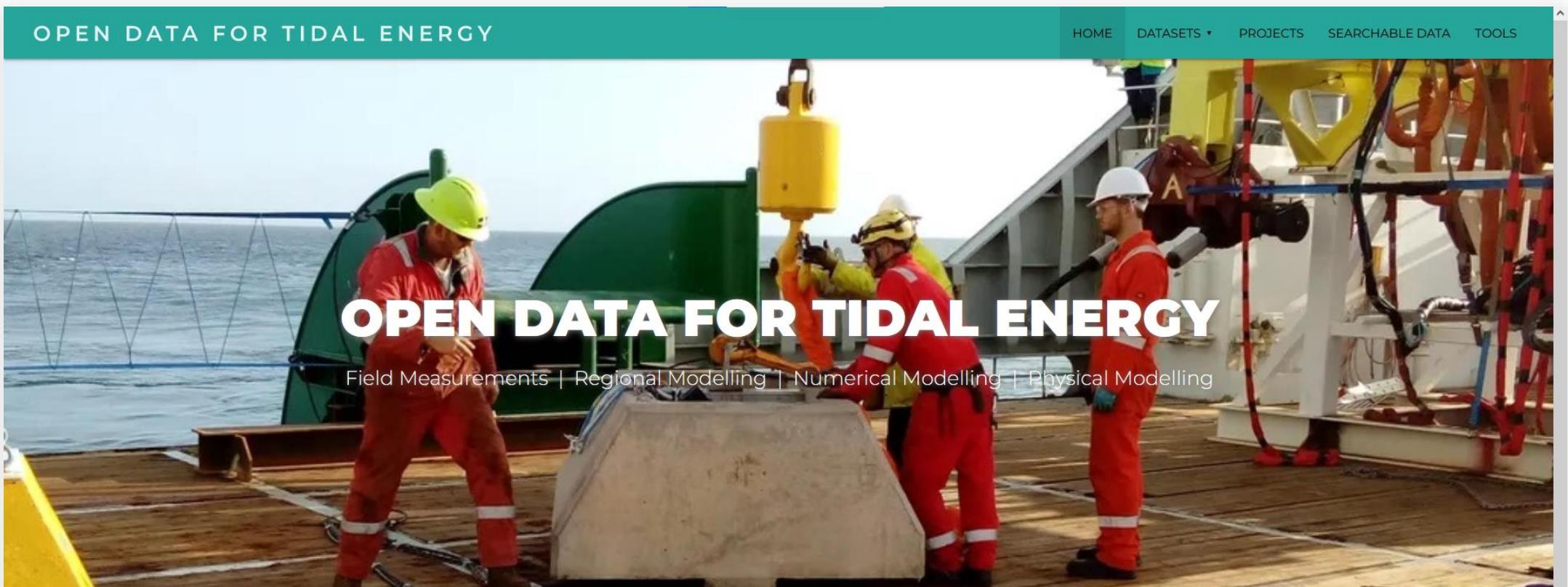


Open Data for Tidal Energy



OPEN DATA FOR TIDAL ENERGY

Field Measurements | Regional Modelling | Numerical Modelling | Physical Modelling

About

The Data

The data originate from field measurements, and regional, numerical and physical modelling relating to the assessment, characterisation, and extraction of tidal stream energy, but have wider application in other Offshore Renewable Energy areas. These data were collected and

<https://tidalenergydata.org>

Our Philosophy

We believe that the key to efficient advancement of research is to ensure research data are publicly available, easy to access and use, with simplified access to the information content. To this end, data from multiple research projects are being collated, documented, and

Our Mission

We aim to simplify the access to highly valuable datasets, with improved metadata and quality control, which provide the basis for an improved understanding of the marine environment and fluid-machine interactions, and aid the development of engineering tools that can be used

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

Open water

OPEN WATER

LABORATORY

REGIONAL NUMERICAL

RealTide ADCP01/02 NW Dep5 RealTide ADCP TD7s ReDAPT ADCP D1/D2 ReDAPT ADCP01 NW (legacy)

▶ RealTide ADCP01/02 NW Dep5

Field-Measurements aligned to the implementation of a tidal energy converter's power performance assessment (IEC 62600-200 PPA Type A)

Type of data: **ADCP Deployments**

Project(s): **RealTide**

Location: **Fall of Warness, EMEC, Orkney, UK**

Licencing restrictions: **Creative Commons Attribution 4.0**

DOI: <https://doi.org/10.7488/ds/3448>

<https://tidalenergydata.org/deployments>

Open Data for Tidal Energy

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Laboratory Data

OPEN WATER

LABORATORY

REGIONAL NUMERICAL

▶ RealTide: RLT-WP3- D3.5

Synthetic Load Spectra and Time Series Data

Type of data: **Tank test**
Project(s): **RealTide**
Facility: **FloWave (University of Edinburgh)**
Licensing restrictions: **Creative Commons Attribution 4.0**
DOI: <https://doi.org/10.7488/ds/3186>

▶ SuperGen: 3 Turbine Array - Flow Data

Flow data around three Supergen UKCMER Tidal Turbines in a closely spaced staggered array at FloWave

Type of data: **Tank test**
Project(s): **SuperGen UKCMER**
Facility: **FloWave (University of Edinburgh)**
Licensing restrictions: **Creative Commons Attribution 4.0**
DOI: <https://doi.org/10.7488/ds/2762>

<https://tidalenergydata.org/experiments>

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Regional Modelling Outputs

OPEN WATER
LABORATORY
REGIONAL NUMERICAL



TELEMAC 3D, Fall of Warness

▶ TELEMAC 3D, Fall of Warness

ORK_BASE. Orkney Base Model

Type of data: **Regional Model (3D)**
Project(s): **RealTide**
Location: **Fall of Warness, EMEC, Orkney, UK**
Licencing restrictions: **Creative Commons Attribution 4.0**

<https://tidalenergydata.org/rmodels>

Open Data for Tidal Energy

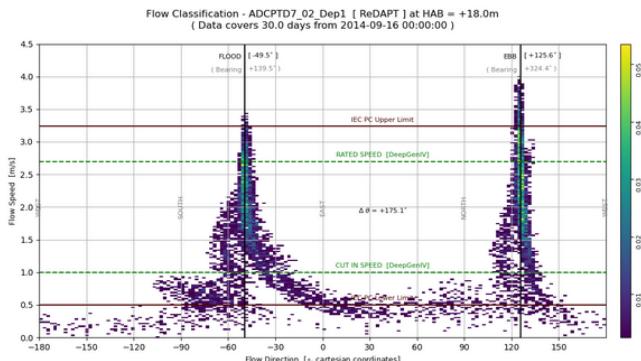
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Projects

► FASTWATER

FASTWATER: Freely Available Simulation Toolset for Waves, Tides and Eddy Replication.



Lead:	University of Edinburgh
Partners:	Supergen ORE Hub; The European Marine Energy Centre; University of Edinburgh; ORE Catapult
Value:	£100,000
Status:	Live project
Dates:	Aug. 15, 2021 to Aug. 31, 2022



Engineering and Physical Sciences
Research Council

► RealTide

RealTide: Advanced monitoring, simulation and control of tidal devices in unsteady, highly turbulent realistic tide environments



Lead:	Bureau Veritas
Partners:	University of Edinburgh; IFREMER; Bureau Veritas; EnerOcean; Sabella; I-Tech; Ingeteam; Bureau Veritas Solutions Marine & Offshore
Value:	€4,974,990
Status:	Completed
Dates:	Jan. 1. 2018 to Dec. 16. 2021

<https://tidalenergydata.org/projects>

Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

◀ Projects

RealTide

RealTide: Advanced monitoring, simulation and control of tidal devices in unsteady, highly turbulent realistic tide environments



The image shows an aerial view of a research vessel named 'RealTide' at sea. The vessel is orange and white, equipped with a large yellow crane and various scientific instruments. It is moving through dark blue, choppy water, creating a wake. Several people are visible on the deck.

...

<https://tidalenergydata.org/projects>

Open Data for Tidal Energy

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 European Commission

 THE UNIVERSITY of EDINBURGH

 Ifremer

 BUREAU VERITAS

 enerOCEAN

 sabella ride the tide

 1-Tech

 Ingeteam

 BUREAU VERITAS SOLUTIONS
Marine & Offshore

Description

The RealTide project aims to identify the causes of the main failures of tidal turbines and to provide a step-change in the design of key components adapting them more accurately to the complex environmental tidal conditions.

Advanced monitoring systems together with maintenance strategies are been implemented to achieve increased reliability and improved performance over the full tidal turbine life. RealTide is pushing the transition of the tidal sector.

RealTide is a response to the Horizon 2020 Competitive Low-carbon Energy call "Developing the next generation technologies of renewable electricity and heating/cooling" (LCE-07-2016). The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727689. RealTide is running since 1st January 2018.

Project summary

Funder(s):	European Commission H2020
Lead partner:	Bureau Veritas
Full partner list:	University of Edinburgh; IFREMER; Bureau Veritas; EnerOcean; Sabella; 1-Tech; Ingeteam; Bureau Veritas Solutions Marine & Offshore
Value:	€4,974,990
Status:	Completed
Dates:	Jan. 1, 2018 to Dec. 16, 2021
External website:	🔗
Funder website:	🔗

<https://tidalenergydata.org/projects>

Open Data for Tidal Energy

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File Library

Technical Reports

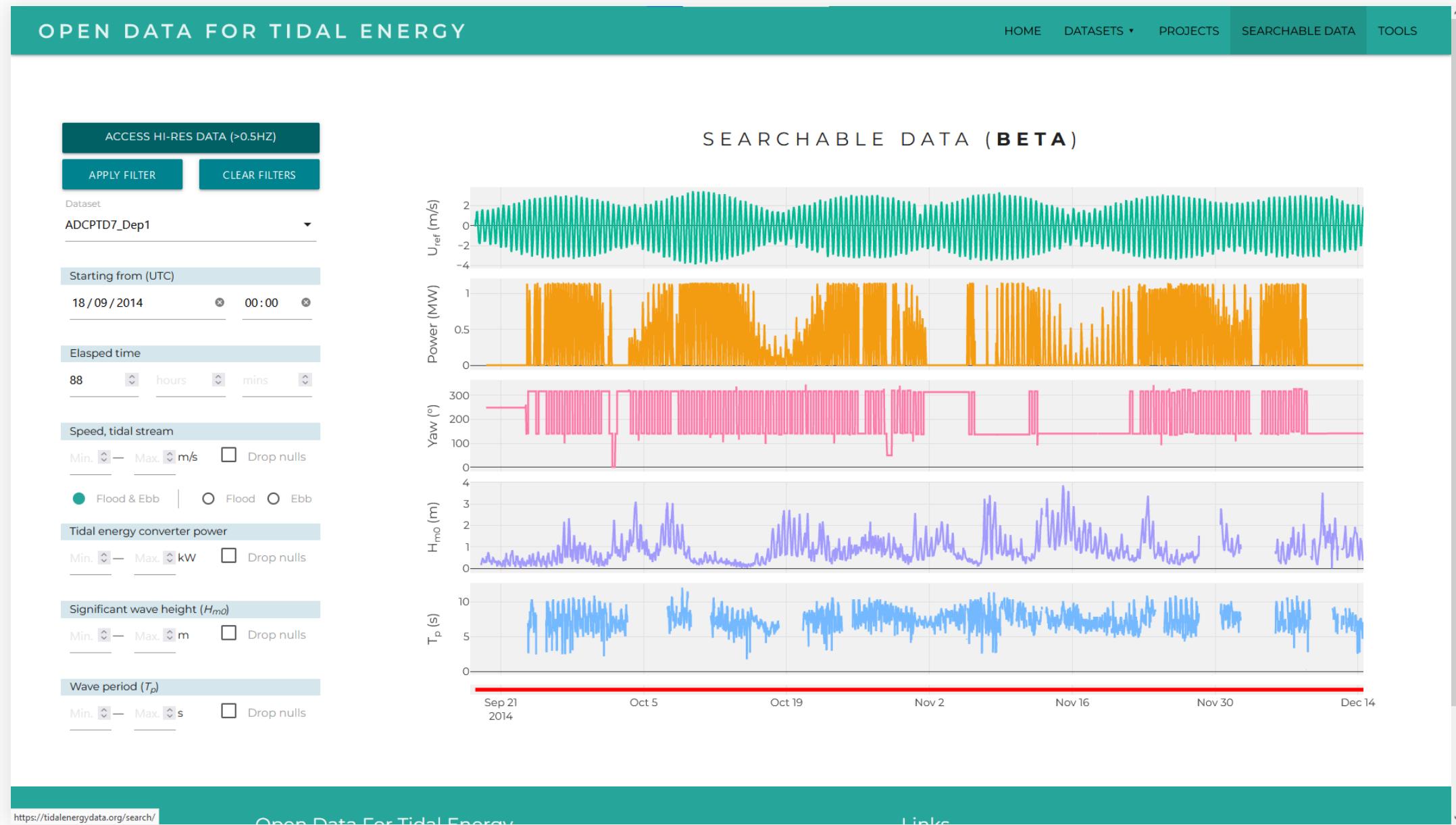
ID	Title	Year	Version	Pages
MC7.1	Initial Operation Power Curve	2014	A	27
MC7.2	Public Domain - First Year of Operation Report	2014	-	18
MC7.3	Public Domain Report: Final	2015	A	70
MC8.27	Standard: Horizontal axis tidal turbines	2014	1	284
MC9.5	Recommendations for the Specification of Tidal Turbines	2013	A	19
MD1.1	CFD Modelling Part 1	2011	v0.2	15
MD1.2	CFD Modelling Part 2 - Turbulence	2011	v1.2	39
MD1.3	CFD Modelling Part 3 - Waves	2012	v2.0	47
MD1.4	CFD Simulations of a Full-Scale Tidal Stream Turbine: Comparison Between Large-Eddy Simulations and Field Measurements	2014	v1.3	43
MD1.5	CFD Simulation of Turbulence at a Tidal Stream Site based on Field Measurements	2013	v0.5	36
MD3.4	Interim Report: Turbulence Measurement and Characterisation	2012	v1.0	44
MD3.8	Tidal Energy Site Characterisation at the Fall Of Warness, EMEC, UK	2016	v4.0	171
ME8.2	BioFouling - Final Experimental Design	2011	v2.0	31
ME8.5	BioFouling - Final Report	2014	v3.2	47

Presentations

ID	Title	Year	Version	Slides	Status
-	Learning from the ReDAPT Programme	2015	-	154	For information
-	ReDAPT Project achievements	2015	-	3	For information
01 OEE2015	ReDAPT Project Dissemination Workshop OEE Conference - Dublin - Oct 2015	2015	-	12	For information
02 OEE2015	MC6 & 7 – Turbine Deployments and Achievements in Operation	2015	-	12	For information
03 OEE2015	Modelling Sub Project	2015	-	19	For information
04 OEE2015	Modelling of Channel Flow in the Fall of Warness	2015	-	24	For information
06 OEE2015	Full-scale validation study of Tidal Bladed	2015	-	21	For information
07 OEE2015 DNV GL	DNV GL - The New Standard for Tidal Turbines	2015	-	21	For information
08 OEE2015 PML	Work Package ME8: Antifouling systems for tidal energy devices	2015	-	19	For information

<https://tidalenergydata.org/projects>

Open Data for Tidal Energy



Open Data for Tidal Energy

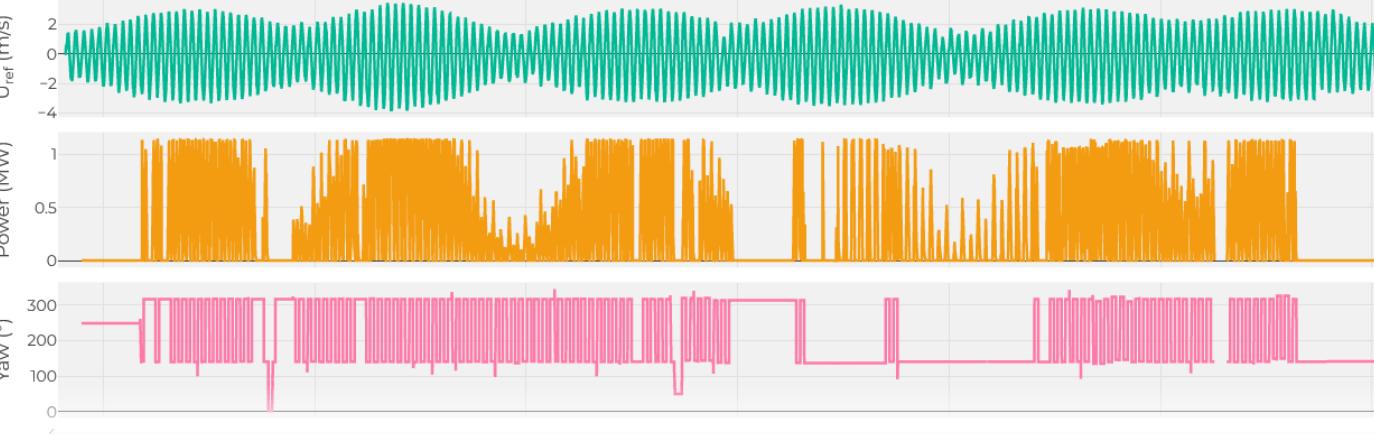
OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS



© Mapbox © OpenStreetMap Improve this map

SEARCHABLE DATA (BETA)



U_{ref} (m/s)

Power (MW)

Yaw (°)

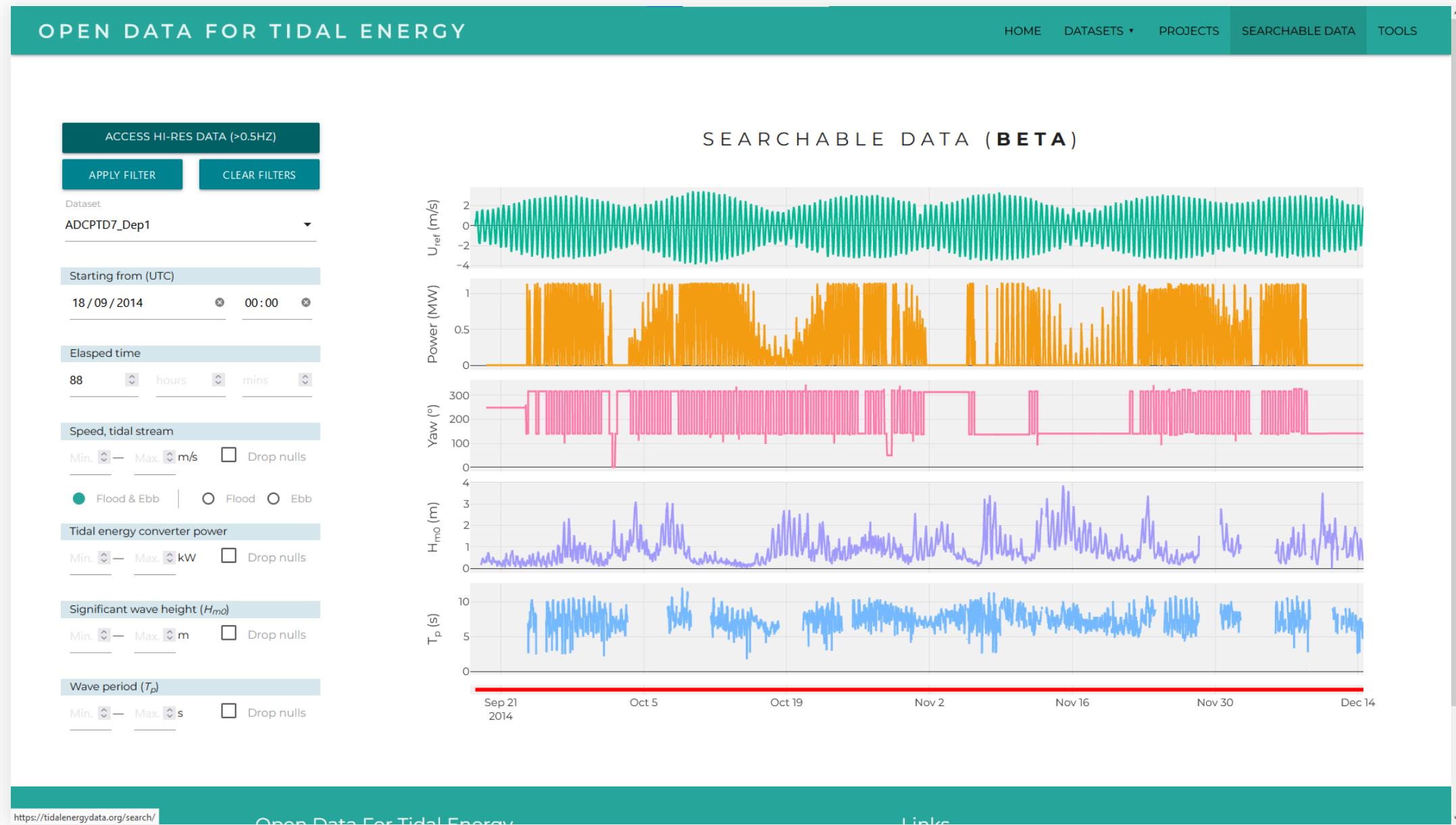


RealTide D2.2 (2021)

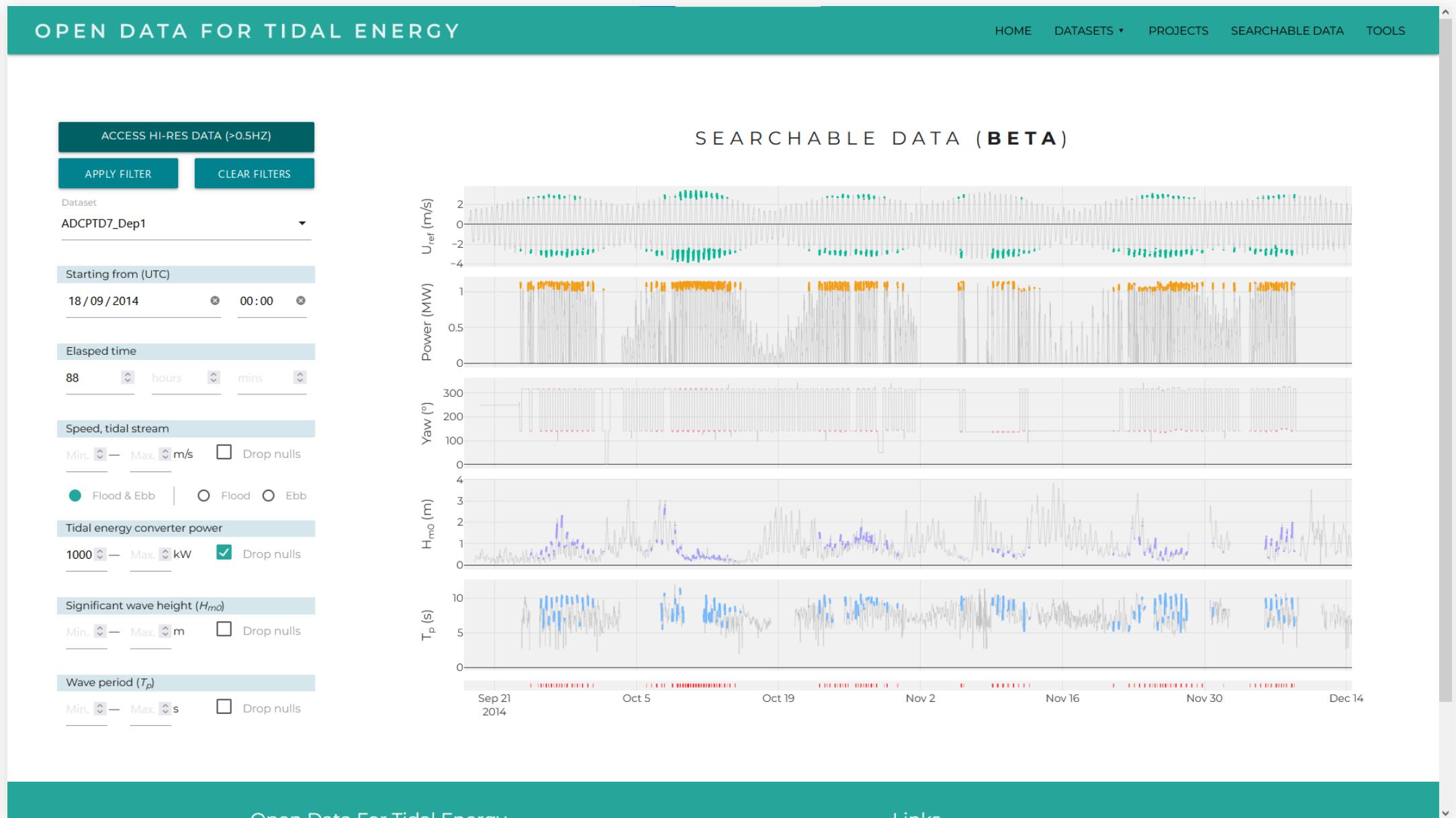


ReDaPT (2014)

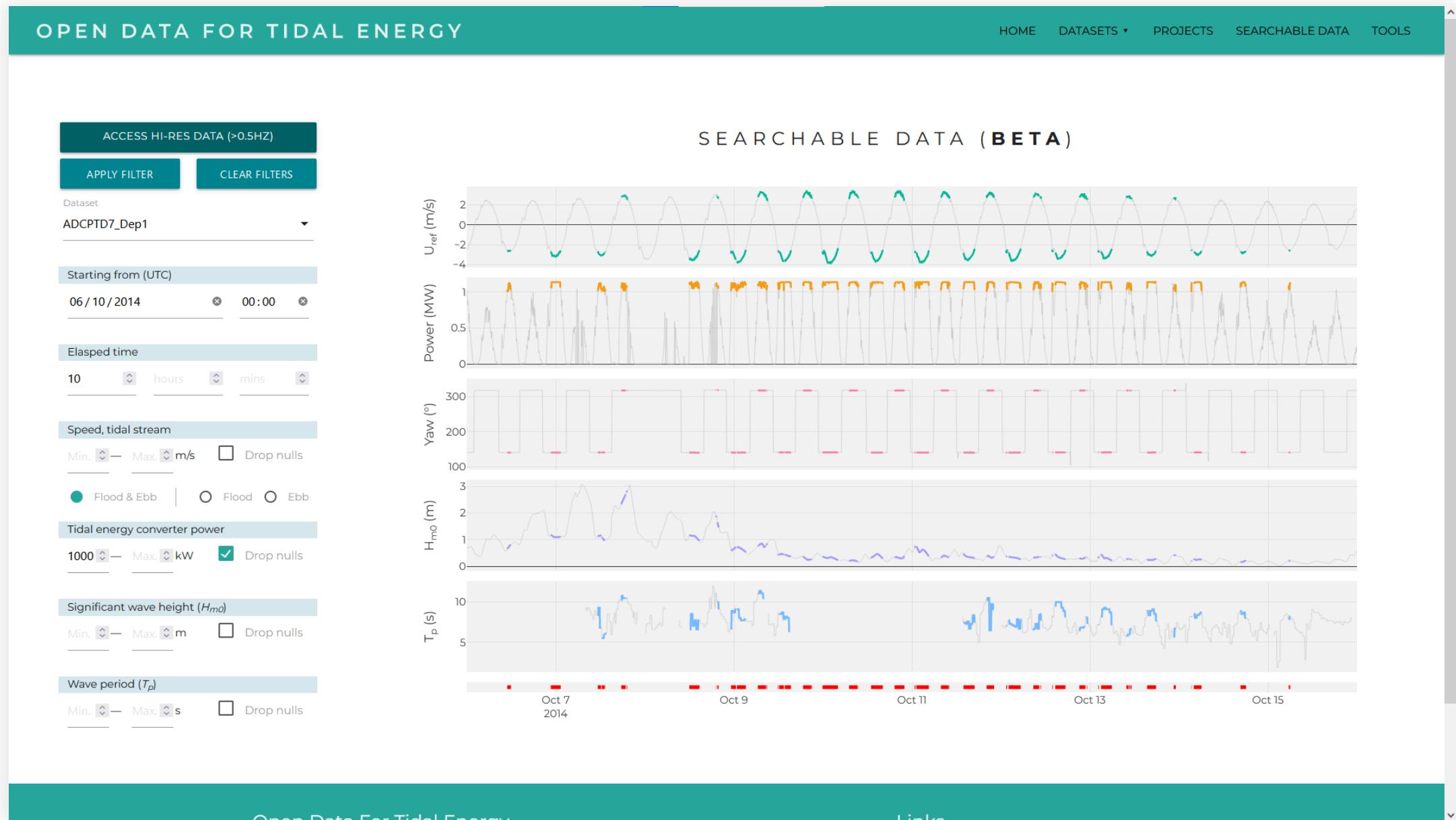
Open Data for Tidal Energy



Open Data for Tidal Energy



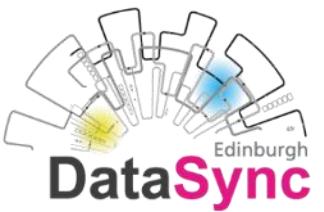
Open Data for Tidal Energy



Open Data for Tidal Energy

The homepage features a large image of two workers in orange safety gear on a boat, with the text "OPEN DATA FOR TIDAL ENERGY" overlaid. Below the image are three main sections: "About", "The Data", and "Our Philosophy".

This page shows a map of "Open water" with various locations marked. A specific entry for "RealTide ADCPO/02 NW Dep5" is highlighted, providing detailed information about the location, deployment, and performance.



The interface shows a document titled "Field-Measurements aligned to the implementation of a tidal energy converter's power performance assessment (IEC 62600-200 PPA Type A)". It includes sections for "DOCUMENT DETAILS", "DATA AVAILABILITY", and "DATA DOWNLOADS".



OPEN DATA FOR TIDAL ENERGY

OPEN DATA FOR TIDAL ENERGY
Hot Measurements - Hydrodynamic & Thermal Modelling, Numerical Modelling

[About](#)

[The Data](#) [Our Philosophy](#) [Our Mission](#)

OPEN DATA FOR TIDAL ENERGY

Open water

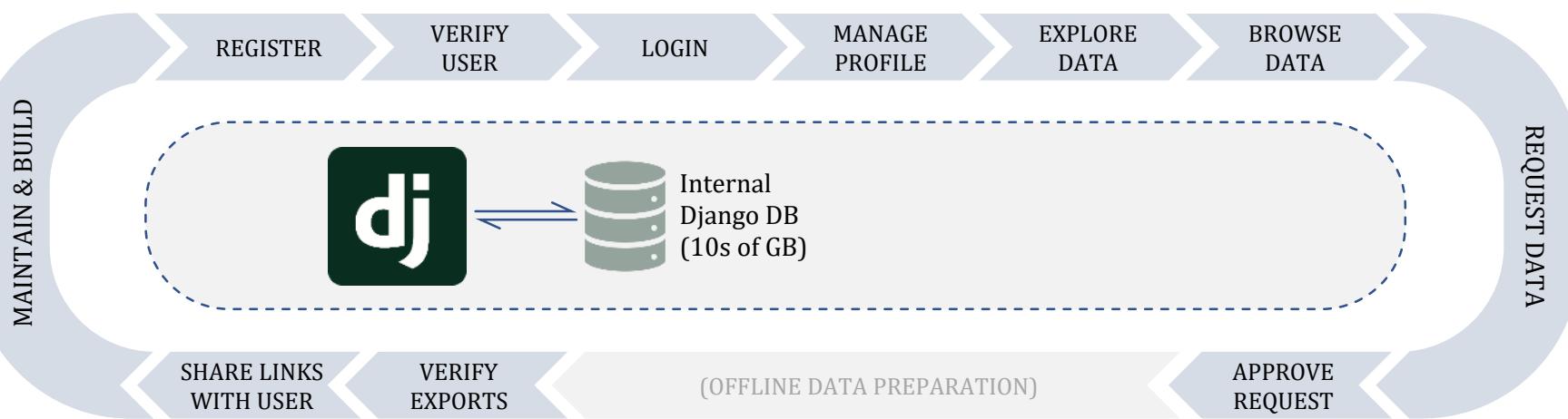
ReefTide ADCP07/02 NW DepS

This measurement is located in the intermediate stage of the plant performance measurement IEC 62600-200 Type A.

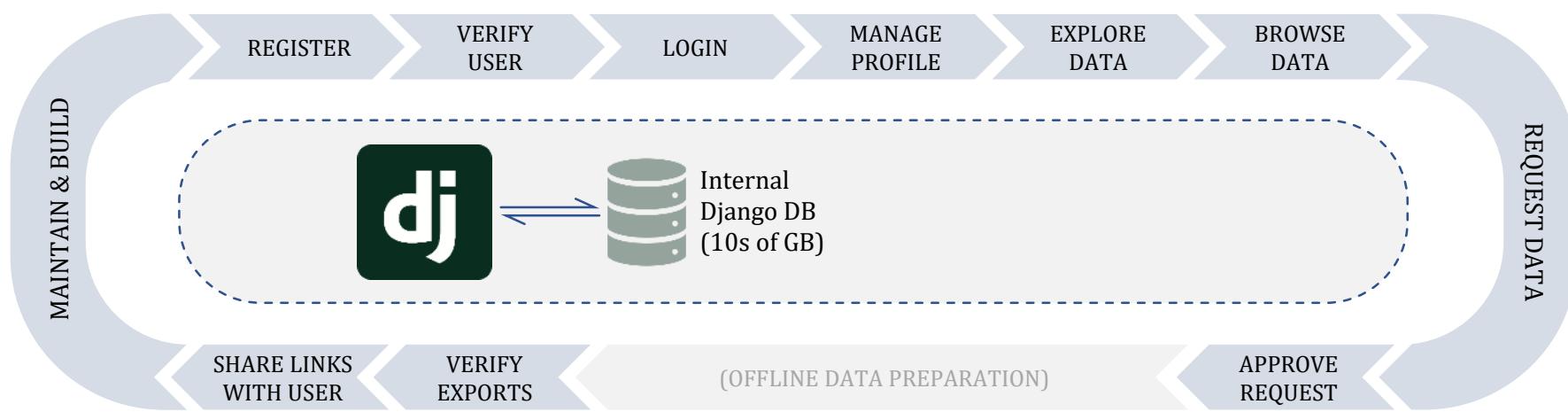
[View Details](#)

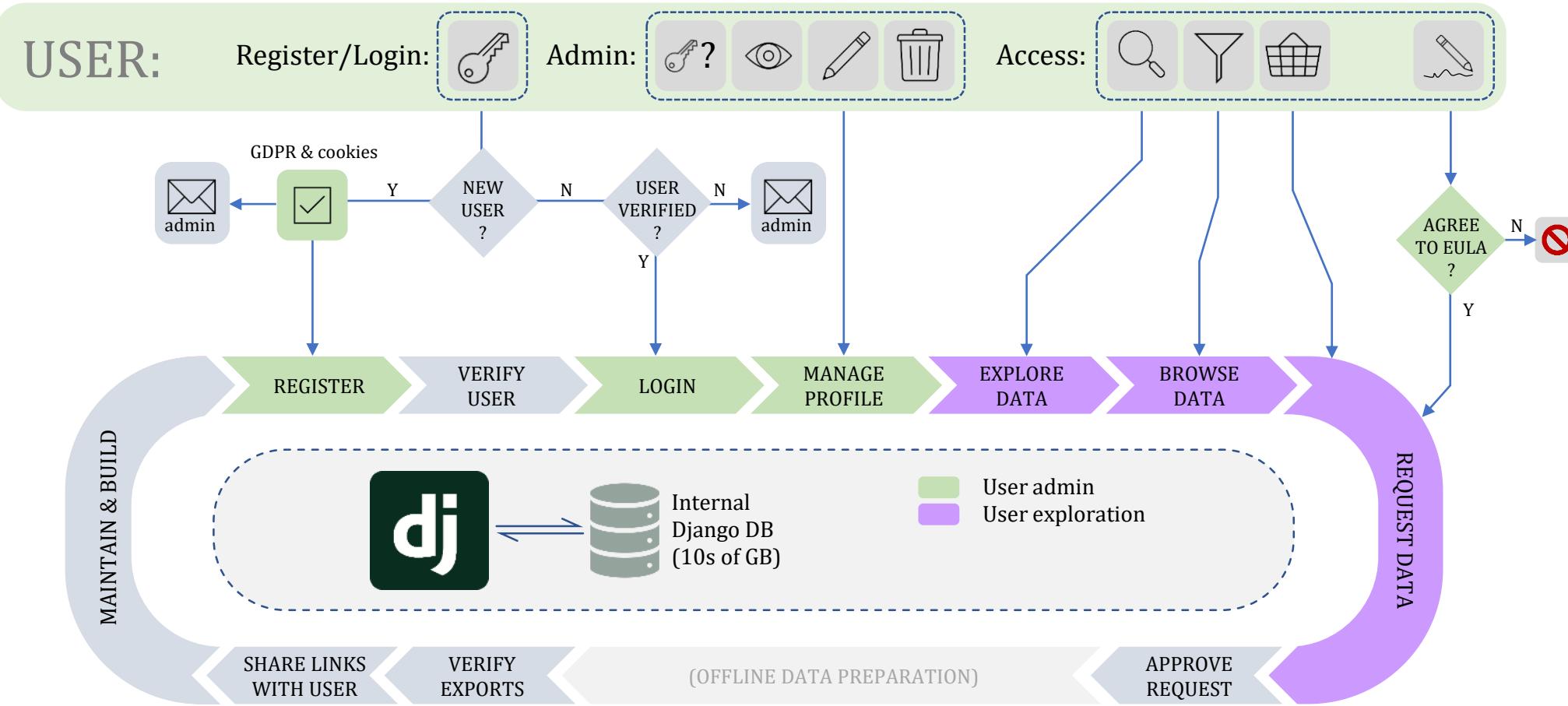
OPEN DATA FOR TIDAL ENERGY

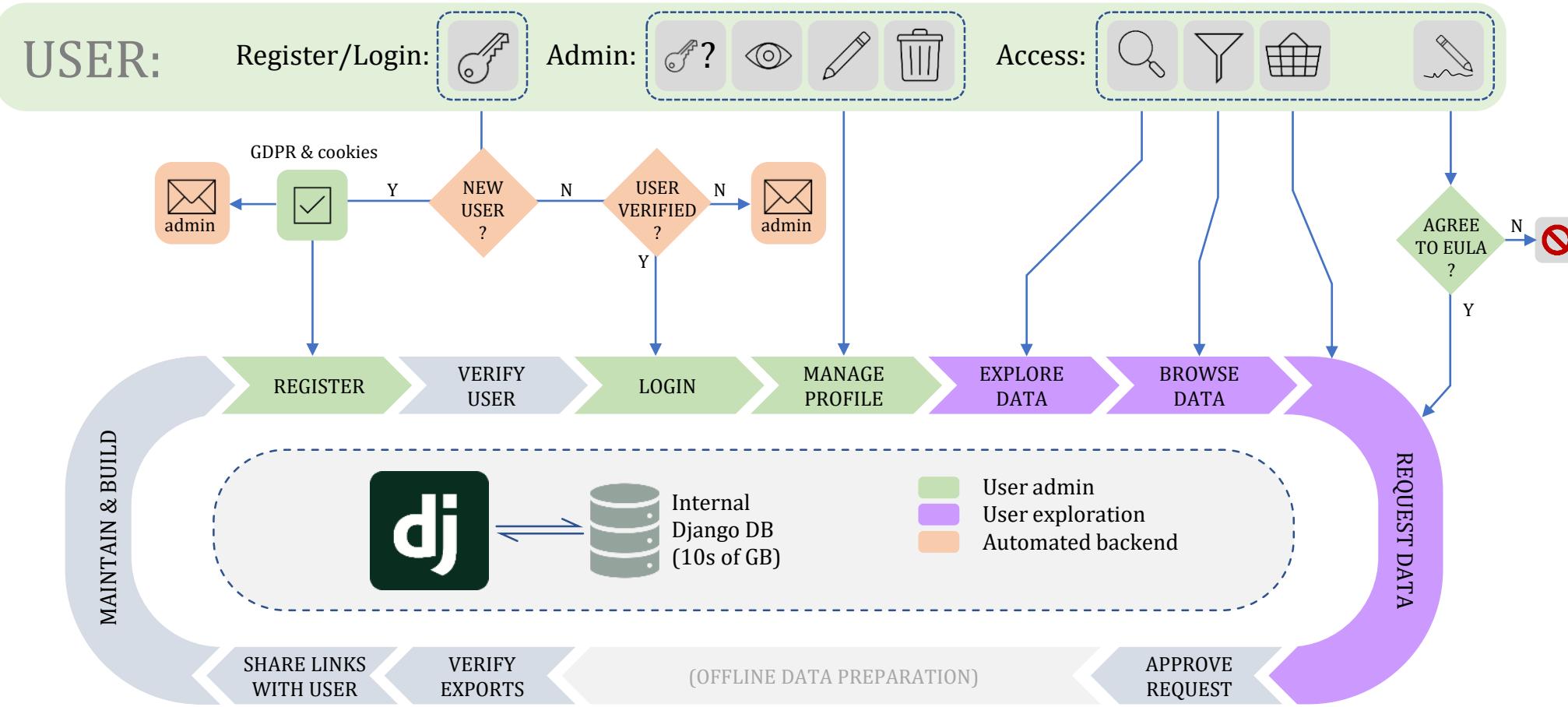
SEARCHING DATA (BETA)

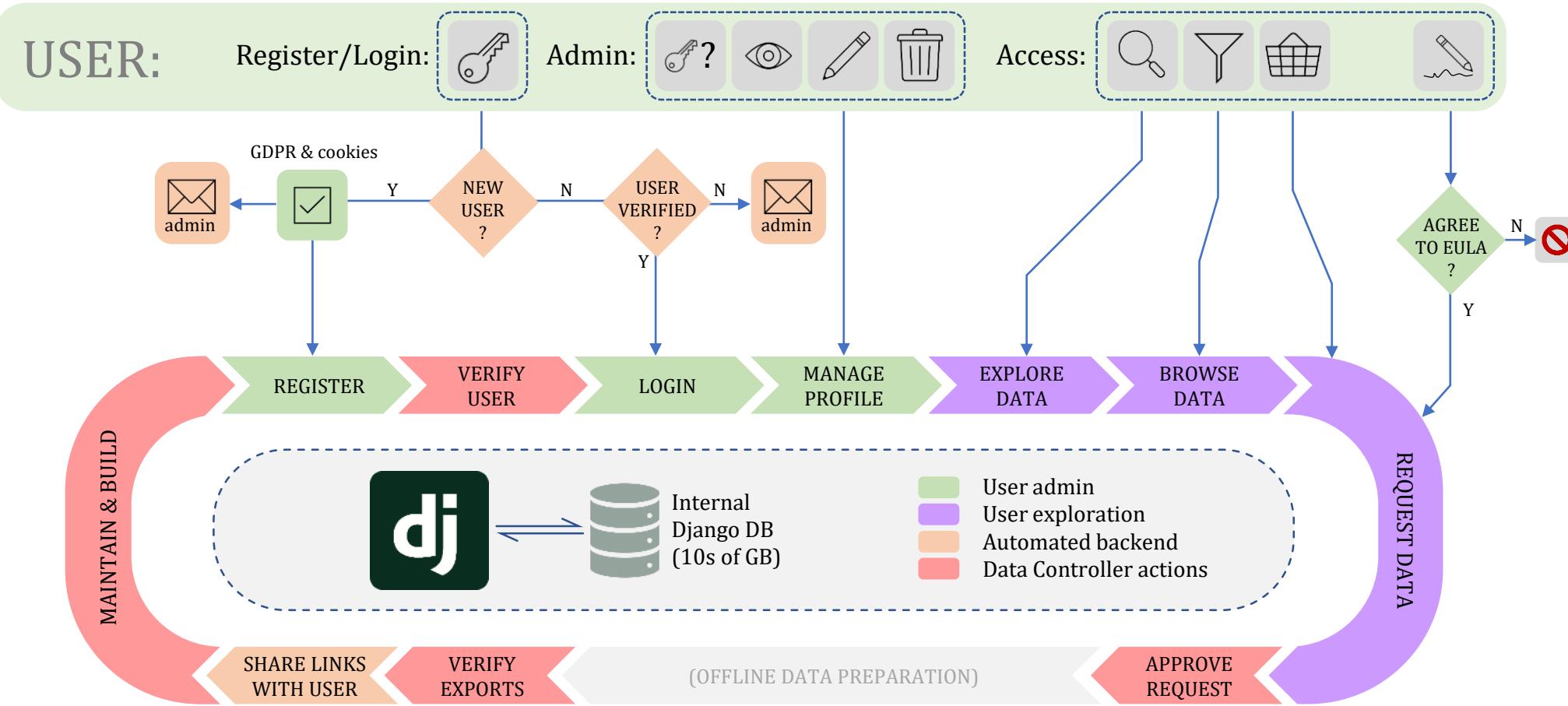


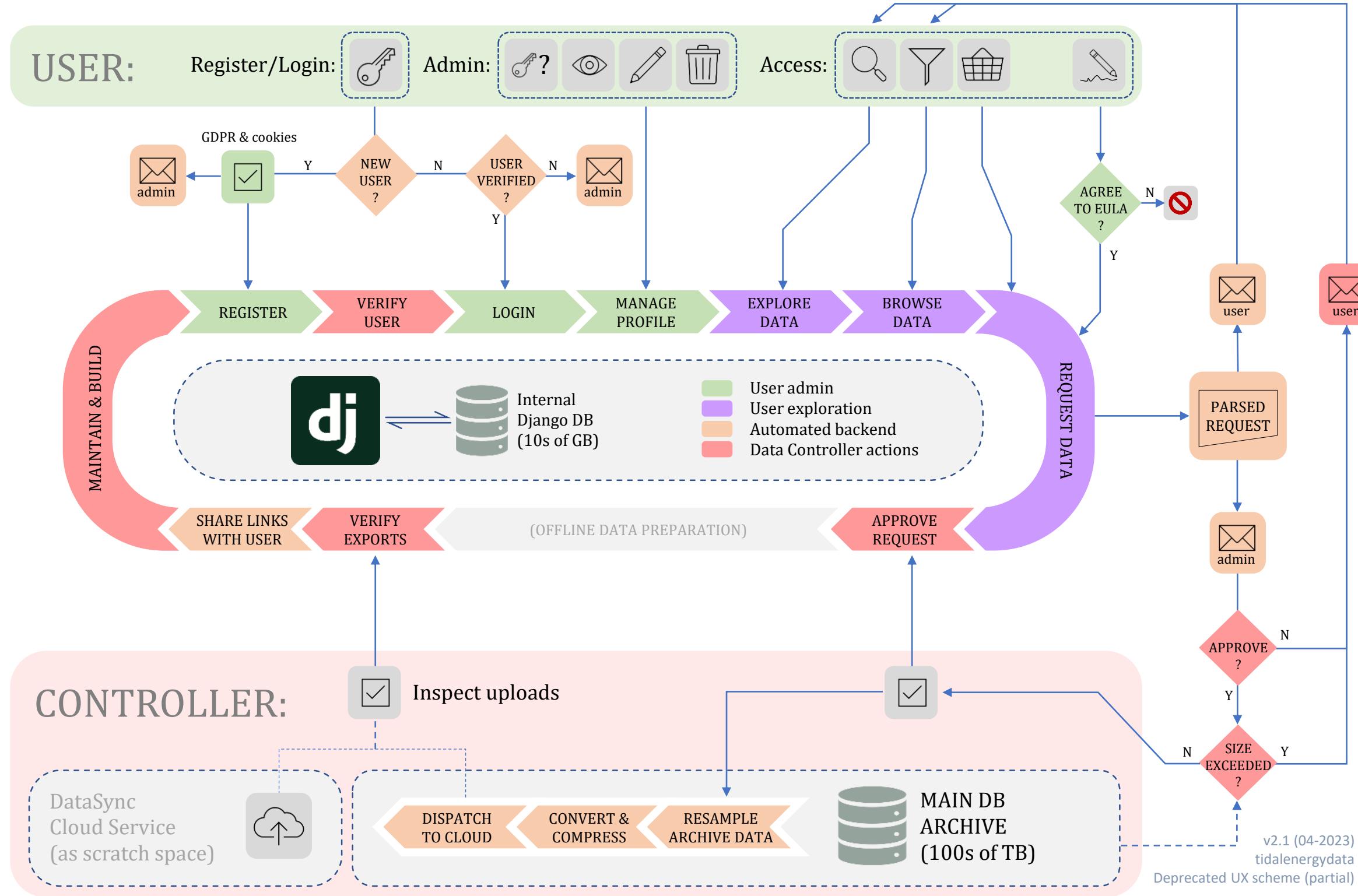

v2.1 (04-2023)
tidalenergydata
 Deprecated UX scheme (partial)

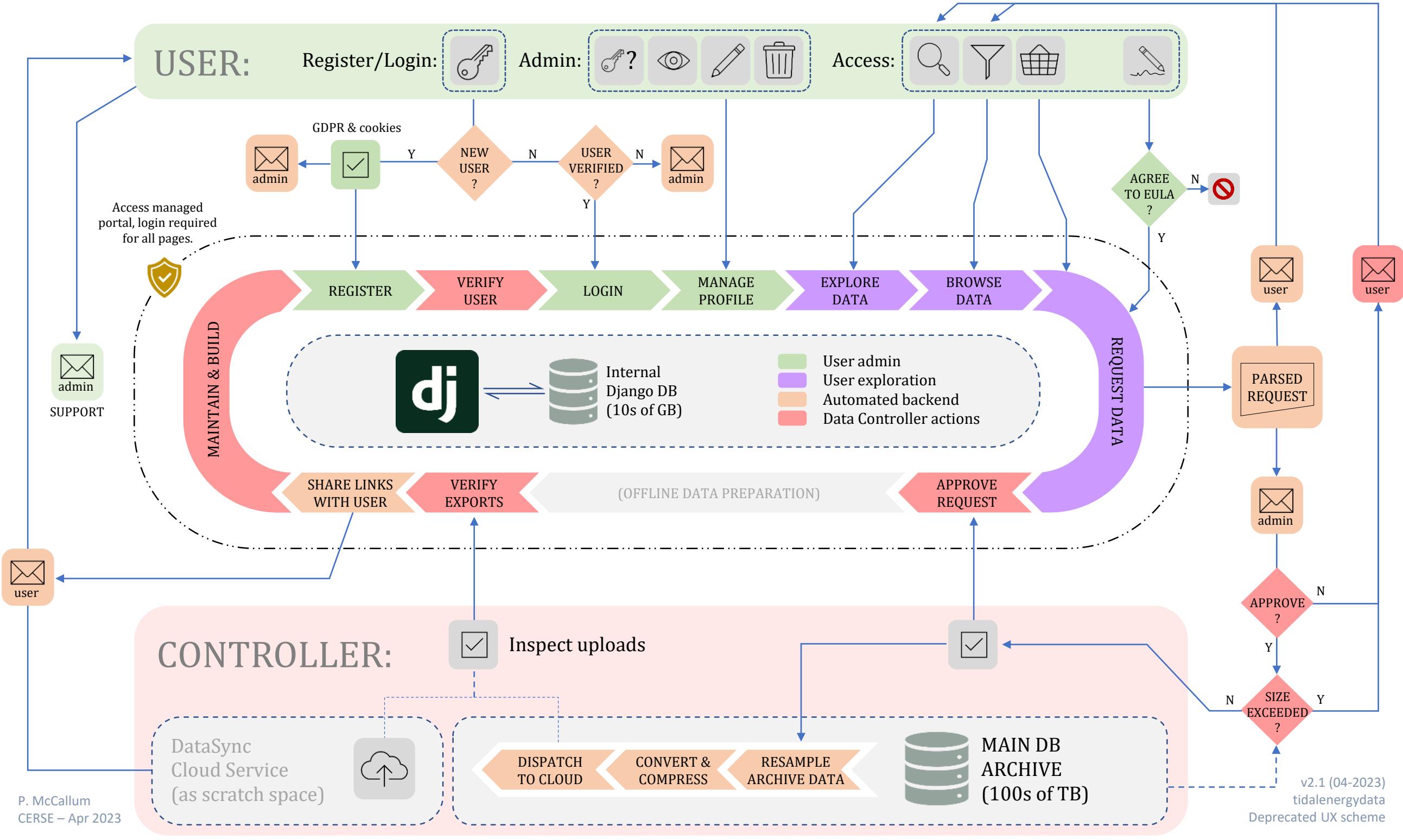


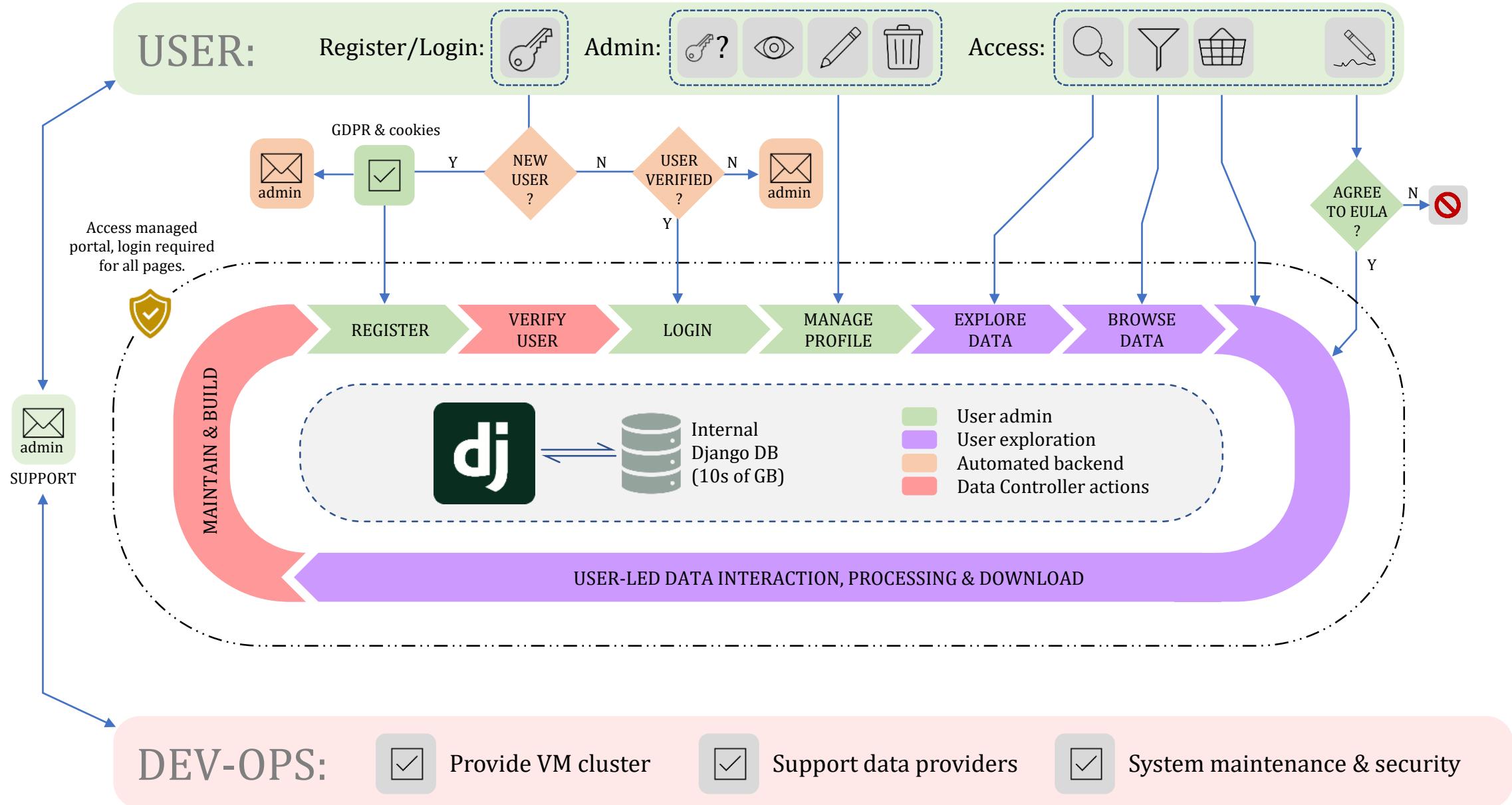










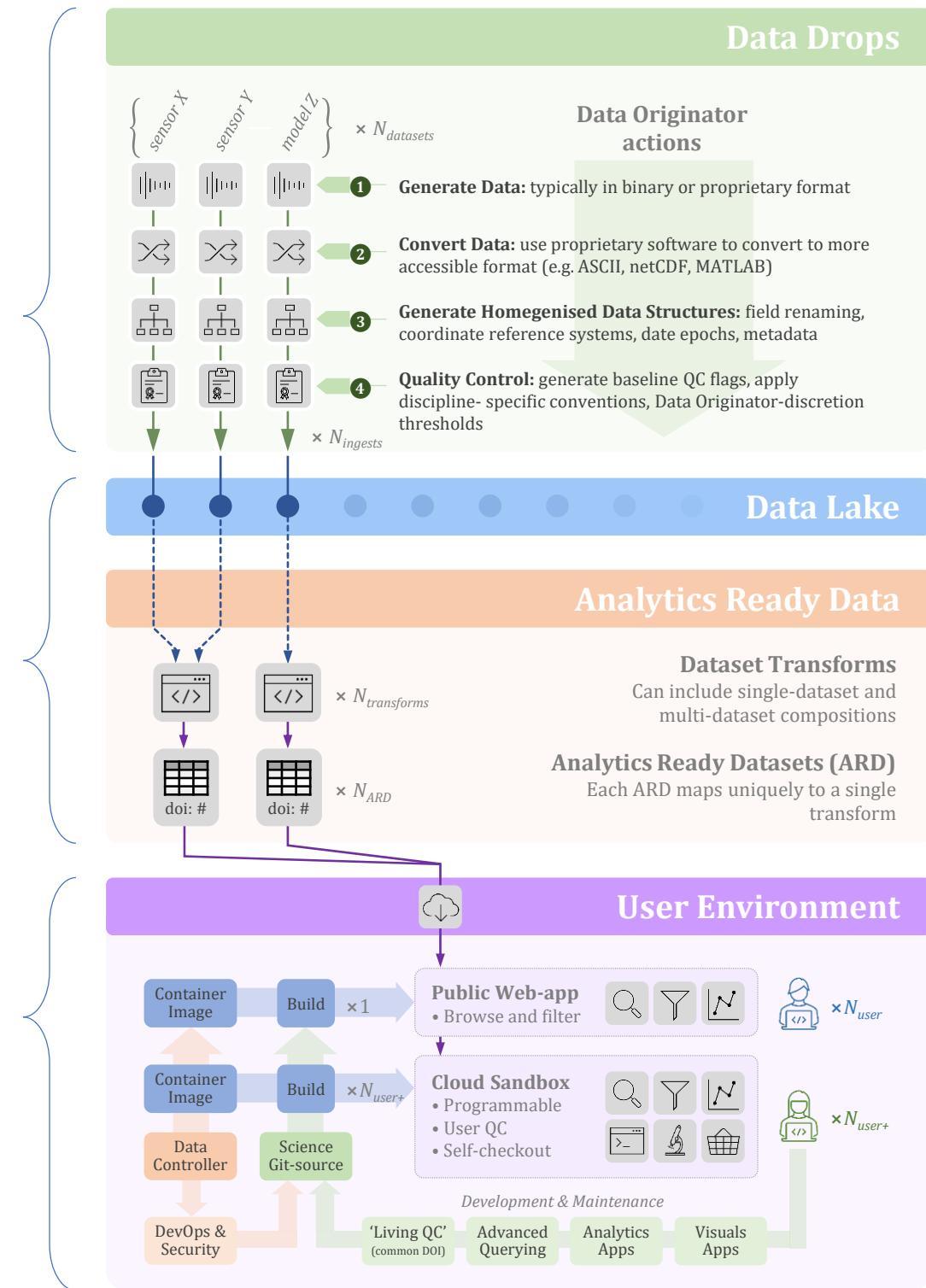


↑ Version 2:

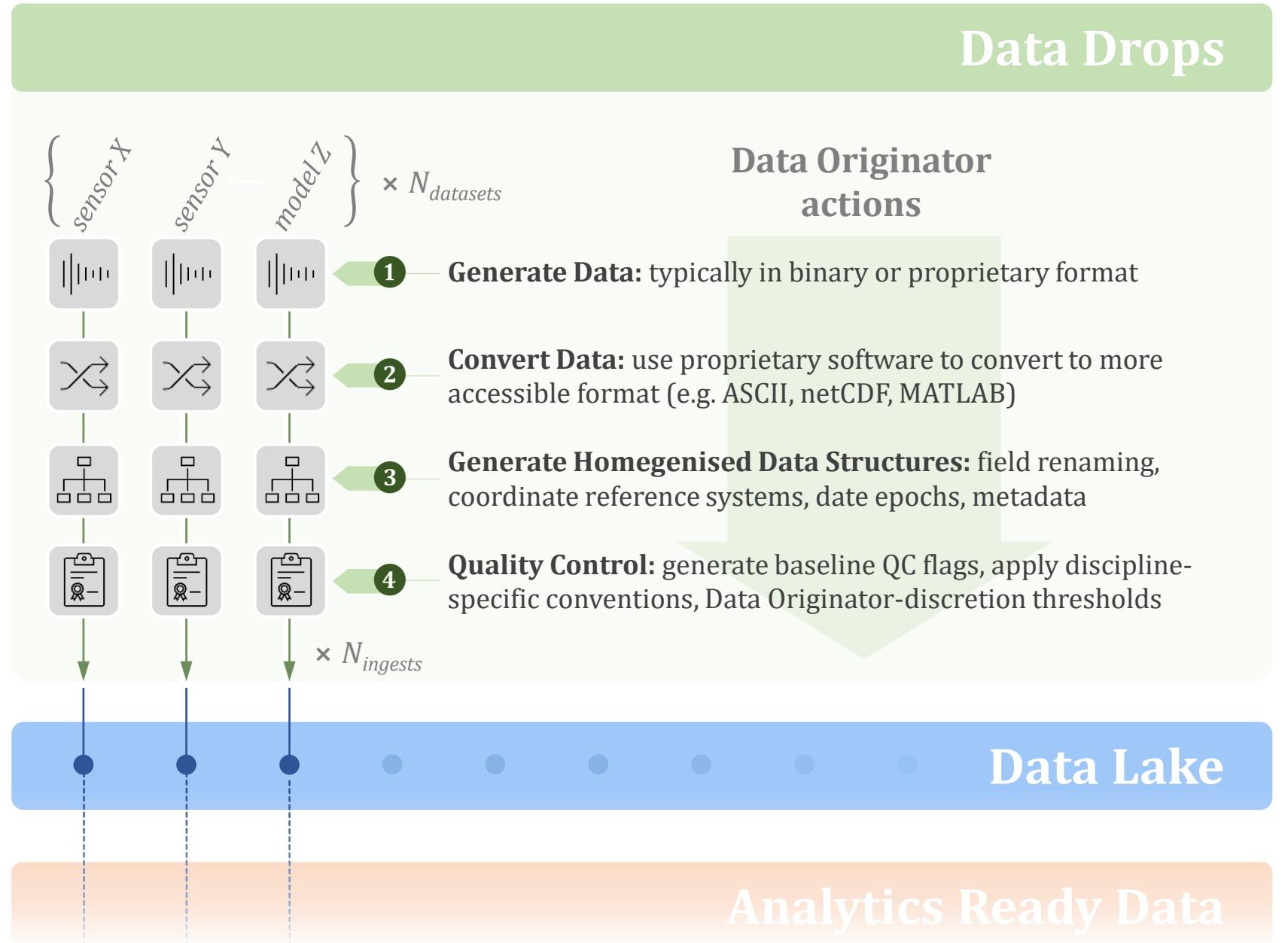
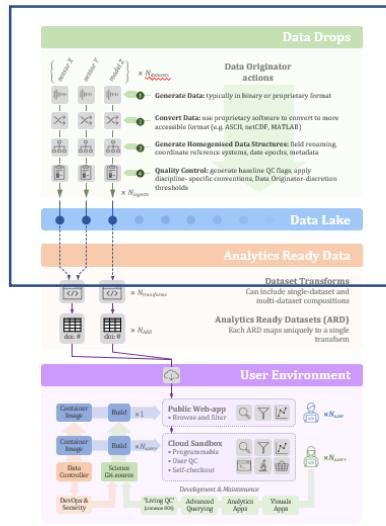
.... scaled-back Data Controller actions + larger scope for user control

Planned Architecture

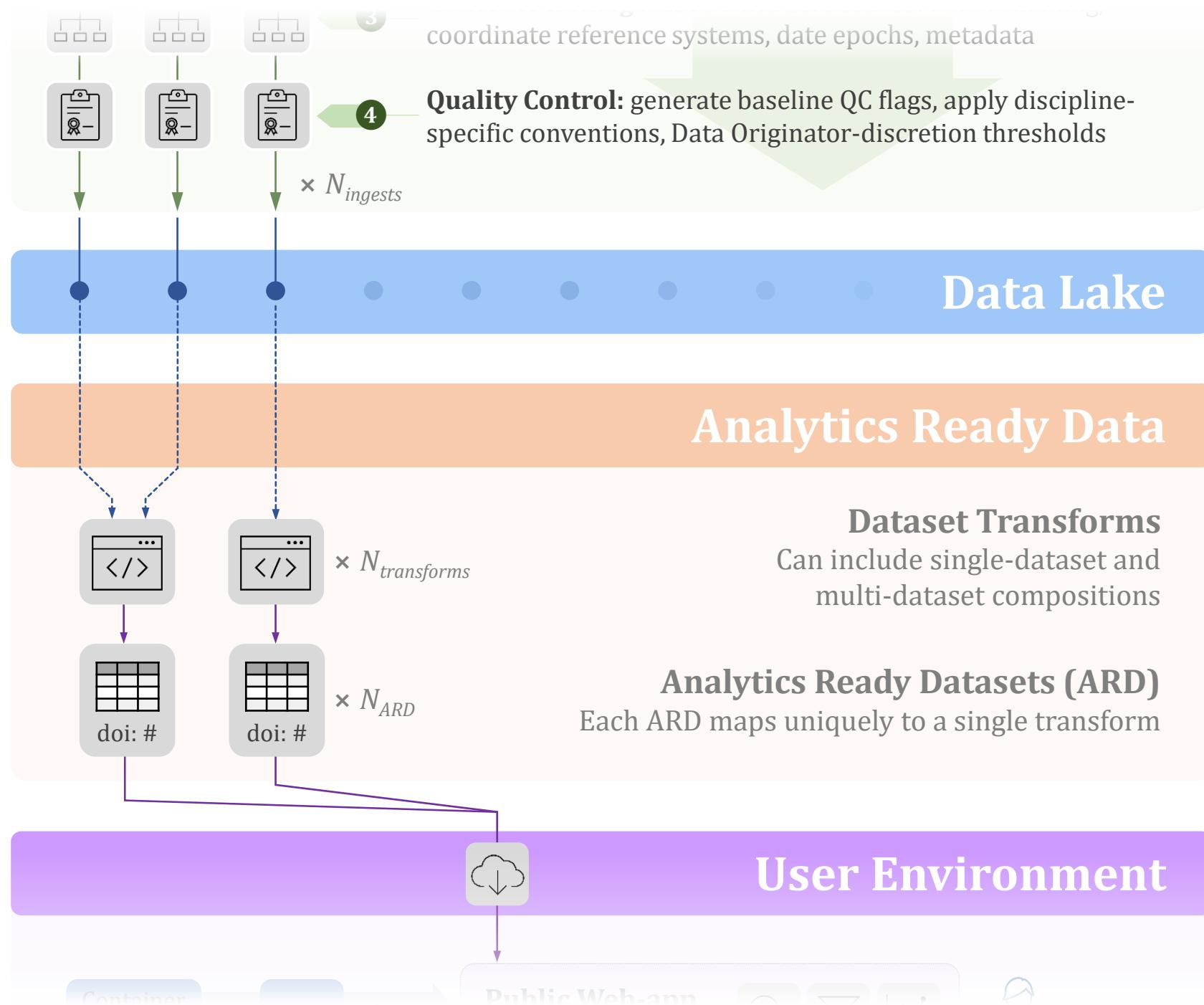
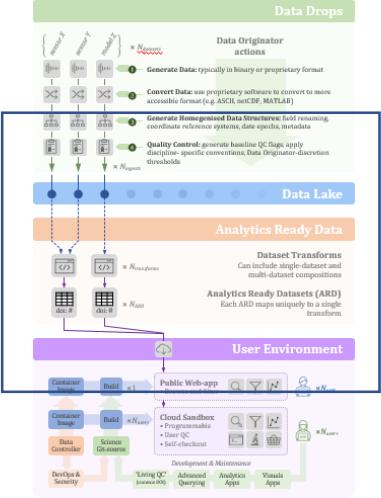
School of Eng.
EIDF
EPCC & School of Eng.



Planned Architecture



Planned Architecture



Planned Architecture

