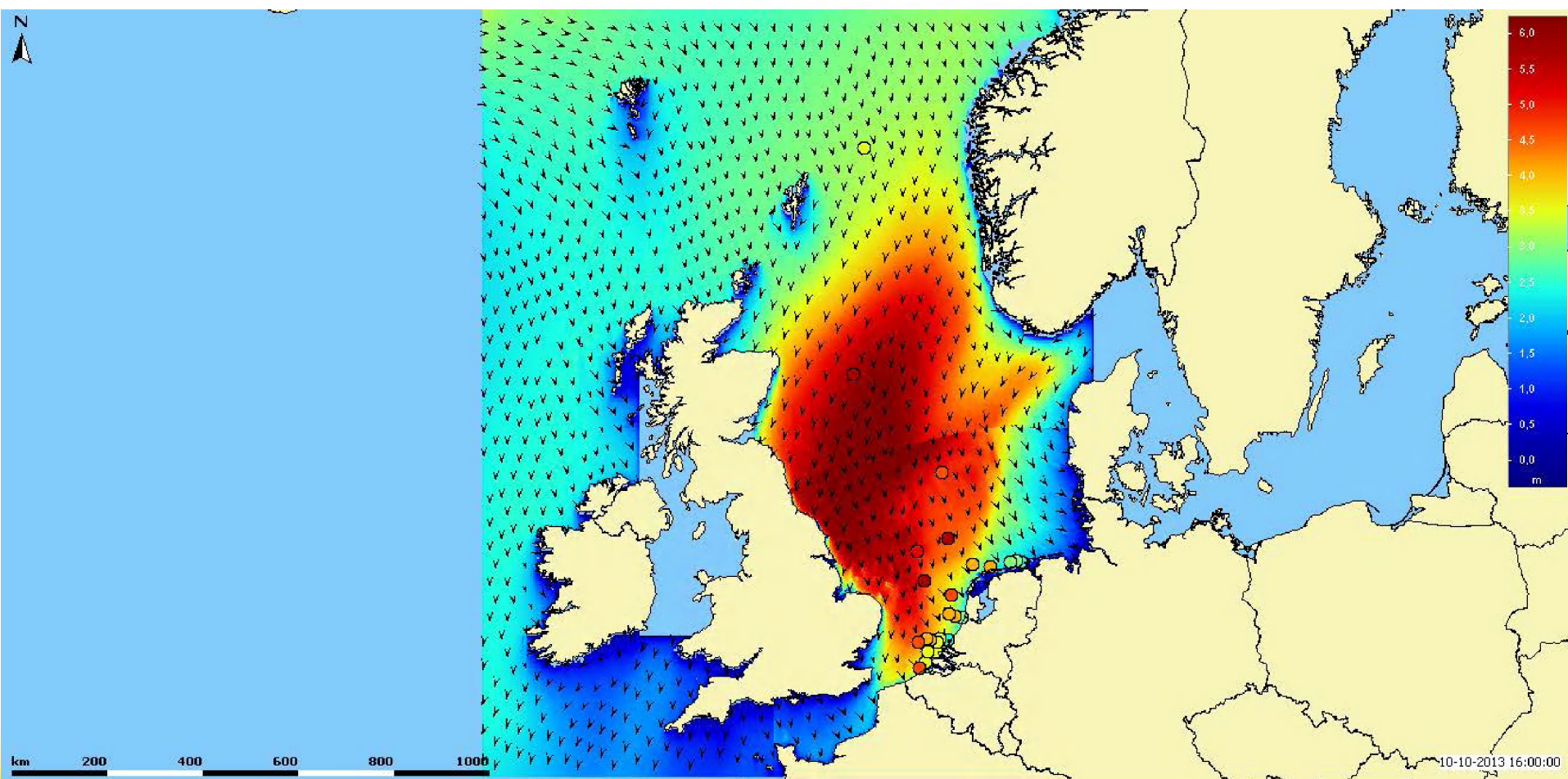


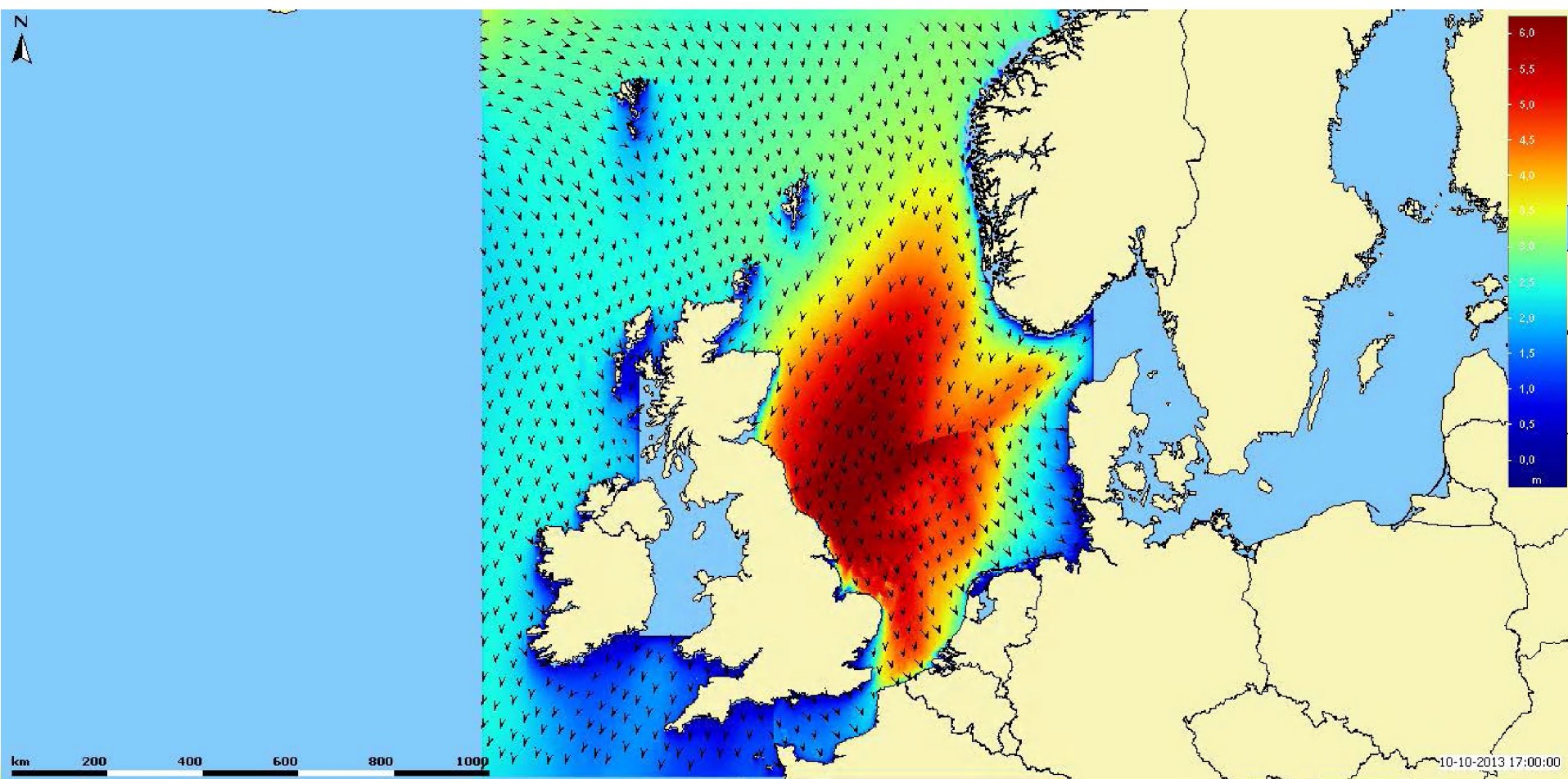


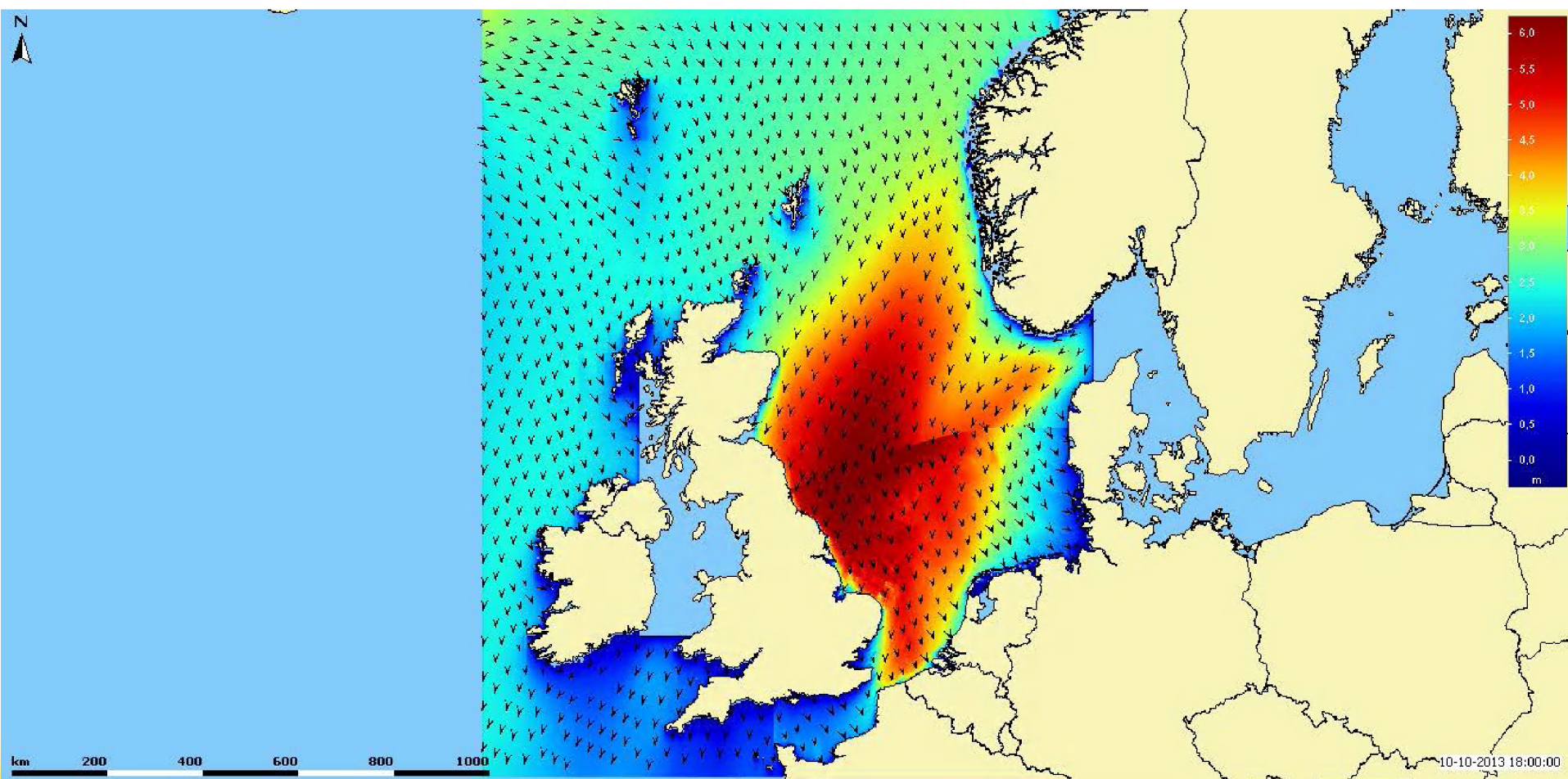


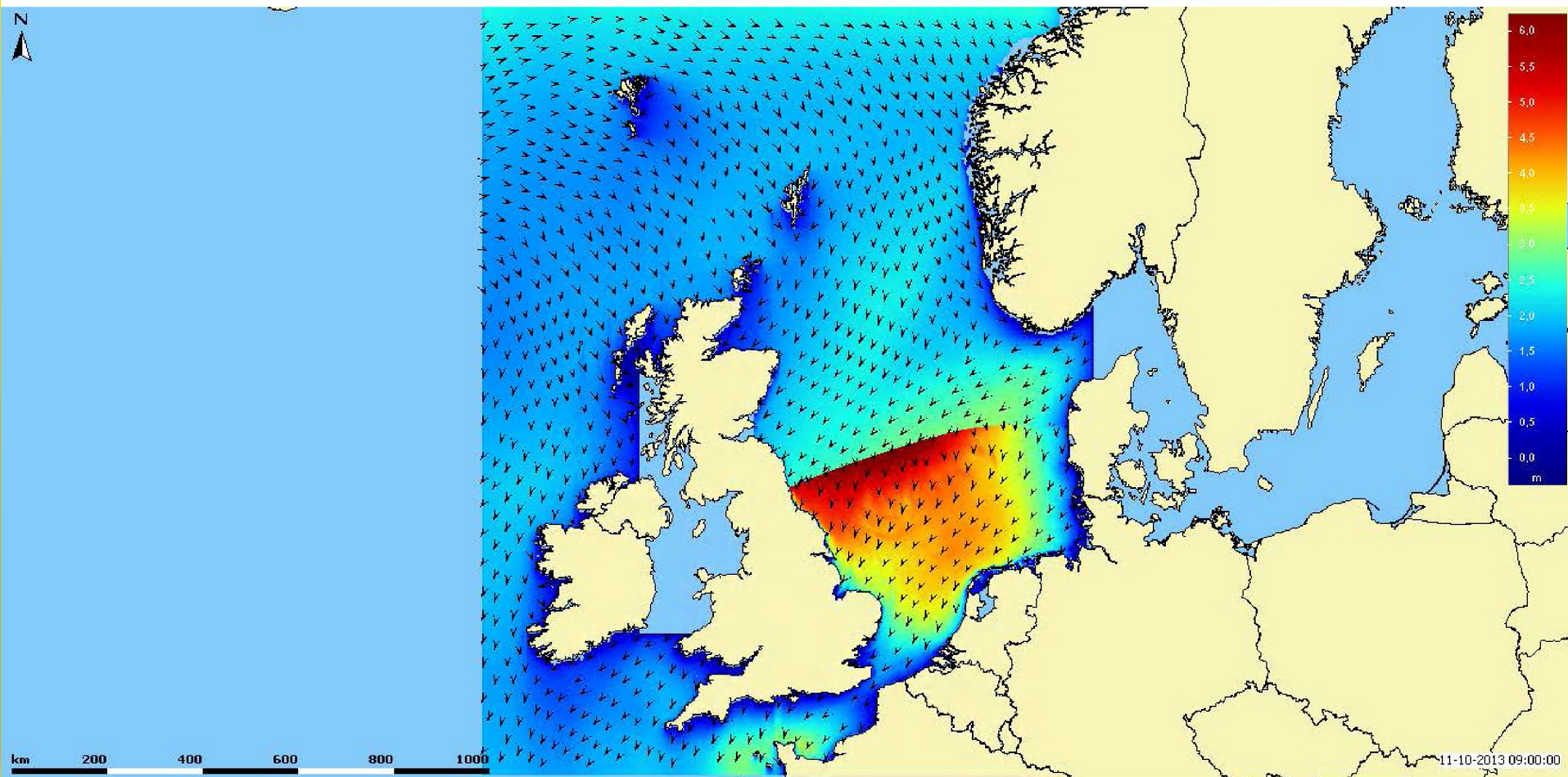


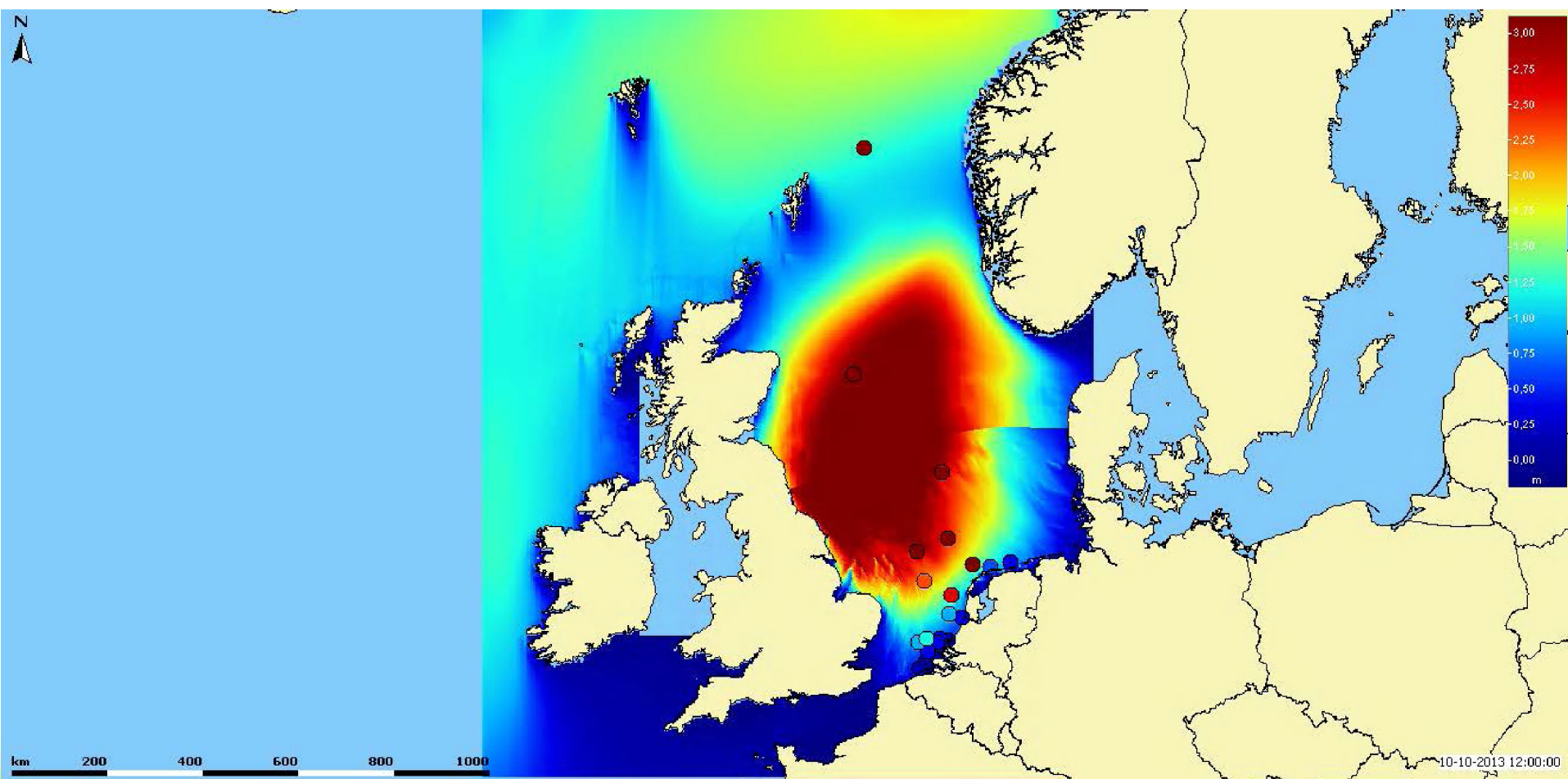


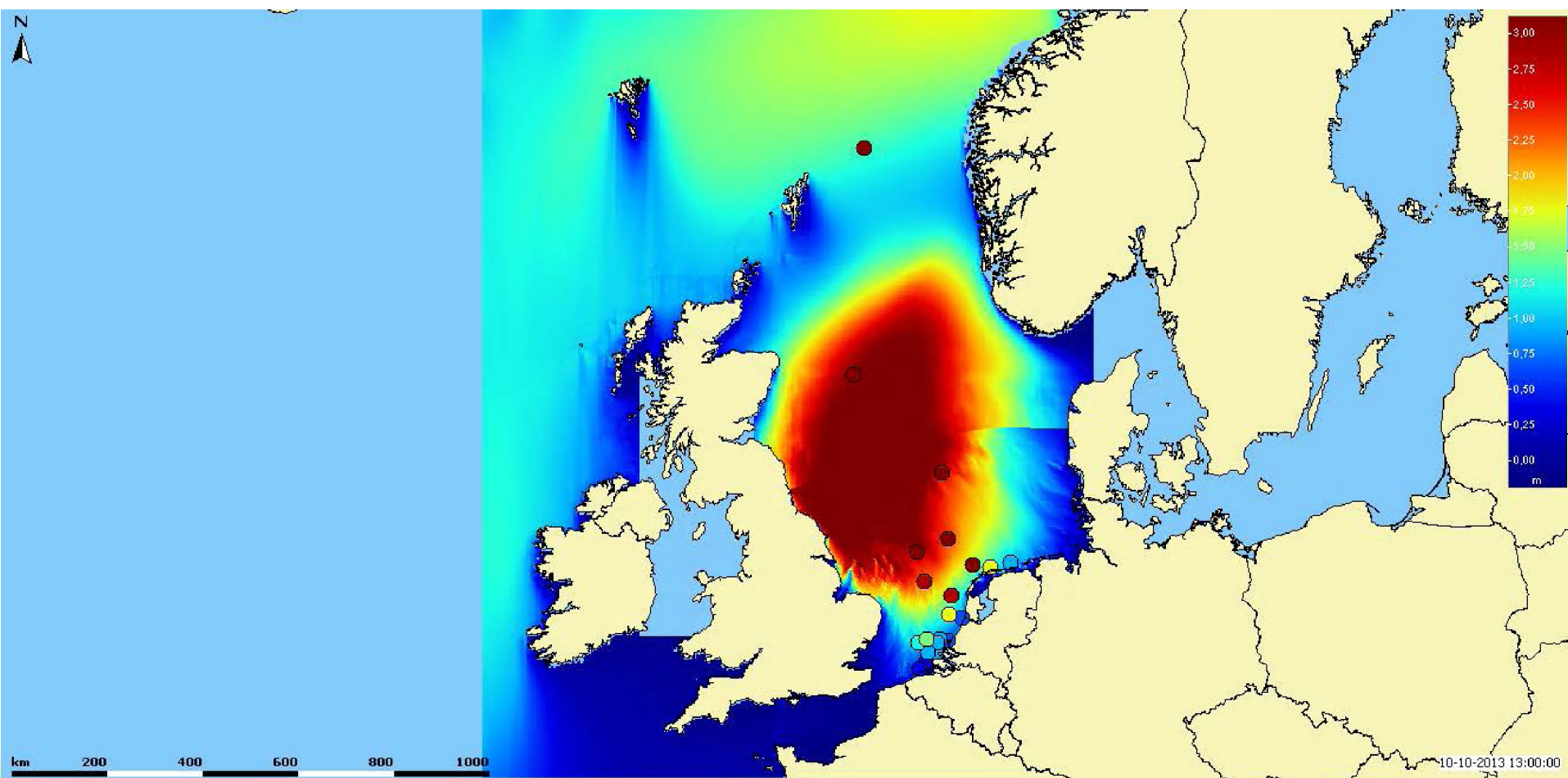


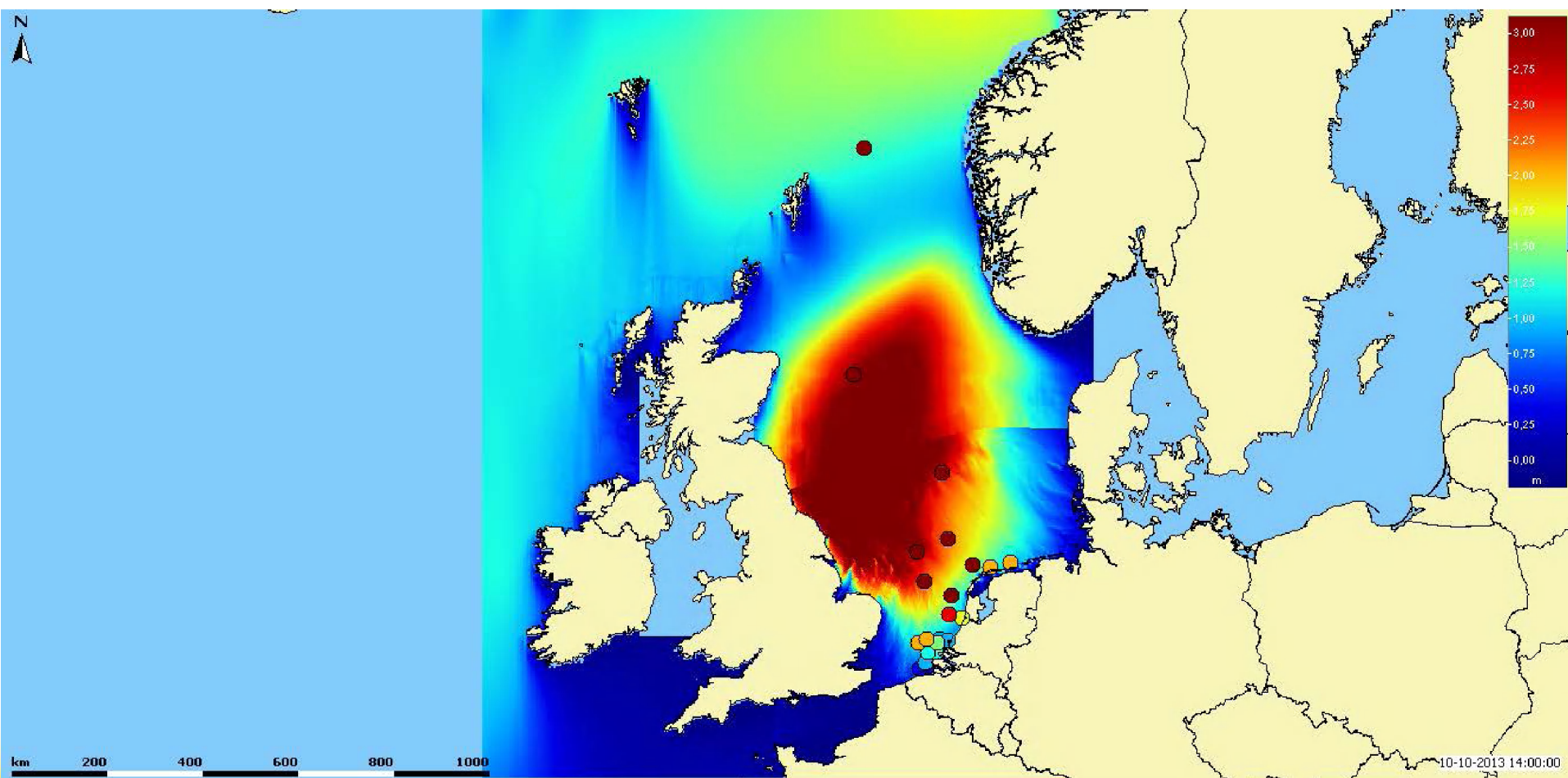


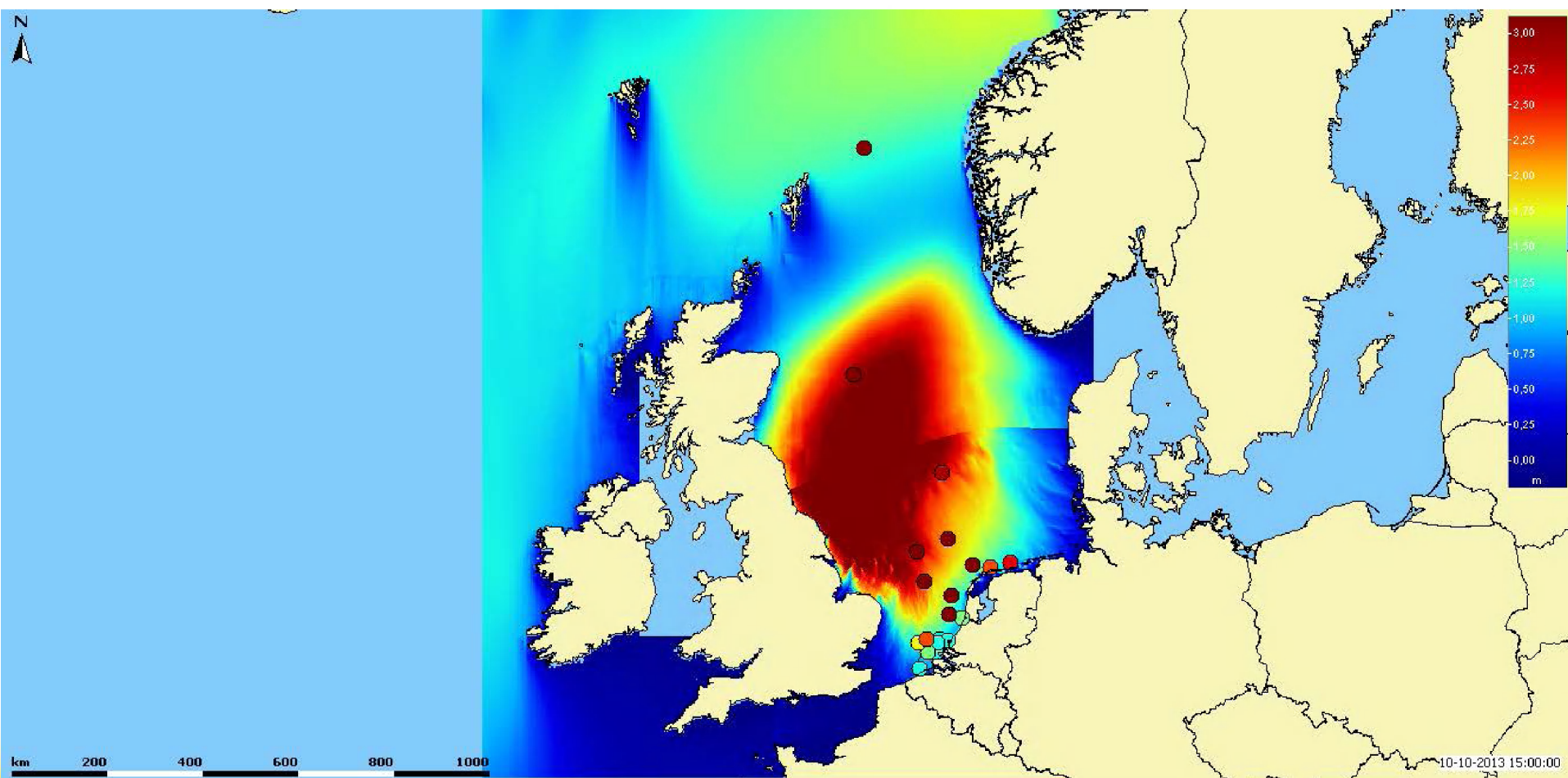


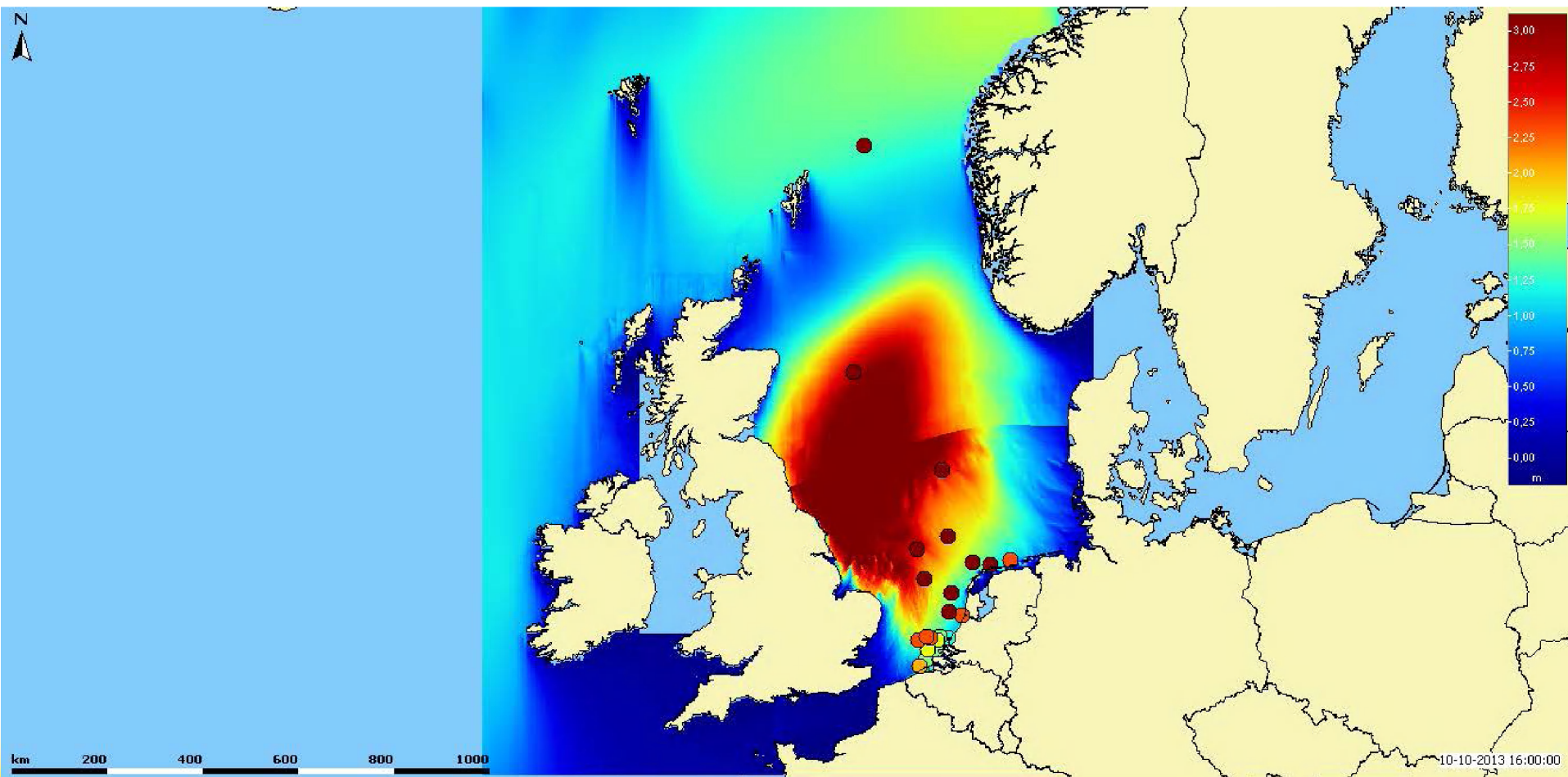


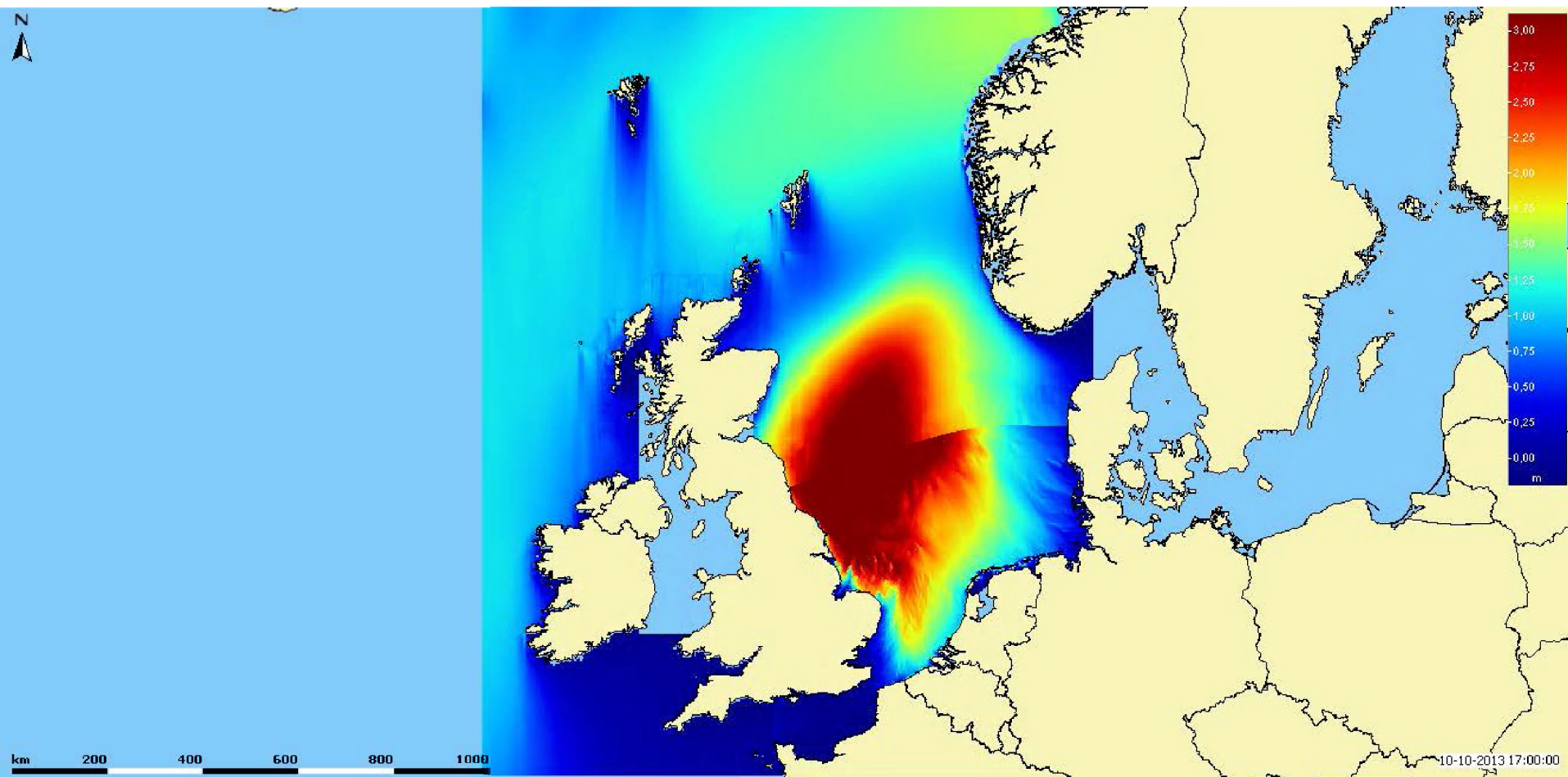


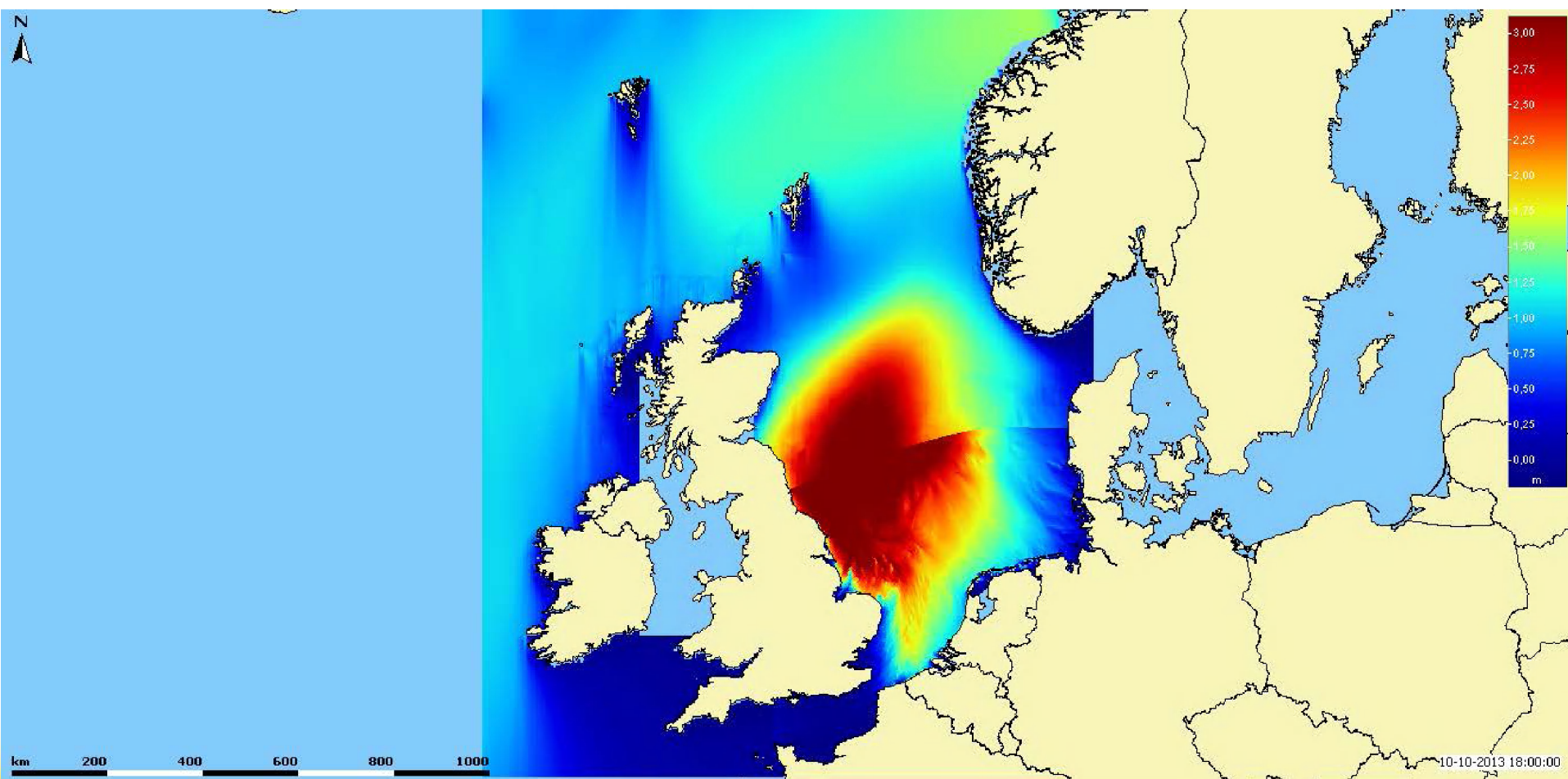


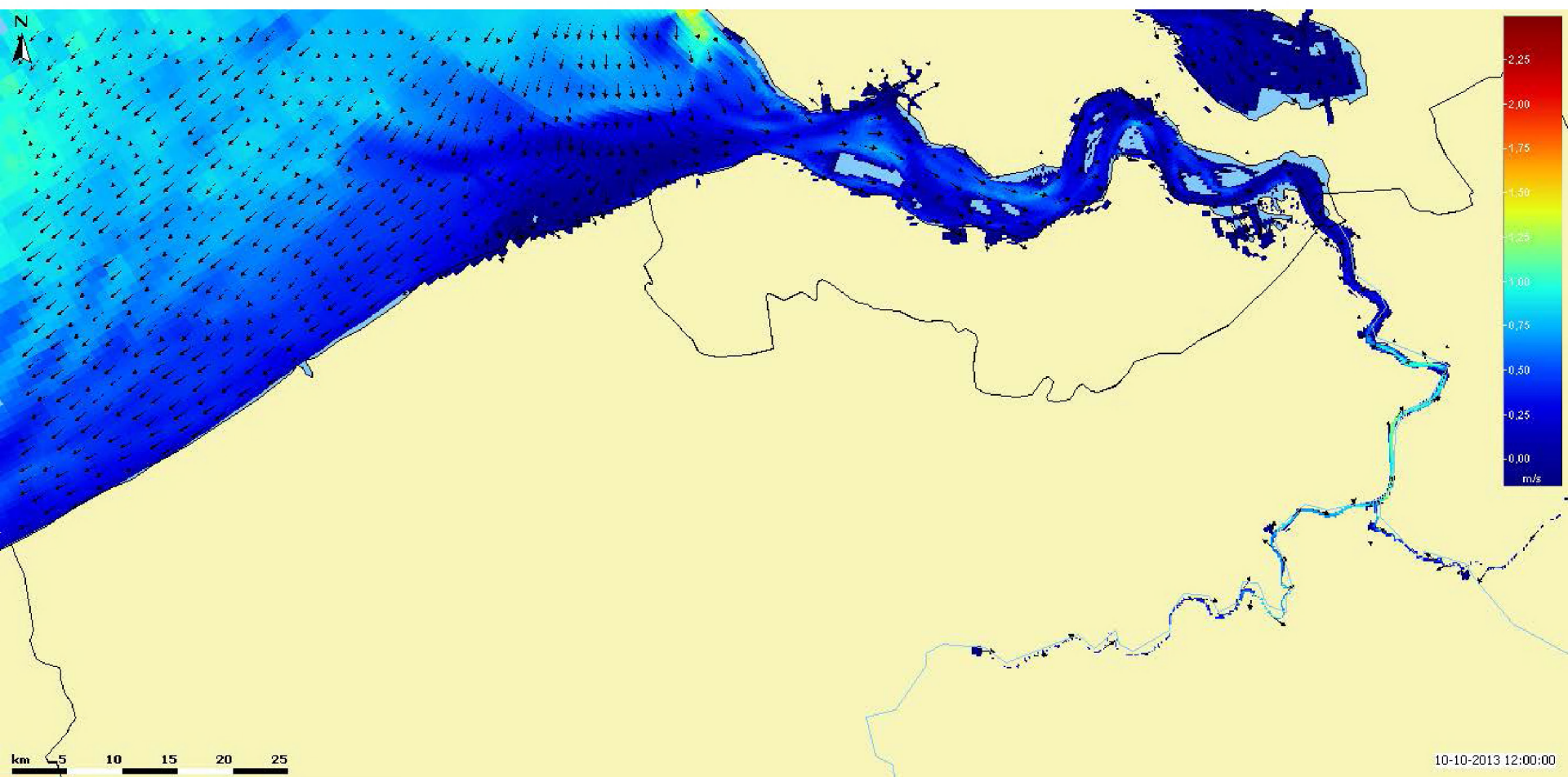


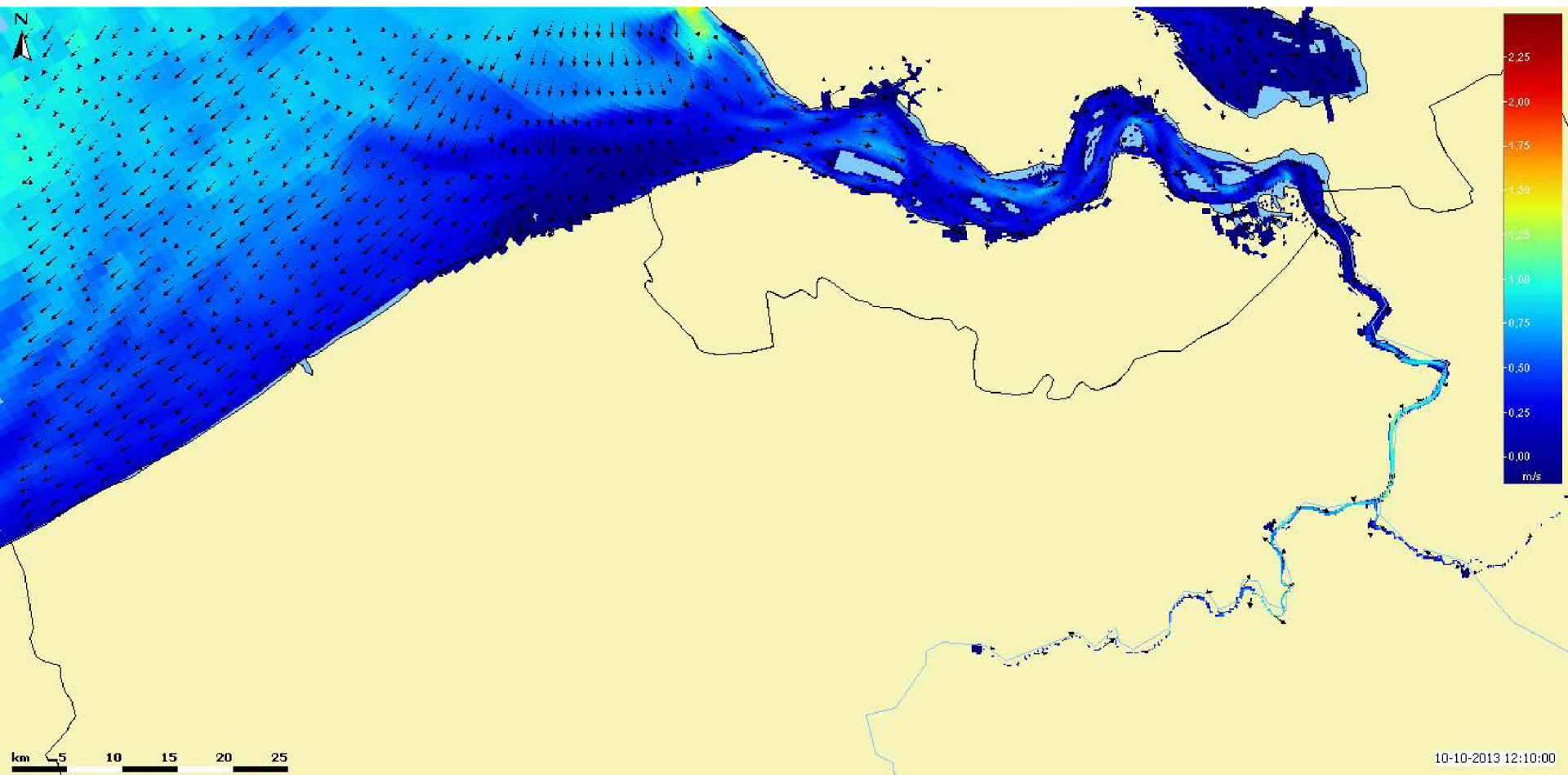


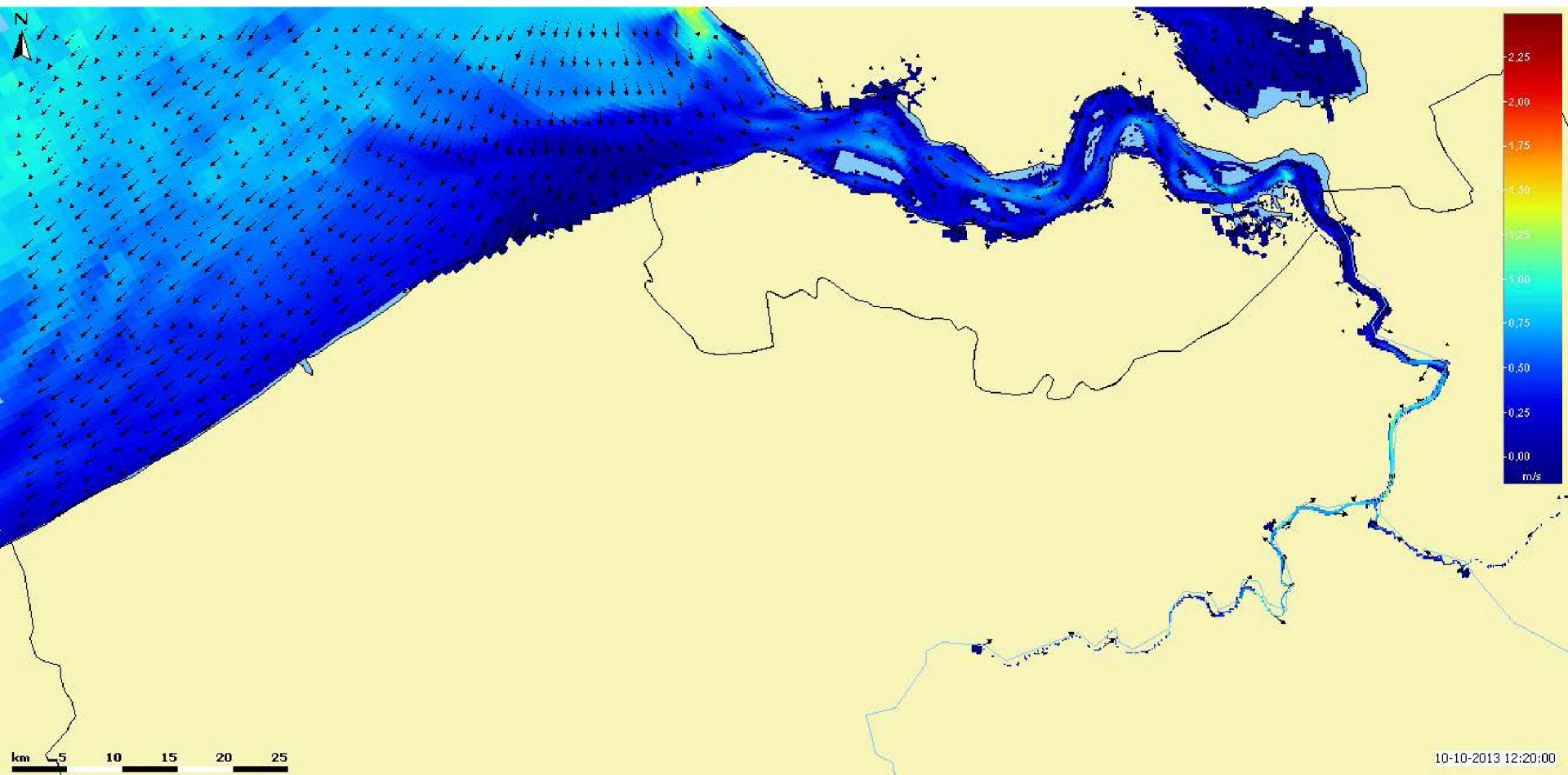


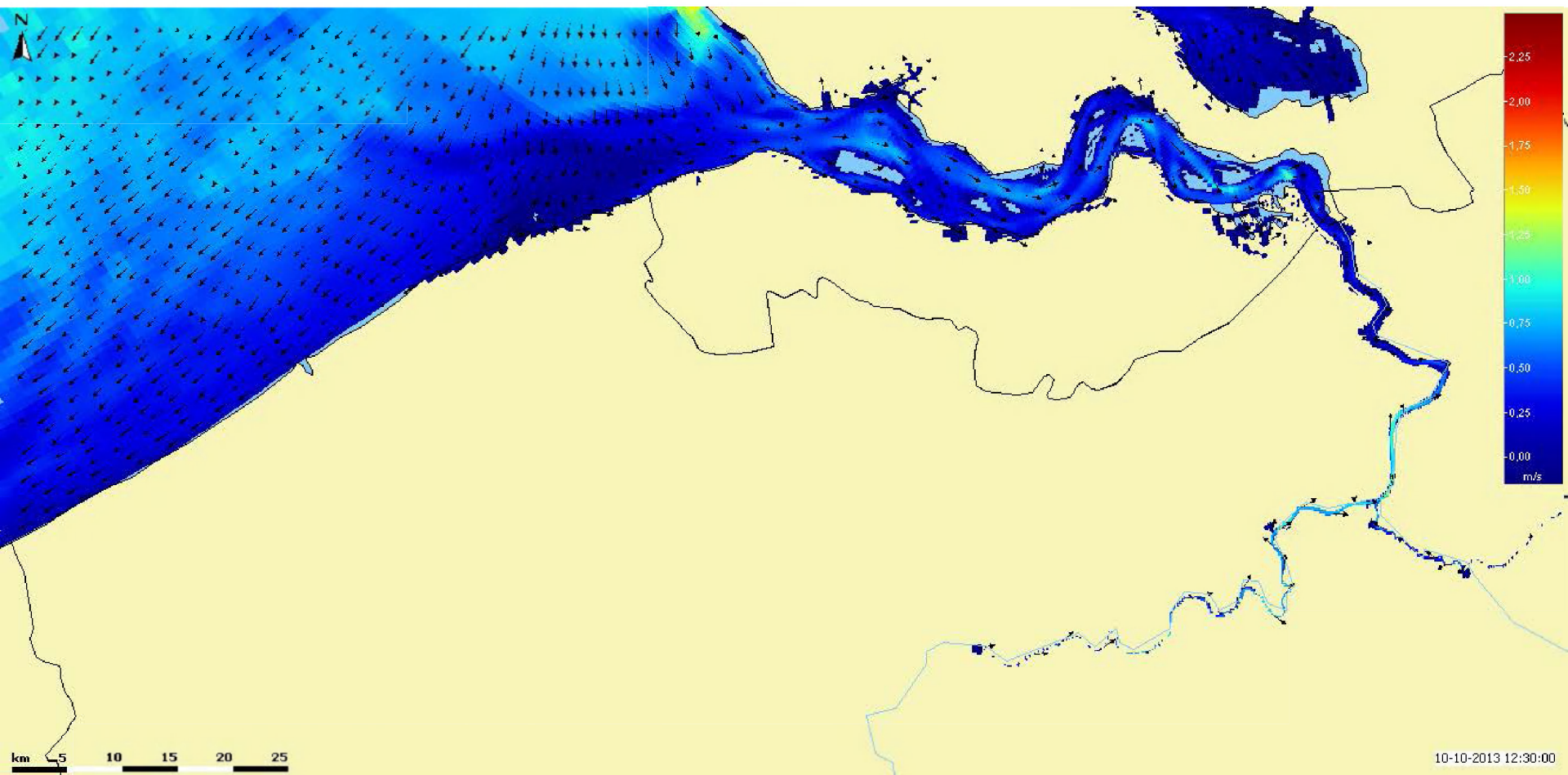


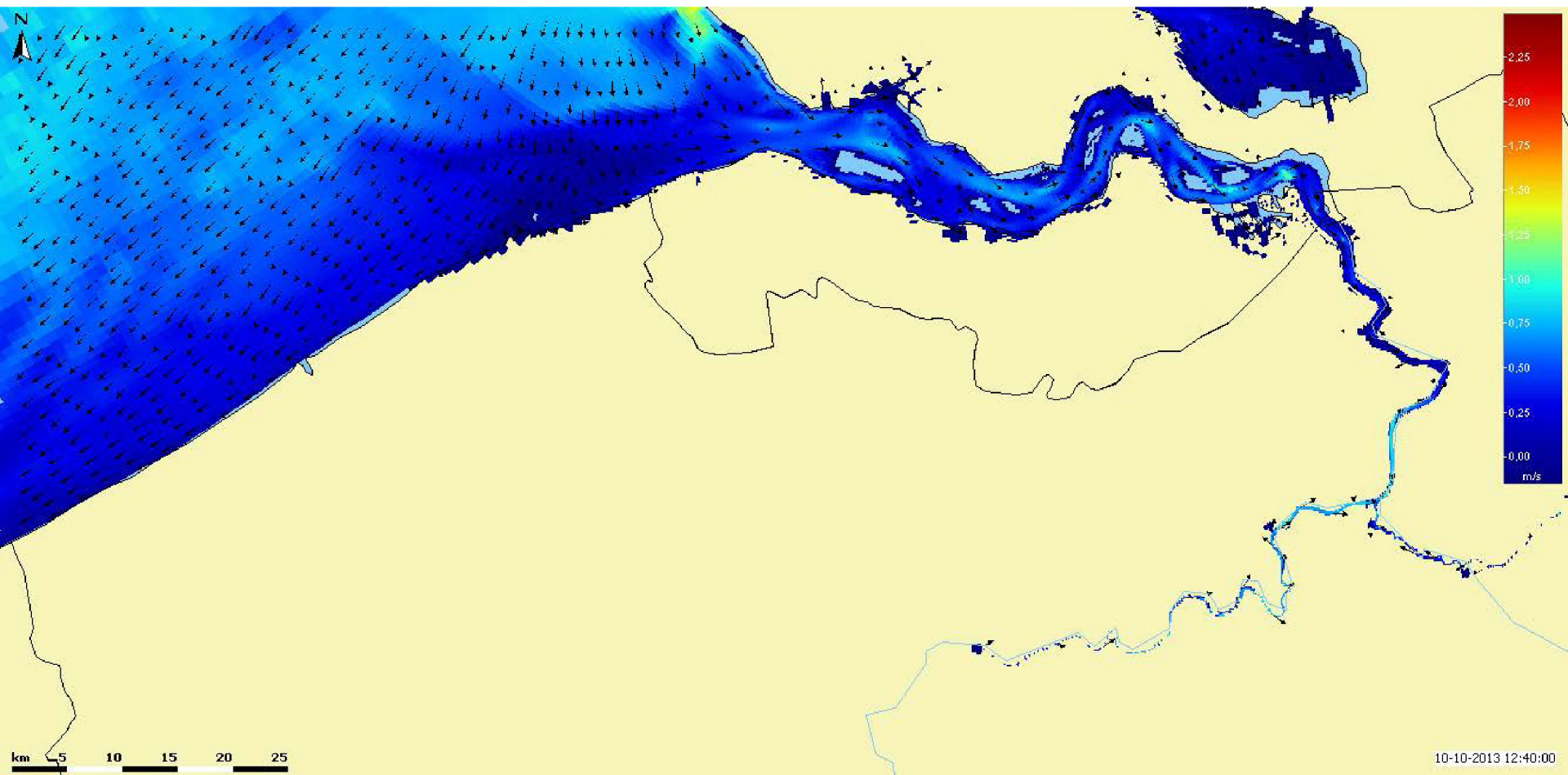


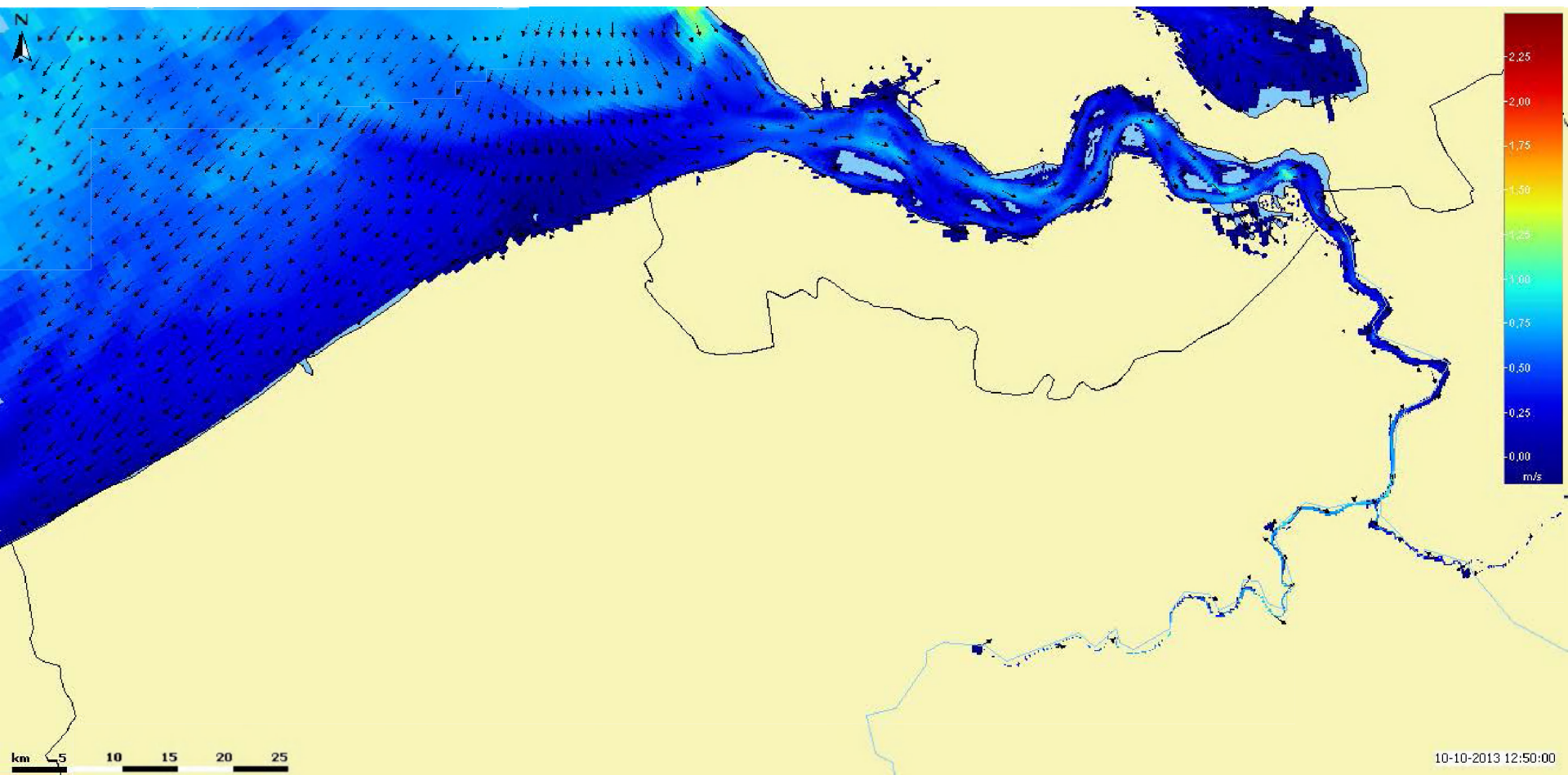


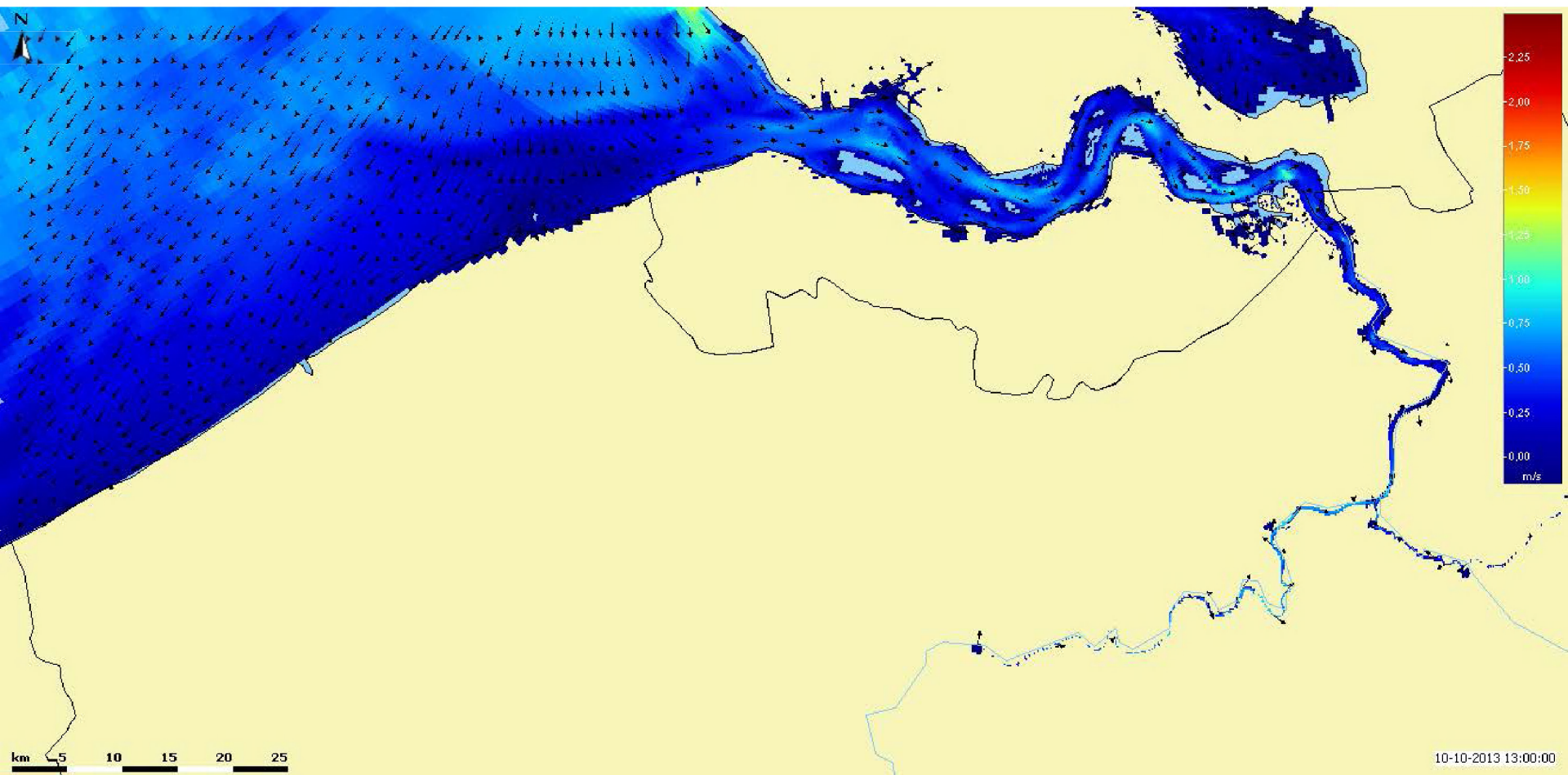


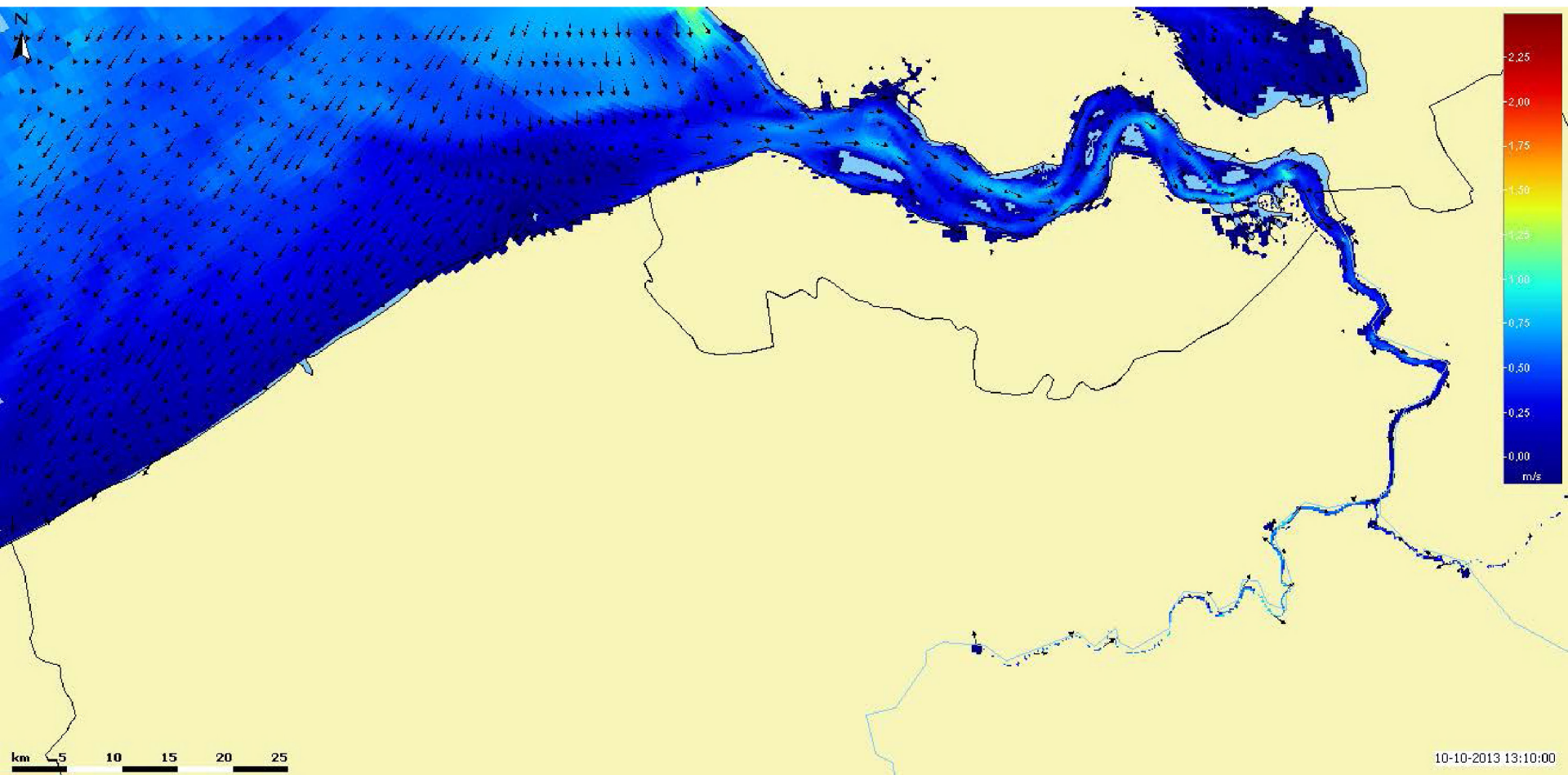




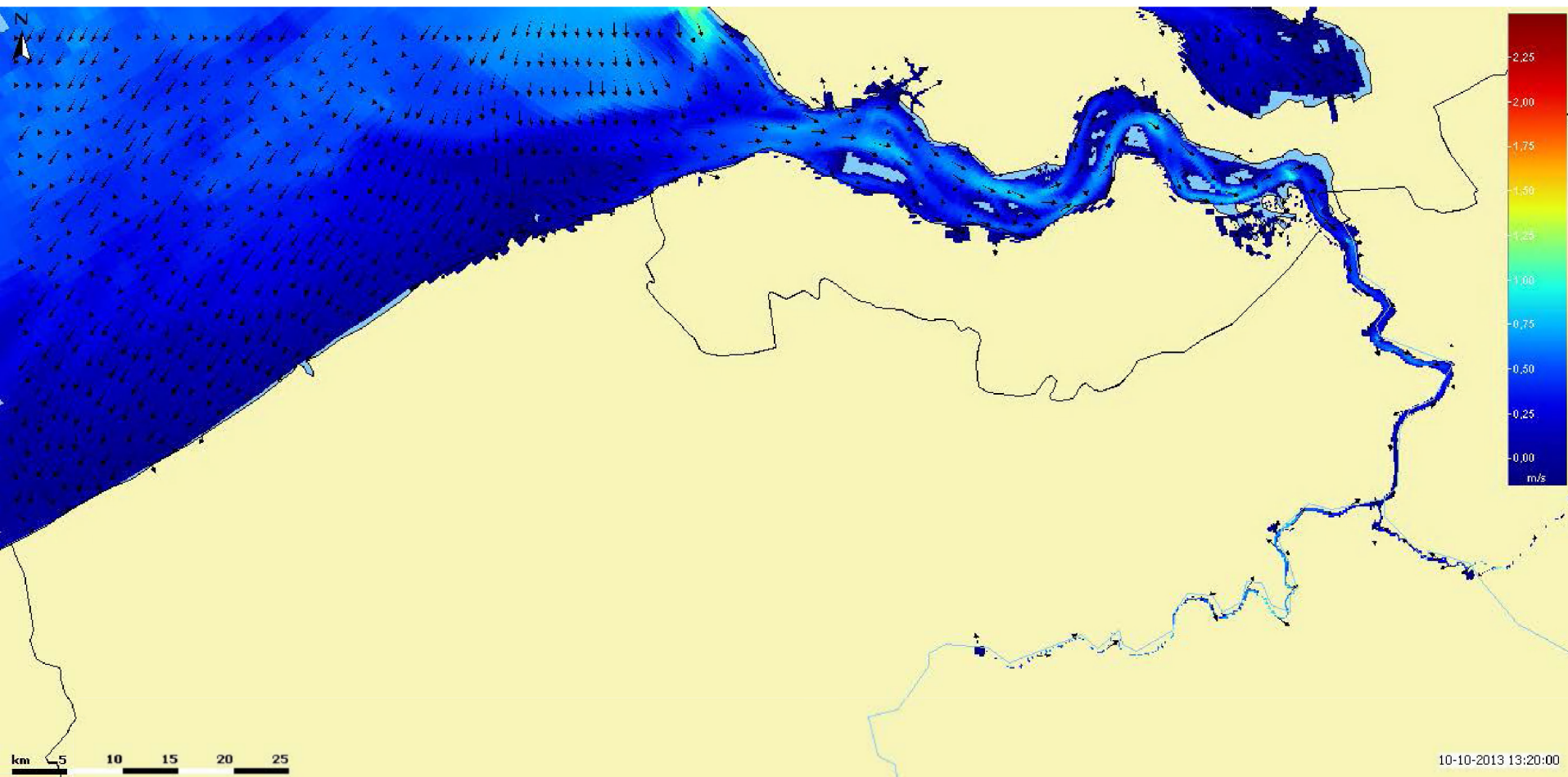


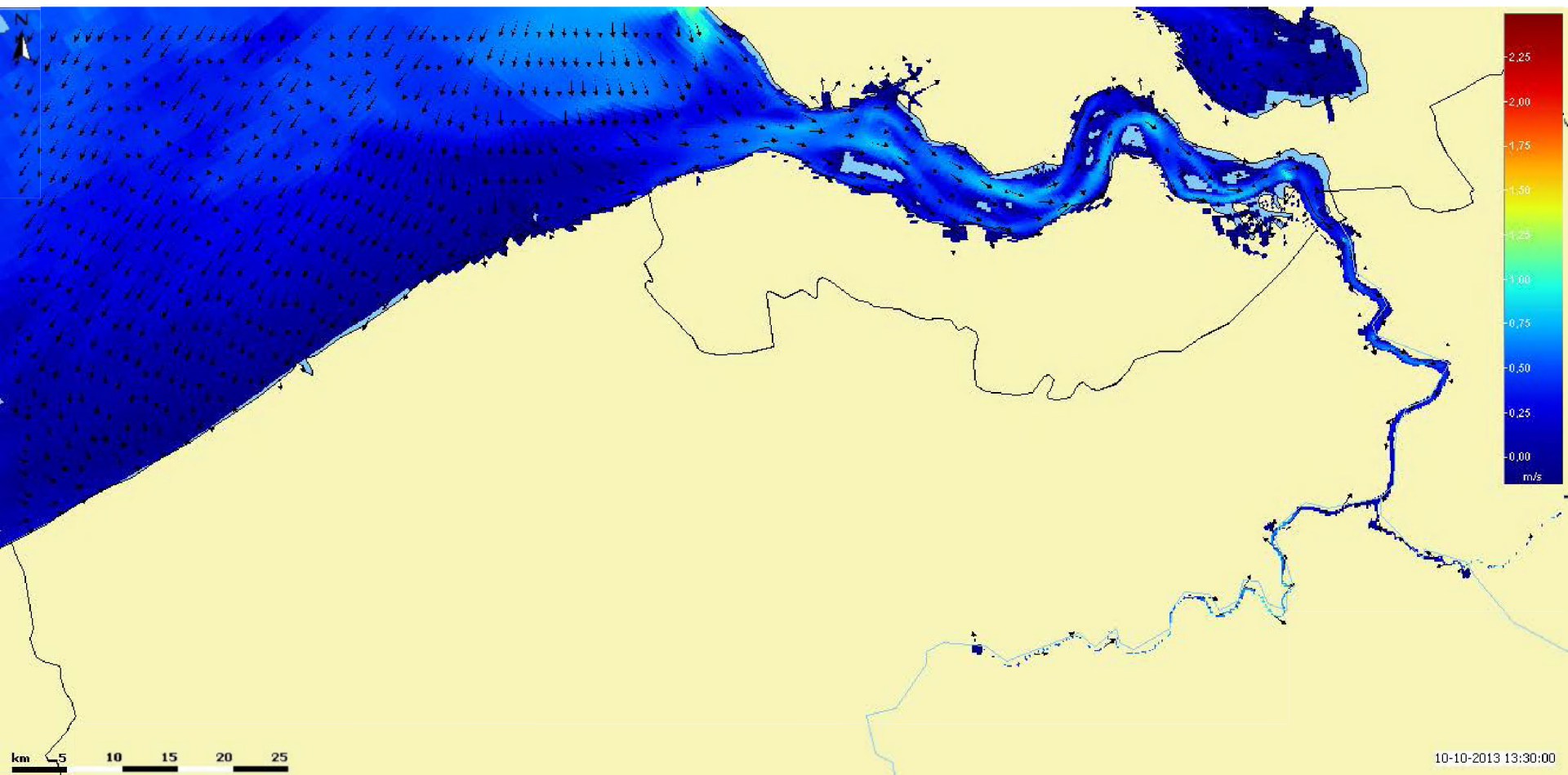


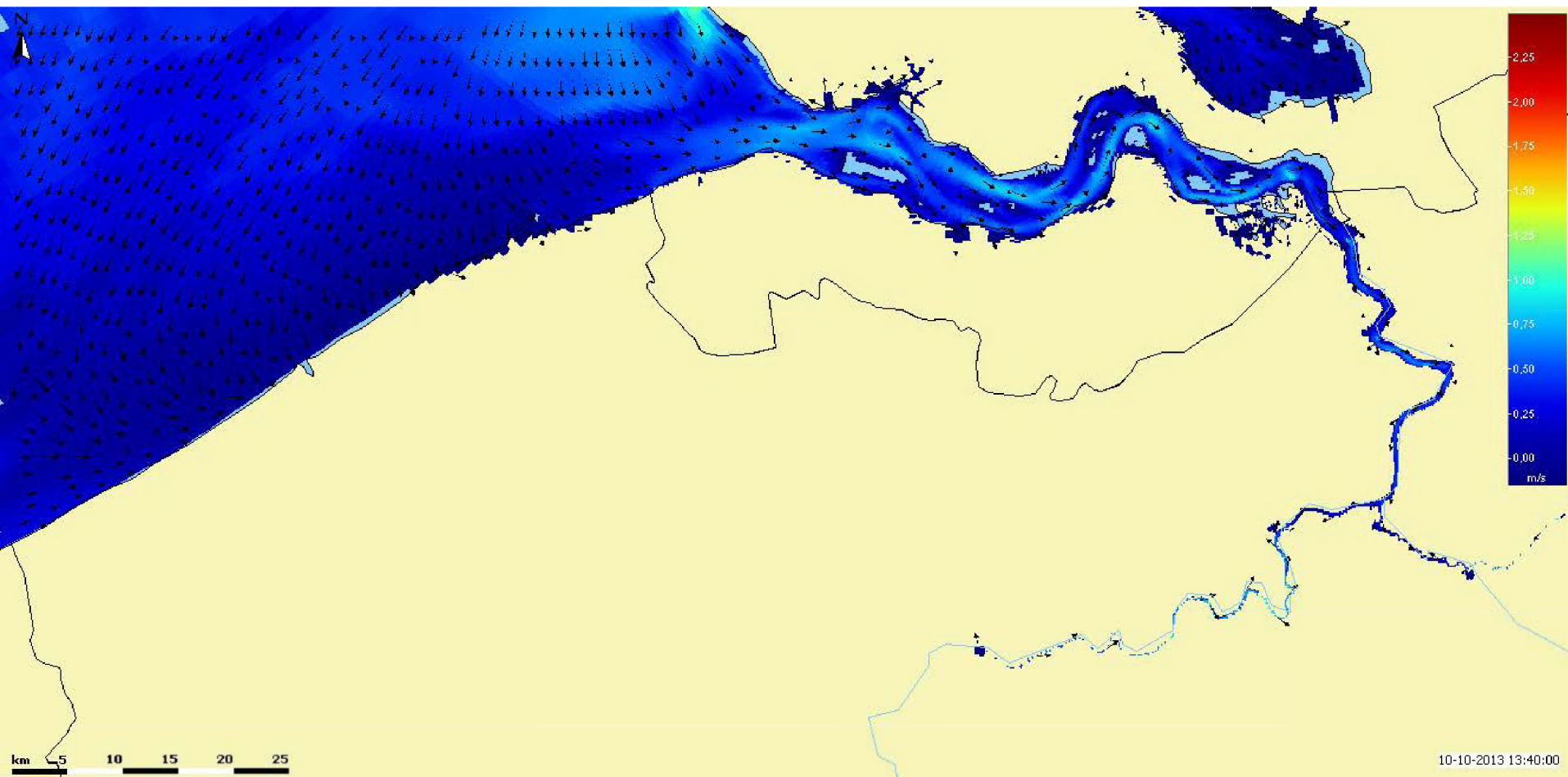


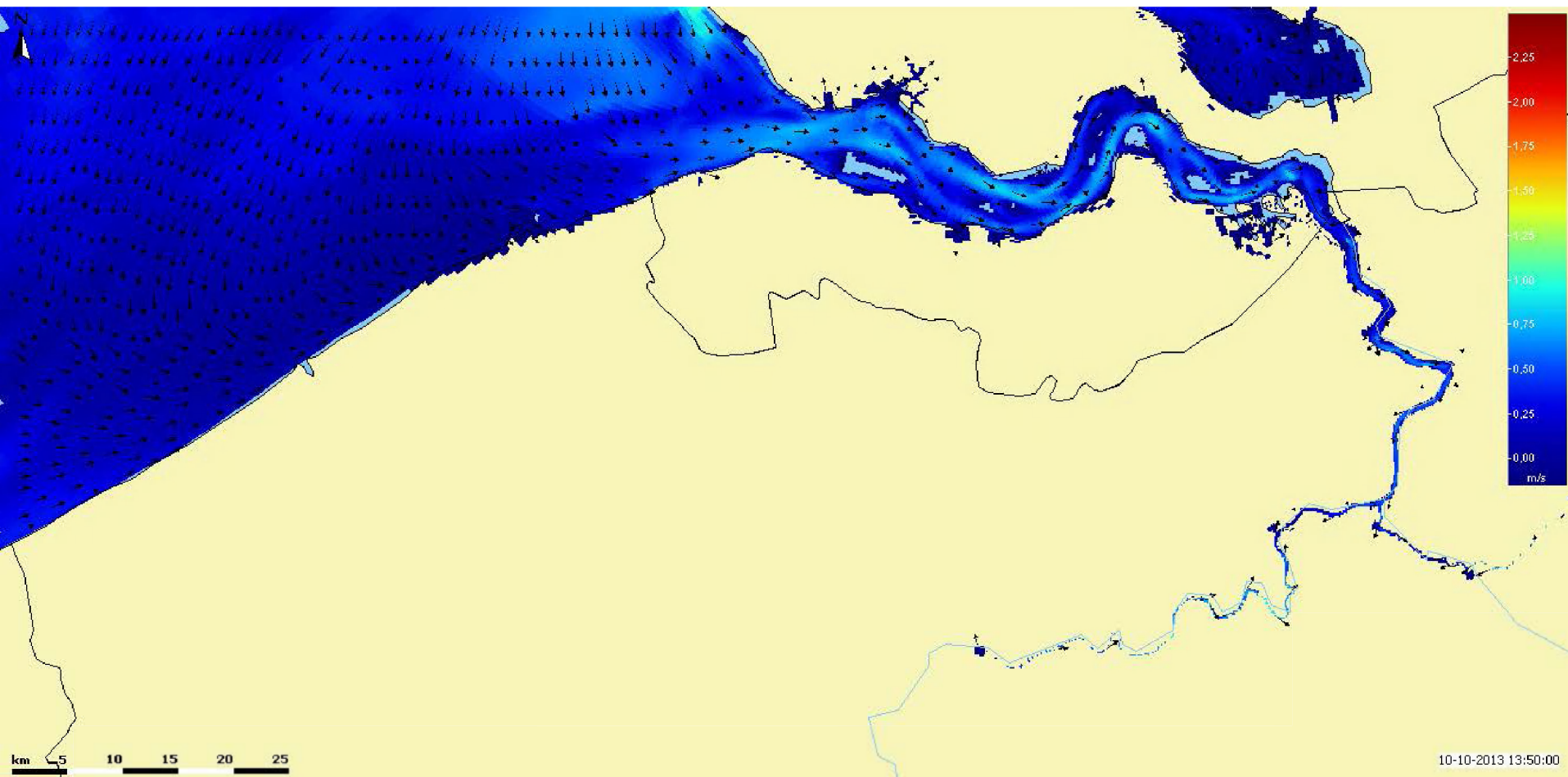


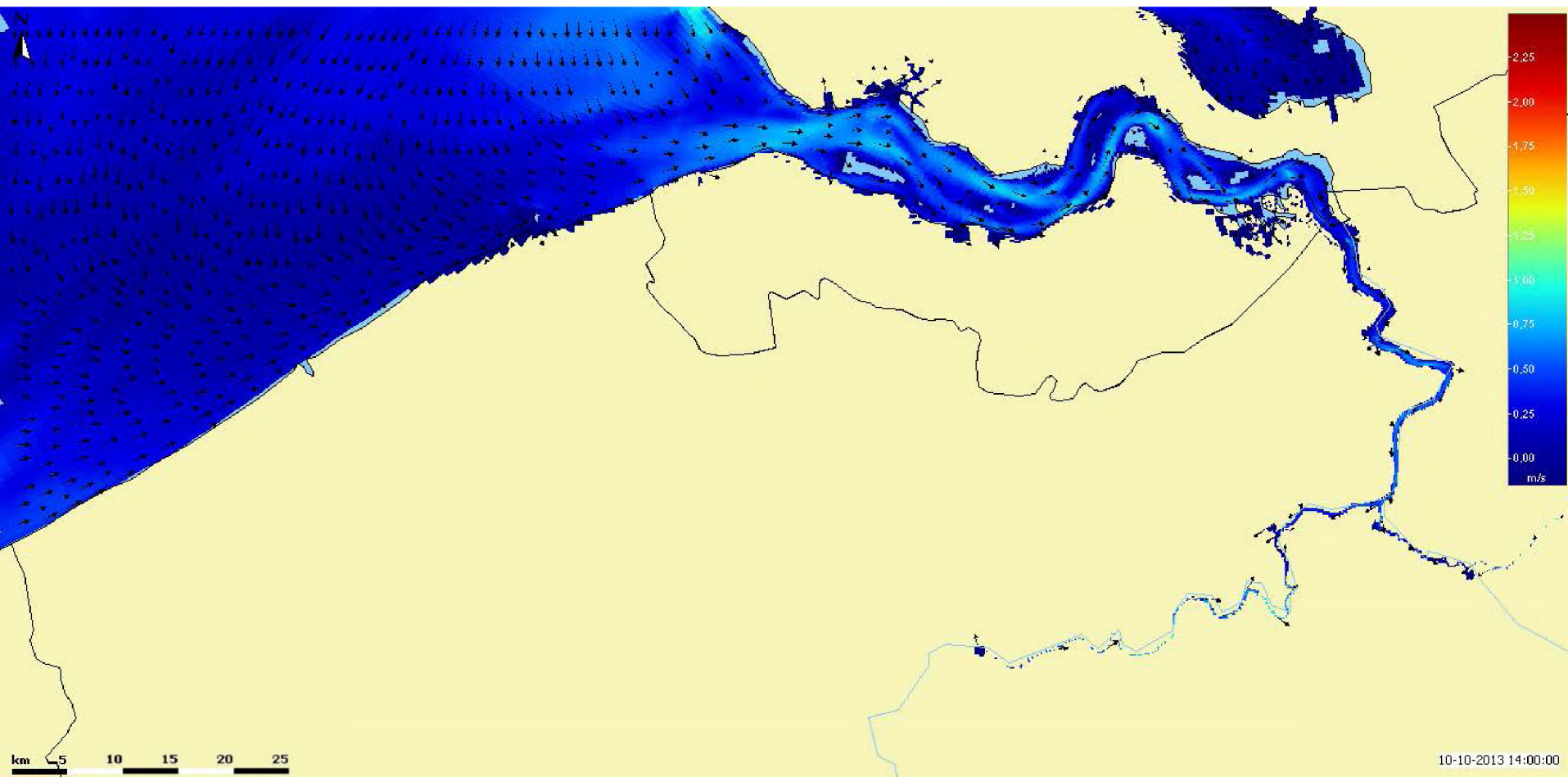
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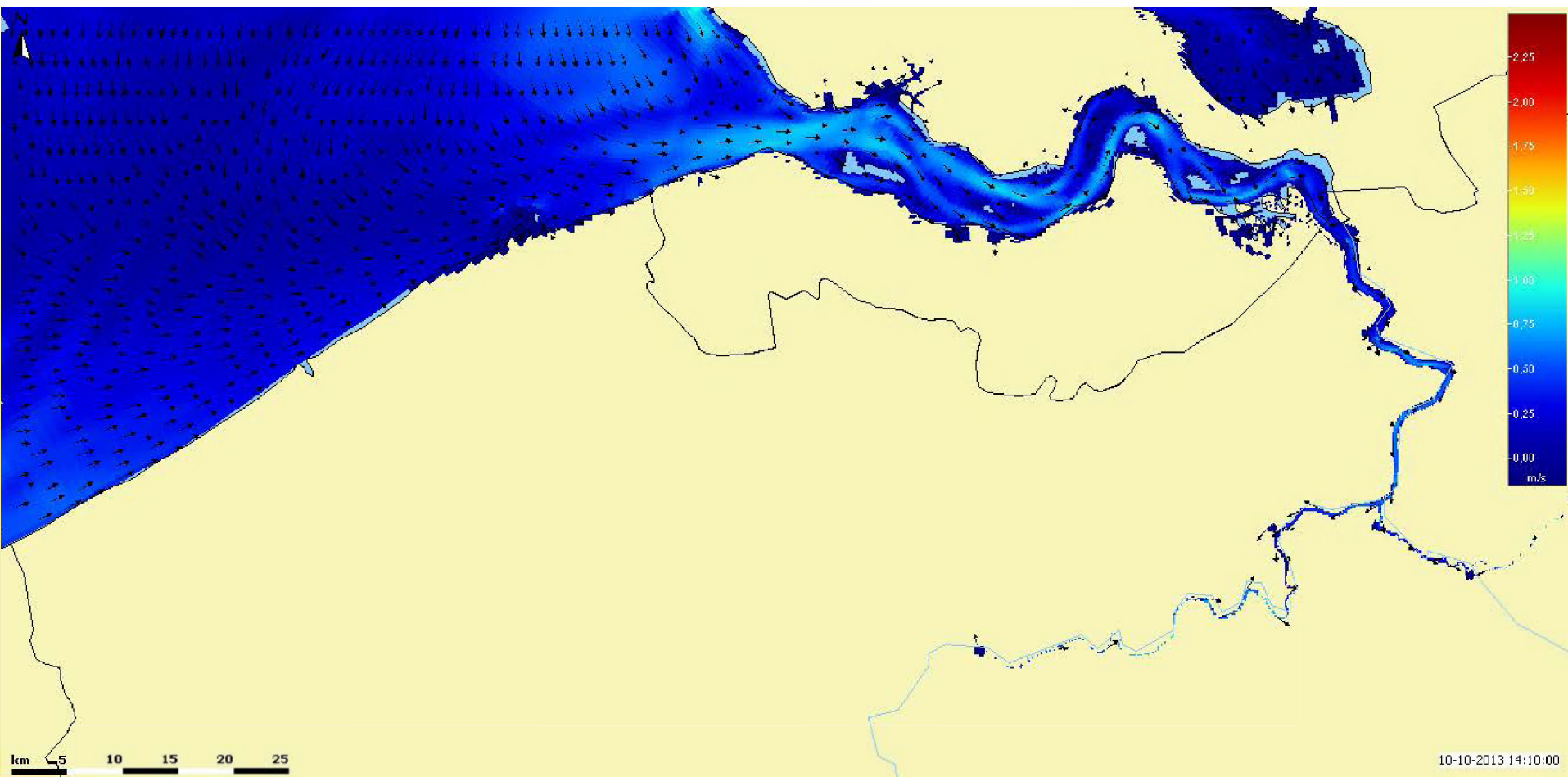


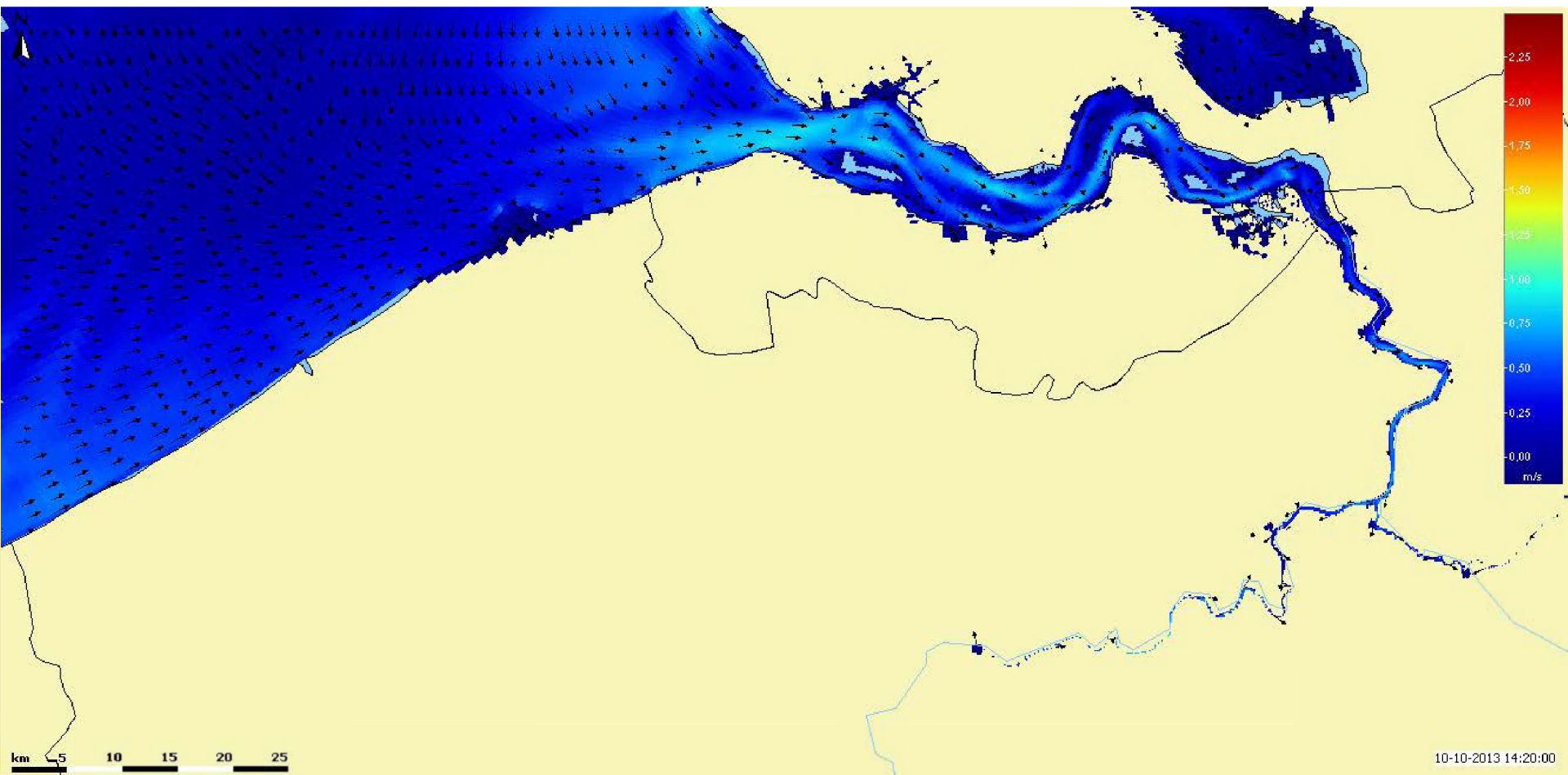


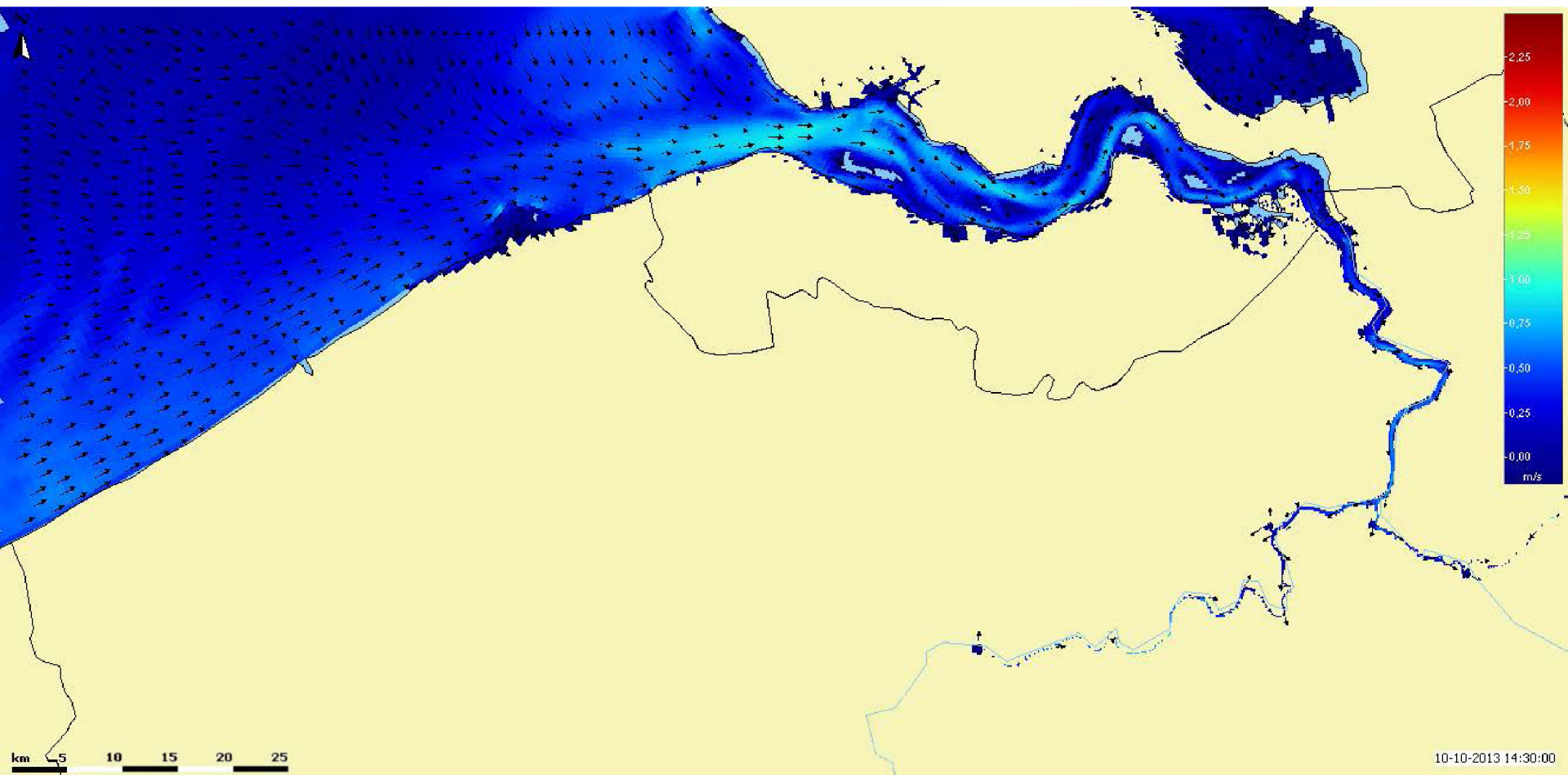


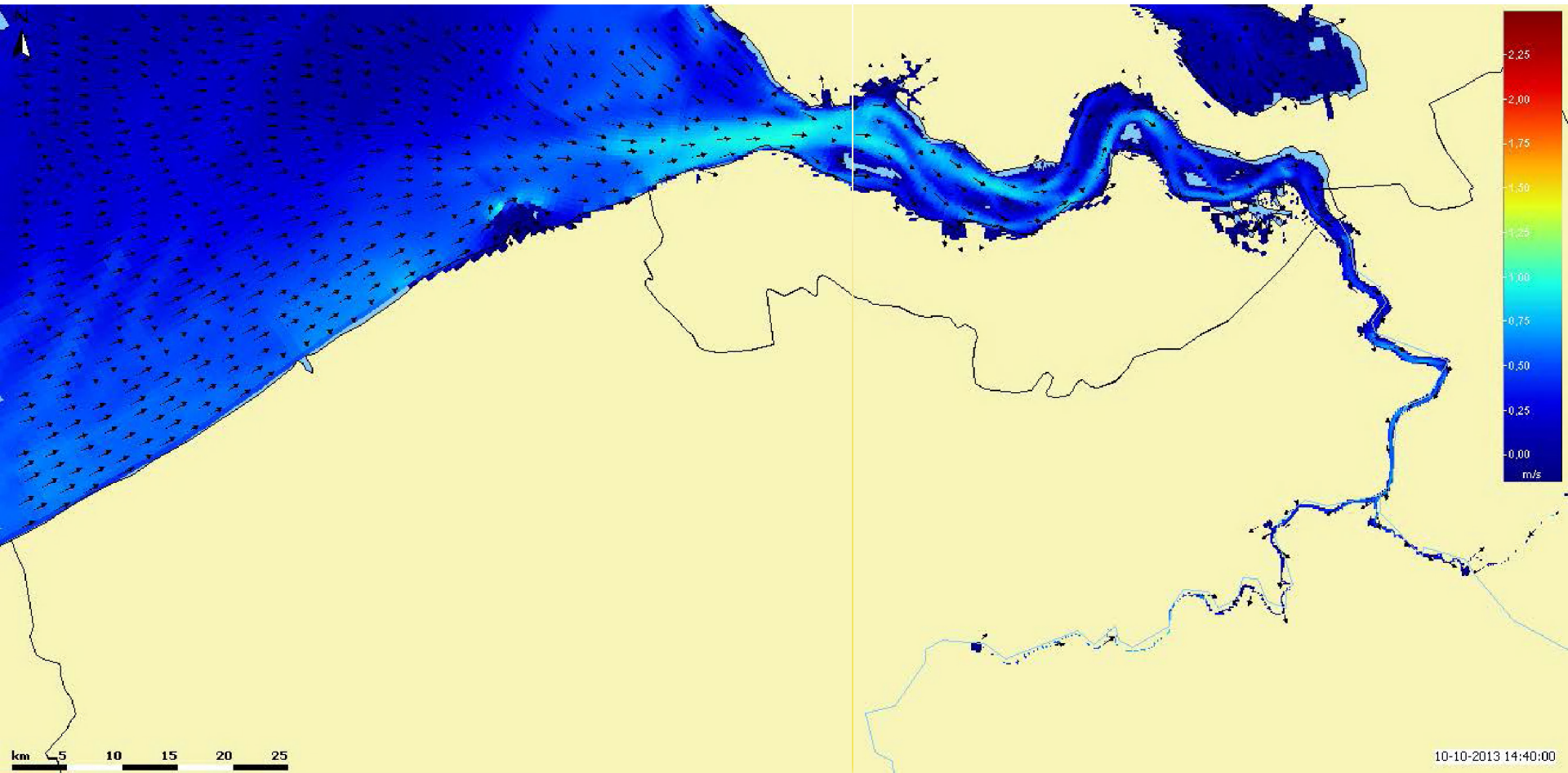


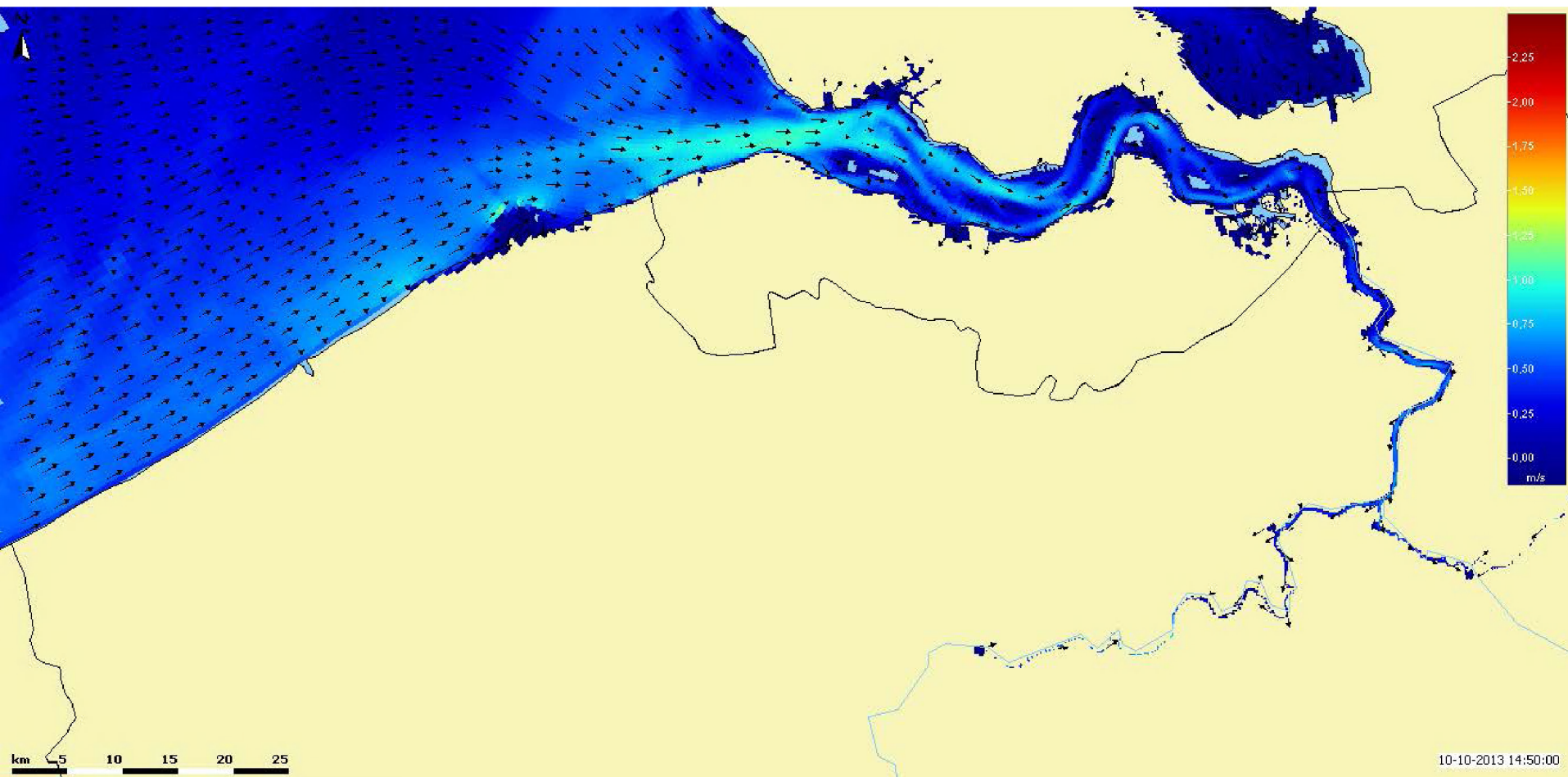


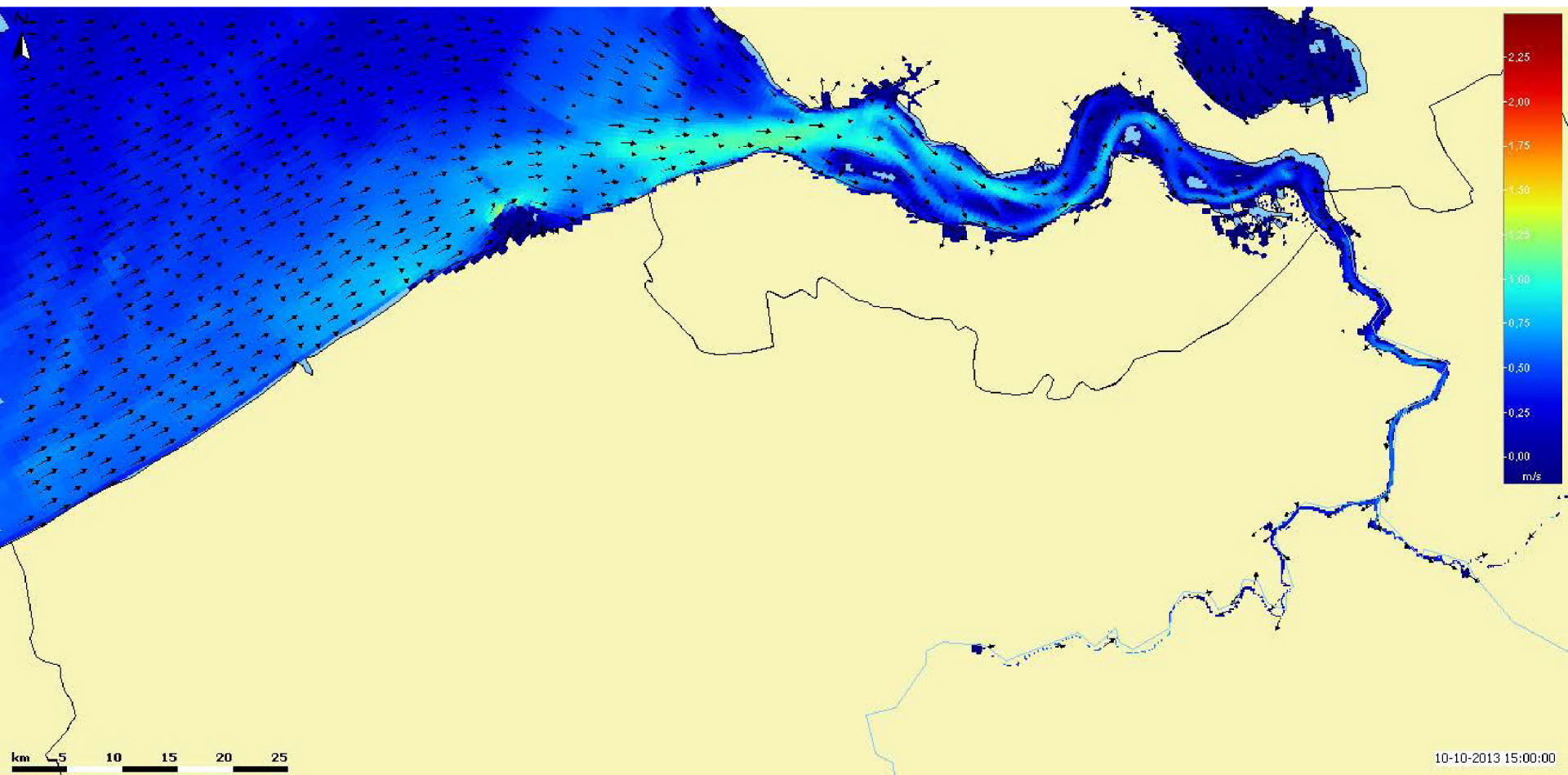


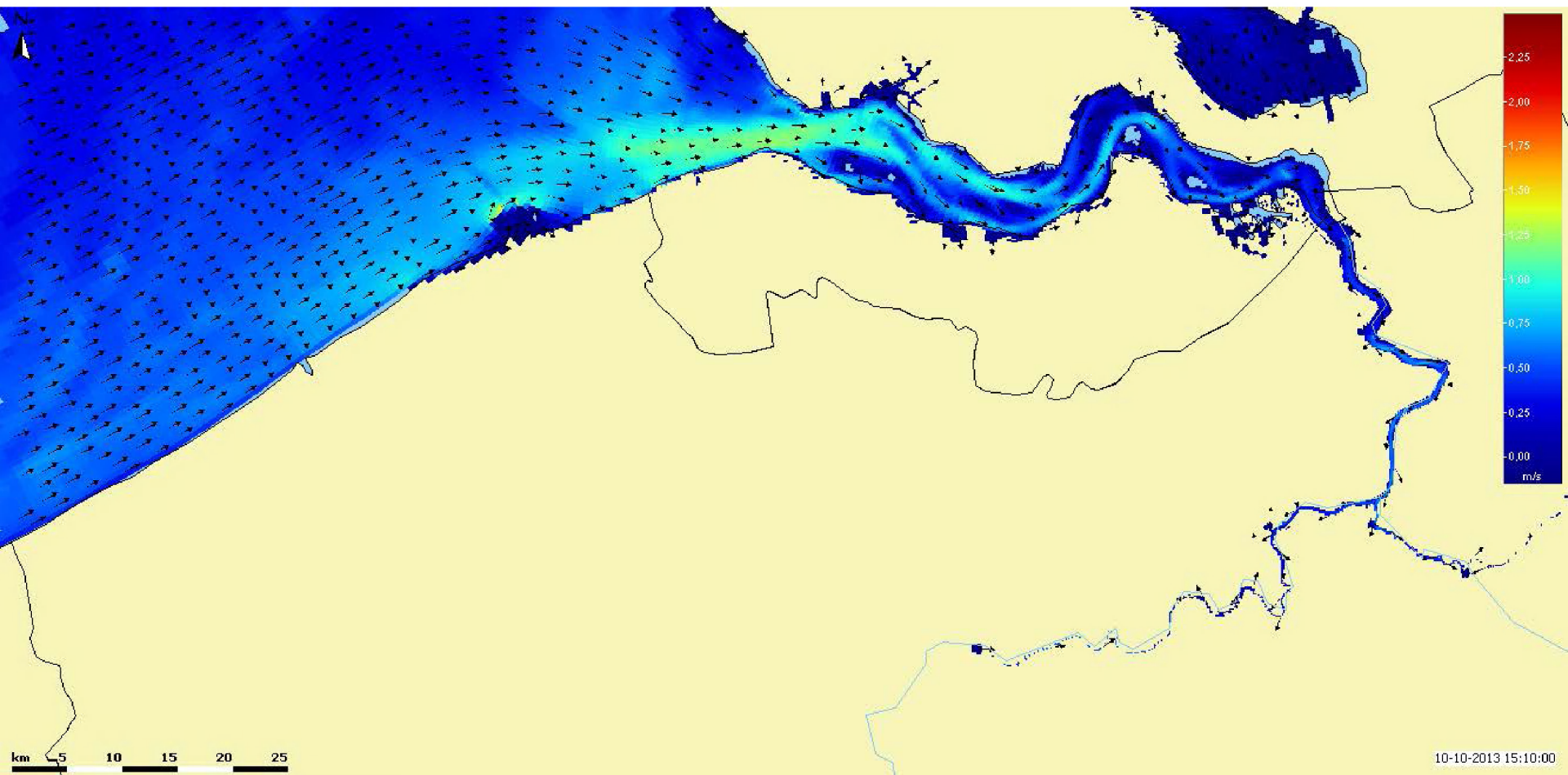


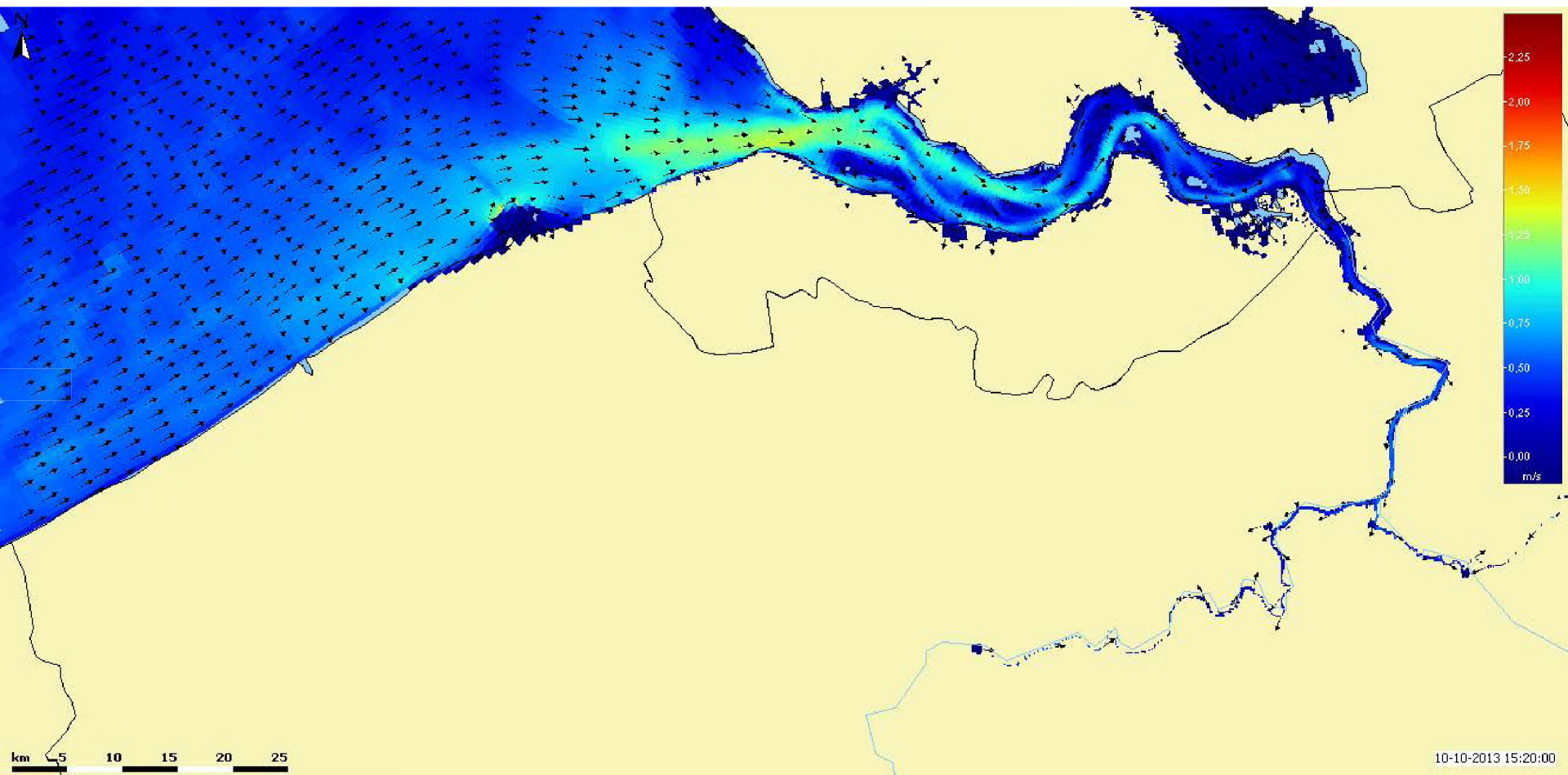


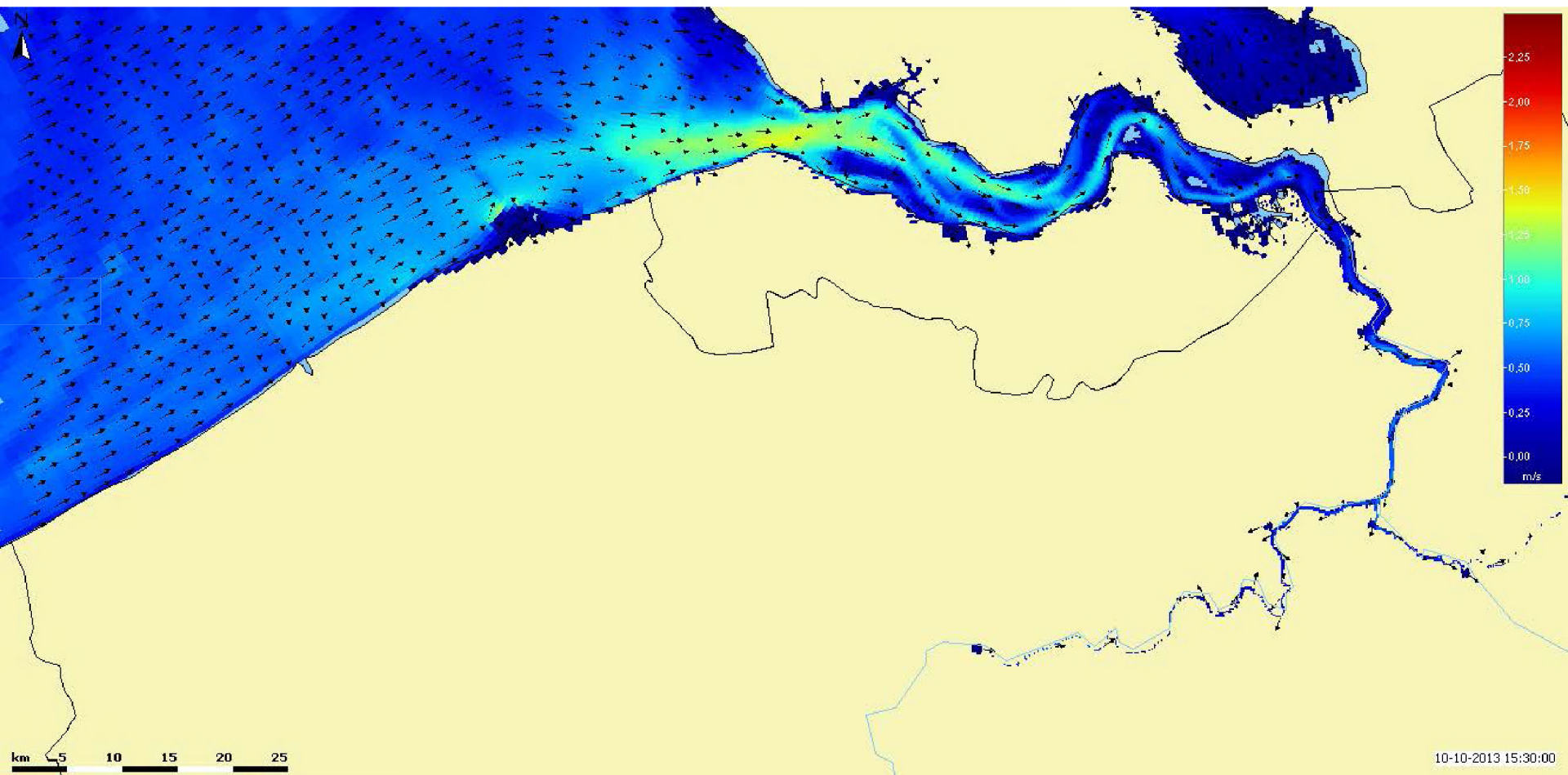


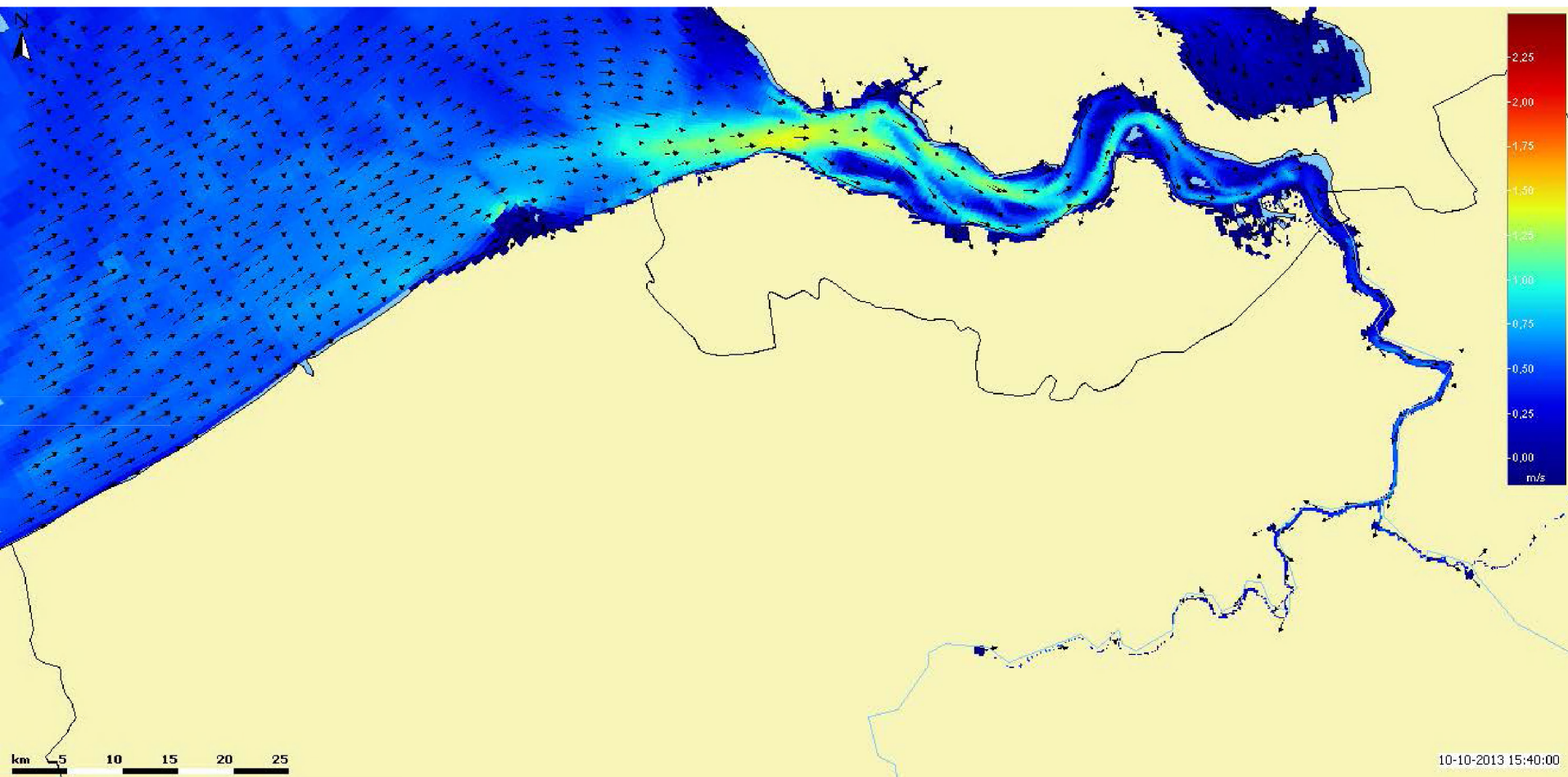


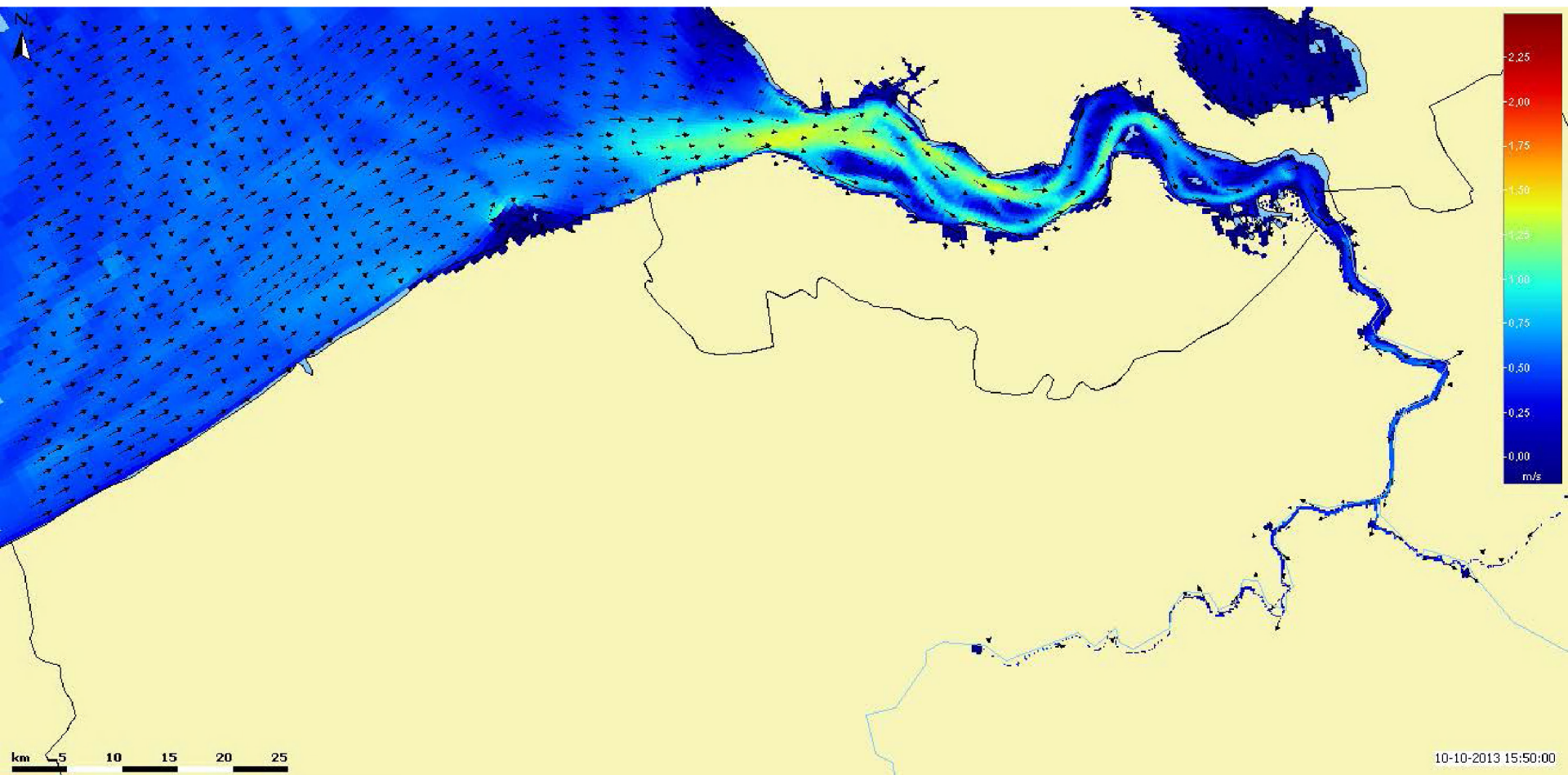


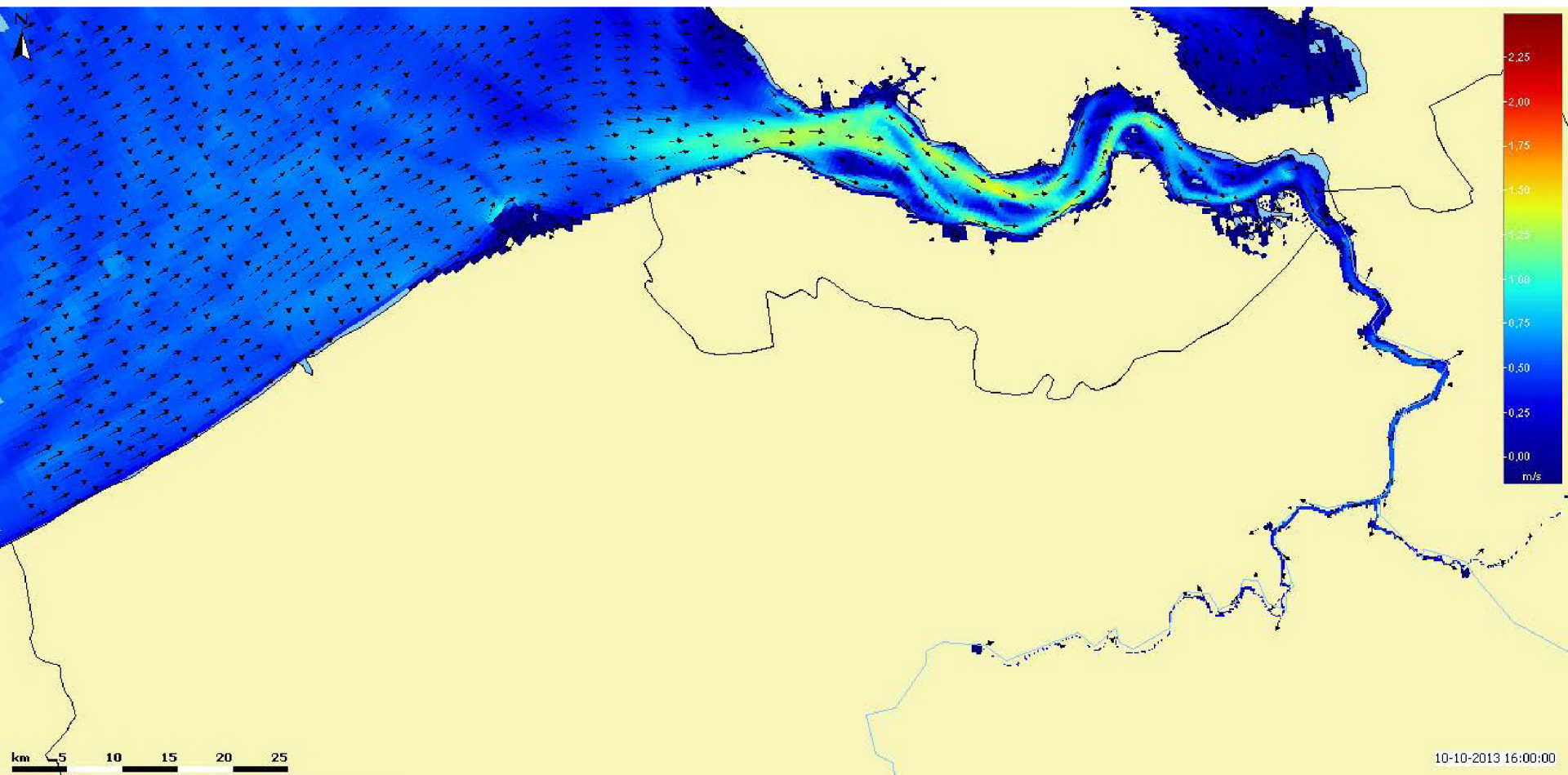


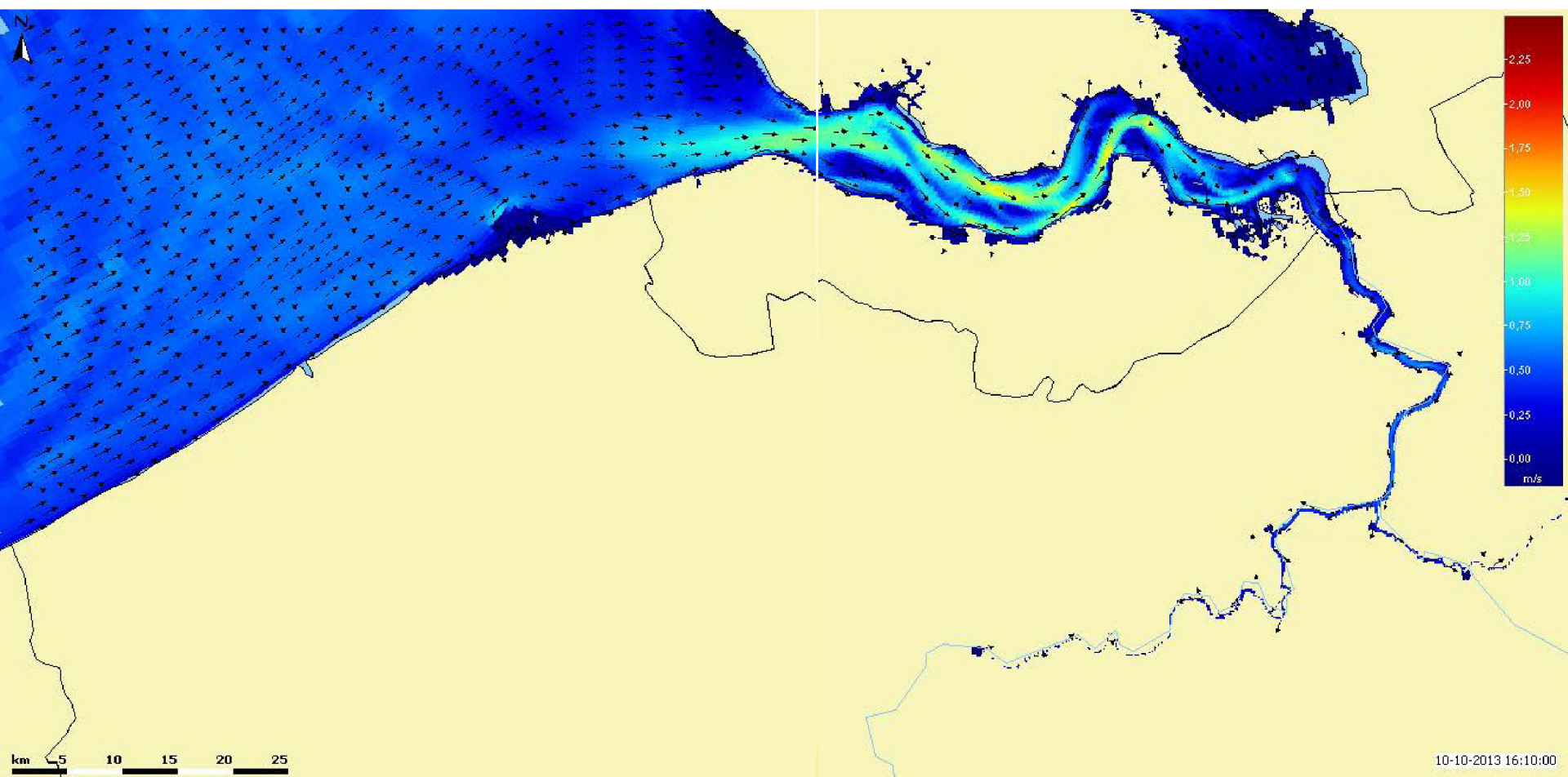


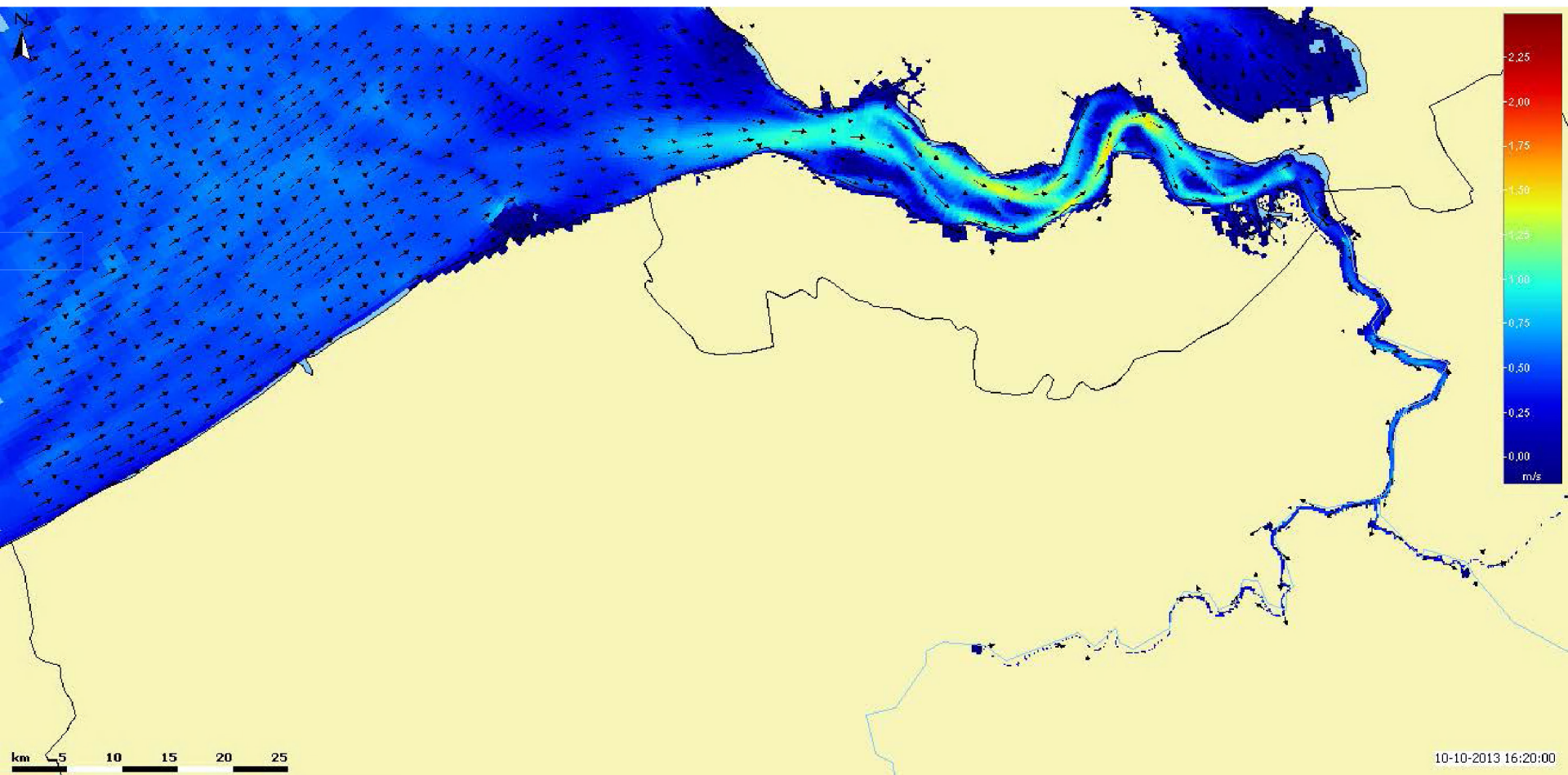


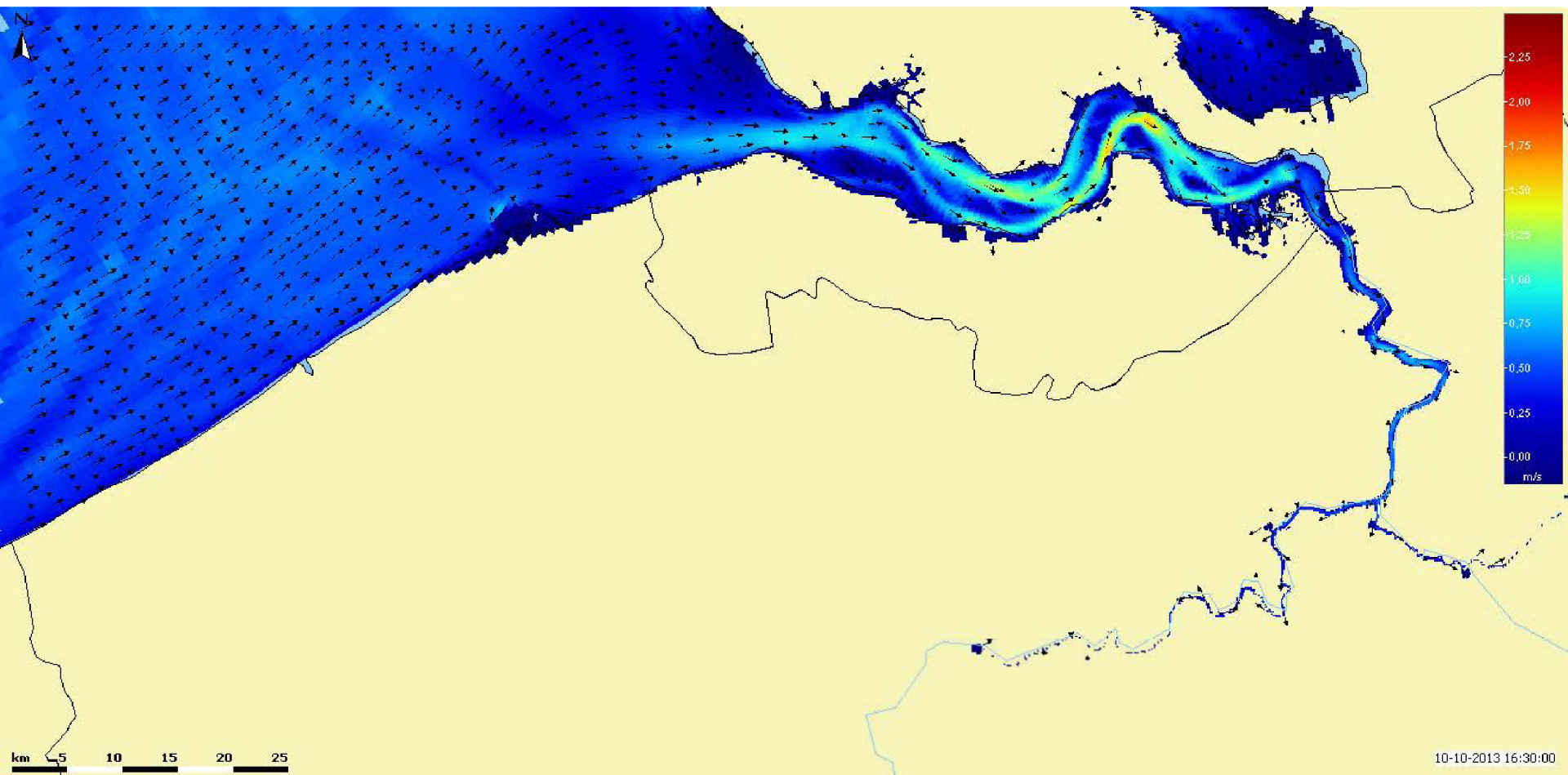


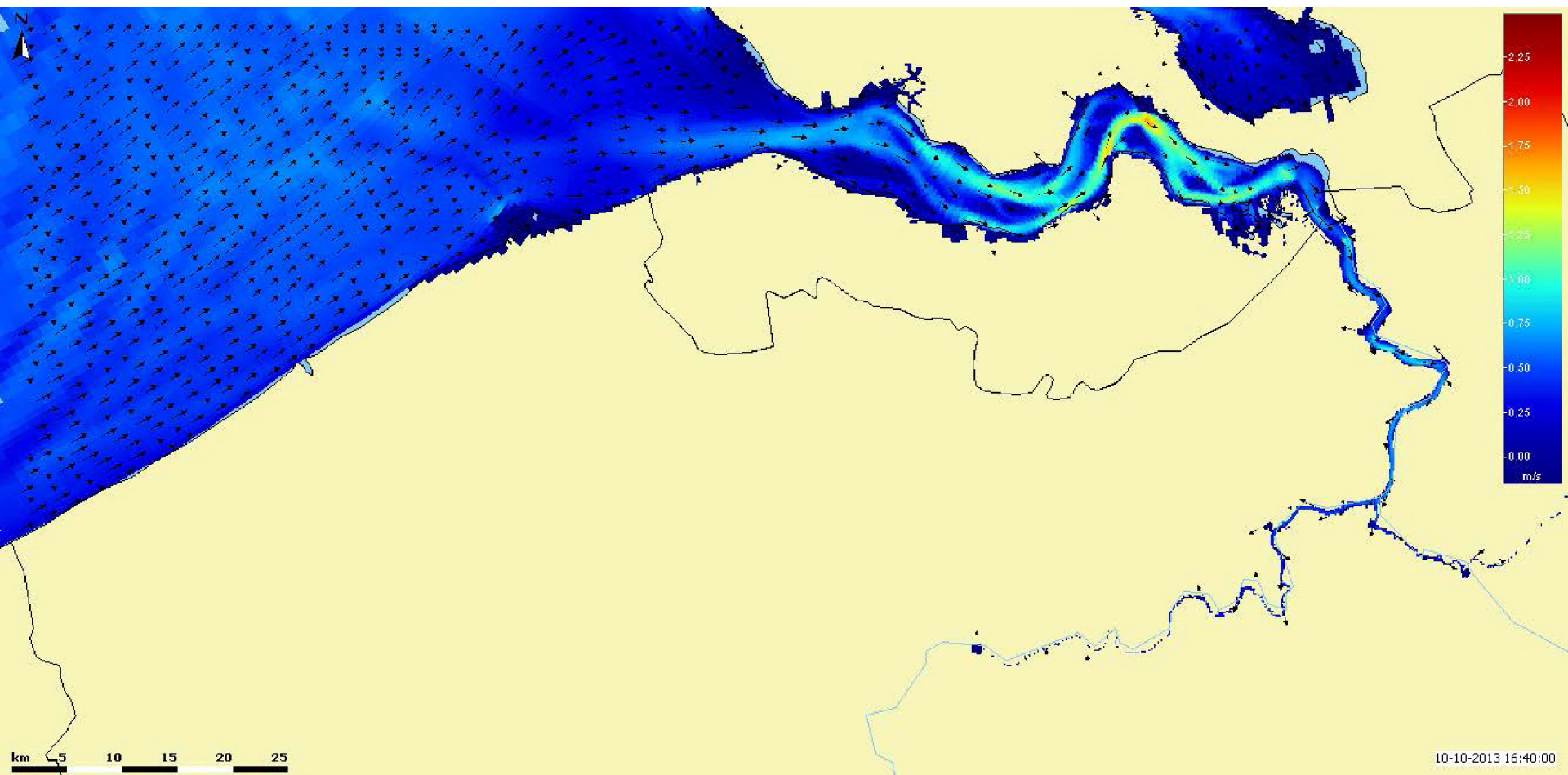


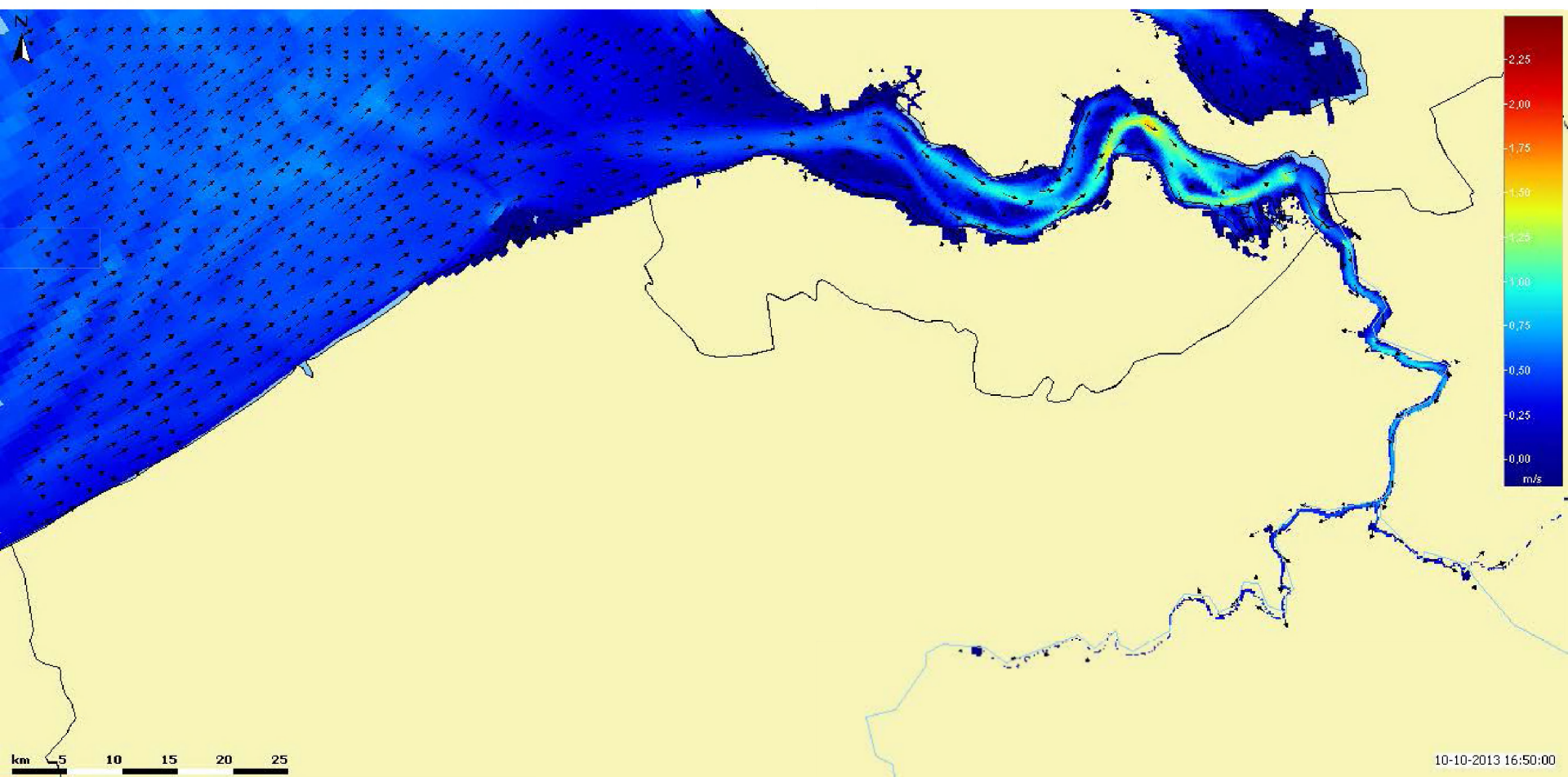




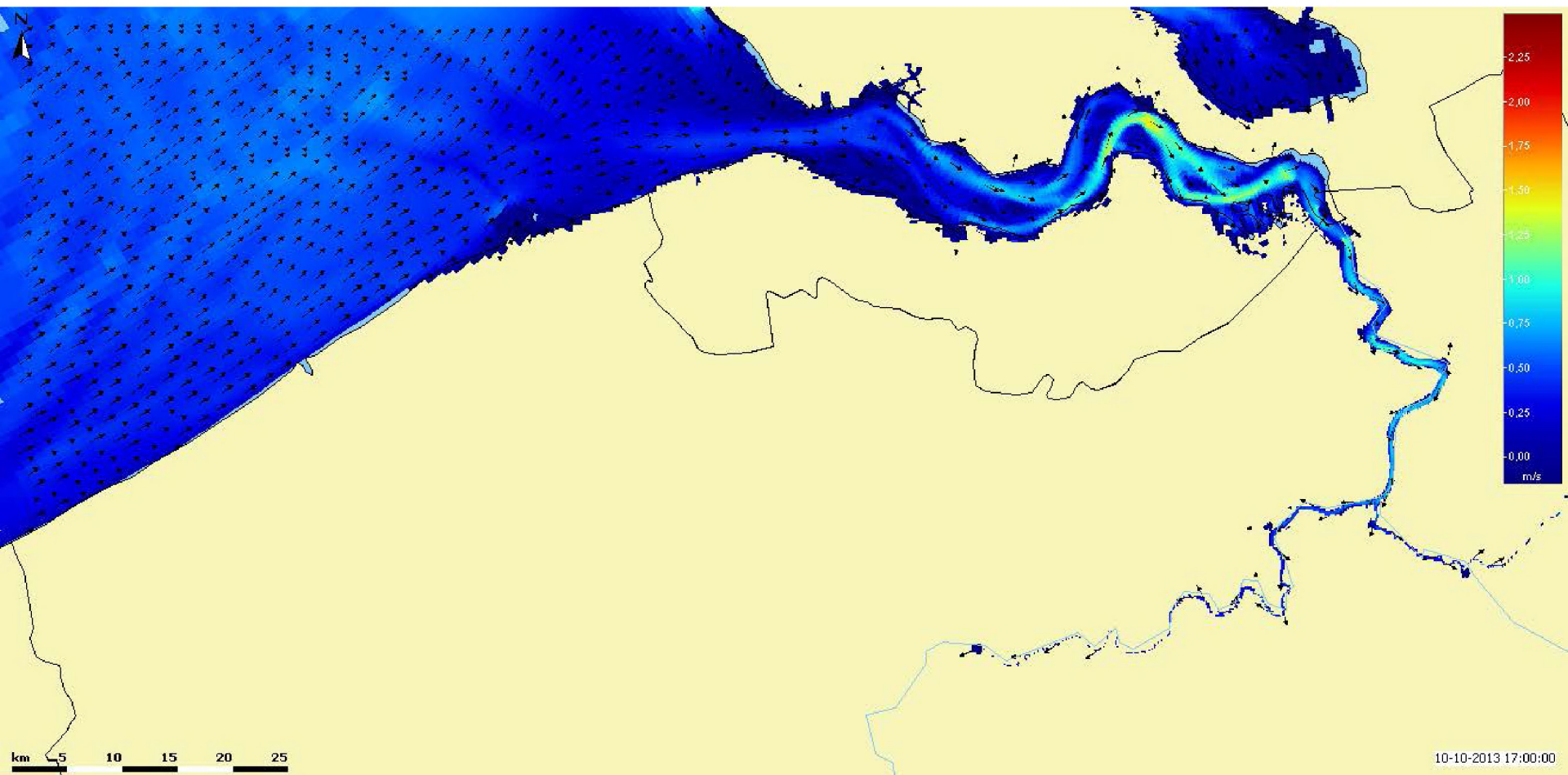


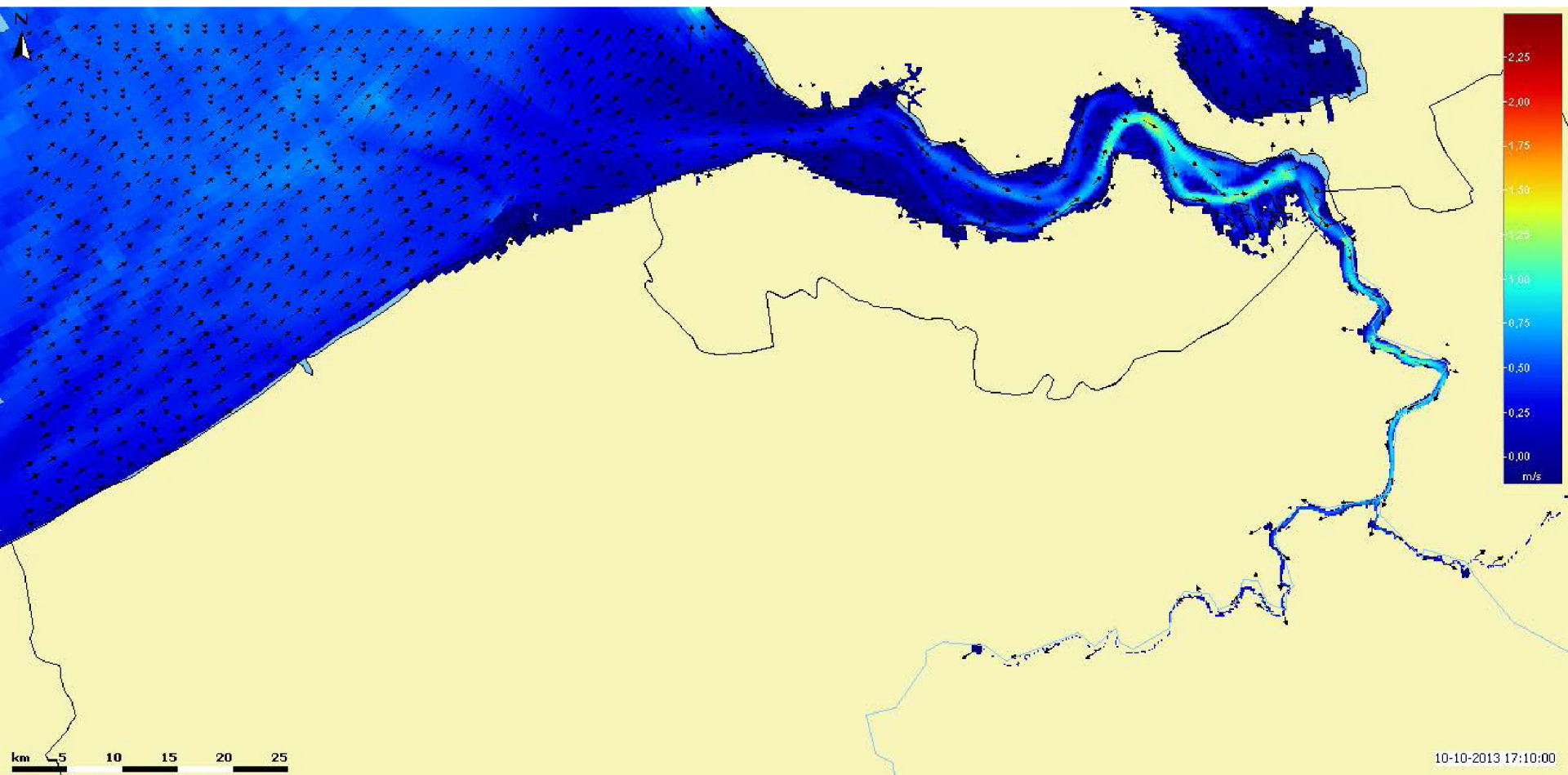


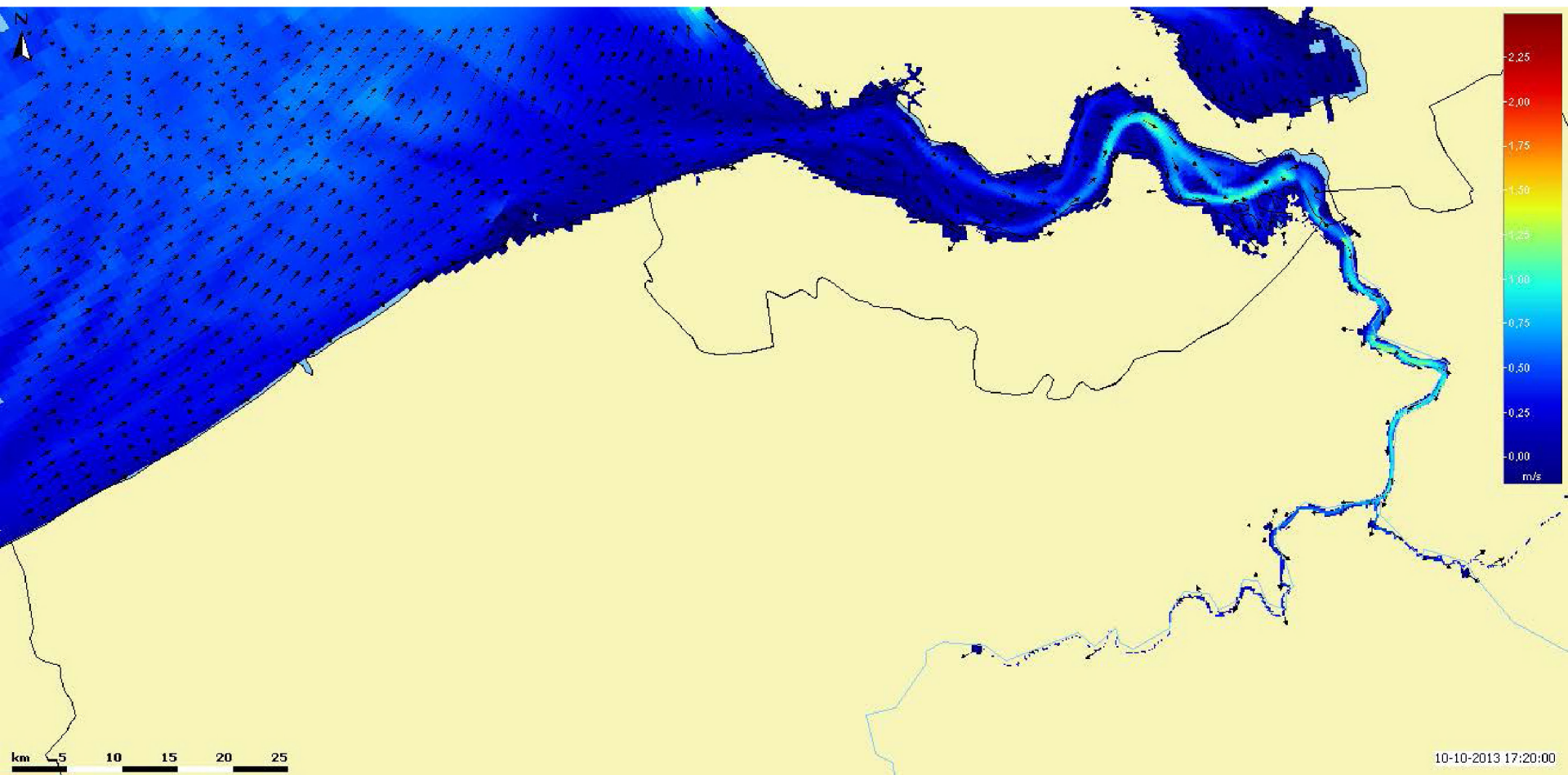


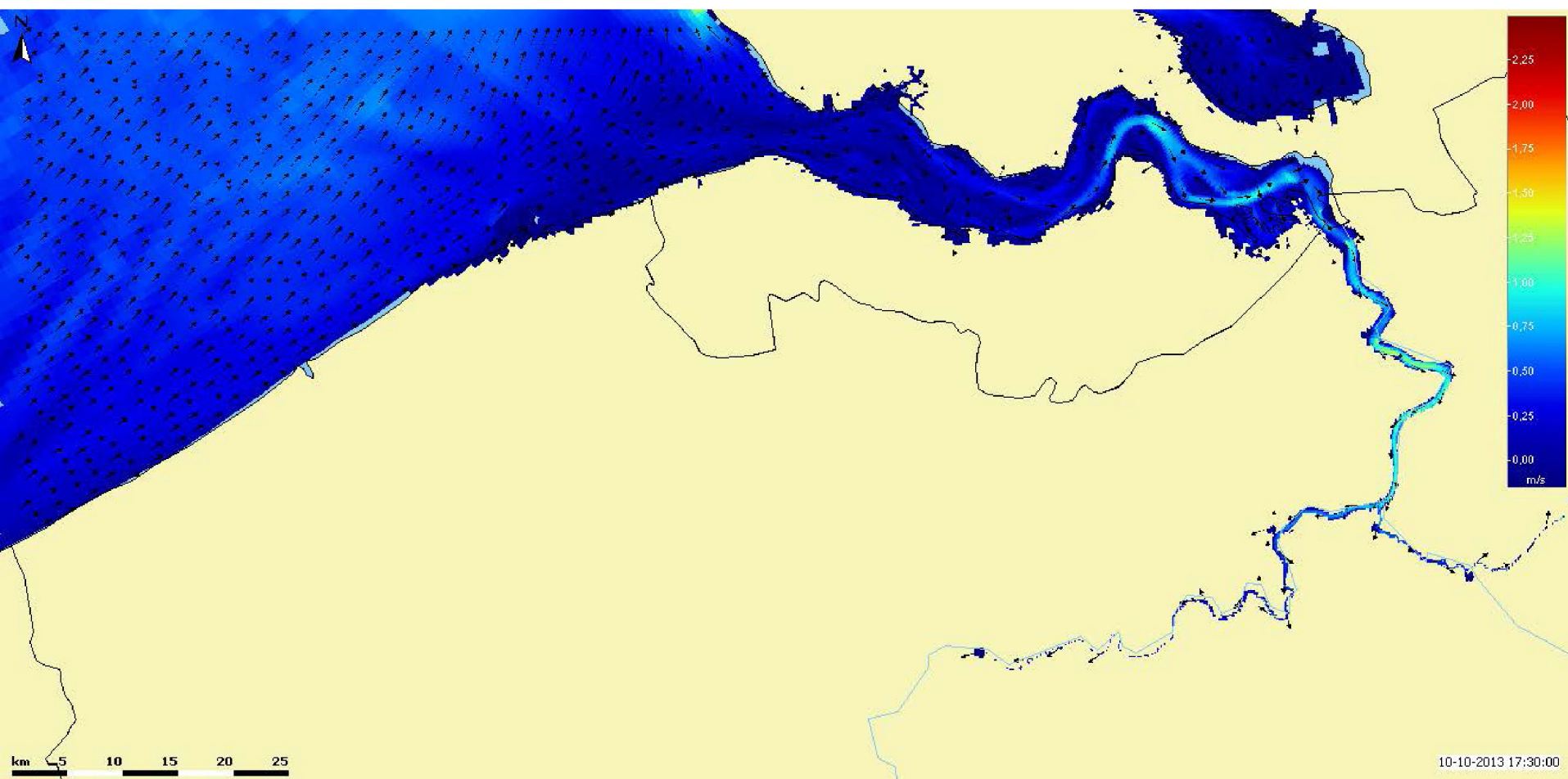


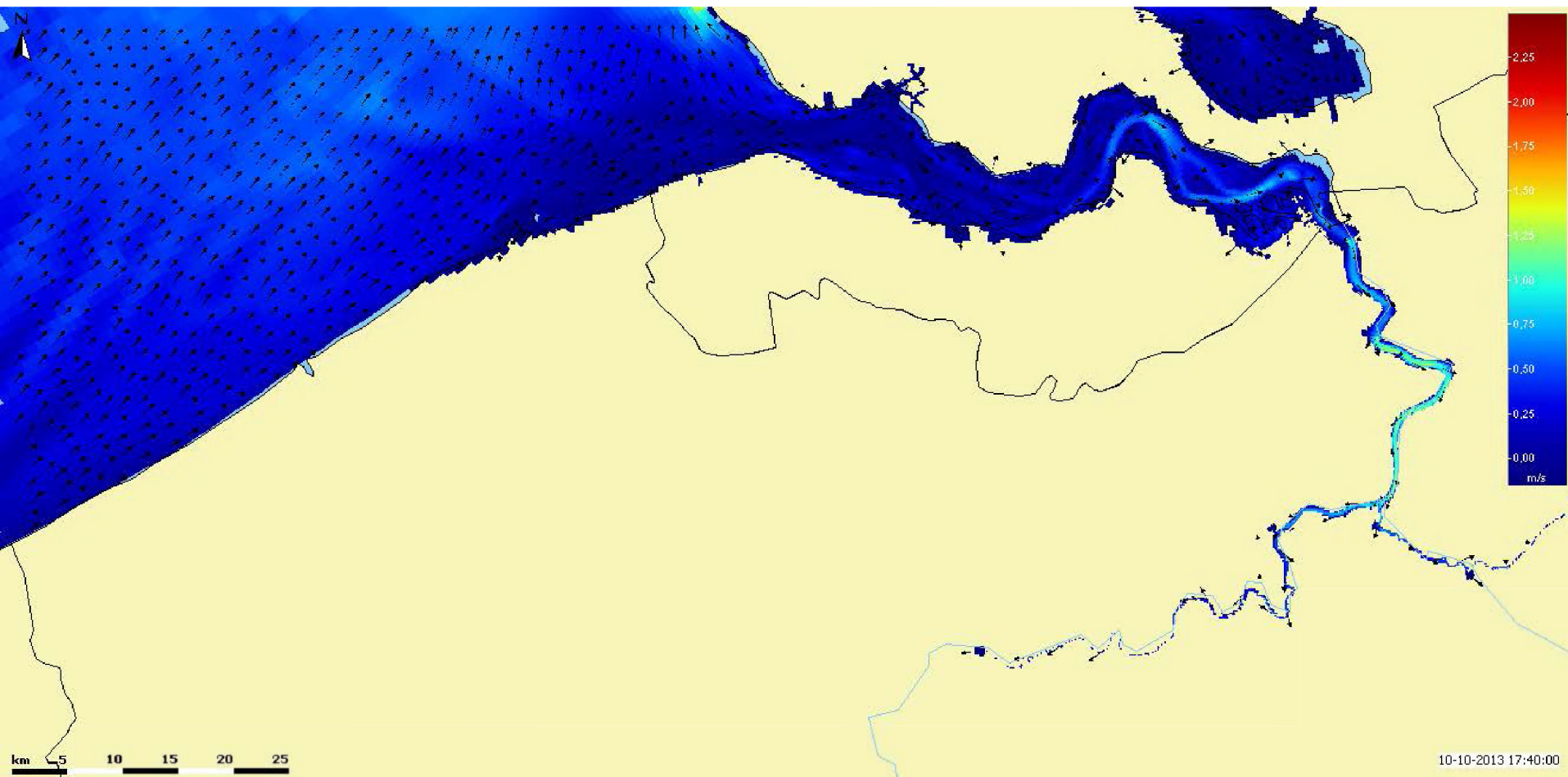
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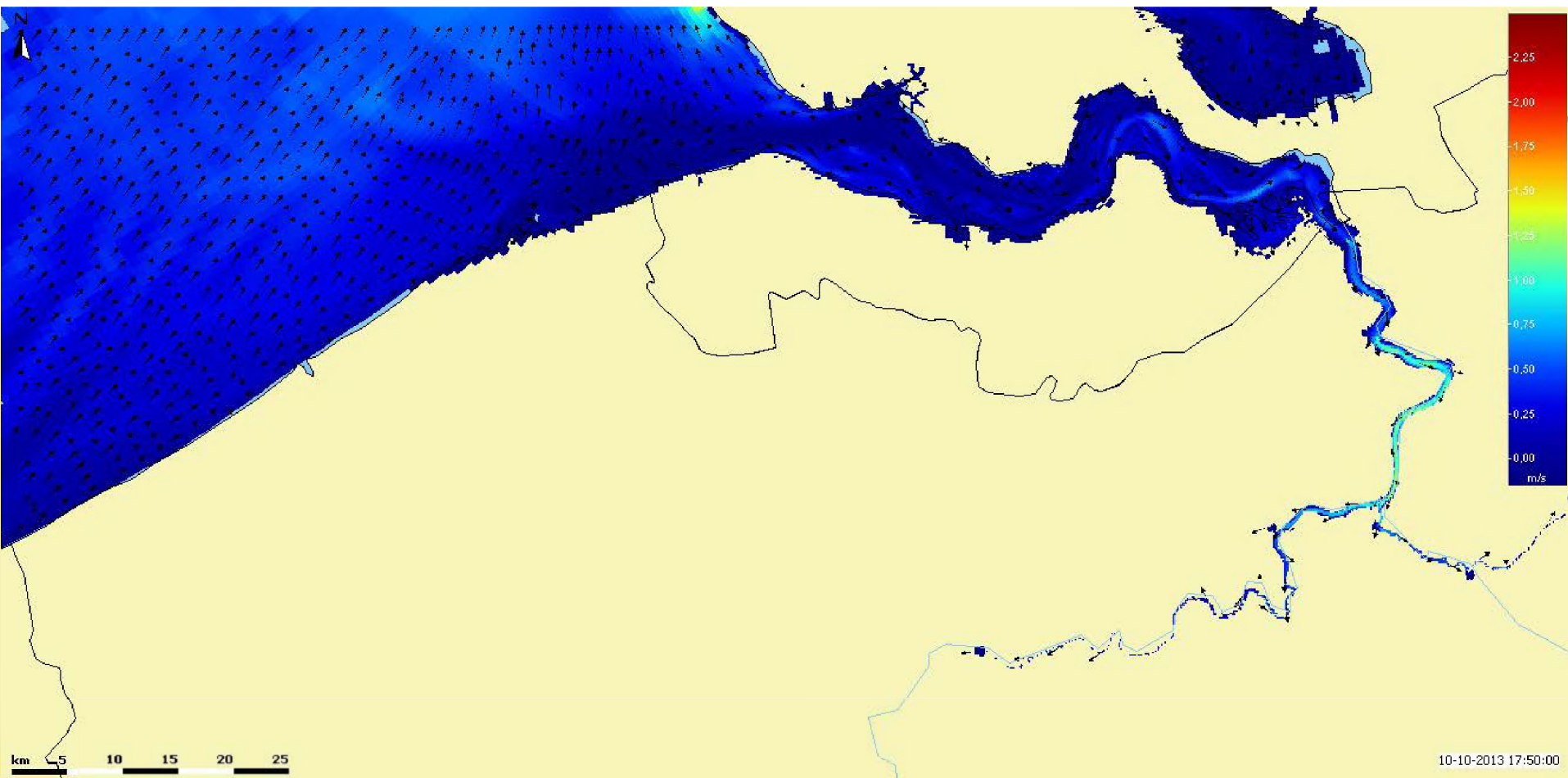


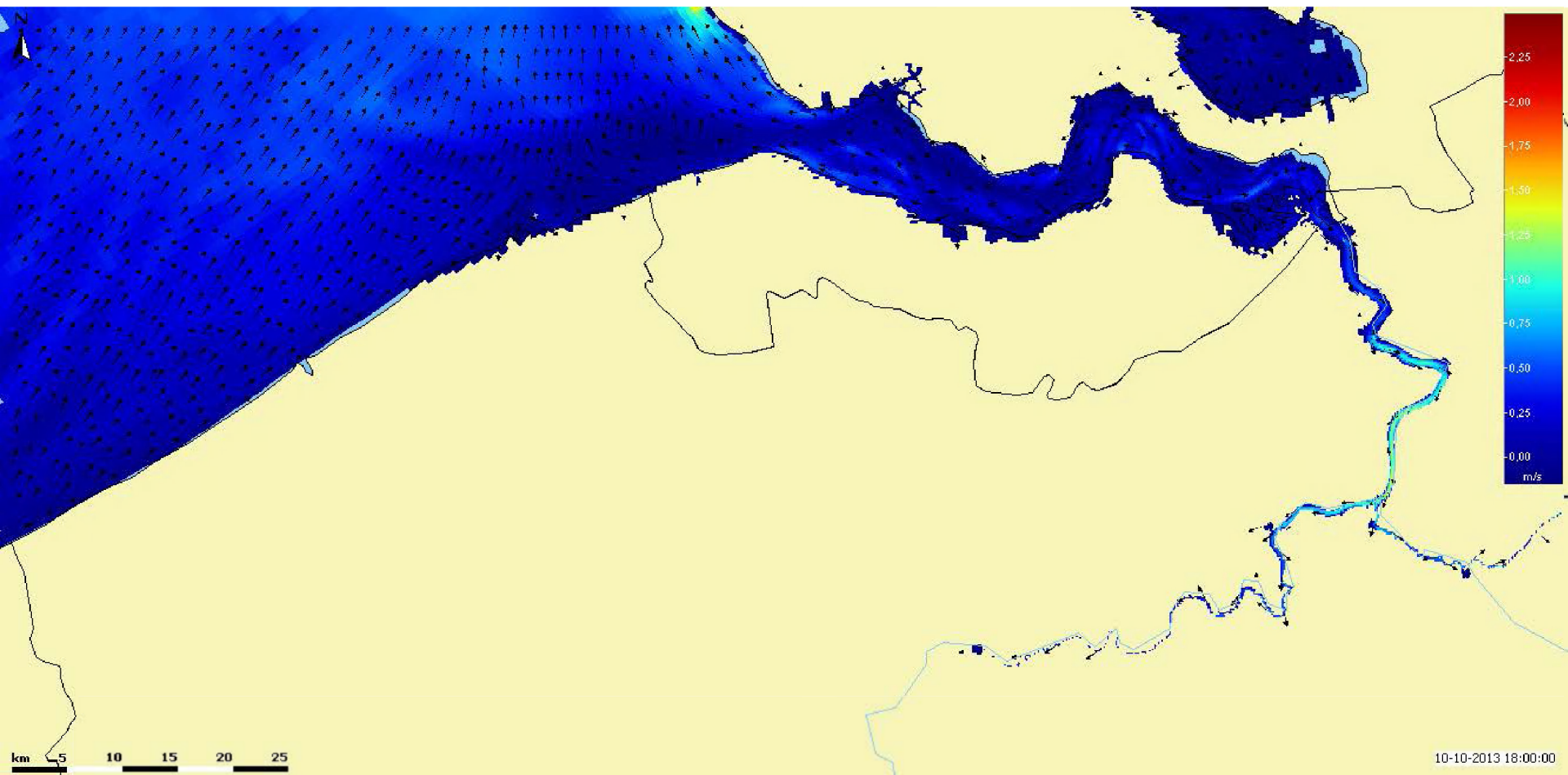












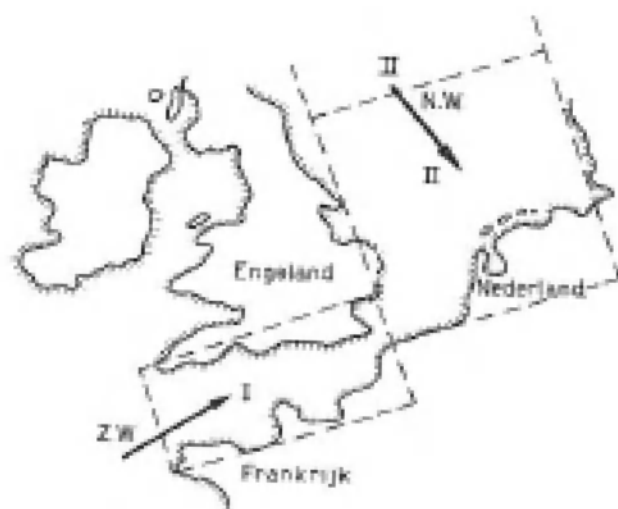
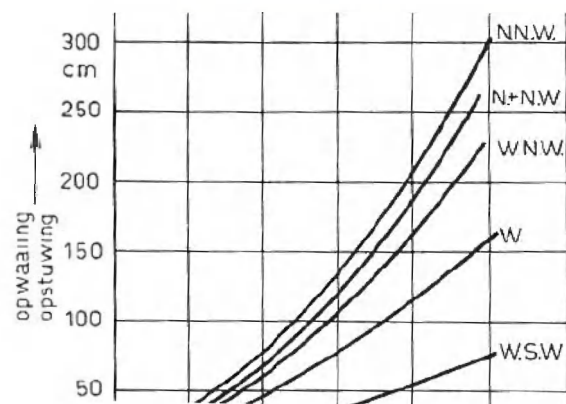


Fig. 10.27

