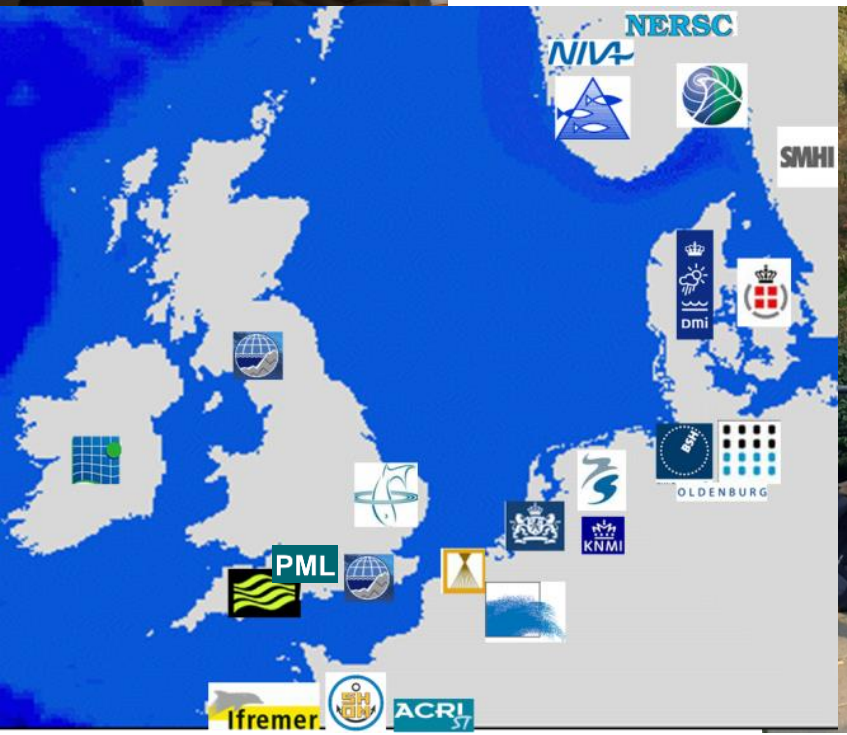
NOOS annual meeting 2020
27 Oct 2020, virtual

NOOS: a ROOS, a network of Institutes & a network of people !

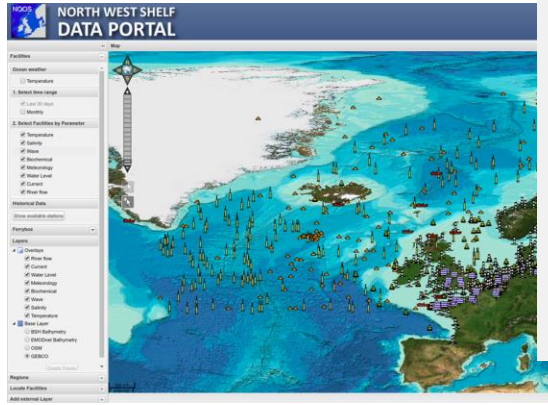
NOOS is a network of 23 governmental agencies and research institutions

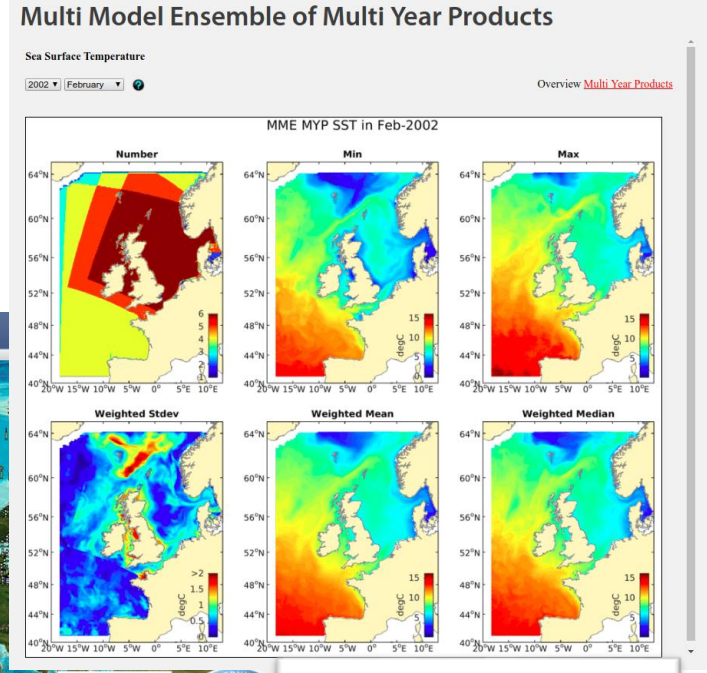
- From the 9 countries bordering the NWS
- Active in operational oceanography
- **Willing to operate real-time operational data, products and services**
- For the whole NWS and its Atlantic margin



19+ years of active, in-kind, collaborations

Sharing inspiring ideas & innovation

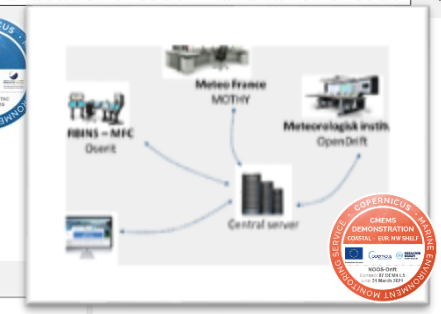


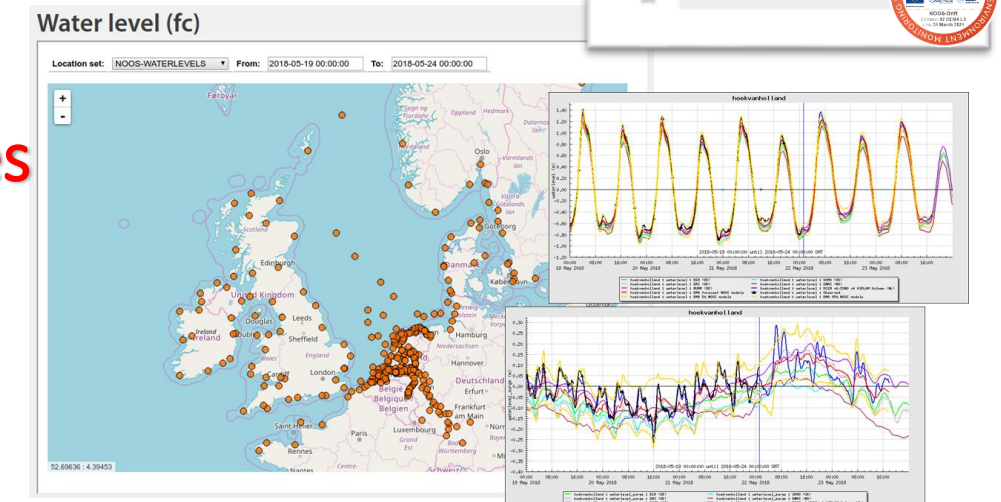


Co-producing community services

- Data portal,
- Storm surge & waves BMA forecast
- Multi-models ensemble forecast & reanalysis
- NOOS-Drift, a multi-models ensemble system to assess and improve drift forecast accuracy

Back office work to





Contributing to pan European structuring initiatives

[CMEMS, Copernicus Coastal Service, JERICO, EMODNET, EOOS, CoastPredict, Green Deal…]

Agenda

- Tour de table
- Informing
  - NOOS chair report and NOOS WG report
  - EuroGOOS office report
  - Ambassadors report to EuroGOOS WGs, TTs
  - Webinar to replace member and project update ?
- For discussion
  - Call digital twin of the ocean
- Business meeting
  - Election new SG :
    - co-chair candidates : Sebastien Legrand;
    - SG members : Jacob Woge Nielsen & Annette Zijderveld
  - NOOS annual meeting 2021 - **20 years anniversary** : Where? When? Format??

Attendees

15 member institutes present (+ EuroGOOS)!

1 member institute excused

6 member institutes absent
(Univ. Oldenburg, NIVA, NERSC, NOC, SHOM, ACRI)

- BSH : S. Tamm, K. Herklotz, A. von Gyldenfeldt (*), S. Dick
- CEFAS : Jon Rees
- Deltares : C. Gautier, M. Verlaan
- DMI : J-W Nielsen
- IMR : H. Wehde (*)
- FCOO : J. Söderqvist
- HGZ : H. Brix, J. Schulz-Stellenfleth
- KNMI : J. van der Meulen
- MET.no : L.R. Hole (*), J. Röhrs(*)
- Met Office: J. Siddorn(*), Ch. Pequignet
- MDK : Jasmine Du Moulin (*)
- MI : G. Nolan (*)
- PML: J. Blackford
- SMHI: P. Gorringe (*)
- RWS : M. Philippart (1), A. Zijderveld
- RBINS : S. Legrand (chair), K. Baetens

- EuroGOOS : A. Lara-Lopez, V.

- Excused : L Delanay (Ifremer) and I. Lips (euroGOOS)

(*) people who had to leave before the end to the meeting AND had not participated to the election

Chair activity report 2020

Date	Activity
19-20 Nov 2020	EuroGOOS Integration Meeting
6 Feb 2020	EuroGOOS extraordinary general assembly : Inga Lips confirmed
Feb – 9 Sept 2020	JERICO application to ESFRI roadmap 2021
March 2020	Aborted SG meeting by email + support to CoastPredict.org initiative + Survey UN Decade
24 Jun 2020	EuroGOOS General Assembly : new strategy adopted
25 June 2020	CMEMS Champion User Advisory Committee
7 Sept 2020	2nd EuroGOOS integration meeting
7-8 Sept 2020	EuroGOOS extraordinary GA / presentation of NOOS highlights
20 Oct 2020	NOOS – EuroGOOS meeting about office support
21 Oct 2020	Call DTO : information meeting with ROOSes chairs + office
27 Oct 2020	Virtual Annual Meeting
10 Nov 2020	Meeting : Revamping ROOSes Website
24-25 Nov 2020	EOOS operations committee

Highlights 2019-2020

NOOS Strategy 2020+

At NOOS annual meeting 2019

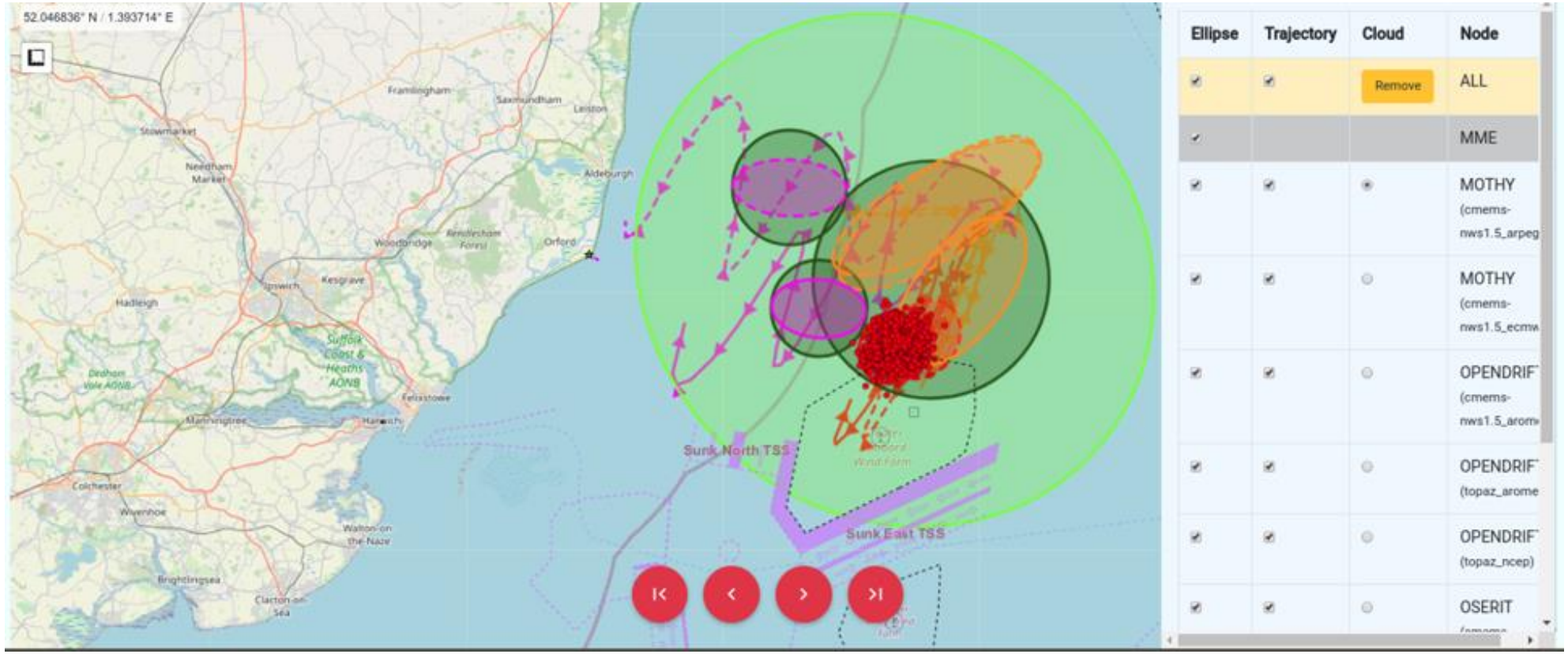
- Self-assessment of historical strategy implementation
- SWOT analysis (presented at EuroGOOS Integration Workshop)
- Agreement on principles :
  - Continue developing our strength and improving our weakness
  - Adress marine ecosystem
  - More open to other communities => re-establishing contacts with ICES and OSPAR working groups
  - Alignment to GOOS and EuroGOOS strategies
  - Being actors in structuring initiatives at pan-European and [CMEMS, Copernicus Coastal Service, JERICO-RI, EMODNET, JCOMM, EOOS, CoastPredict, Green Deal...]
  - More NOOS-funded projects (Interreg?)

Steering group is currently drafting the new strategy

- 2 working documents by Marc Philippart and Jacob Nielsen exist

Highlights 2019-2020

Release of a 4th community product :
NOOS-Drift, an on-demand multi-model ensemble forecast service of drift trajectories



Filling observation gaps :

- **Geographical gaps**

DE, NO, DK are investigating for a fixed station in Skagerak

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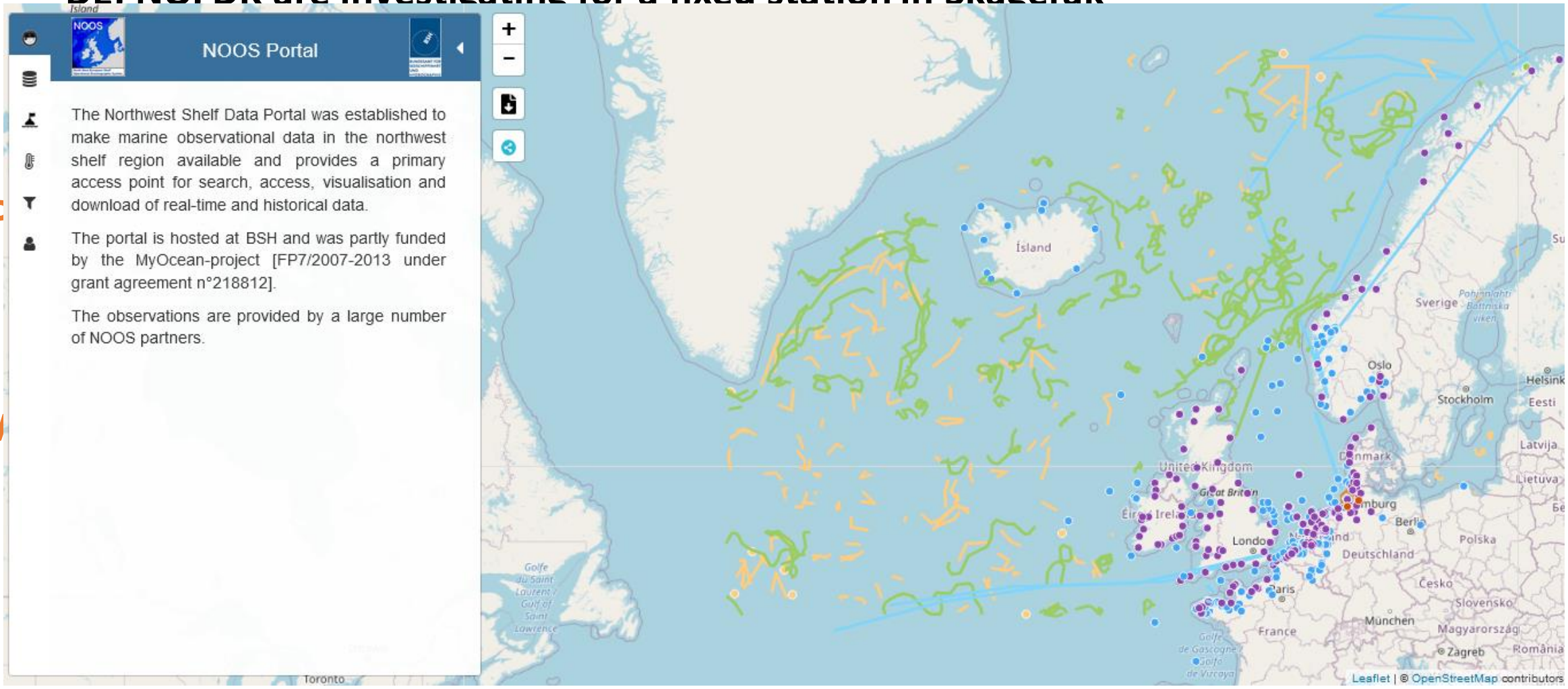
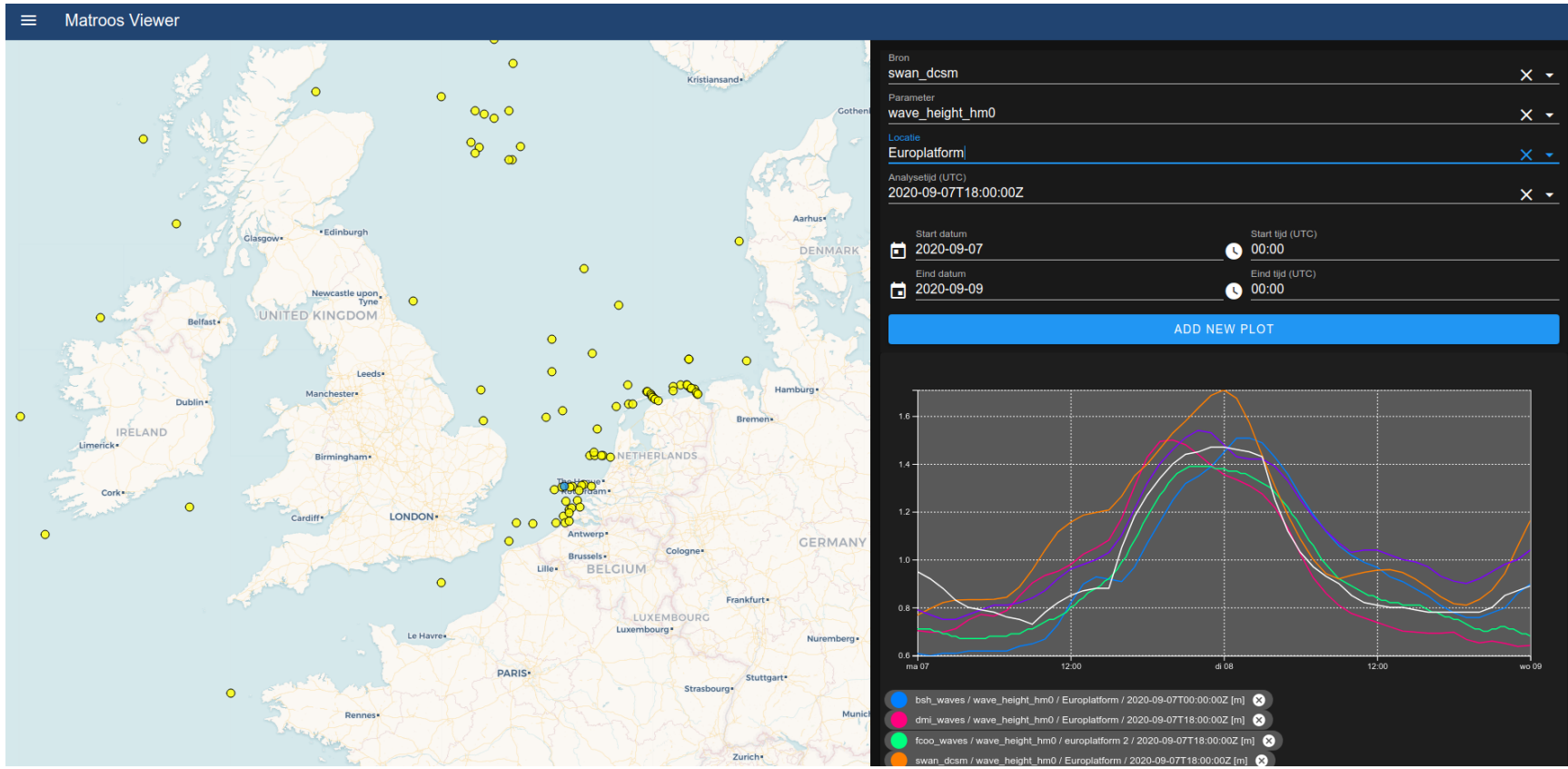


Highlights 2019-2020

Merging working groups on waves and sea level observations and forecast

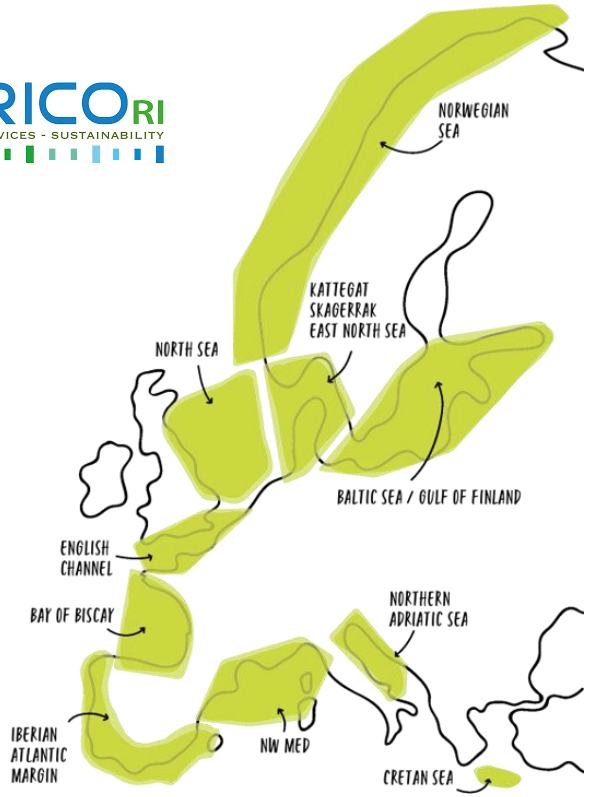
> New BMA system; New viewer



Highlights 2019-2020

New projects, involving NOOS members

JERICO RI
SCIENCE - SERVICES - SUSTAINABILITY



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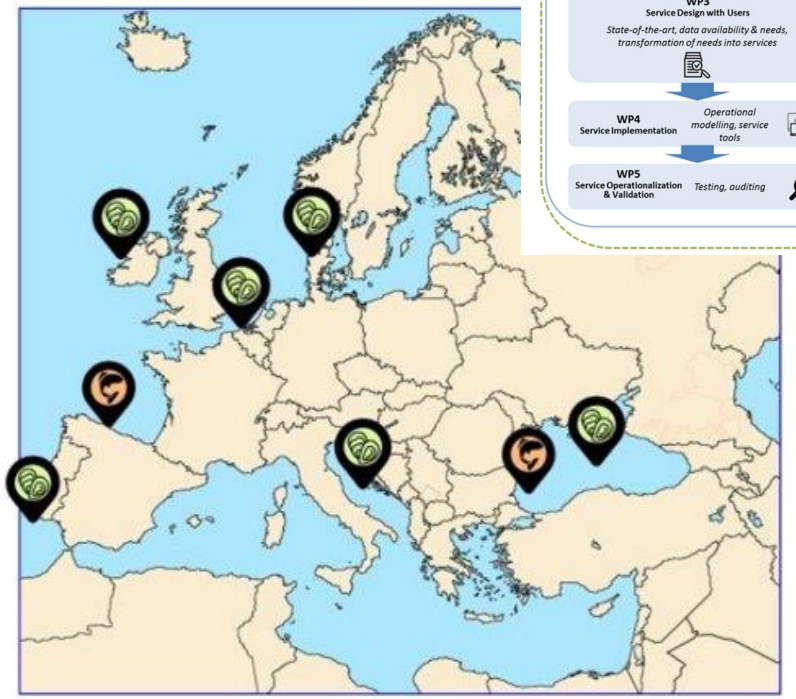
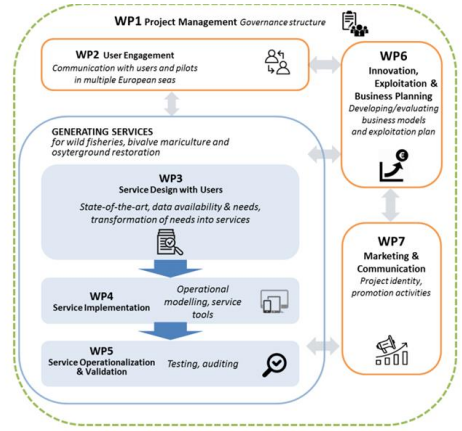




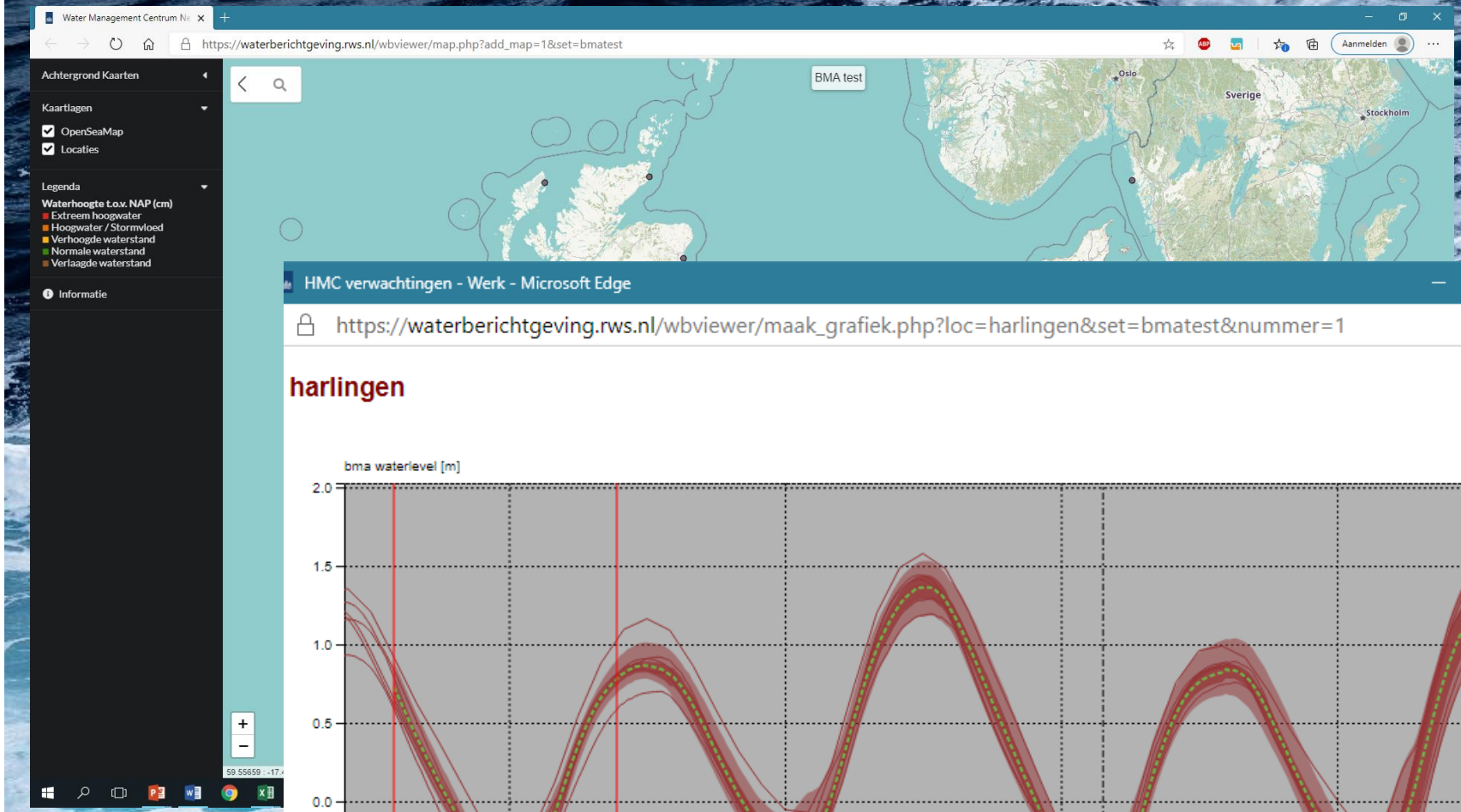
Status work plan 2019-2020

- 23 action points, deadline postponed to annual meeting 2021

- http://noos.eurogoos.eu/documents/annual-meetings/annual-meeting-2019-hamburg/

Report from NOOS working groups

- Sea level and waves WG (Marc and Caroline)
- River discharge WG (Jacob)
- MME & validation (Inga)
- Data portal (Susanne)
- NWGD (Sébastien)



https://waterberichtgeving.rws.nl/wbviewer/map.php?add_map=1&set=bmatest

how it works

HMC verwachtingen - Google Chrome

waterberichtgeving.rws.nl/wbviewer/maak_grafiek.php?loc=denhelder&set=bmatest&nummer=1

denhelder

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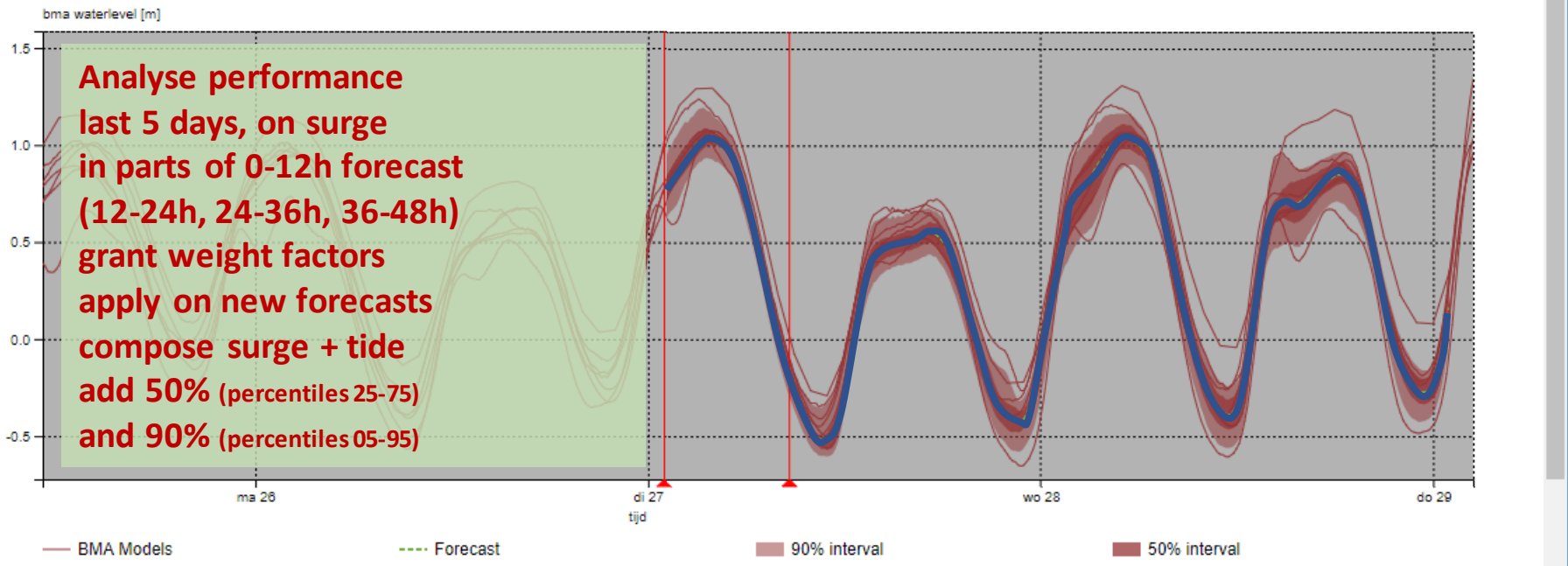
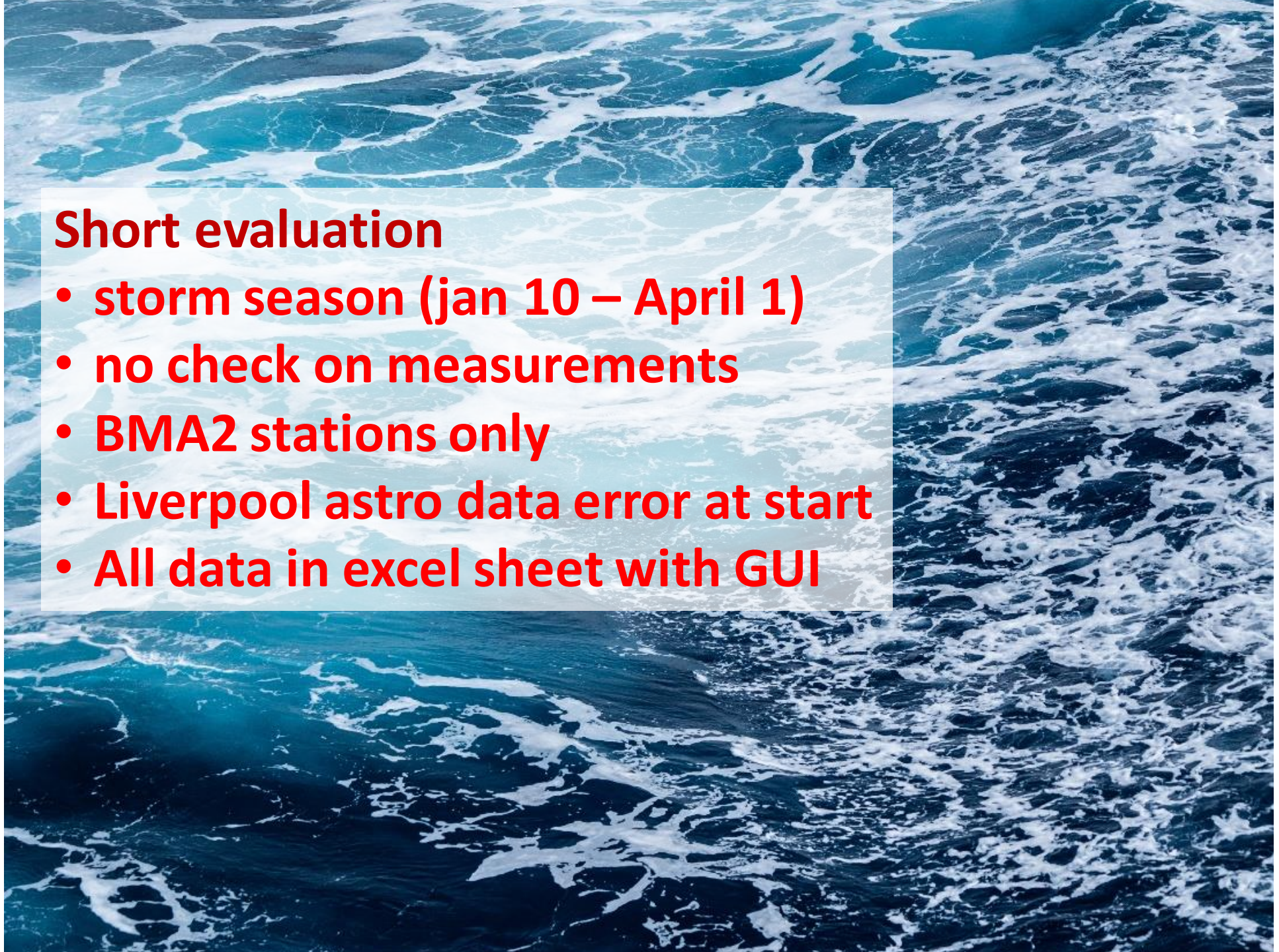
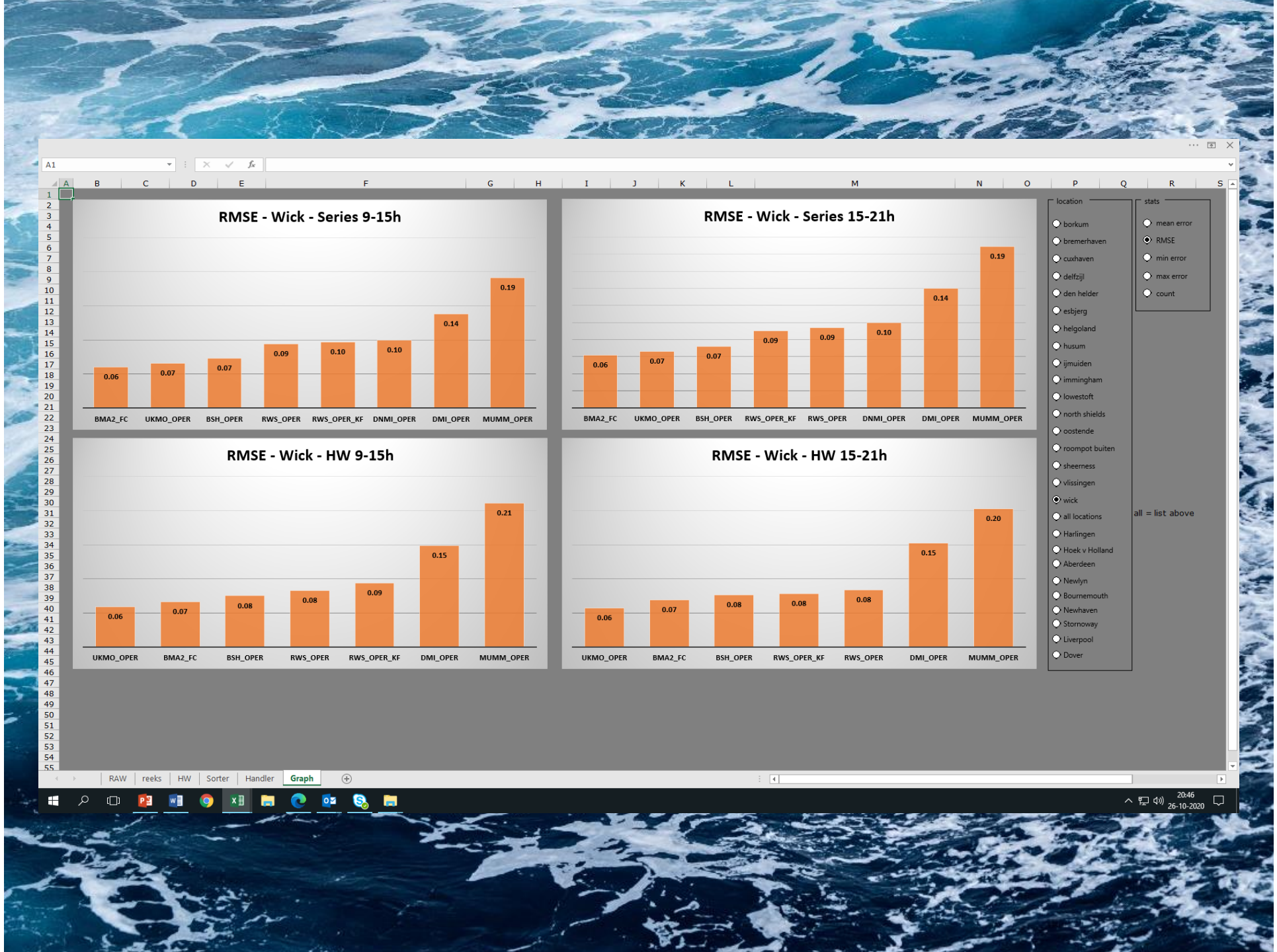


Analyse performance
last 5 days, on surge
in parts of 0-12h forecast
(12-24h, 24-36h, 36-48h)
grant weight factors
apply on new forecasts
compose surge + tide
add 50% (percentiles 25-75)
and 90% (percentiles 05-95)



Short evaluation

- storm season (jan 10 – April 1)
- no check on measurements
- BMA2 stations only
- Liverpool astro data error at start
- All data in excel sheet with GUI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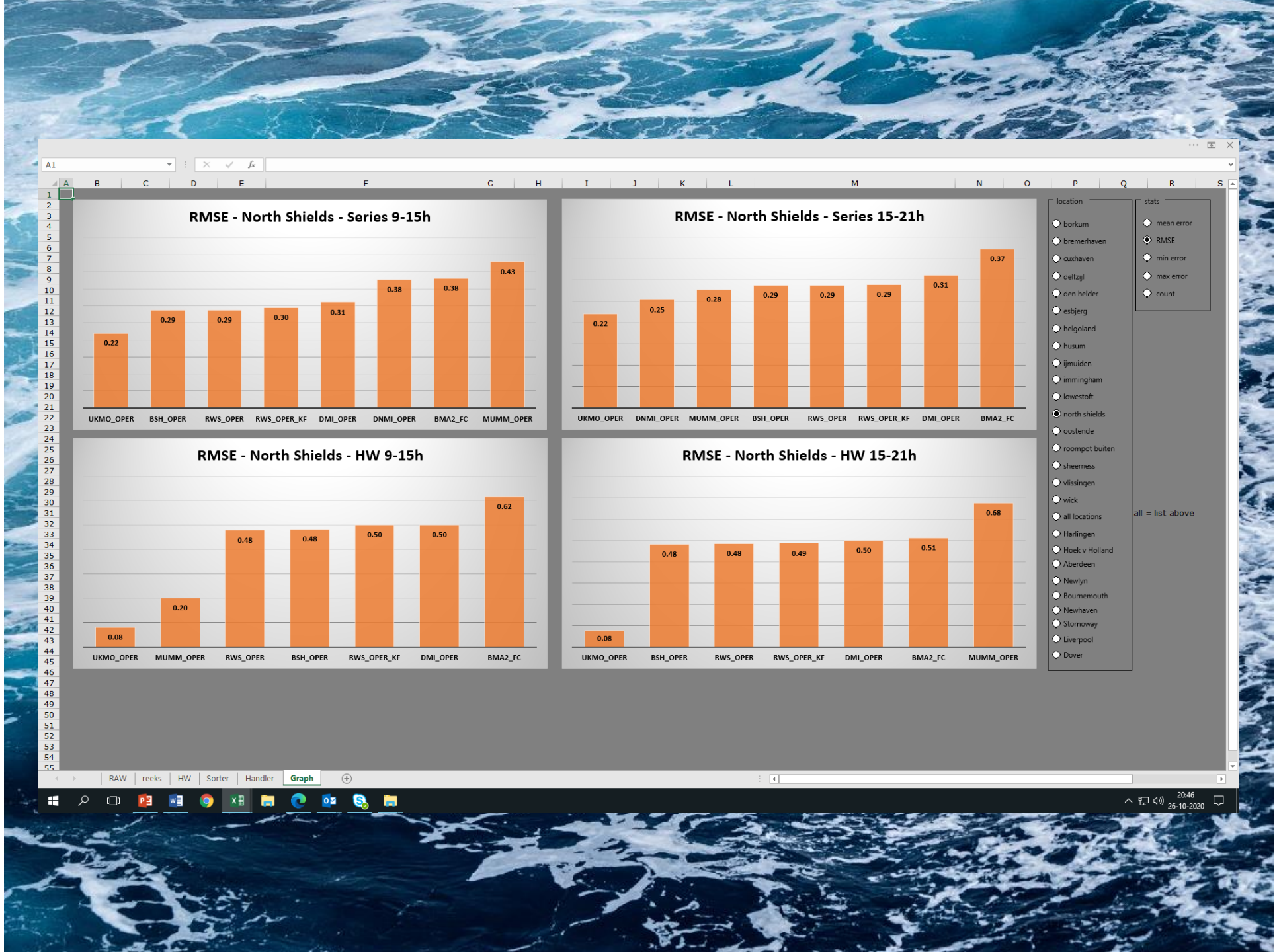
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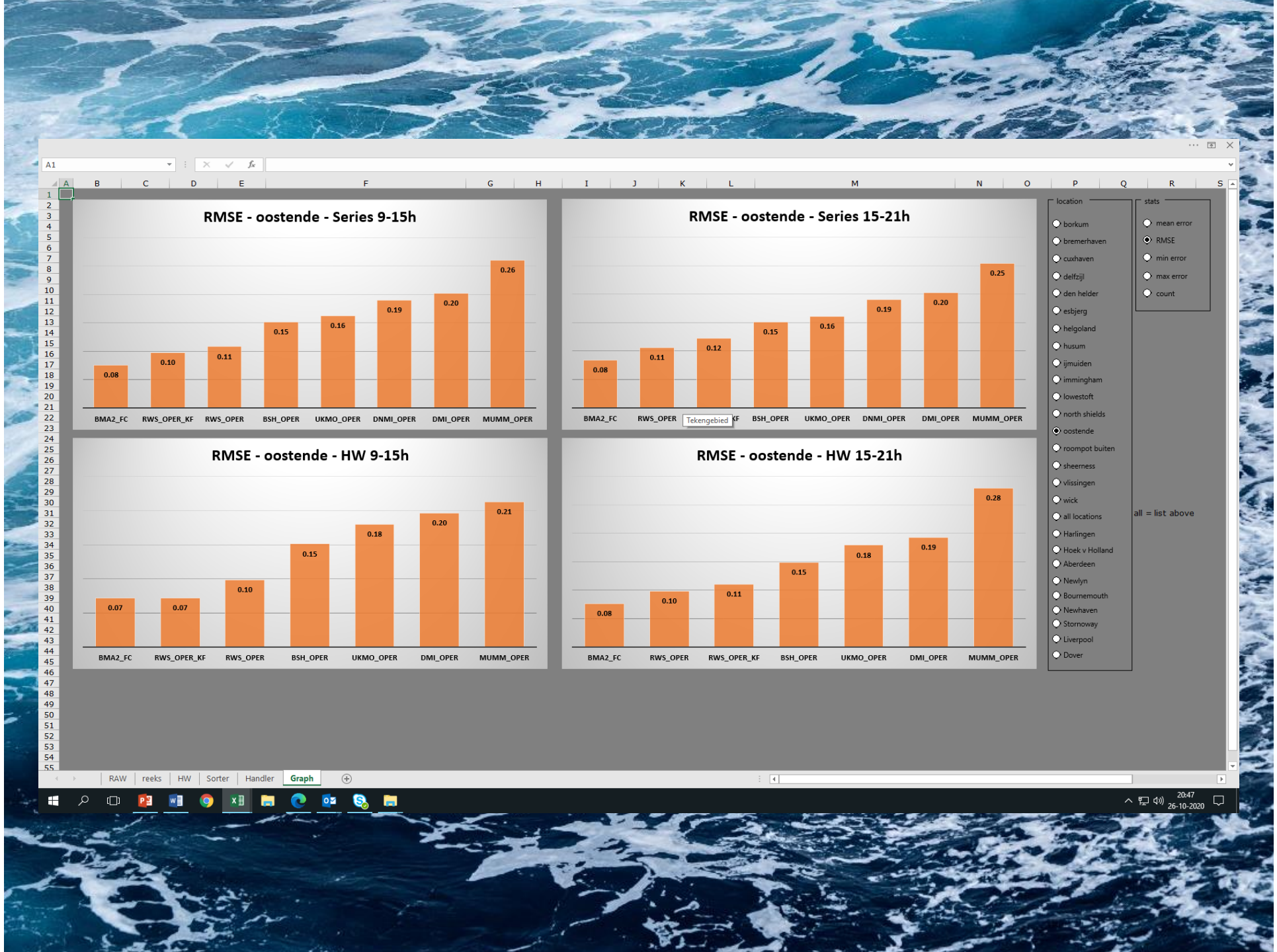
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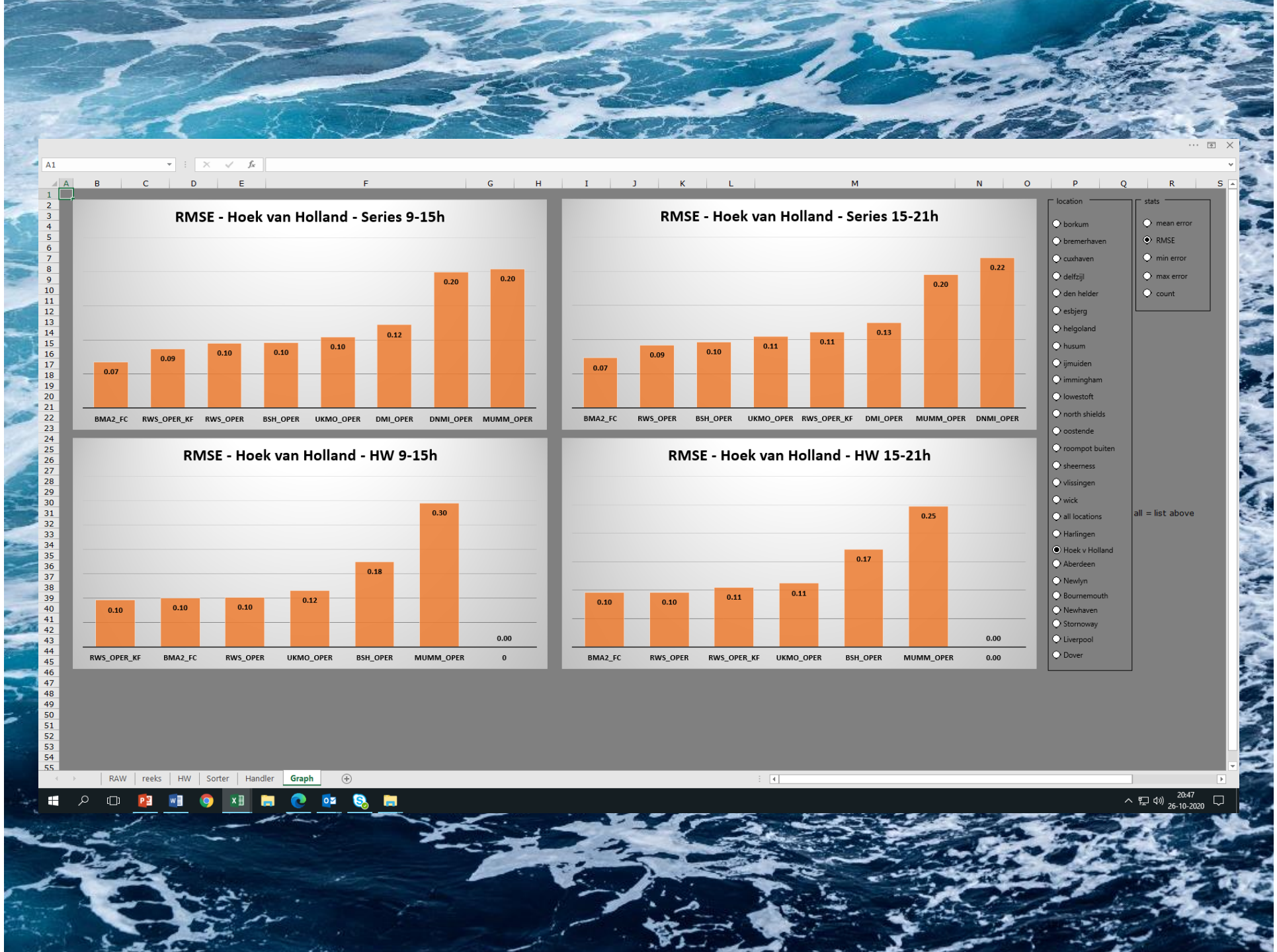
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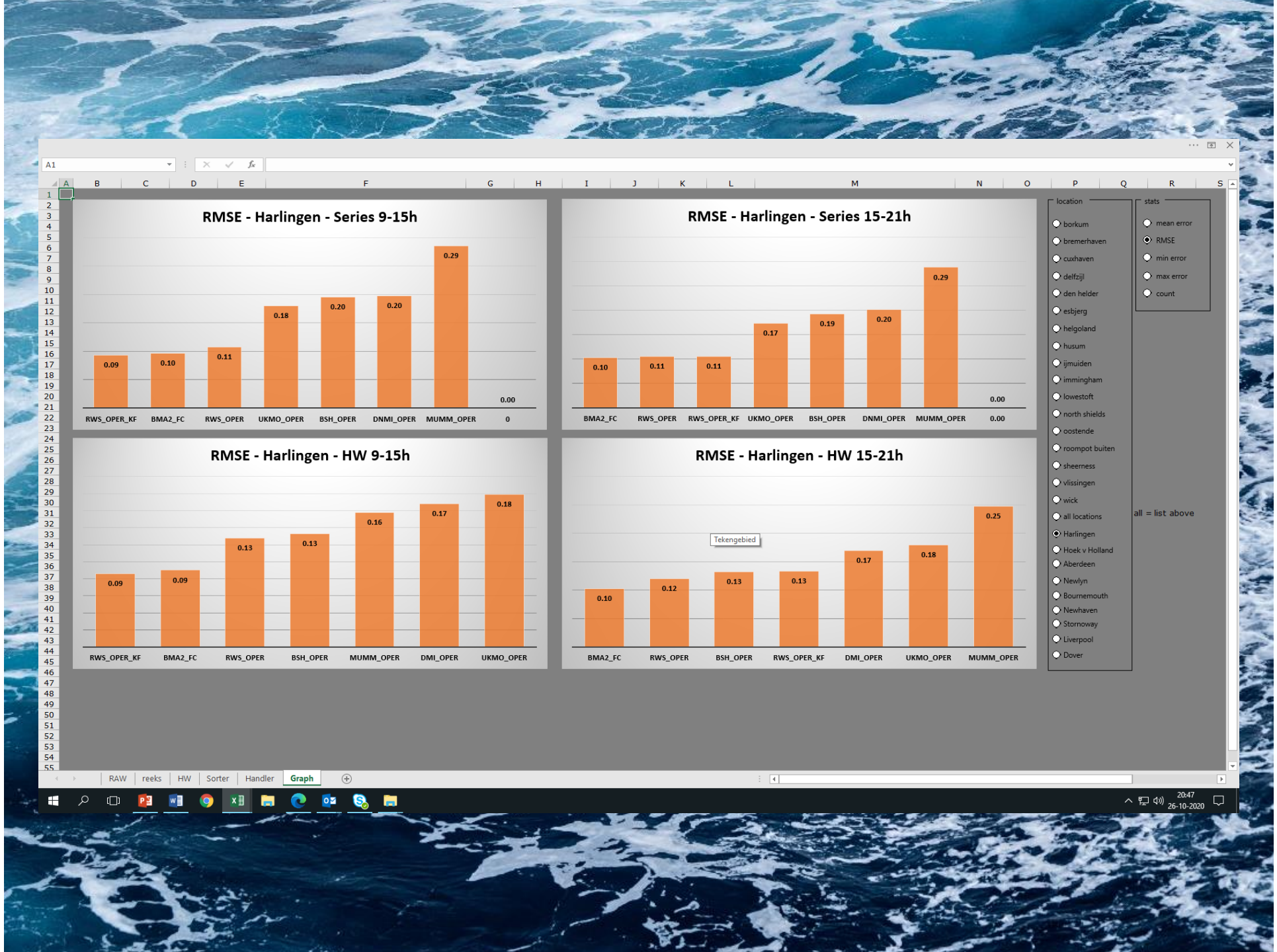
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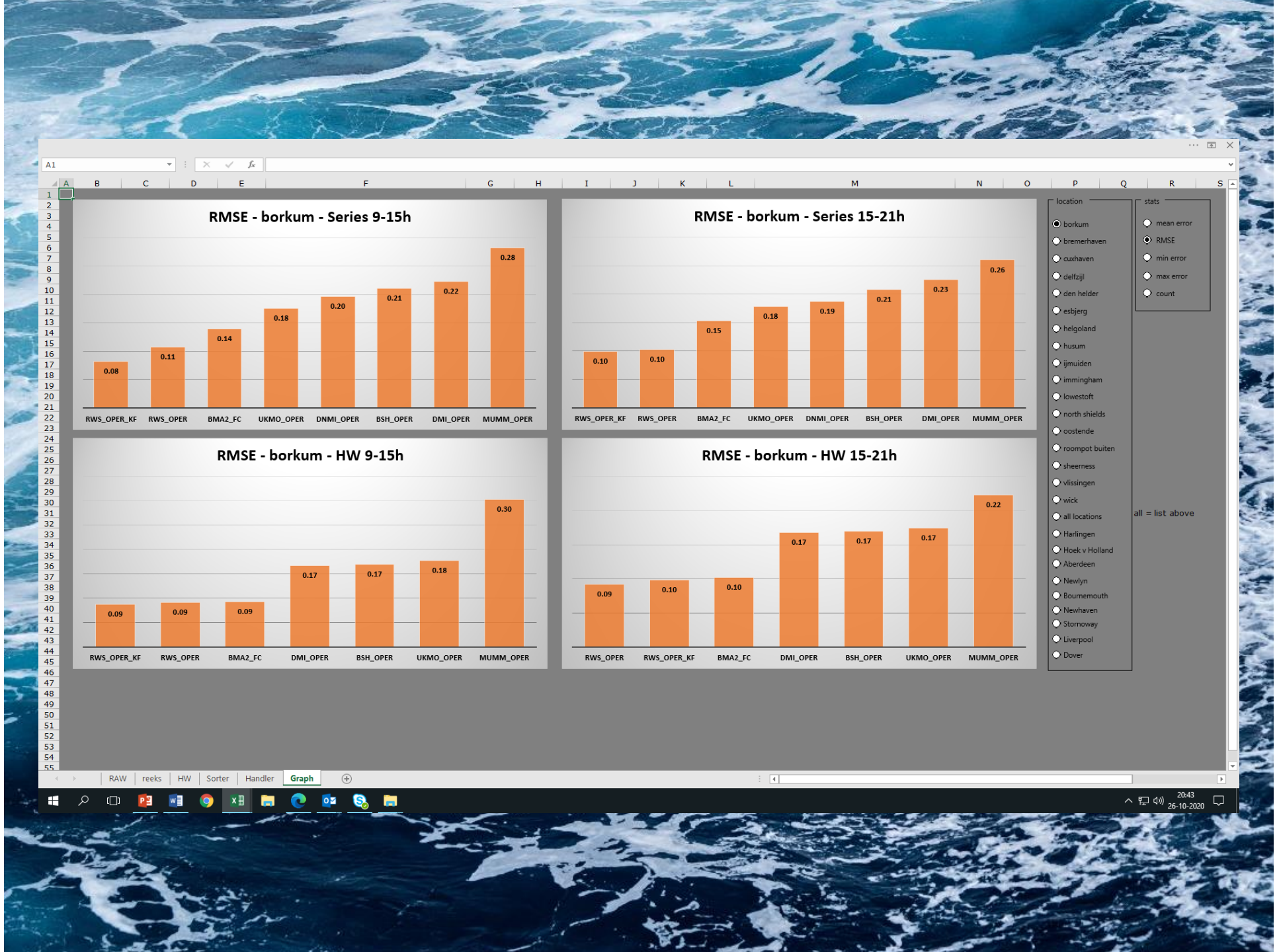
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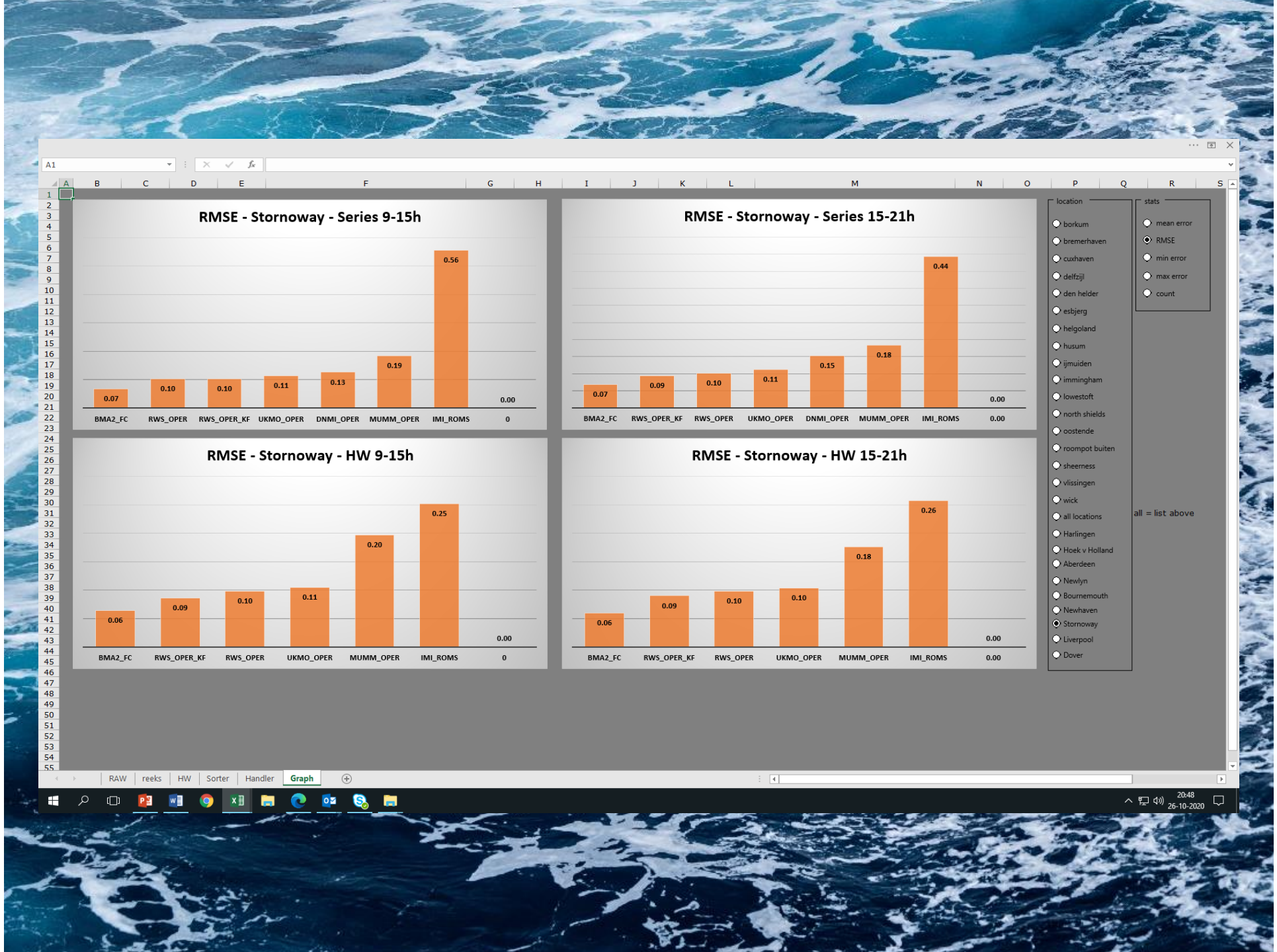
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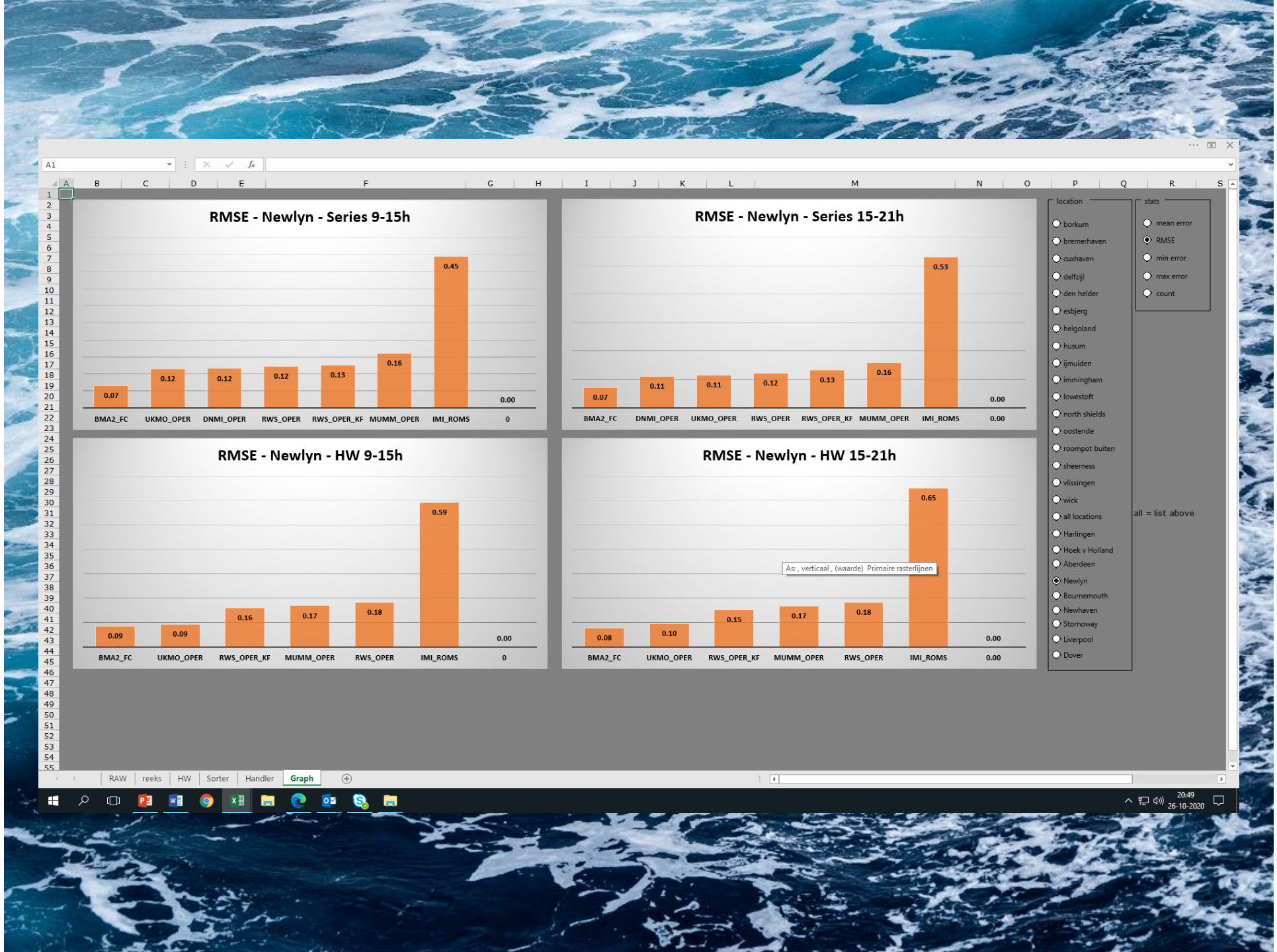
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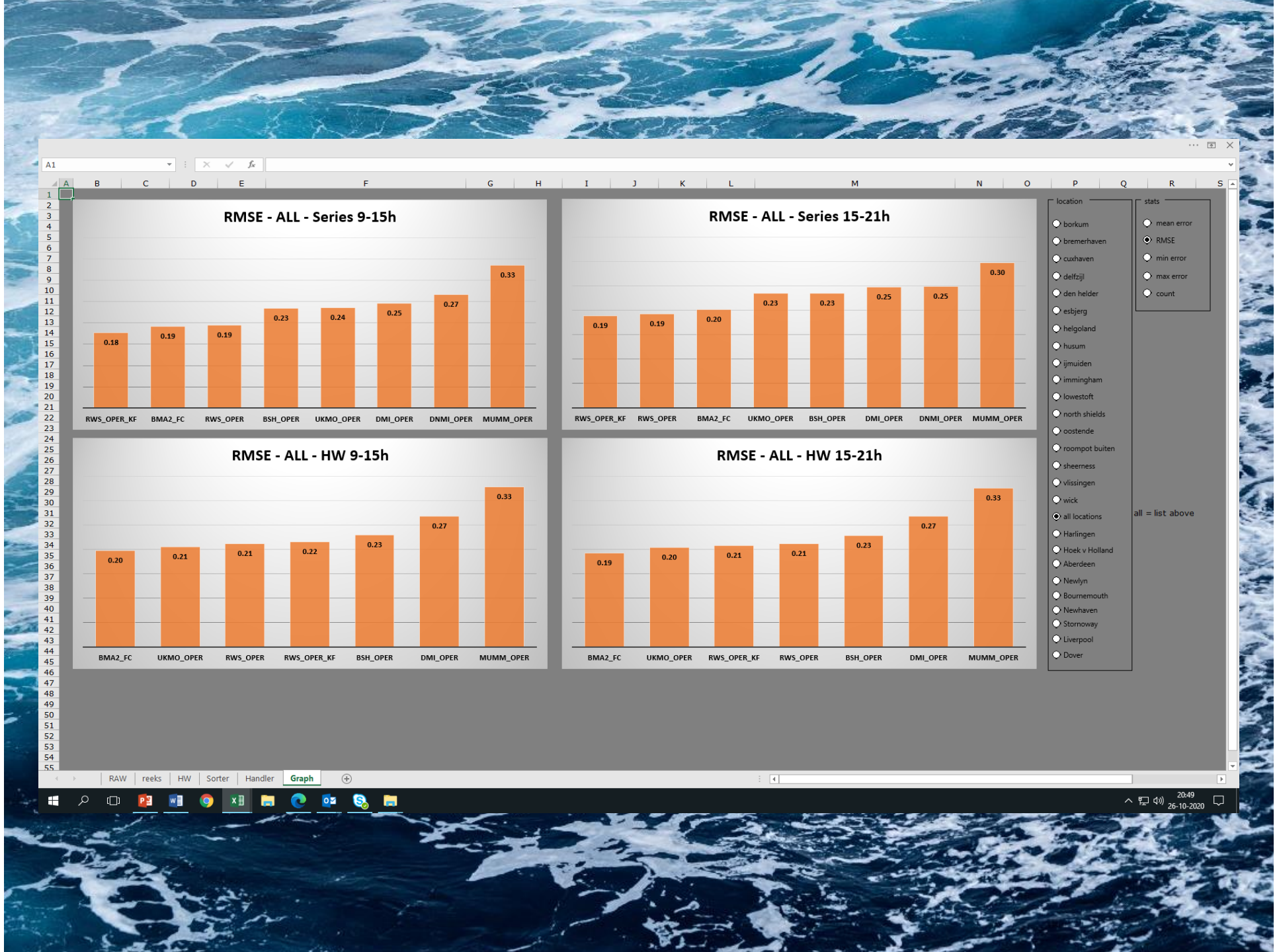
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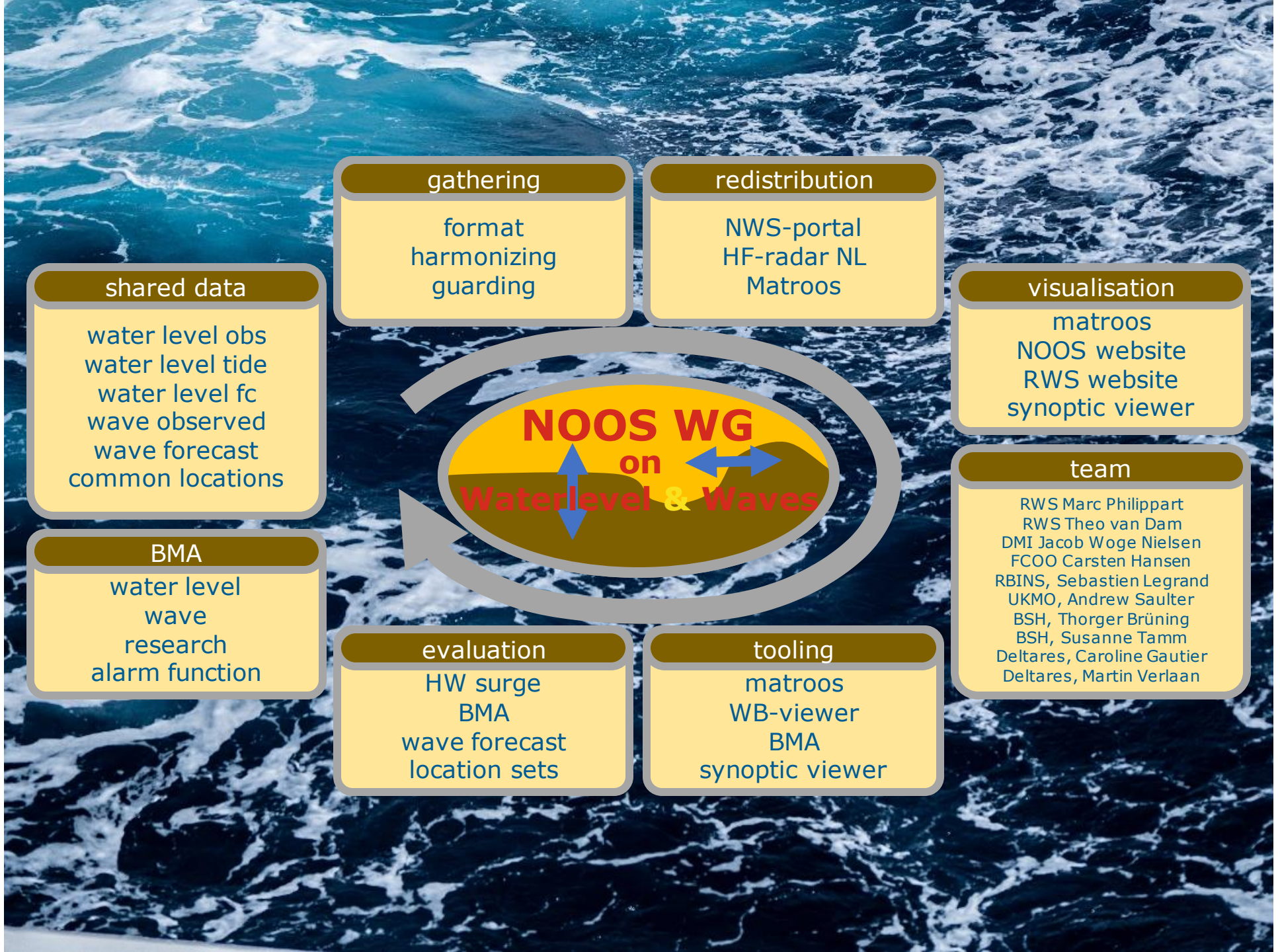
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water level tide
water level fc
wave observed
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RWS website
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NOOS WG
on
Waterlevel & Waves
team
RWS Marc Philippart
RWS Theo van Dam
DMI Jacob Woge Nielsen
FCOO Carsten Hansen
RBINS, Sebastien Legrand
UKMO, Andrew Saulter
BSH, Thorger Brüning
BSH, Susanne Tamm
Deltares, Caroline Gautier
Deltares, Martin Verlaan
BMA
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evaluation
HW surge
BMA
wave forecast
location sets
tooling
matroos
WB-viewer
BMA
synoptic viewer

Deltares

EXCHANGE OF WAVE FORECASTS

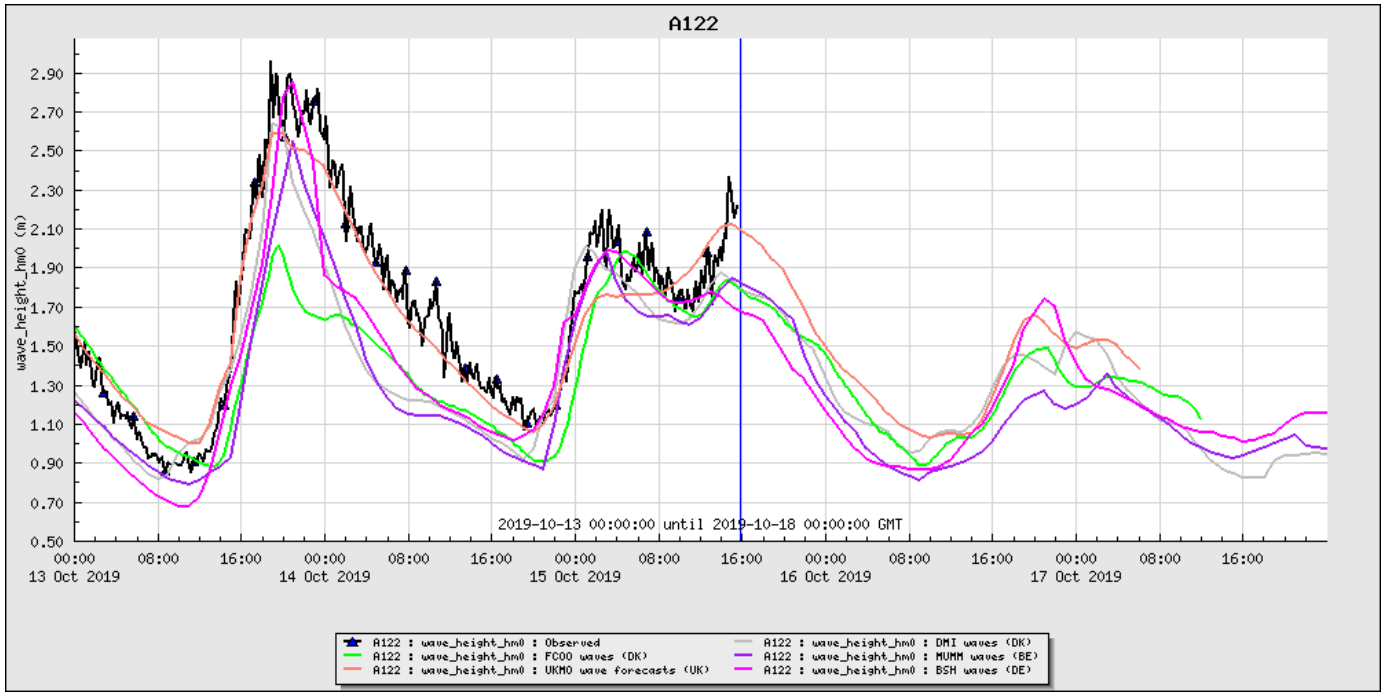
NOOS Annual Meeting 2020

FCOO, MUMM, DMI, UKMO, BSH, Deltares, Rijkswaterstaat

Caroline Gautier

27 October 2020

Example wave observations and model results



Wave_height_Hm0
A122

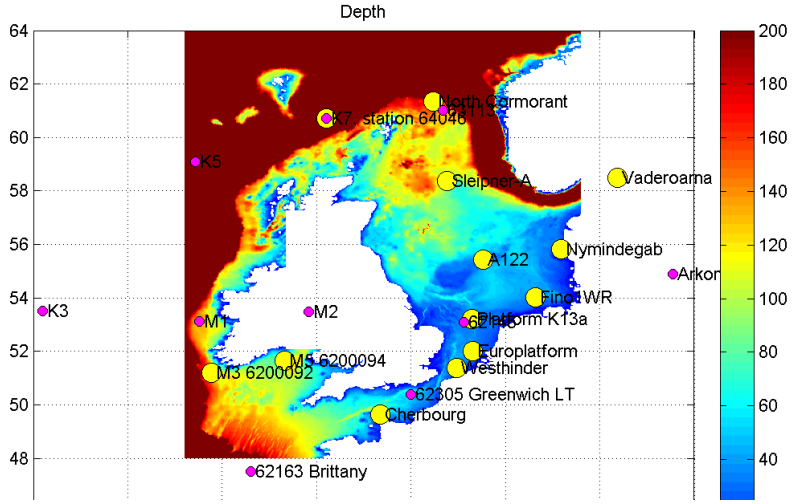
FCOO
UKMO
DMI
MUMM
BSH
RWS (recently added)

Exchange of wave observations and forecasts

- 2020: Improve and extend (locations, parameters, BMA)
- 2021: Improve and extend BMA…

Carsten Hansen,	FCOO
Sebastien Legrand,	RBINS
Jacob Nielsen,	DMI
Andrew Saulter,	UKMO
Thorger Brüning,	BSH / DWD
Caroline Gautier,	RWS / Deltares
Kieran Lyons	*Marine Institute, IMI*
Patrik Bohlinger	*Met.no*

Work in progress



Westhinder	obs	DCSM	ZUNO	KS	DMI	FCOO	MUMM	UKMO	BSH	Met.no	IMI
wave_height_hm0	ok	ok	ok	-	ok	ok	ok	ok	ok		
wave_height	ok	ok	ok	-	ok	ok	ok	-	-		
swellwave_height_hm0	-	ok	ok	-	ok	ok	ok	-	ok		
tp	-	ok	ok	-	ok	ok	-	ok	ok		
tz	ok	-	-	-	-	ok	-	-	-		
tm02	-	-	-	-	ok	ok	ok	ok	ok		
tm10	-	ok	ok	-	-	-	-	-	-		
dir	-	ok	ok	-	-	-	-	-	-		
dirsprd	-	ok	ok	-	-	-	-	-	-		

Work in progress

Wave_height_Hm0 FINO
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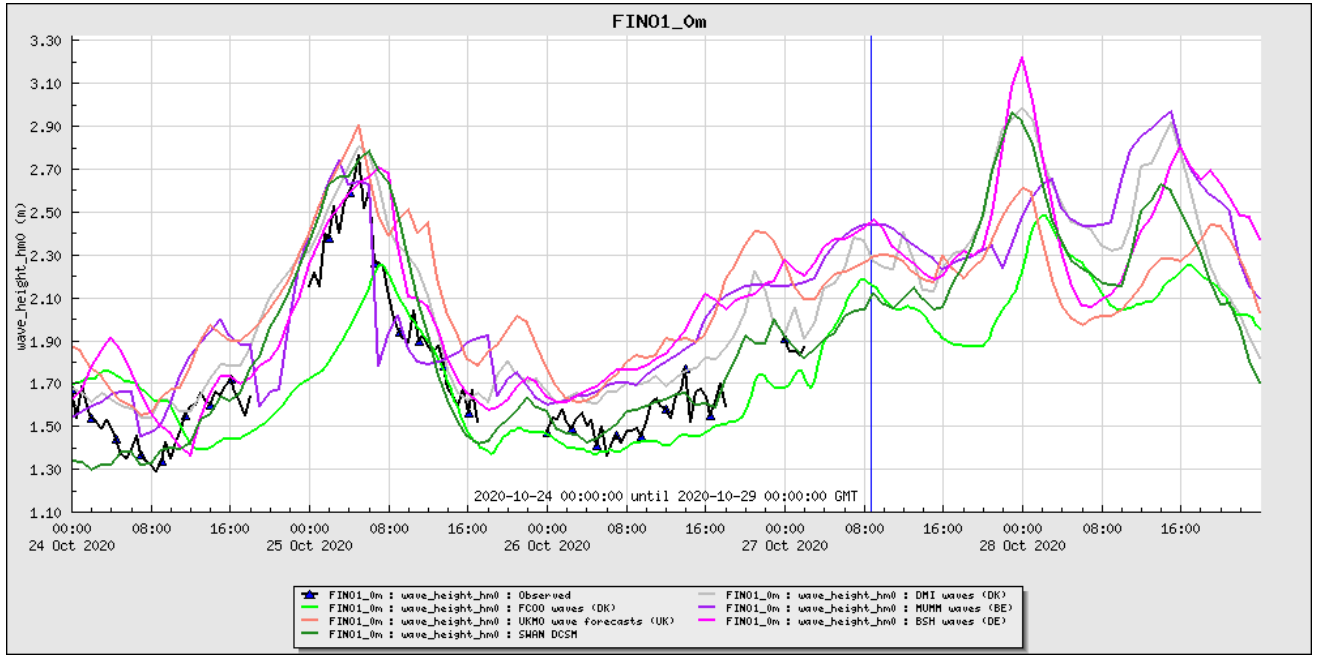
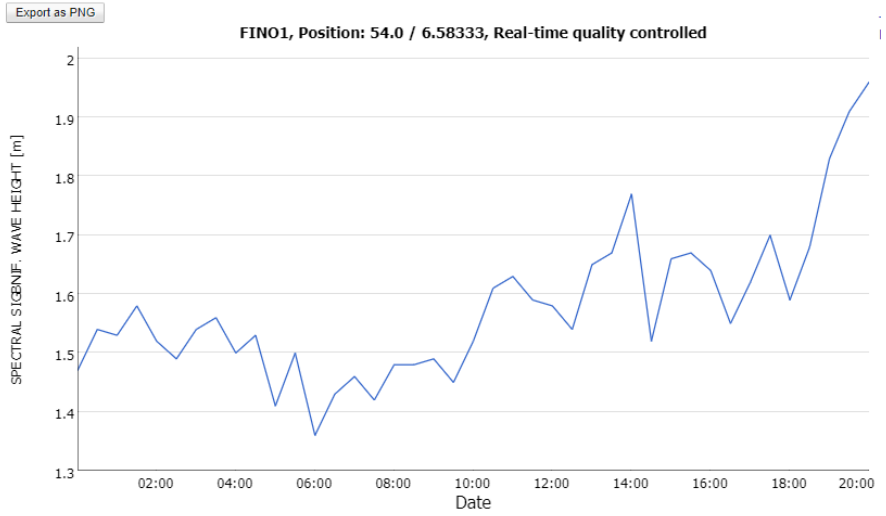
BSH
RWS



Are data files updated on the websites? Sometimes different data than what we received



Progress 2020

- Preparations for the BMA; We can compare now:
  - slightly different names (Europlatform and Europlatform 2)
  - slightly different parameters (waveheight and waveheight_hm0)

- We have more parameters at more locations

- SWAN-Kuststrook (Rijkswaterstaat) will be added

River Project Aims

1. Make **real-time observations** of river fluxes available to partners

2. Make high quality **historical data sets** of observed fluxes and loads available to partners for hindcast studies

3. Assess the availability and applicability of **prognostic river run-off** data and make recommendations for further efforts

4. Develop **best practices** for applying river run-off data in coastal ocean forecasting

1. SMHI E-HYPE status
2. Survey on best practices

1. SMHI E-HYPE status

Three datasets for rivers and loads.
NetCDF format. Historical+10day forecast.

All have same geographical configuration.

Basic: (river, position) table

At NOOS page

Extended: Shape files

At DMI. Mostly for in-land use

E-HYPE Dataset 1. Historical.

Free download

Instructions at NOOS page

1981-2010 rivers.

Daily climatology at NOOS page

2000-2010 loads (N,P)

Daily climatology produced by DMI,
not uploaded to NOOS page

E-HYPE Dataset 2. Historical + Real-time

1000 €/year
Terminates ASAP.

1980-2015 rivers and loads (N,P).
Daily climatology produced by DMI,
not uploaded.
In NW Europe 2-3% drier than dataset 1.

Daily download pri. 2016 – ult. 2020
Archived

E-HYPE Dataset 3. Historical + Real-time

6000 €/year – but may depend on datasize

1989-2020 rivers, loads, other

- A vast parameter table, pick and choose
- Not examined in detail
- N, P loads very different

Daily download begins Sept. 2020

2. Survey on Best Practices

I got 4 replies:

BSH, DMI, NOC, METNO

Some run more than one system.

Note: I have lost a bunch of in-coming mails ☹ Should more have replied, I would ask you to please resend if possible, and thereby be included before I upload. ***jw@dmi.dk***

General impression.

In multiple choice questions, all options suggested are being used.

There is no general consensus.

Question 1: Does your ocean model in any way include river run-off? (yes/no)

Reply 1:

√√√√ Yes from all.

Question 2: Is/are your implementation(s) …

Reply 2:

√√√ Operational
√√√ Historical / Climatological
√√(√) For future climate
- Other

Question 3: Which kind of river data do you use?

Reply 3:

√√ Observations
√√√ Model data
√√√ Climatology
(√) Other / Combination

METNO plans to combine obs+clim.

Question 13: Your wishes form the NOOS community to facilitate your work in this respect

Reply 13:

“Data exchange from hydrological forecast models”
“A common database for historical data and climatologies for the NOOS area”
“A common NOOS runoff model for NRT applications would be a perfect solution.”
“Common NOOS agreement with hydrological model data provider rather than bi-lateral”
“Access to a run-off dataset.”
“Recommendations for model implementation methods. “

Question 14: Your comments, anything I forgot to ask about.

Reply 14:

“Joint forces for bio-load data, as there are even less observations and nrt/forecast data (model and observations)”

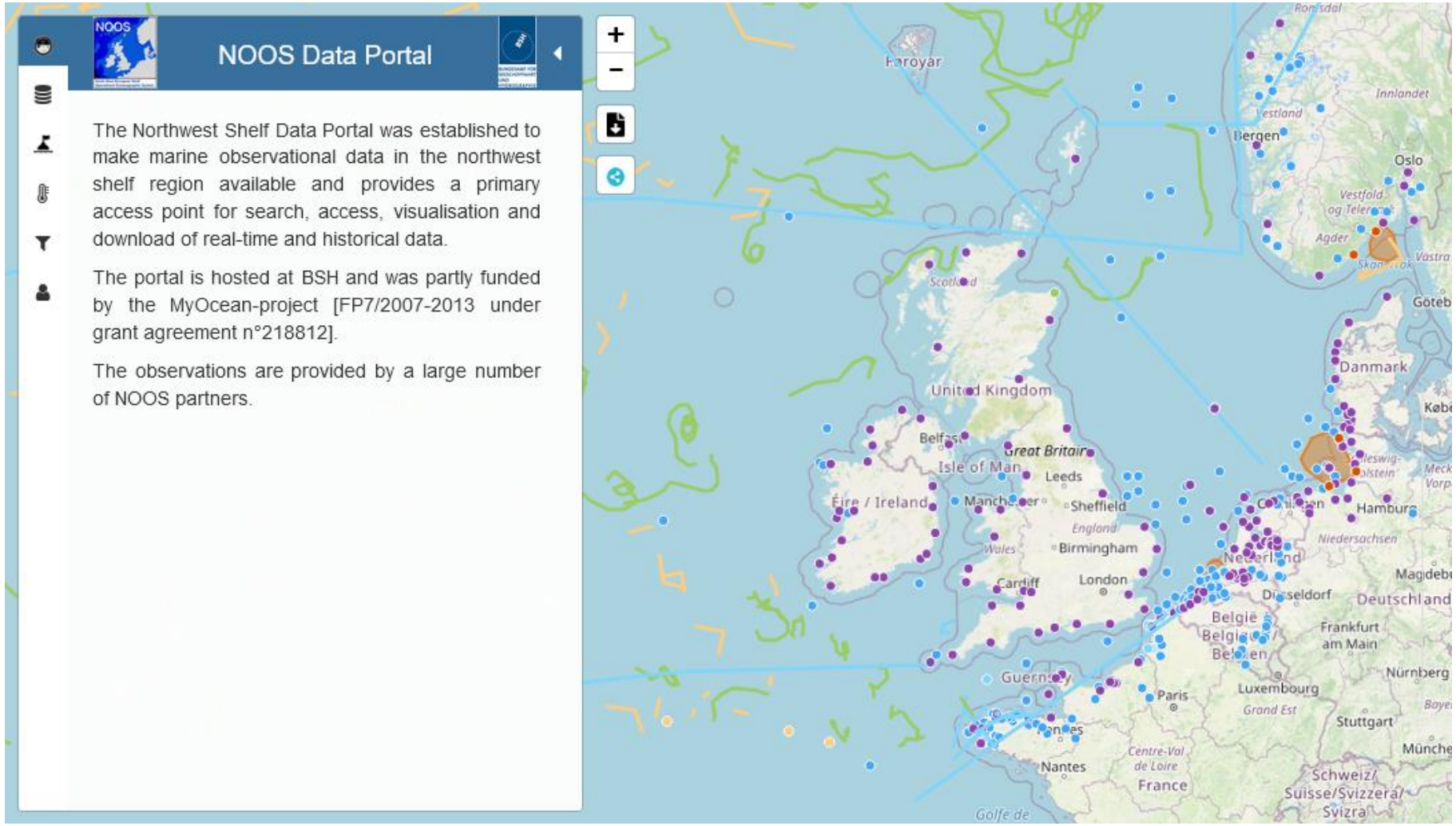
This is me:

”For hydrological modelling, a correct run-off budget is crucial in maintaining long-term salt balance in semi-enclosed seas. The exact timing may be less important, and in the rather open North Sea even less so.

For marine ecology modelling, a combination of run-off and bio-loads/nutrients data is of central importance. Bio-loads were not part of this survey.”

The new NOOS Data Portal

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE



NOOS Working Group on Drift

- NOOS drift released as a NOOS community product,
  Please sign in, play and report your experience!
  (in 2020, we tried to improve service robustness)

- EGU 2020 : Co-convener OS 4.9
  "Marine Pollution Monitoring, Prediction and Risk Assessment"

- MANIFESTS starts on 2nd January 2021,
  a follow-up project of HNS-MS involving FR, BE, NO, UK, SP, PO.
  MET.NO and RBINS will continue working on model intercomparison and NOOS-Drift MME core

- Link with regional intergov. organisations:
  - Bonn Agreement : NOOS-Drift presentation postponed to OTSOPA 2021
  - Bonn agreement : As a follow-up of MSC-ZOE incident in January 2019, improving our ability to forecast drift trajectory of lost containers has been flagged as a Bonn Agreement priority.
  - REMPEC : HNS-MS data base is being merged with REMPEC MIDSIS-TROCS (strong support by IMO)

Inga’s report from EuroGOOS office

Integration with EuroGOOS TTs and WGs

EuroGOOS Integration meetings

Recommendation by chairs

- EuroGOOS strategy must be adopted by each ROOS, TT and WG
- ROOSes are at the centre of the EuroGOOS structure
- TTs and WGs should aimed at helping ROOSes for cross cutting challenges, problems and strategic direction
- TTs and WGs should deliver best practice and recommendation to ROOSes;
  ROOSes pro-actively implement these recommendation at regional and national levels.
- ROOSes to appoint ambassadors to TTs and WGs (as promoted by NOOS)

Homework:

- Confirm our ambassadors list, they will play a more and more important role
- Align NOOS strategy with new EuroGOOS strategy and this new principle
- 4 Pilots integration
  - Implementing DataMEQ recommendations in national and EU activities.

Integration in EuroGOOS

NOOS Ambassadors

- DataMEQ: Susanne Tamm (BSH)
- SAWG: Henning Wehde (IMR) and John Siddorn (UK Met Office)
- Coastal WG: Sébastien Legrand (RBINS)
- Tide gauge: Anna von Gyldenfeldt (BSH) and Martin Verlaan (Deltares)
- Ferry box TT: Henning Wehde (IMR) and Willy Petersen (HGZ)
- HF Radar: Jochen Hortsmann (HGZ)

- ~~Animal-borne sensors : Fiona Carse (UK Met Office)~~
- TPWG (Henning?), EMSO and ARGO and Glider TT: no ambassadors appointed

ROOSes

- BOOS: Common WGs
- IBI-ROOS: No progress in 2019-2020 for cross-participation of UK and FR members

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Activities in EuroGOOS Tide Gauge Task Team





European Network of Tide Gauge Platforms

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Contribute to the development of the European Ocean Observing System (EOOS) with the identification of duplication and/or gaps in the geographical coverage and in the existing sea level data portals in Europe.

3 Catalogues (eg. IOC Station Sea-level Catalogue) and 10 Data Portals (eg. GLOSS, CMEMS, EMODnet) were scraped.

First analyses identified singularities, multiple references and erroneous data at locations.

Significant contribution to the GLOSS publication on quality control and data processing of in-situ sea level data (May 2020). https://unesdoc.org/ark:/48223/pf0000373566

The (virtual) meeting in July 2020 brought together the representatives of all portals dealing with tide gauge data.

Future Objectives

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Review of the definition of site/station and a new unique assignment

Develop a minimum mandatory metadata with common vocabularies

Continuation of data portal analyses with focus on content of same station/site in different data portals (length, sampling, accuracy, reference), to be pursude within the EuroSea project.

Tool for new European TG metadata (inventory with easy access and update), also to be further pursued within the EuroSea Project

DataMEQ

First ideas about **a European roadmap through data harmonisation** were shared at the EuroGOOS GA.

There shall be a workshop (funded through EuroSea) in link with the main projects dealing with data harmonisation (CMEMS, EMODNET, SEADATANET, BLUECLOUD, ENVRI-FAIR, JERICO, ESFRI RIS, EuroGOOS...) to elaborate not only recommendations (as we did so far) but **a European roadmap** that would be endorsed by members and that we would implement through national and projects funds.

We feel this is mandatory to better steer what is happening in Europe regarding data harmonisation and stop relying on individuals only to guaranty coherence.

The activity is planned with EuroGOOS Office support and as it will be supported by EuroSea , SOCIB should also contribute to the organisation.

SAWG : New ToRs in 2020

SAWG aims to ensure that EuroGOOS research

i. Is substantial and cross-cutting for the development of the ROOSes and strengthens integration among ROOSs, TTs and WGs
ii. Represents state of the art and is dedicated to solve scientific challenges in the implementation of EuroGOOS strategy and the development of EOOS
iii. Addresses scientific challenges in developing seamless forecasting capacities, serving climate change adaptation and ocean health
iv. Is open and shared; communication between EuroGOOS researchers should be easy, flat and add significant value for joint research
v. Addresses scientific challenges for the integration with the external communities e.g. marine environment, fishery, climate change and commercial sectors

Coastal Working Group (8 NOOS members represented)

- A. Capet et al. (2020) **Operational Modeling Capacity in European Seas—An EuroGOOS Perspective and Recommendations for Improvement,** Front. Mar. Sci., 03 March 2020 | https://doi.org/10.3389/fmars.2020.00129

5 conclusions and recommendations

1. Inhomegeneity in the modelling capacity of the different ROOSes (resolution, processes, atmospheric forcing, land forcing, data assimilation, validation & dynamic uncertainty estimate)
   CALL for more code sharing, best practice sharing, MME capacity
2. Not yet an exhaustive coverage operational BGC models to enable a proper MSFD & WFD monitoring; lack of real time data for assimilation in BGC models and reaching accuracy suitable for economic sectors
   CALL for more BGC observations; need to define requirements in terms of BGC EOVs
3. Data assimilation only in 23% of the survey models; often very basic DA schemes
   CALL for development of best practices documents for DA in coastal operational models, but also development of efficient DA techniques for regions dominated by density/buoyancy process (estuarine, straits, etc)
4. Need for increasing spatial resolution has often been pointed out in the survey
   Call for more research to simultaneously and consistently improve coastline, bathymetry, atmospheric and land forcing as well as process parametrizations
5. Need to monitor evolution in coastal modelling capacity by repeating survey every 2-3 years

Coastal Working Group Roadmap (short and medium term)

Actions	Objectives	Status
# 1: Map users of coastal products	Inventory of primary **users per sector**	• User and Sector catalogue established • Continuously updated
# 2: Review of available and potential coastal data – Focus on River discharge	Inventory of existing coastal data and gaps (Focus on River data) and **identify potential sources of data**	• Prepare publication based on the river data sources inventory and gap analysis for the European coasts.
# 3: Operational modelling Survey	Updated inventory of **European operational modelling capacity**	• Prepare a living database for continuously updating the operational modelling inventory and map.
# 4: Review of coastal in-situ Data Assimilation	Framework for optimizing coastal sea monitoring and forecasting systems	• Complete the review on coastal data assimilation. Define a framework for integration and data assimilation of in-situ data into models
# 5: Inventory/Review of integrated Coastal Products	Inventory of **integrated coastal products** and services	• Complete the integrated near-real time coastal products inventory as an interactive online document. Feedback to relevant EuroGOOS WGs and Task Teams.
# 6: Coastal WG Whitepaper	EuroGOOS Roadmap for Coastal Services (Vision paper)	• Complete the vision paper on "Roadmap for coastal services" with the involvement of all coastal working group members and beyond

Member and project updates

- Webinar to replace member and project updates ?

Call Green Deal / Digital Twin of the Ocean

- Destination Earth program (DestinE) objective is to implement a series of digital twins of the Earth system components that will give users access to high-quality information, services, models, scenarios, forecasts and visualisations (e.g. in climate modelling and weather forecasting, hurricane evolution and more).
- A digital twin is a digital replica of a living or non-living physical entity able to deal with the big data deluge expected a.o. from the hexascale climate models (cf. Science mag, oct 2020)

For discussion about DTO

- Ideas of demonstrations?
  - BOOS :
    - optimal location and daily services of human activities (offshore windmills park or aquaculture site)
    - climate service : high resolution mapping of risk of extreme events
    - microplastic pollution
    - could help developments in ROOSes WGs
  - ArcticROOS : guidance intelligent shipping and ocean routing / risk reduction of ice hazard and definition of alternative routes

NOOS ideas of DTO demonstrations

4 flag ship demo to build the API
10 or 20 smaller projects later in the DTO dev.

- sea level and storm surge – natural hazards and climate
- MME
- drift modelling / pollution
- offshore wind farms and floating platforms (marine energy) + cumulative impacts of all / SEA process
- bridging with BGC and foor webs to anticipating food issues in a 10 years perspective

- level of interaction between NOOS/Demos and DTO core?

- Who in the draft commitee? Jerry (for ecosystem & bgc and OWF), Sébastien, Johanes Rohrs, John, Marti,n , Annette, Stephan and Holger

Formal business meeting

Election

- In 2019-2020, the SG was made of
  - Sébastien Legrand (chair, 2016)
  - Jacob Nielsen (2016)
  - Marc Philippart (2016)
  - John Siddorn (2017)
  - Susanne Tamm (2018)
  - Johan Söderqvist (2019)

  In 2020 , 2 co-chairs and one steering group members must be elected or alternatively 1 chair or 2 co-chairs.

  Decision : The present delegate agrees to elect 1 chair and 2 co-chairs.

Co- chair election

- Candidate : Sébastien Legrand

- Results : Sebastien Legrand is reconducted for a second term at the unanimity of the present delegates

SG members election

- Candidate : Jacob Nielsen , Annette Zijderveld

- Results : Both candidates are elected at the unanimity of the present delegates

NOOS annual meeting 2021 - **20 years anniversary**

- When ? Spring 2021 before EuroGOOS GA, second half of April (before EuroGOOS GA planned on May 4th) or later in May after EuroGOOS GA (preference by the member)

- Where?
  - Henning offered to host the Annual Meeting 2021 at IMR, Bergen , MI as a potential backup option

- Format?
  - By preference: life meeting, 2 full days spread on 3 days from noon to noon