

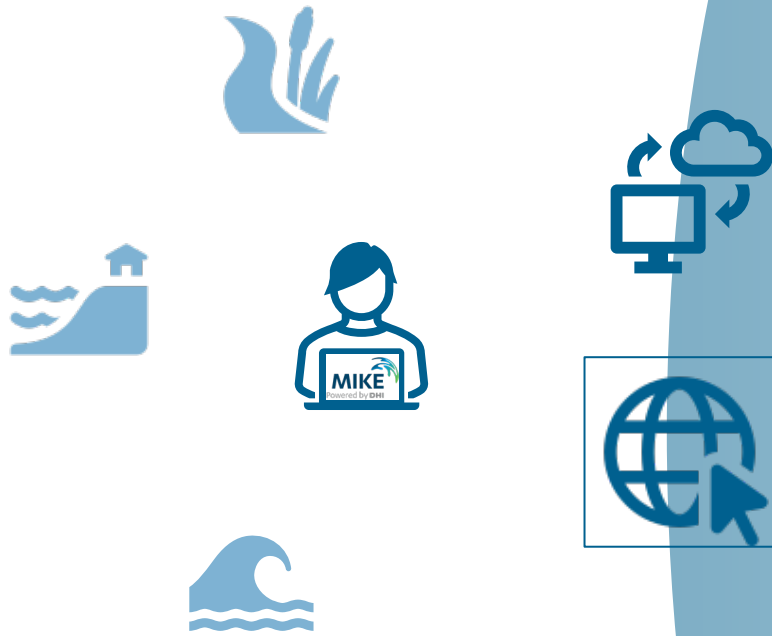
<https://www.mikepoweredbydhi.com/products/mike-cloud/mike-data-link/>

Data Link – *the new smart way to generate boundaries for MIKE models*

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Sales Manager
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MIKE Cloud

- an ecosystem of new opportunities



Cloud Execution



Data



Mesh Builder



Data Link



Fast Wave Emulator



Vision



Provide high-quality hindcast data with a few clicks to maritime and coastal modellers



From water levels and current velocities to temperature and salinity – MIKE Data Link provides what you need

Why use Data Link



Improve efficiency in the modelling workflow



Generate boundary conditions, initial conditions and weather forcing for MIKE 21 and MIKE 3 models without the normal complexity related to data formats, projections etc.



Create 3D models in MIKE 3 within minutes



Reduce time, cost and errors through the power of automation



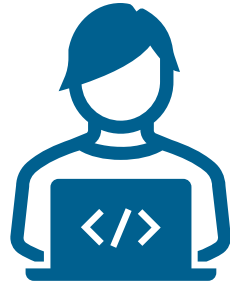
Improves model quality by giving easy access to 5 global datasets + DHI Global Wave Model (GWM) 2022

Data Link Core functionality

- MIKE models supported
 - MIKE 3 Flow Model FM
 - MIKE 21 Flow Model FM
 - MIKE 21 Spectral Waves FM



Data Link Core functionality



Core Functionality:

- Create boundary conditions
 - Create initial conditions
 - Create model forcings
- Converted and downloaded in MIKE data formats ready to use



Extended functionality

- Visualize meshes, boundaries & data provider grids
- Export forcings to native resolution
- Extrapolate outside data provider coverage
- Sea level adjustment

Data Products

Data Product	Parameter	Unit	Coverage
HYCOM Global Ocean Forecasting System (GOFS) version 3.1 Resolution: GLBY0.08: 0.08 deg. Long x 0.04 deg. Lat GLBv0.08: 0.08 deg. Long x 0.08 deg. Lat between 40S-40N. 0.04 deg. Long x 0.04 deg. Lat poleward of 40S/40N	Sea Surface Height [m]	U-velocity component (East dir.) [m/s]	2003-2023
	Water Temperature [deg C]	V-velocity component (North dir.) [m/s]	
	Salinity [psu]		
Copernicus - Global Ocean Sea Physical Analysis and Forecast Product from Copernicus (CMEMS) Resolution ~0.083 deg	Sea Surface Height [m]	V-velocity component (North dir.) [m/s]	2016-2023
	Water Temperature [deg C]		
	Salinity [psu]		
NOAA CFSv2 Climate Forecast System Version 2 (CFSv2) Operational Forecasts Resolution: 0.2 deg, Rel. humidity and air pressure 1.0 deg	Air Temperature at 2m [Deg. C.]	Precipitation rate [mm/day]	2016-2022
	Air Pressure at Mean Sea Level [hPa]	Cloud cover	
	Wind velocity components (U & V) at 10m, [m/s]	Downward Short-Wave Radiation [W/m ^{A2}]	
	Relative humidity	Ice Concentration	
ERA5 - ECMWF Reanalysis v5 Resolution: 0.25 deg	Wind velocity components (U & V) at 10m [m/s]		1979-2021
DTU 10 Tide Global ocean Tide Model Resolution: 0.125 deg (water level), 0.25 deg (currents)	Sea water level [m]	North Current velocity [m/s]	
	East Current velocity [m/s]		
DHI GWM 2022, MIKE 21 Spectral Global Wave Model (SW), ERA5, DHI Resolution (15-50 km FM)	Significant Wave Height (HmO), [m]	Peak Wave Direction (PWD), [Deg. N. (coming from)]	1979-2021
	Peak Wave Period (Tp), [s]	Mean Wave Direction (MWD), [Deg. N. (coming from)]	
	Mean Wave Period (TCI), [s]	Directional Standard Deviation (DSD), [degree]	
	Zero-crossing Wave Period (T02), [s]		

Initial preparations/considerations



Which mesh domain file should be used?



What type of simulation should be carried out?

MIKE 21
MIKE 3
MIKE 21 SW



What timeframe is to be modelled?



Which type(s) of data is needed?

Boundary data
Initial conditions
Forcings



Which items are required?

Flow velocities
Surface elevation
Salinity
Rain
?

A world map with a blue grid overlay. The word "DEMO" is written in large, white, sans-serif capital letters across the center of the map.

DEMO

- Logon to <https://www.mikepoweredbydhi.com/products/mike-cloud>
- or
- <https://dataadmin.mike-cloud.com>



Pick your site context

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- Data
- Site Access
- Site Info And Usage

Change site



Mesh Builder



MIKE 3D World



Data Link

- Site Data
- Recycle Bin

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Search...

Refresh

New folder

<input type="checkbox"/>	Name	Description	Type	Format	Size	Created	Edited ↓	
<input type="checkbox"/>	Folder Tutorial	Demo	Folder	Folder		30 May 2023	30 May 2023	⋮

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Mesh Builder



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Data Link

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- Recycle Bin

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Search input field

Refresh

New folder

<input type="checkbox"/>	Name	Description	Type	Format	Size	Created	Edited ↓	
<input type="checkbox"/>	Folder Bristol Channel	Demo for UK Symposium 2023	Folder	Folder		08 Jun 2023	08 Jun 2023	⋮
<input type="checkbox"/>	Folder Tutorial	Demo	Folder	Folder		30 May 2023	30 May 2023	⋮

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Data Site Access Site Info And Usage

Change site



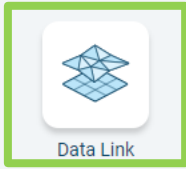
Mesh Builder



MIKE 3D World



Fast Wave E...



Data Link

Site Data Recycle Bin

10089900 - LPE > Bristol Channel Edit folder

Search...

Refresh

Upload data

New folder



Name

Description

Type

Format

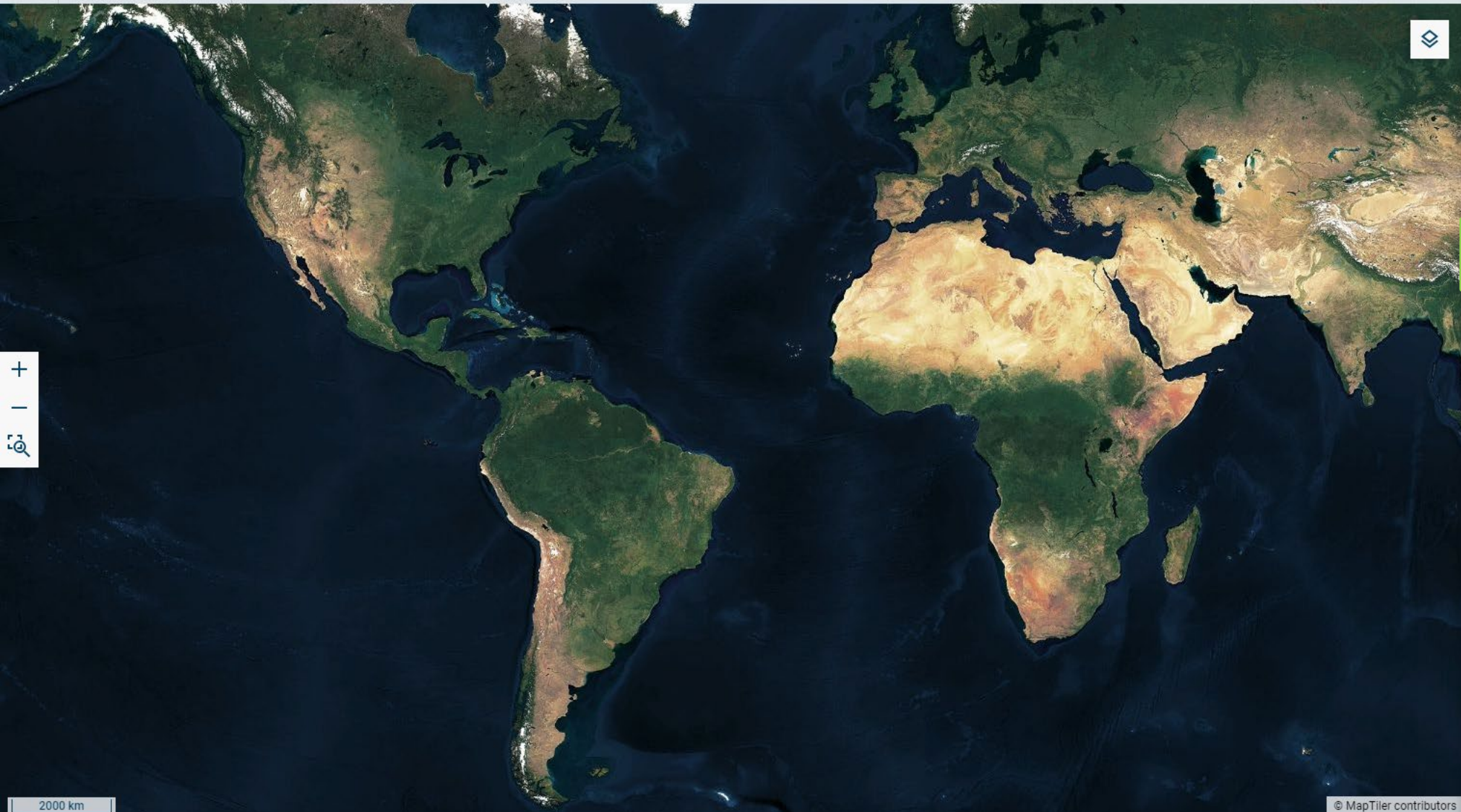
Size

Created

Edited ↓



Drop to upload



Import mesh



Drop mesh files here...

Upload

From local computer

Import

From cloud Platform



Note on input files:

- Data Link requires a “long” projection string

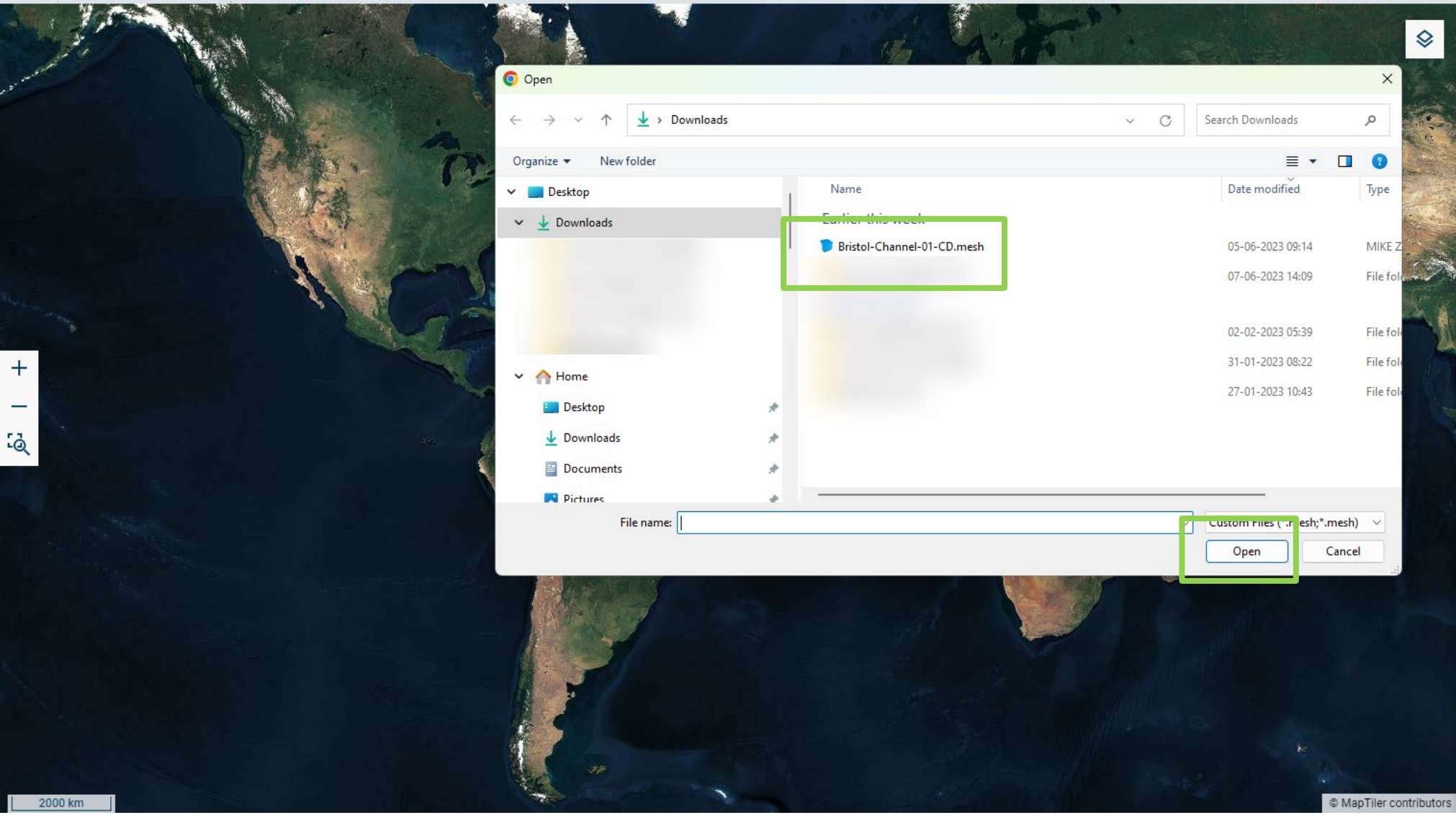
- PROJCS["British_National_Grid",GEOGCS["GCS_OSGB_1936",DATUM["D_OSGB_1936",SPHEROID["Airy_1830",6377563.396,299.3249646]],PRIMEM["Greenwich",0],UNIT["Degree",0.017453292519943295]],PROJECTION["Transverse_Mercator"],PARAMETER["False_Easting",400000],PARAMETER["False_Northing",-100000],PARAMETER["Central_Meridian",-2],PARAMETER["Scale_Factor",0.999601272],PARAMETER["Latitude_Of_Origin",49],UNIT["Meter",1]]

- DHI MIKE Zero examples are currently “short” projection string:

- OSGB

- Solution:

- Open mesh file in MIKE ZERO -> File → Options → Edit Map Projections → Locate the right one → Export projection file → save file
 - Open projection file → copy projection string
 - Open mesh file in a text editor → replace projection string → Save



Open

Downloads

Search Downloads

Organize New folder

Name	Date modified	Type
Earlier this week		
Bristol-Channel-01-CD.mesh	05-06-2023 09:14	MIKE Z
	07-06-2023 14:09	File fol
	02-02-2023 05:39	File fol
	31-01-2023 08:22	File fol
	27-01-2023 10:43	File fol

File name:

Custom Files (*.mesh;*.mesh)

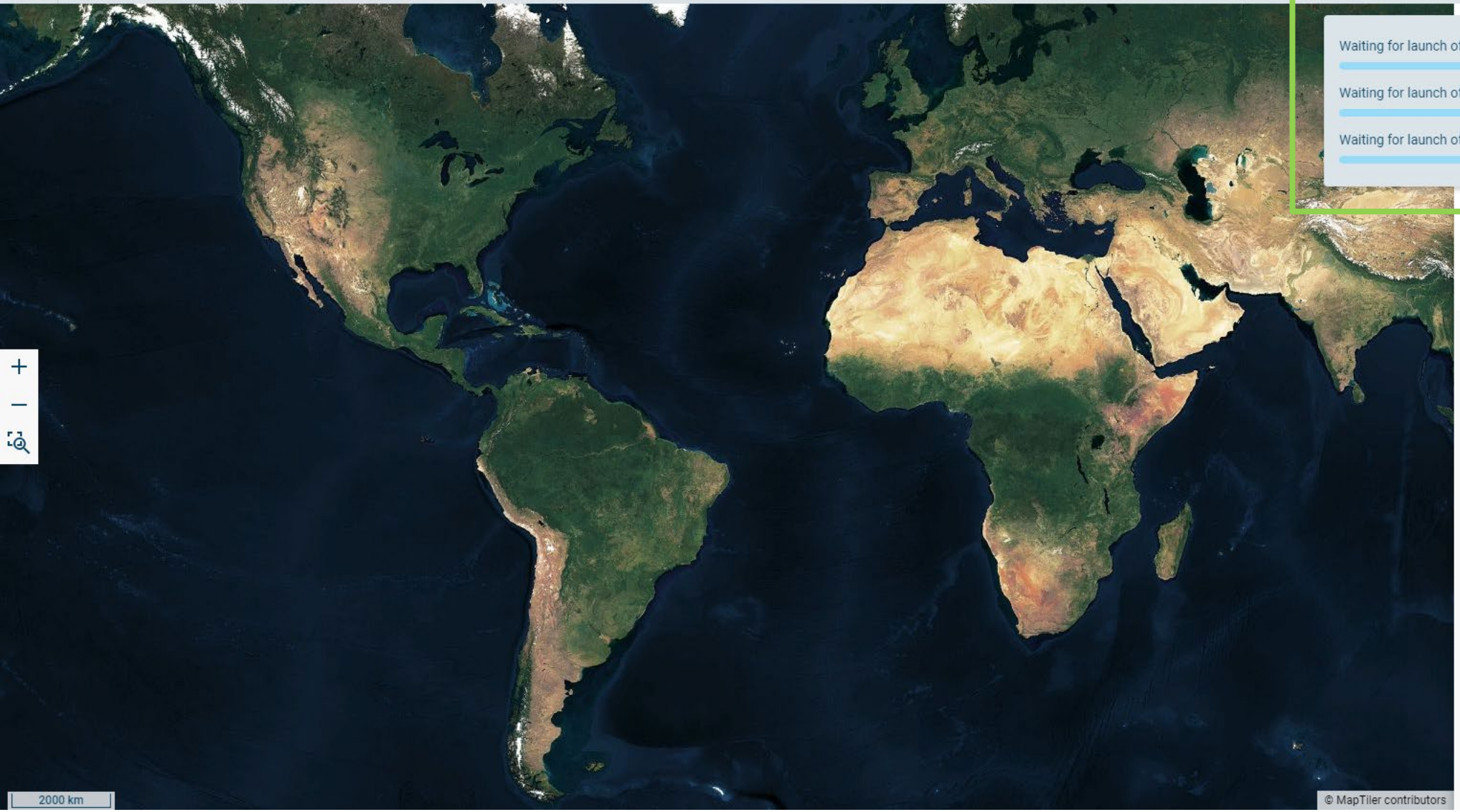
Open Cancel

Import mesh

Drop mesh files here...

Upload Import

From local computer From cloud Platform



Waiting for launch of engine

Waiting for launch of engine

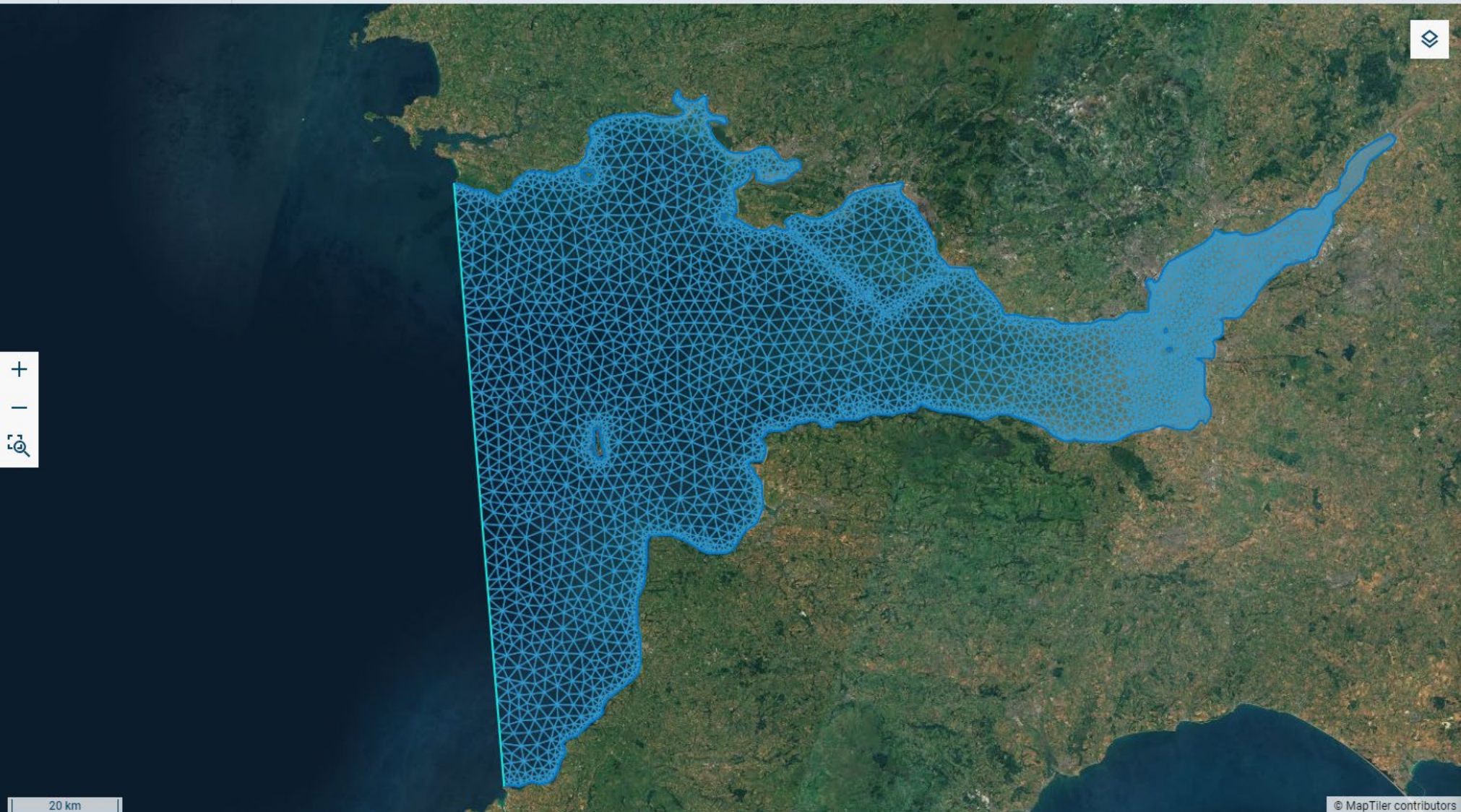
Waiting for launch of engine

Drop media here..

Upload Import

From local computer From cloud Platform





Import mesh >>



Drop mesh files here...

Upload

Import

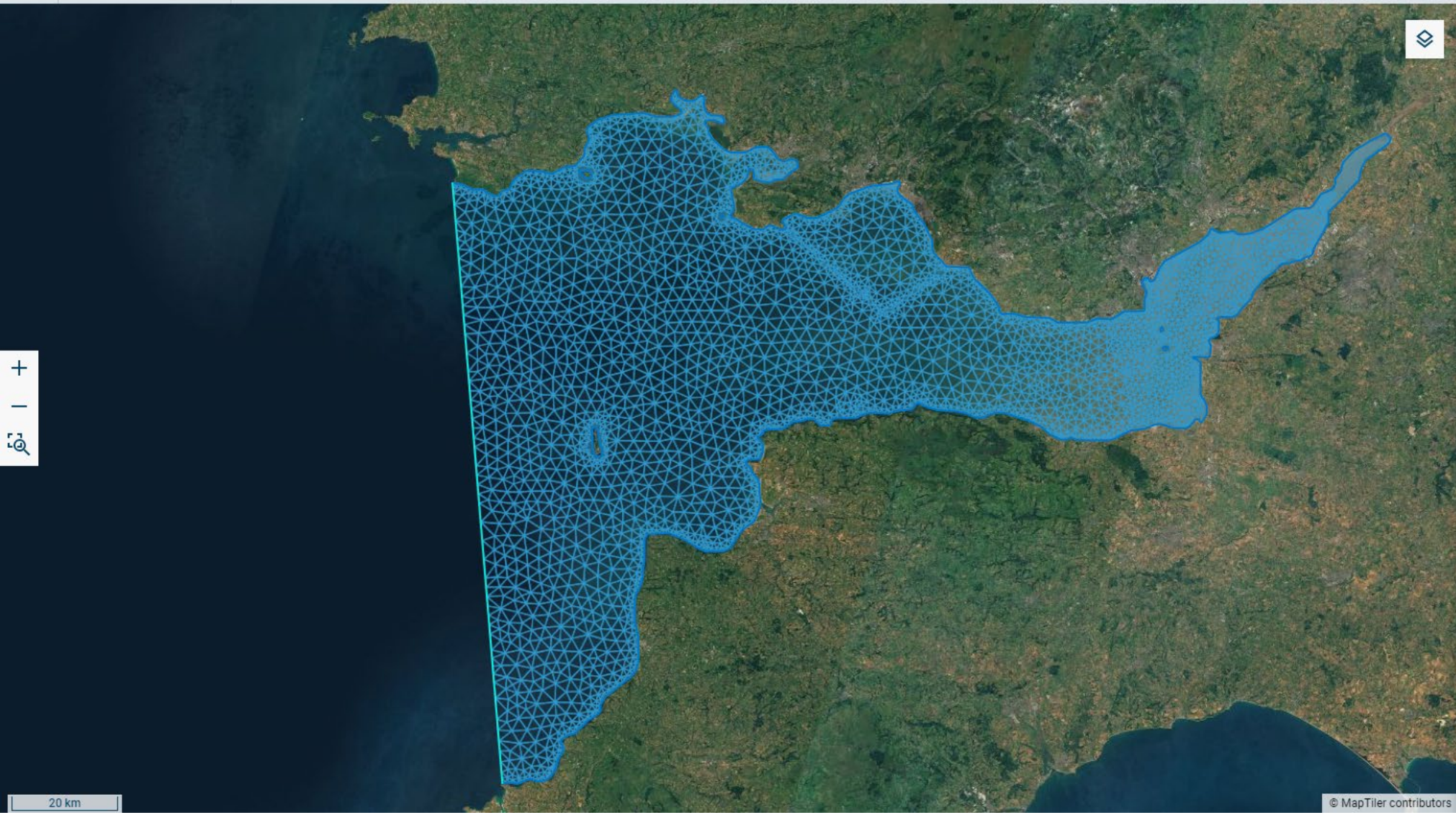
From local computer

From cloud Platform



20 km

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Data extraction settings

Select model area

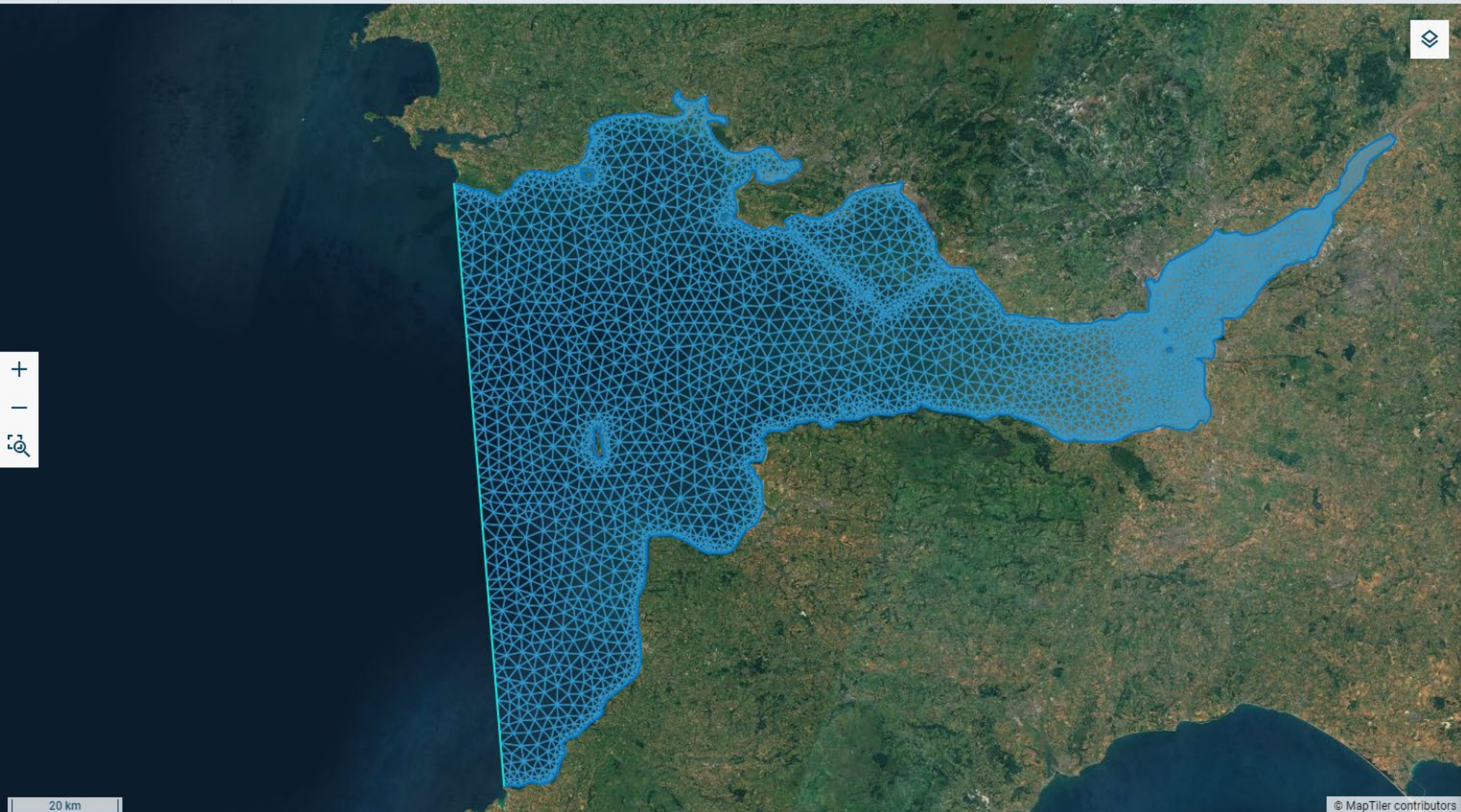
- MIKE 21
- MIKE 3
- MIKE 21 SW

Start data: 03/01/2021
End data: 03/30/2021

mm-dd-yyyy mm-dd-yyyy

Data sources and temporal availability

Copernicus	02 Jan 2016 – 04 May 2023
DHI GWM 2022	20 Dec 1979 – 30 Dec 2021
ERA5	15 Dec 1979 – 30 Dec 2021
HYCOM	03 Nov 2003 – 31 May 2023
NOAA CFSv2	01 Jan 2016 – 31 Dec 2022
DTU 10 Tide	All dates available



Data selection

Model type: MIKE 21 SW
Time period: 01 Mar 2021 - 30 Mar 2021

Boundary Initial Forcings

Group selection

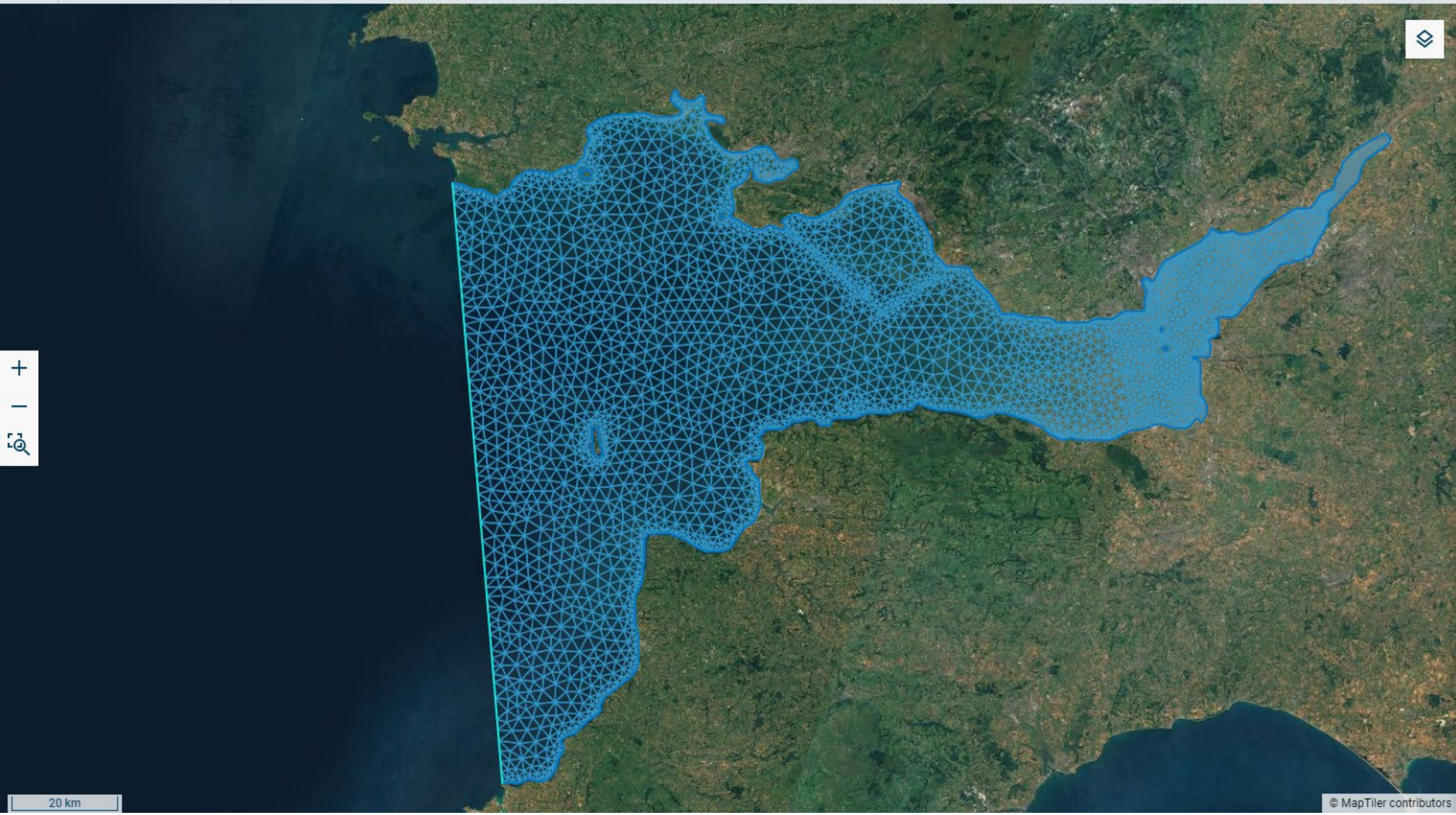
Grouped items (1)

- Boundary 2
Horizontal resolution: 56

<input checked="" type="checkbox"/>	<input type="checkbox"/>	DHI GWM 2022
-------------------------------------	--------------------------	--------------

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📄



Data selection

Model type: MIKE 21 SW
Date for initial conditions: 03/01/2021

Boundary

Group selection

Grouped items (4)

- ssh
- UV_Velocity
- Temperature
- Salinity

Grouped items (1)

- DTU 10 Tide

March 2021

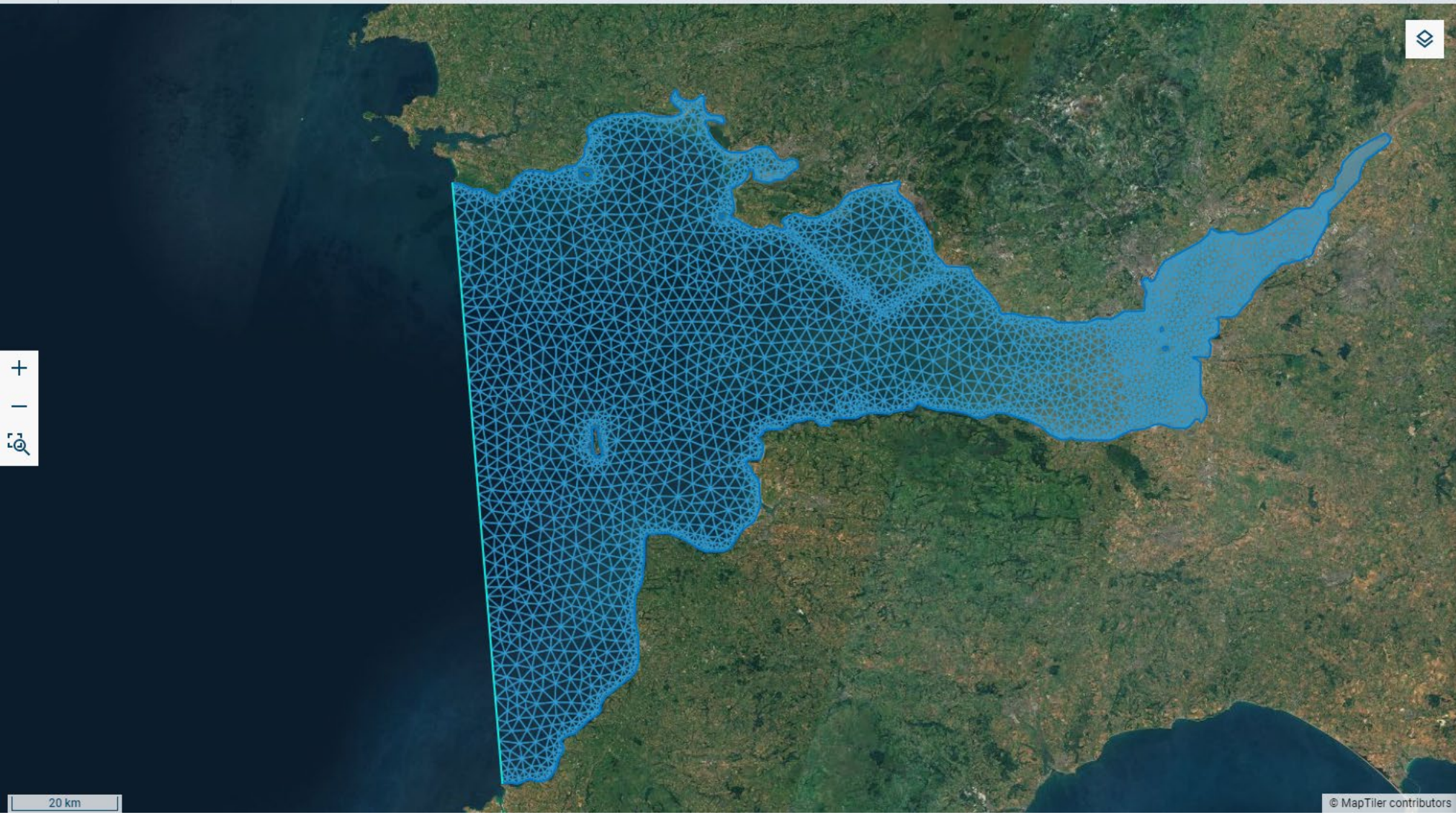
Su	Mo	Tu	We	Th	Fr	Sa
28	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

Clear Today

Copernicus

HYCOM

DTU 10 Tide



Data selection

Model type: MIKE 21 SW
Time period: 01 Mar 2021 - 30 Mar 2021

Boundary Initial **Forcings**

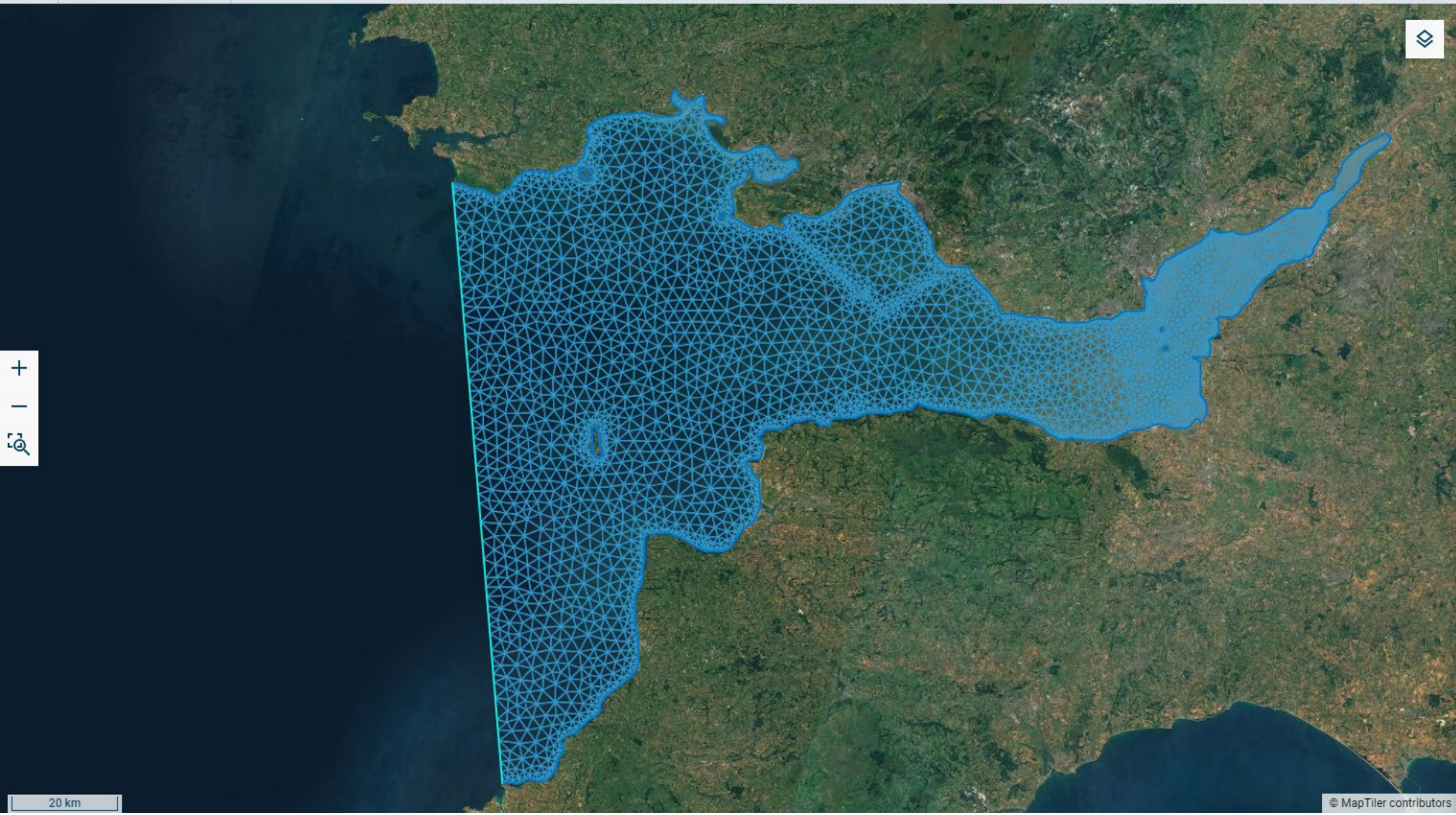
Group selection

Grouped items (1)

- Wind velocity components (10 m)
- ERA5

Grouped items (8)

- Air temperature (2 m)
- Air pressure (MSL)
- Wind velocity components (10 m)
- Relative humidity (2 m)
- Precipitation rate
- Cloud cover
- Downward Short-Wave Radiation flux
- Ice cover



Export

Model type: MIKE 21 SW
Time period: 01 Mar 2021 - 30 Mar 2021
Initial condition date: 01 Mar 2021

Boundary conditions (1) ^

- Boundary 2
- DHI GWM 2022

Initial conditions (2) ^

- ssh
- UV_Velocity
- Temperature
- Salinity
- HYCOM
- DTU 10 Tide

Export forcings to native resolution
 Extrapolate outside data provider coverage

Sea level adjustment 0 meters

[Export](#)

Select export folder for extraction data

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No content yet

Cancel

Export

Export

Model type: MIKE 21 SW
Time period: 01 Mar 2021 - 30 Mar 2021
Initial condition date: 01 Mar 2021

Boundary conditions (1)

Boundary 2

DHI GWM 2022

Initial conditions (2)

ssh

UV_Velocity

Temperature

Salinity

HYCOM

DTU 10 Tide

Export forcings to native resolution

Extrapolate outside data provider coverage

Sea level adjustment 0 meters

Export



20 km

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20 km

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Starting extraction

21

Boundary conditions (1) ^

- Boundary 2
- DHI GWM 2022

Initial conditions (2) ^

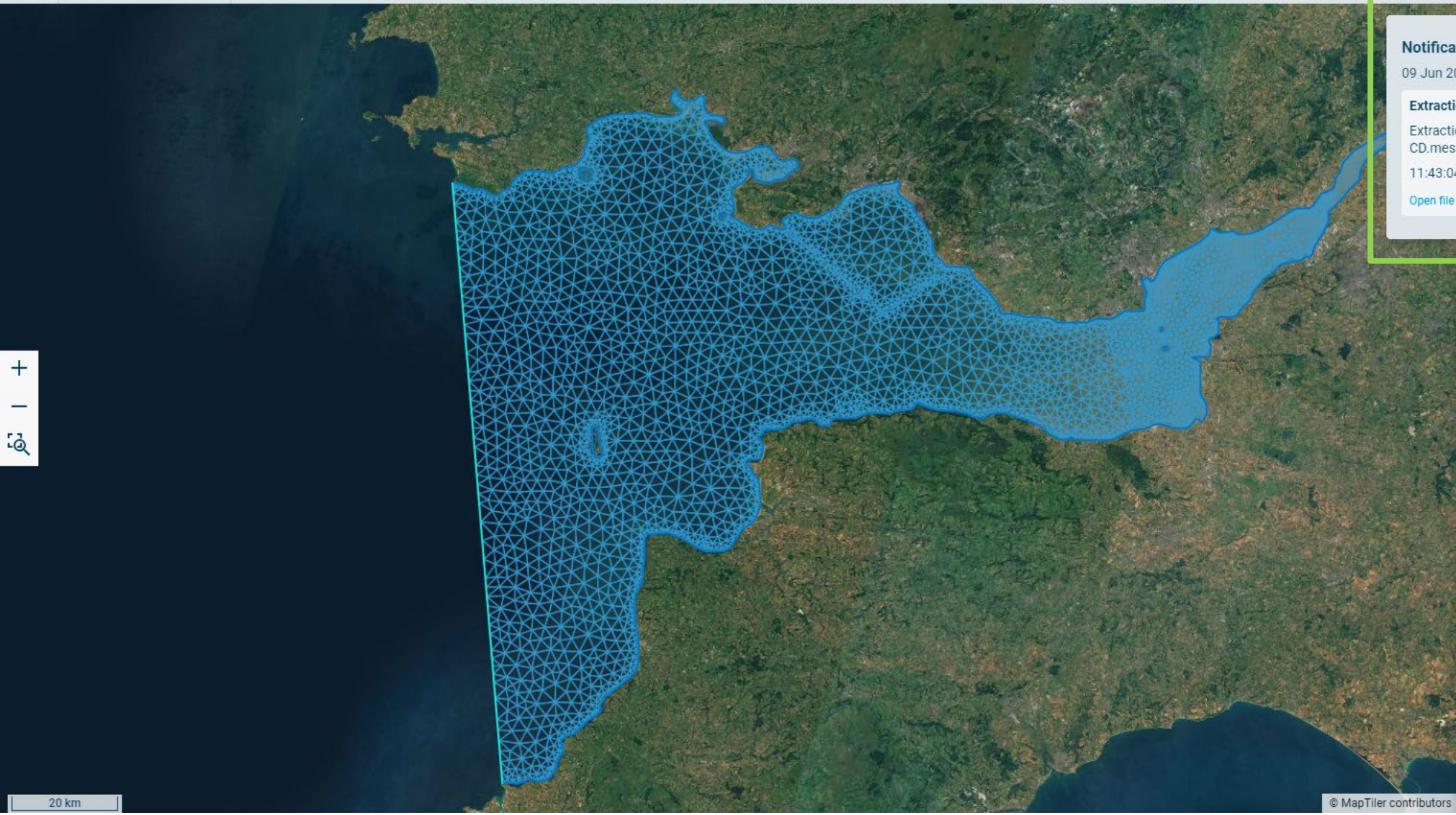
- ssh
- UV_Velocity
- Temperature
- Salinity
- HYCOM
- DTU 10 Tide

- Export forcings to native resolution
- Extrapolate outside data provider coverage

Sea level adjustment meters

Export





Notifications
09 Jun 2023

Extraction succeeded
Extraction is complete for Bristol-Channel-01-CD.mesh
11:43:04 AM
[Open file location](#)

DHI GWM 2022

Initial conditions (2)

- ssh
- UV_Velocity
- Temperature
- Salinity

HYCOM

DTU 10 Tide

- Export forcings to native resolution
- Extrapolate outside data provider coverage

Sea level adjustment 0 meters

Export

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- Site Access
- Site Info And Usage

Change site



Mesh Builder



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Fast Wave E...



Data Link

- Site Data
- Recycle Bin

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Search...

Refresh

Upload data

<input type="checkbox"/>	Name	Description	Type	Format	Size	Created	Edited
<input type="checkbox"/>	Extraction-info 20230609-0942.txt		File	File	2 KB	09 Jun 2023	09 Jun 2023
<input type="checkbox"/>	Extraction 20230609-0942.zip		File	File	3.58 MB	09 Jun 2023	09 Jun 2023

- Edit
- Delete
- Convert
- Download

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Site Data Recycle Bin

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Search... Refresh

Name Description

Extraction-info 20230609-0942.txt

Extraction 20230609-0942.zip

Download

Download as-is or convert data?

Selected file: Extraction 20230609-0942.zip

Download as-is

Download and change or convert

Uploading a .zip file as-is, only serves as storage, you will not be able to change or convert the file at a later stage.

Cancel Download

Created

09 Jun 2023

09 Jun 2023

Edited

09 Jun 2023

09 Jun 2023

File Explorer window showing the contents of a folder named "Bristol Channel Data Link 01.03.21-31.03-21". The folder contains a text file "Extraction-info 20230609-0942.txt" and three subfolders: "Boundary", "Forcings", and "Initial". The text file is highlighted with a green box.

Name	Date modified	Type
Extraction-info 20230609-0942.txt	09-06-2023 11:48	Tekstdokumen
Boundary	09-06-2023 11:48	File folder
Forcings	09-06-2023 11:48	File folder
Initial	09-06-2023 11:48	File folder

Extraction-info 20230609-0942.txt

MIKE Data Link extraction
 Generation of boundary, initial and forcing conditions
 Date: 2023-06-09 09:43:02 UTC

Mesh input file : Bristol-Channel-01-CD.mesh
 Mesh projection : British_National_Grid
 Model type : MIKE 21 SW
 Extraction Start date : 2021-03-01 00:00:00 UTC
 Extraction End date : 2021-03-31 00:00:00 UTC

Boundary data items : wave, wss
 Initial data items : Sea Surface Height, UV velocity components, Temperature, Salinity, Tide DTU10
 Forcing data items : Wind velocity components (10 m)

Boundary data extraction details:

Boundary code	Horizontal resolution	Data source
2	56	DHI GWM 2022 TS

Initial conditions start date : 2021-03-01 00:00:00 UTC

Item:	Data source
Sea Surface Height	HYCOM
Sea Surface Height	HYCOM and Tide DTU10
UV velocity components	HYCOM
Temperature	HYCOM
Salinity	HYCOM
ssh	Tide DTU10
U,V velocities	Tide DTU10

Forcing function data details:

Item:	Data source
Wind velocity components (10 m)	ERA5

Extraction details:

Archive Zip-file name: "Extraction 20230609-0942.zip"

Output files created from the data extraction:

- .\Extraction-info 20230609-0942.txt
- .\Boundary/20210301_20210331_wave_Bound_2_DHI GWM 2022 TS.dfs1
- .\Boundary/20210301_20210331_wss_Bound_2_DHI GWM 2022 TS.dfs1
- .\Initial/20210301_ssh_HYCOM.dfsu
- .\Initial/20210301_uv_HYCOM.dfsu
- .\Initial/20210301_Temperature_HYCOM.dfsu
- .\Initial/20210301_Salinity_HYCOM.dfsu
- .\Initial/20210301_ssh_DTU10.dfsu
- .\Initial/20210301_uv_DTU10.dfsu
- .\Initial/20210301_20210331_ssh_Combined_HYCOM.dfsu
- .\Initial/20210301_20210331_uv_Combined_HYCOM.dfsu
- .\Forcings/20210301_20210331_Wind velocity components (10 m)_ERA5.dfs2



How to get started

- Requirements:
 - MIKE Cloud annual subscription: 510 GBP excl. VAT (102)
 - Data Link annual Subscription: 8,840 GBP excl. VAT (1,768)
 - **Total cost: 9,350 GBP excl. VAT (1,870)**

** Figures in brackets are cost for 2 months which is minimum*

- Knowledge Resources
 - [User Guide](#)
 - [MIKE Data Link | Getting started](#)
 - [YouTube – Data Link Quick Tour](#)



MIKE Cloud the future is here

Thank you for your attention