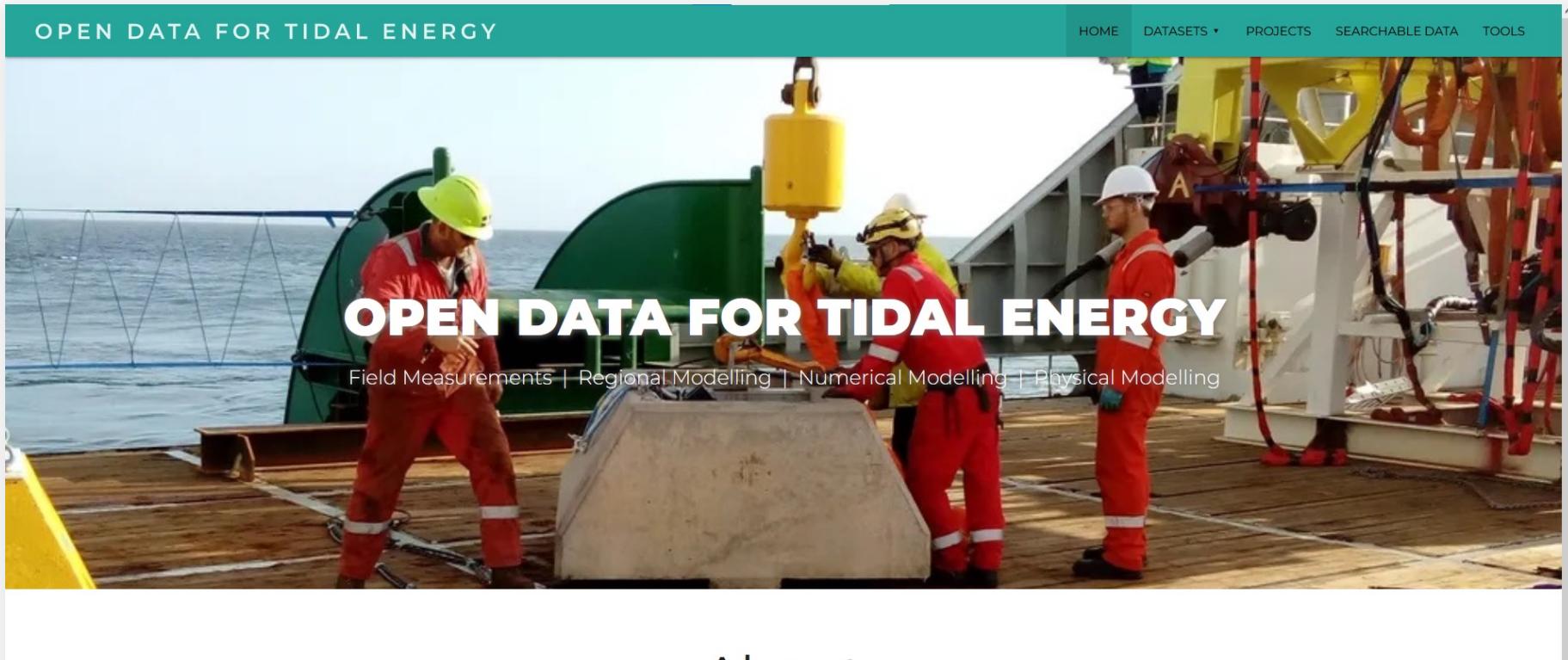


# Open Data for Tidal Energy



OPEN DATA FOR TIDAL ENERGY

HOME DATASETS PROJECTS SEARCHABLE DATA TOOLS

## 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 energy, but have wider application in other Offshore

<https://tidalenergydata.org> vable Energy areas. These data were collected and

### 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

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

OPEN WATER

LABORATORY

REGIONAL NUMERICAL

## Open water

A map of the Orkney Islands in the North Sea. A purple dot marks the location of the RealTide ADCP01/02 NW Dep5 deployment. The map includes a legend at the bottom: RealTide ADCP01/02 NW Dep5, RealTide ADCP TD7's, ReDAPT ADCP D1/D2, and ReDAPT ADCP01 NW (legacy). The map is a combination of a satellite view and a street map, with the Orkney Islands highlighted in green.

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

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

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)**  
Licencing 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)**  
Licencing restrictions: **Creative Commons Attribution 4.0**  
DOI: <https://doi.org/10.7488/ds/2762>

<https://tidalenergydata.org/experiments>

# Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

## Regional Modelling Outputs

OPEN WATER  
LABORATORY  
REGIONAL NUMERICAL

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**  
Licensing restrictions: **Creative Commons Attribution 4.0**

<https://tidalenergydata.org/rmodels>

# Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

## 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

**EPSRC**  
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; 1-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



...

<https://tidalenergydata.org/projects>

P. McCallum  
CERSE – Apr 2023

# Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

 European Commission

 THE UNIVERSITY  
of EDINBURGH







## 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:	<a href="#">🔗</a>
Funder website:	<a href="#">🔗</a>

<https://tidalenergydata.org/projects>

# Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

## File Library

Technical Reports

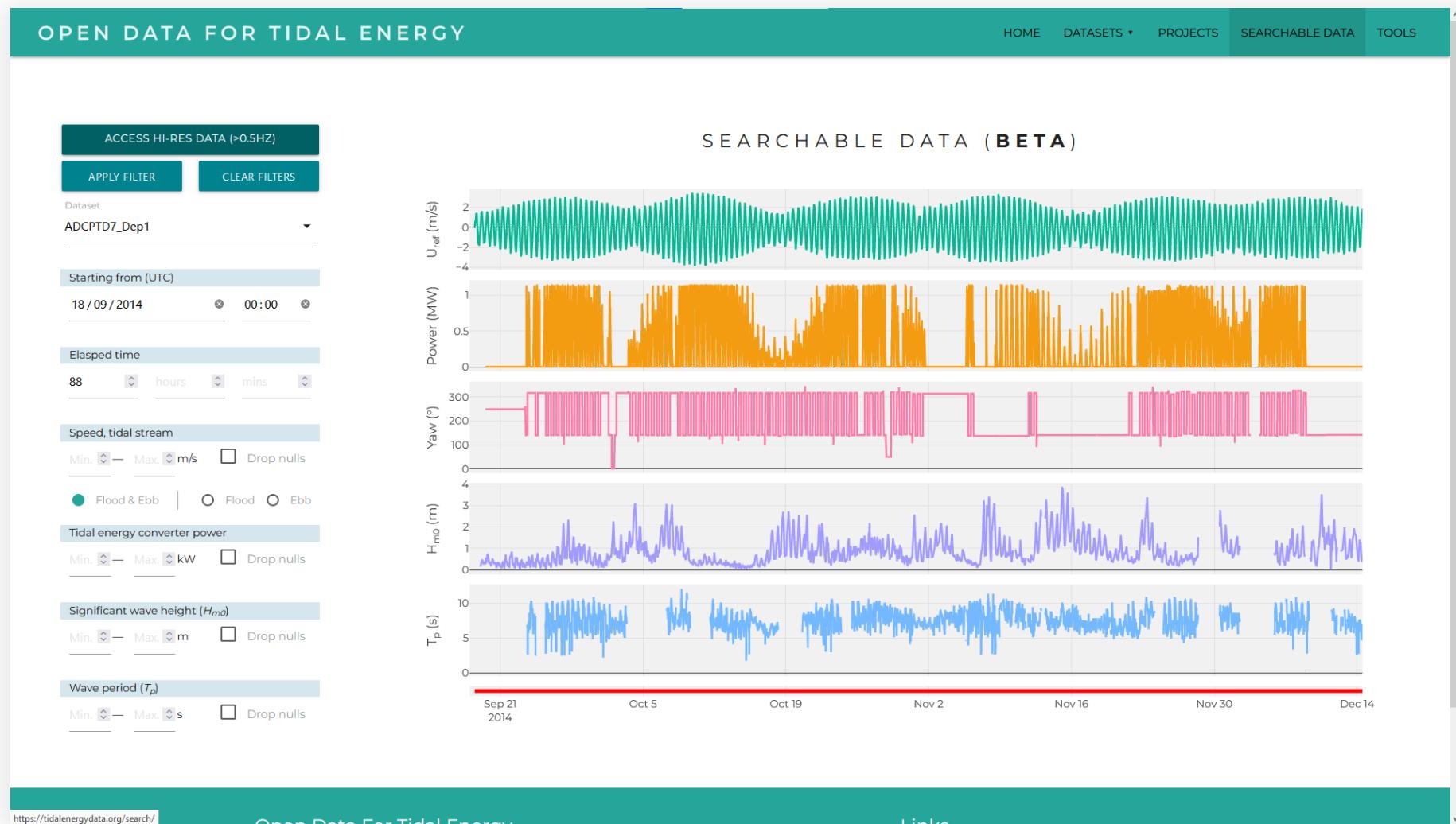
ID	Title	Year	Version	Pages
MC7.1	Initial Operation Power Curve	2014	A	27
MC7.2	Public Domain - First Year of Operation Report	2014	-	18
MC7.3	Public Domain Report: Final	2015	A	70
MC8.27	Standard: Horizontal axis tidal turbines	2014	1	284
MC9.5	Recommendations for the Specification of Tidal Turbines	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



<https://tidalenergydata.org/search/>

Open Data For Tidal Energy

Links

# Open Data for Tidal Energy

OPEN DATA FOR TIDAL ENERGY

HOME DATASETS ▾ PROJECTS SEARCHABLE DATA TOOLS

SEARCHABLE DATA (BETA)

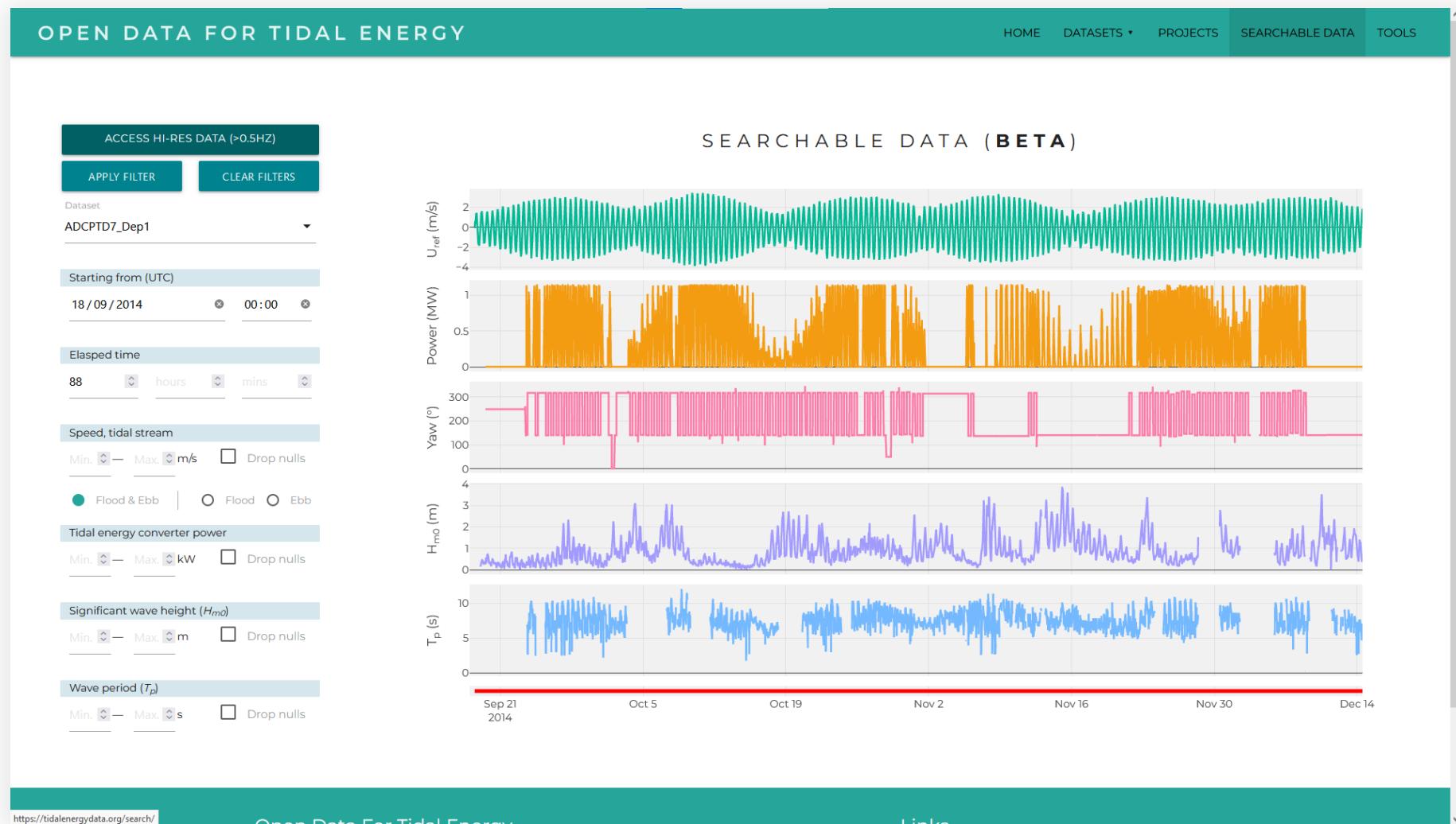
The website features a top navigation bar with links to Home, Datasets, Projects, Searchable Data (which is highlighted in green), and Tools. Below the navigation is a map of Scotland with a specific location highlighted. To the right of the map are three stacked time-series plots: the top plot shows  $U_{ref}$  in m/s, the middle plot shows Power in MW, and the bottom plot shows Yaw in degrees. Below these plots are three images: one of a yellow tidal energy converter component labeled "RealTide D2.2 (2021)", another of a yellow component attached to a wooden structure, and a large yellow tidal turbine on a blue lattice tower labeled "ReDAPT (2014)".

© Mapbox © OpenStreetMap Improve this map

RealTide D2.2 (2021)

ReDAPT (2014)

# Open Data for Tidal Energy

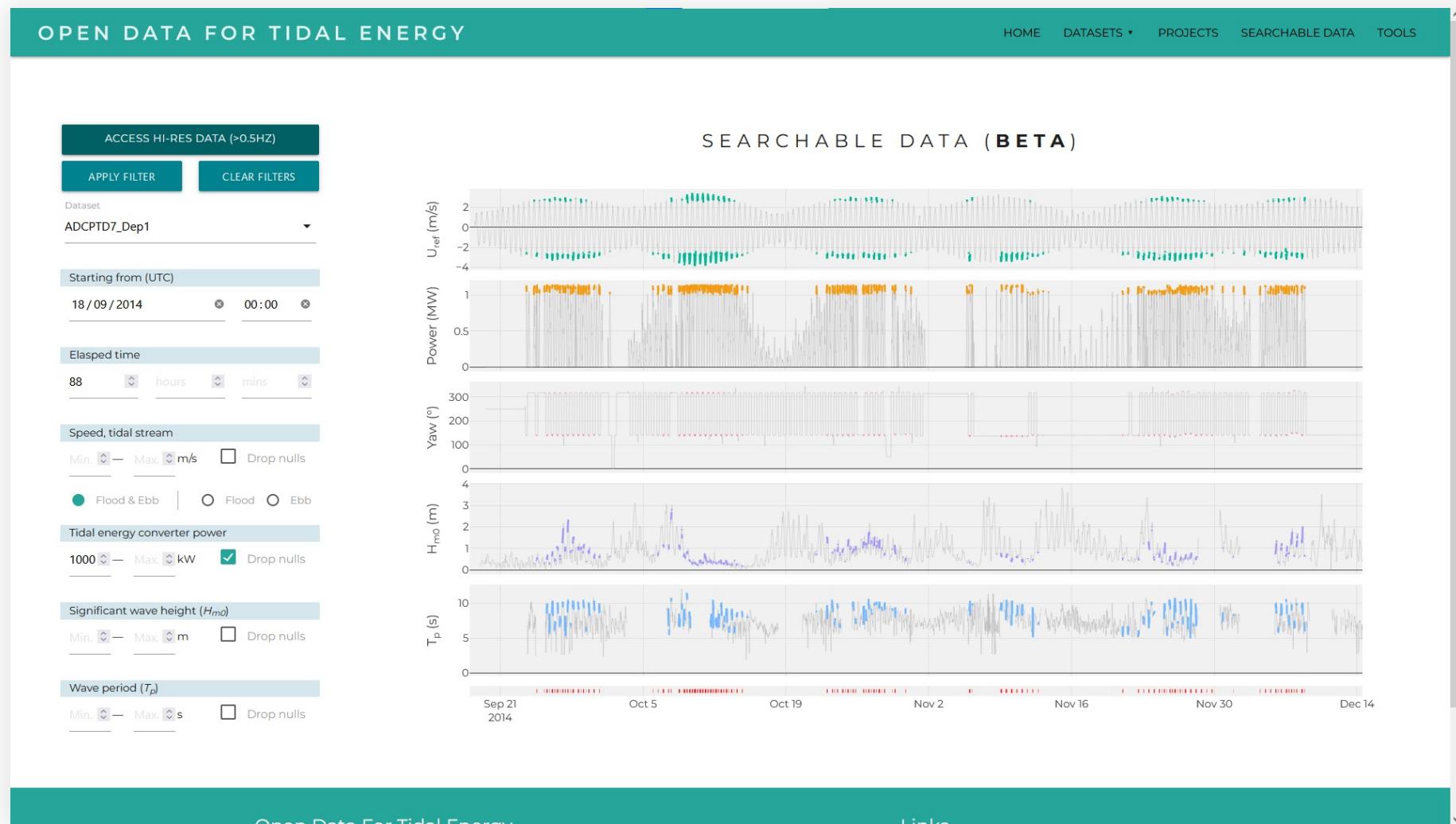


<https://tidalenergydata.org/search/>

Open Data For Tidal Energy

Links

# Open Data for Tidal Energy



# Open Data for Tidal Energy



# Open Data for Tidal Energy



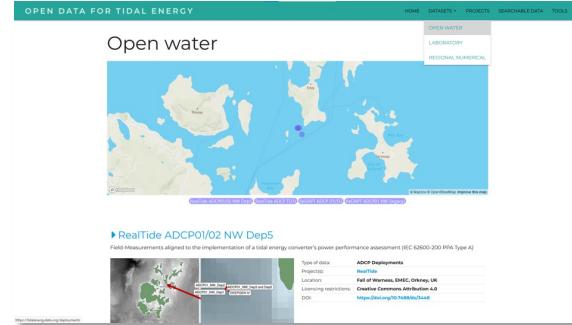
**OPEN DATA FOR TIDAL ENERGY**  
Field Measurements | Real-time Reporting | Numerical Modelling | Technical Modelling

**About**

**The Data**  
The data originates from field measurements, and regional, national and international numerical models used for the assessment, characterisation, and extraction of tidal stream energy resources. The data is made available for free, easy to access and use, with simplified access to the underlying numerical models. This will facilitate new research projects on tidal energy resources that can be used and will encourage new innovation.

**Our Philosophy**  
We believe that the key to efficient advancement of research in tidal energy is to make the data available, easy to access and use, with simplified access to the underlying numerical models. This will facilitate new research projects on tidal energy resources that can be used and will encourage new innovation.

**Our Mission**  
We aim to simplify the access to highly valuable datasets, which are currently scattered across the globe, and provide the basis for an improved understanding of the resource potential of tidal streams, and to facilitate and encourage new innovation.

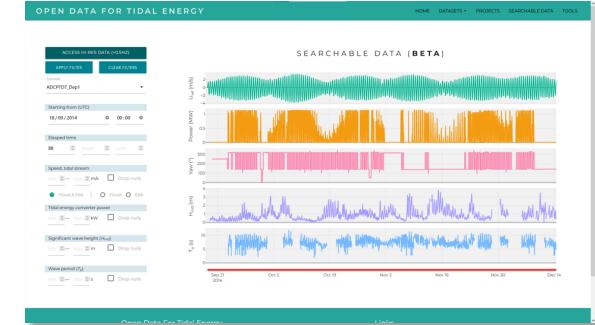


**OPEN WATER**

**Open water**

**RealTide ADCP01/02 NW Deps**  
Field measurements aligned to the implementation of a tidal energy converter's power performance assessment (IEC 62600-200 PPA Type A)

**Data**  
Data type: ADCP  
Project ID: RealTide  
Project Name: RealTide  
Location: Fall of Worms, Orkney, United Kingdom  
Licensing restrictions: CC-BY  
<https://opendata.org/RealTide>



**Edinburgh DataShare**

**INFORMATION SERVICES**

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

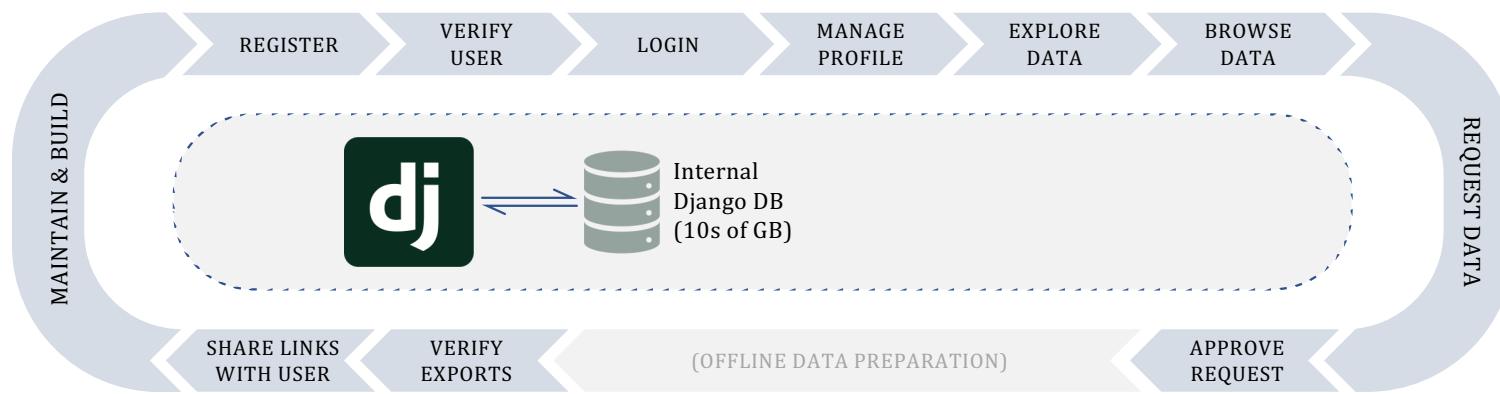
**Dataset**  
Title: RealTide  
Version: 0.1  
Creator: Soter, Brian  
Cite As: Soter, Brian, Chris Ingram, David (2022). Field measurements aligned to the implementation of a tidal energy converter's power performance assessment (IEC 62600-200 PPA Type A; 2014-2015) [dataset]. University of Edinburgh, School of Engineering and the Environment, Edinburgh, United Kingdom.  
Publisher: University of Edinburgh, School of Engineering and the Environment, Edinburgh, United Kingdom  
Provider (or Version CDS): <https://doi.org/10.5285/zenodo.5311175>  
Relation (or Referenced By): <https://doi.org/10.5285/zenodo.5311175>  
Metadata: [View](#)



**OPEN DATA FOR TIDAL ENERGY**

**Open water**

**SEARCHABLE DATA (BETA)**



**Information Services**

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

**Description**

RealTide ADCP01/02 NW Dep. Data as gathered for the RealTide(ADCPT) project as part of field measurement campaign was carried out comprising multiple selected locations in the North Sea. The data were collected to support the implementation of the IEC 62600-200 PPA Type A, 2014-2015 (standard). University of Edinburgh, School of Engineering and the Environment.

**Data Provider**

Sir Alister Brian, Chris Ingram, David, (2022). Field-measurements aligned to the implementation of a tidal energy converter's power performance assessment (IEC 62600-200 PPA Type A), 2014-2015 (standard). University of Edinburgh, School of Engineering and the Environment.

**Publisher**

University of Edinburgh, School of Engineering and the Environment

**Version**

0.1

**Relation to Version 0.1**

My notes are in an unversioned document

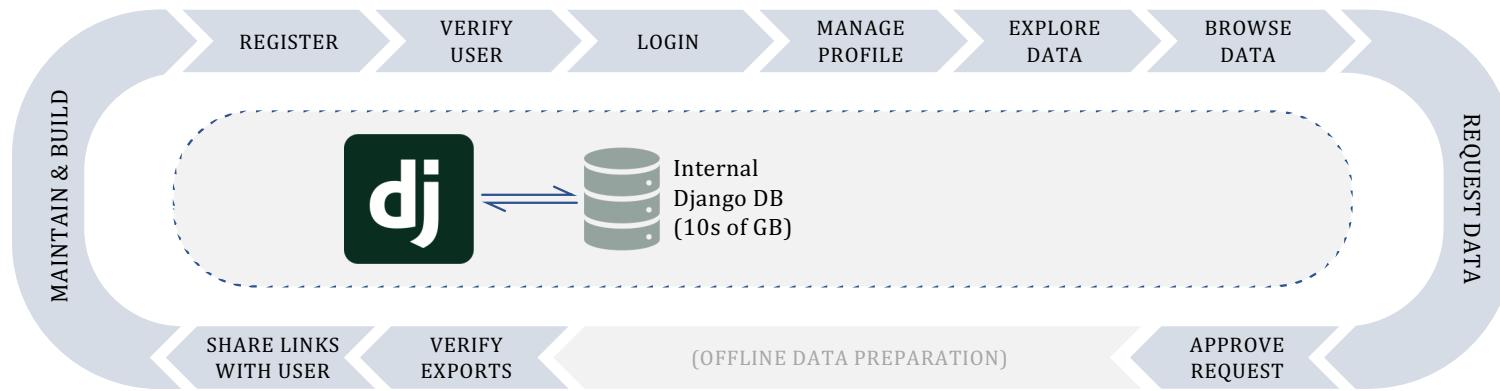
**Relation to Published RRI**

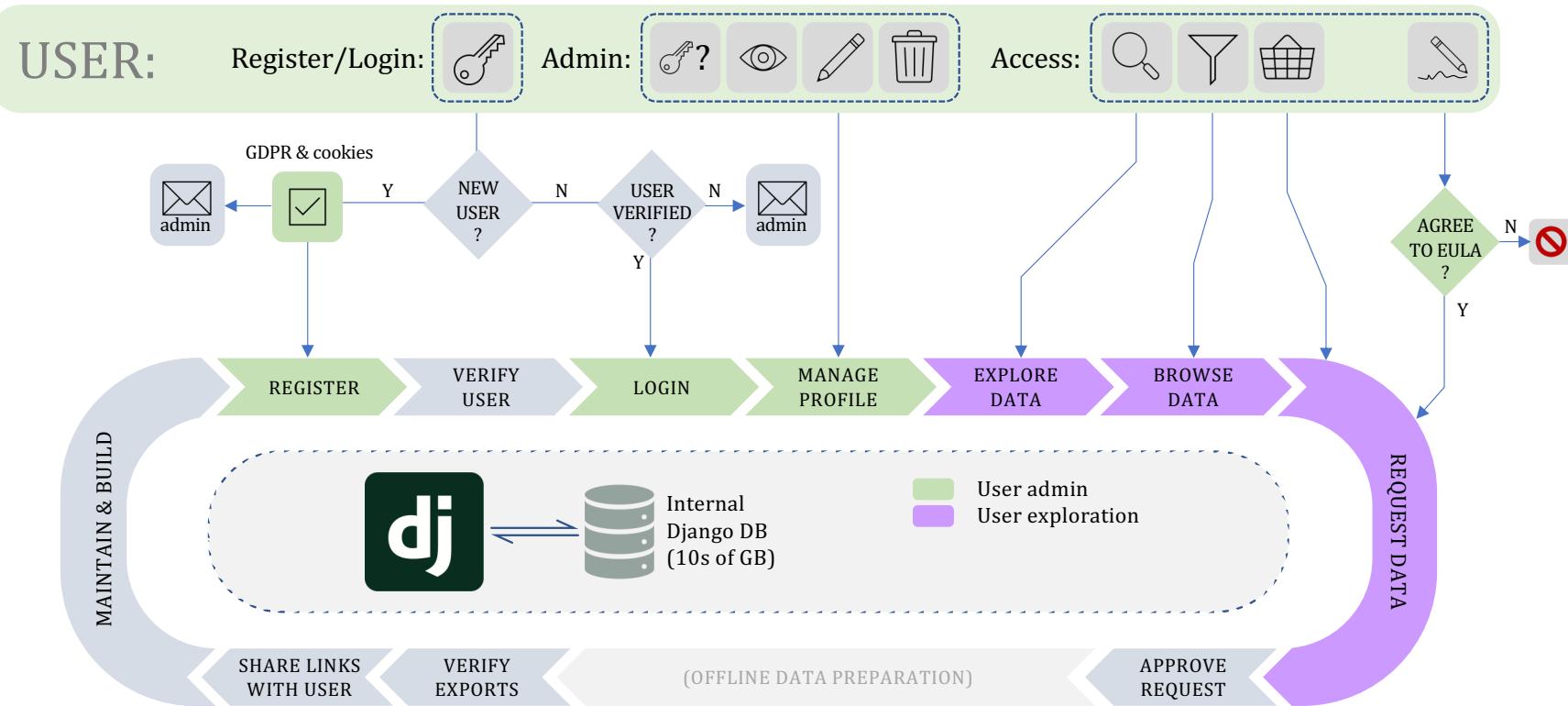
<https://doi.org/10.5285/zenodo.5111113>

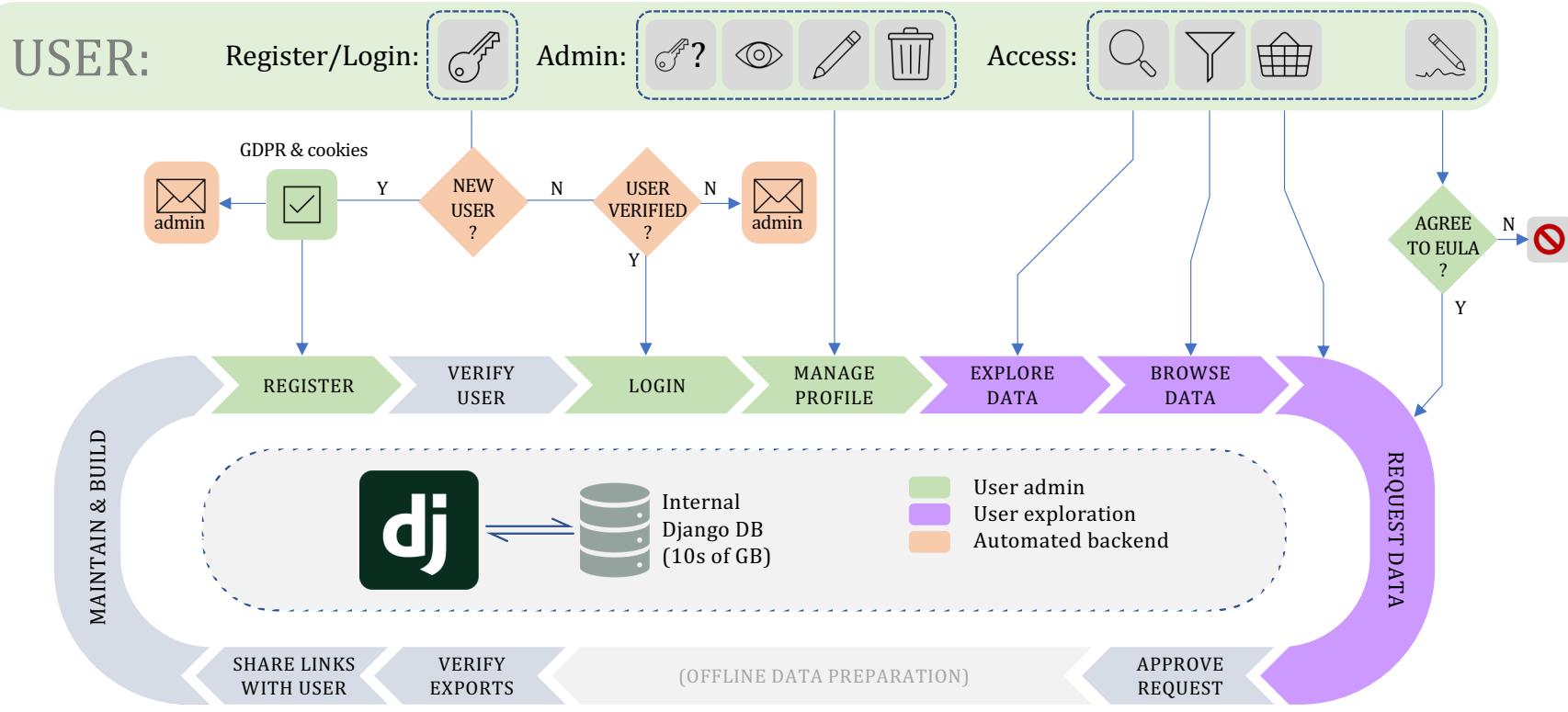
**Thesaurus**

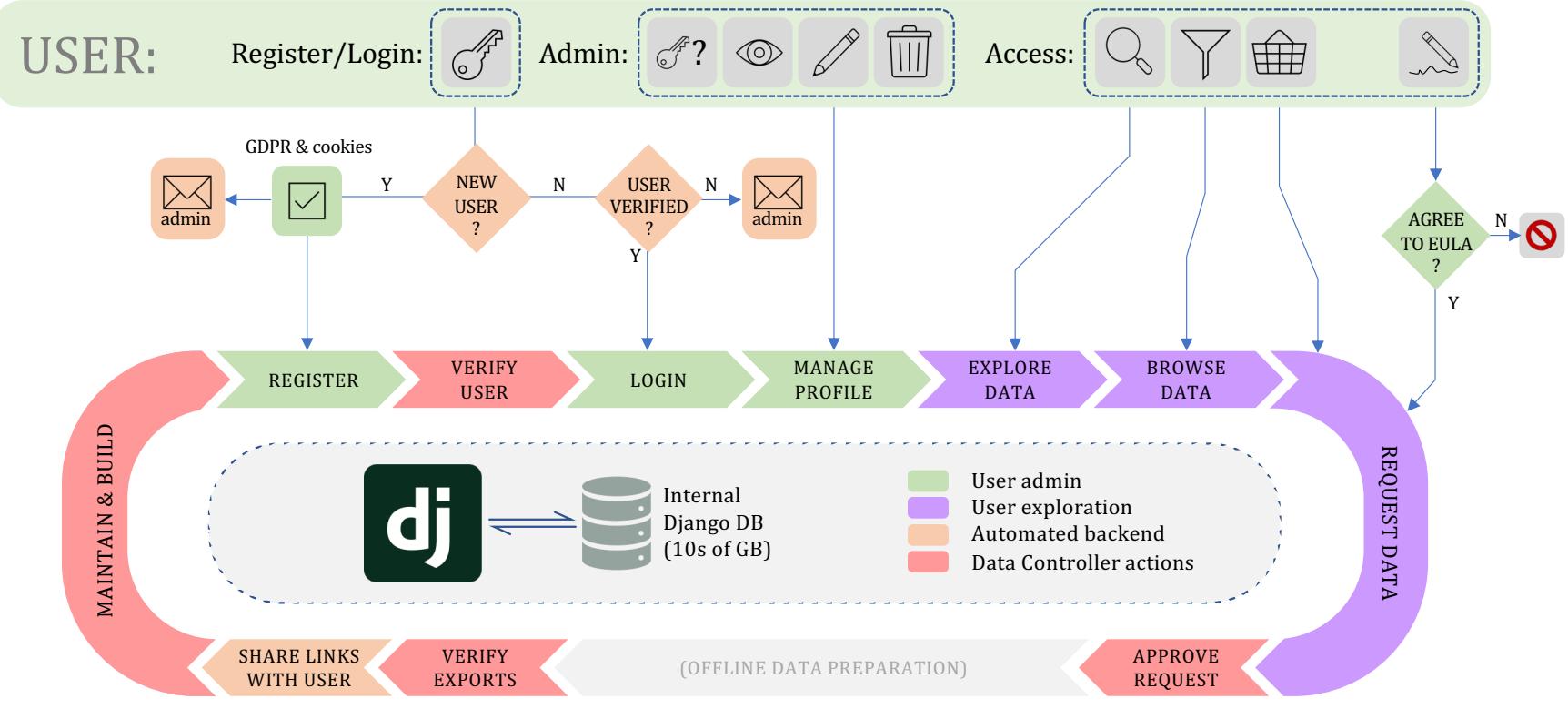
None

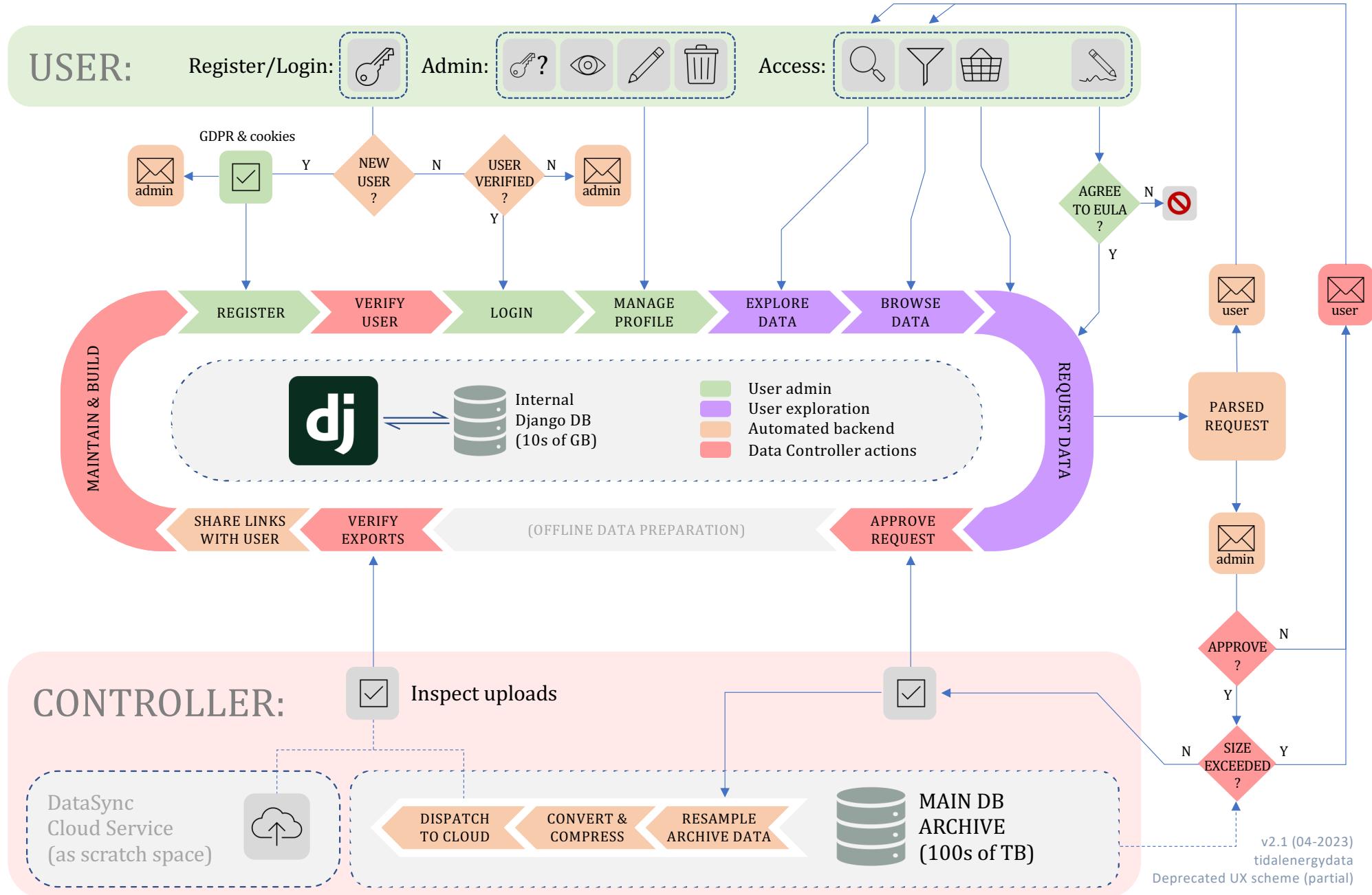


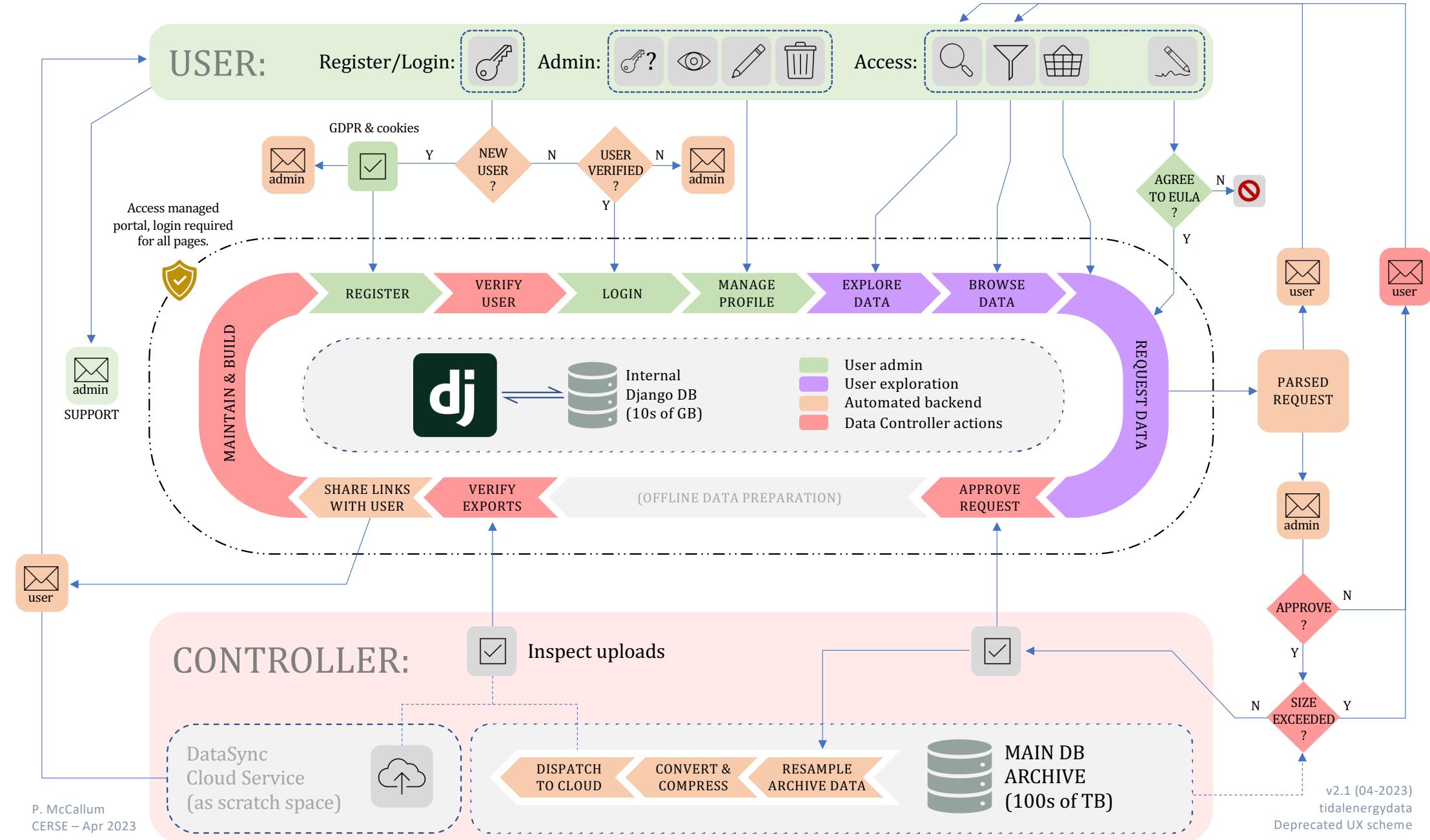


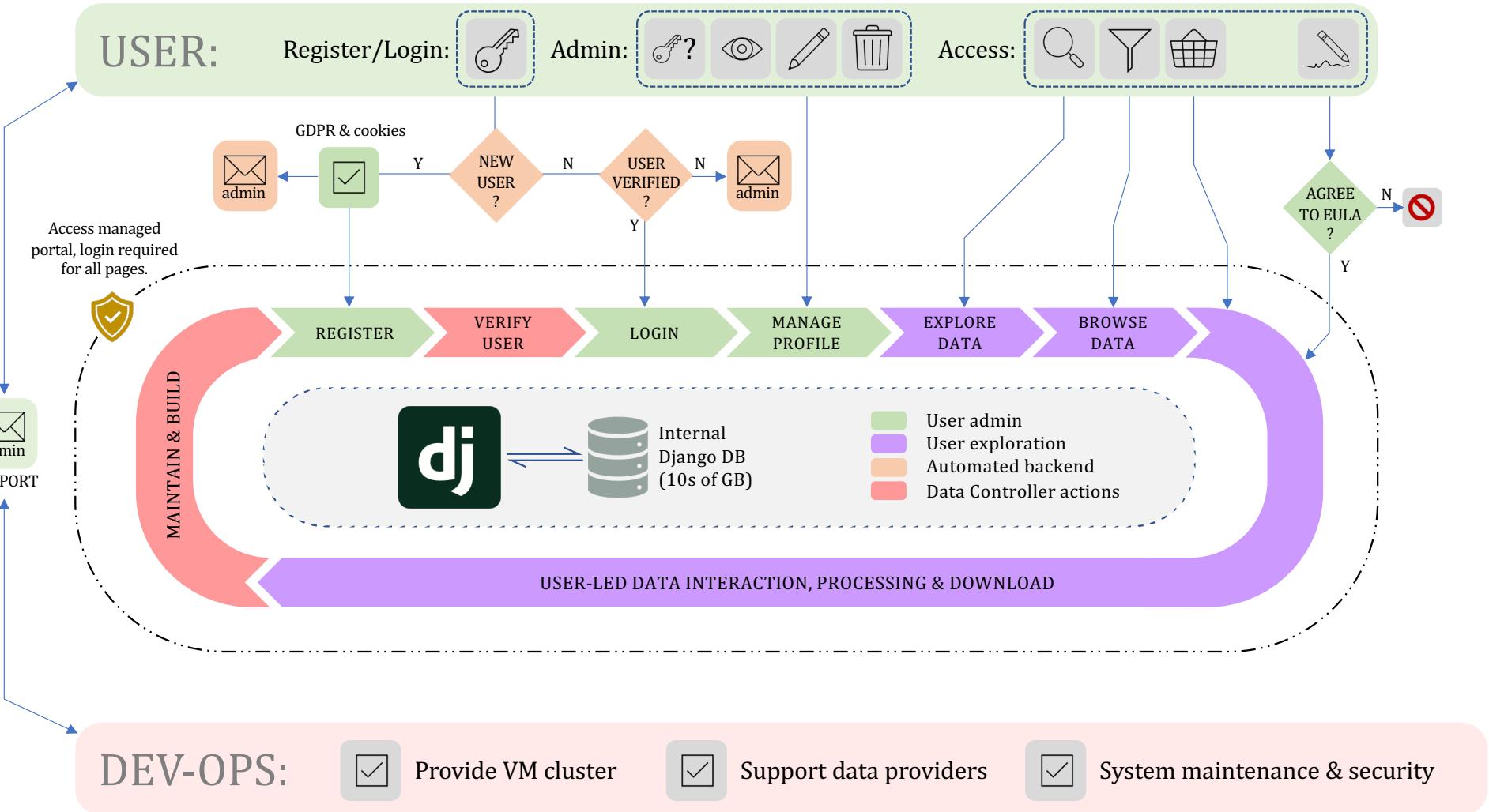






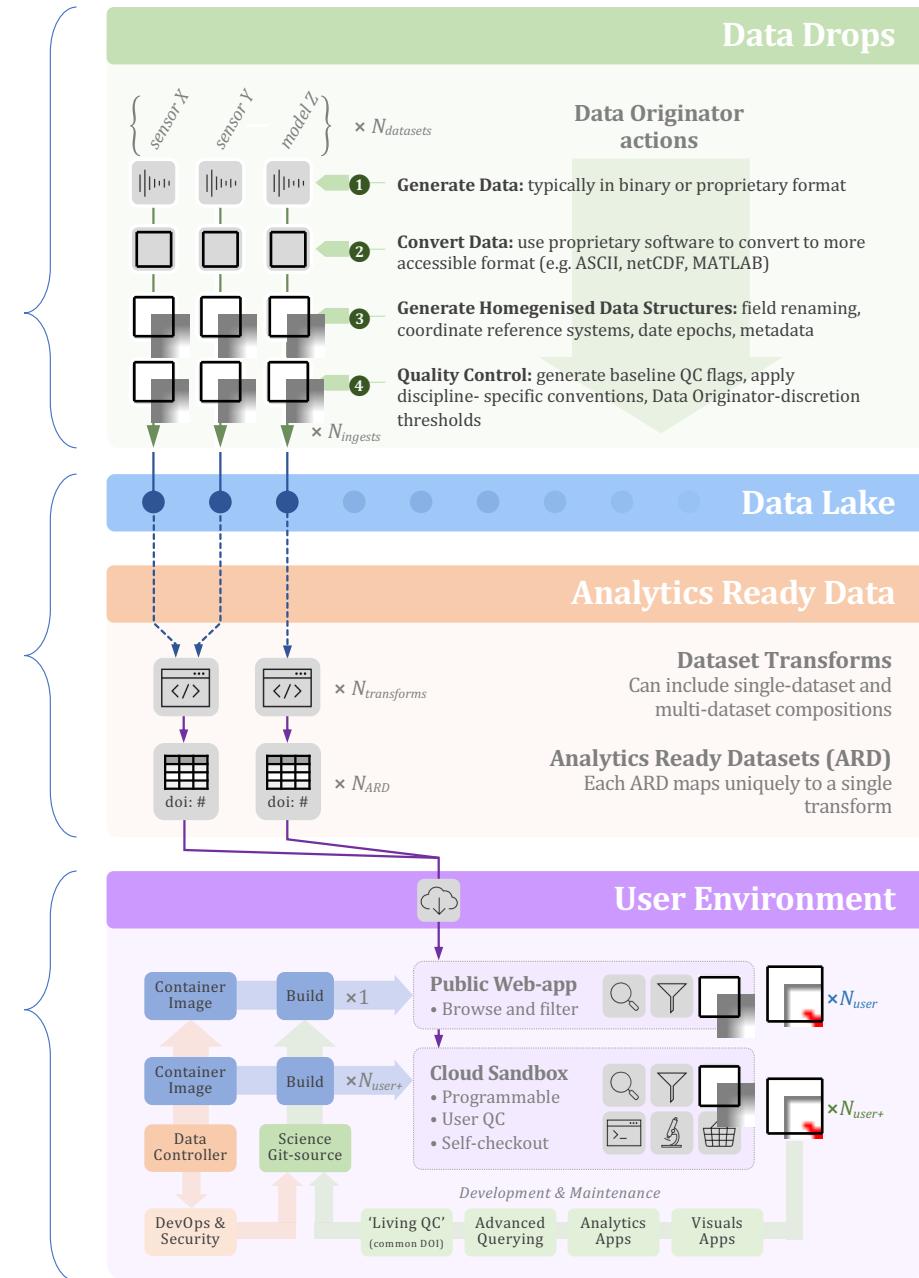




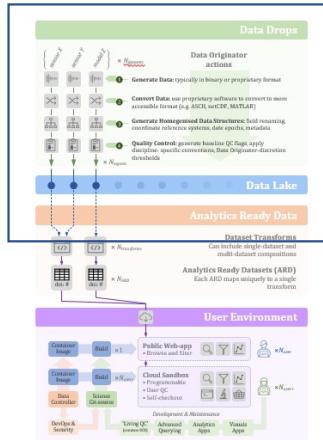


# Planned Architecture

School of Eng.  
EIDF  
EPCC & School of Eng.

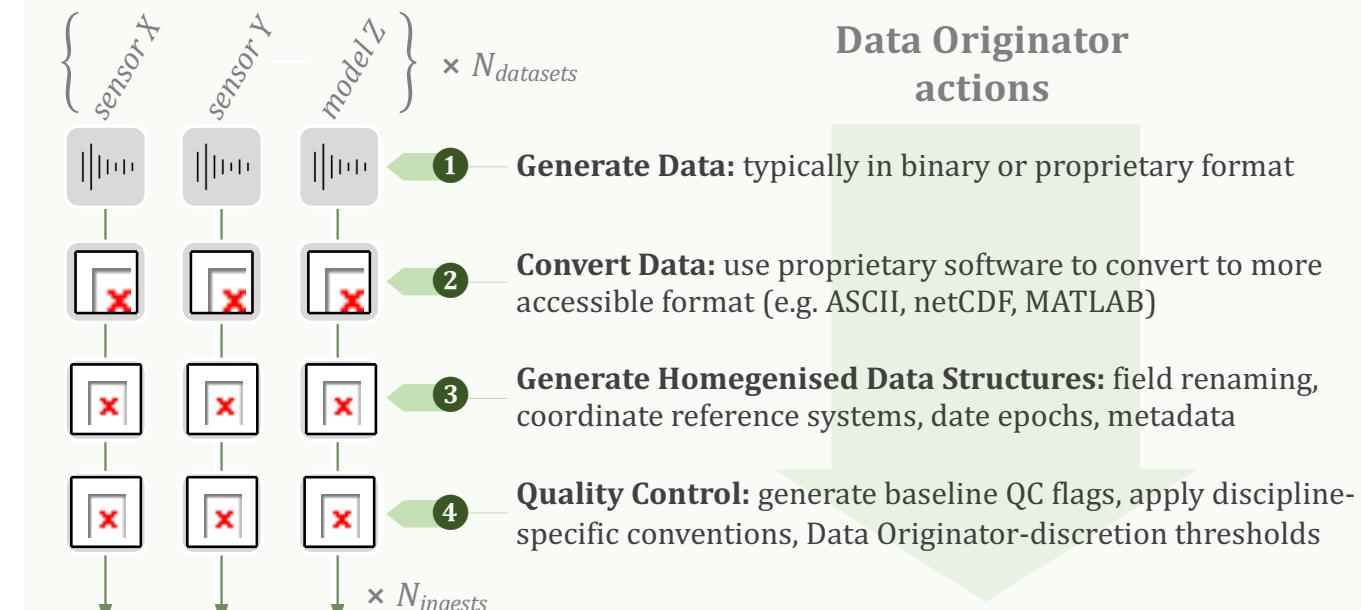


# Planned Architecture



## Data Drops

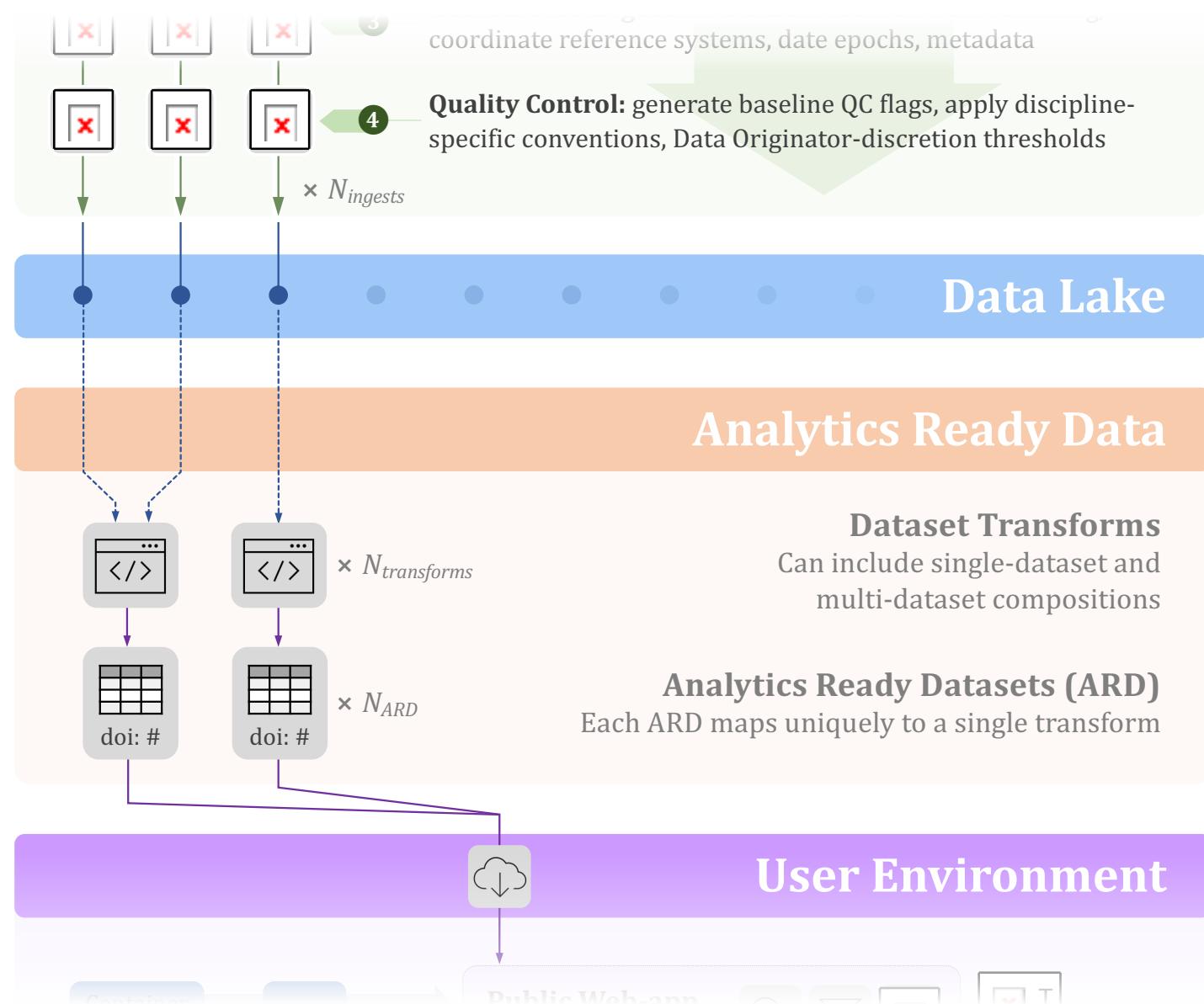
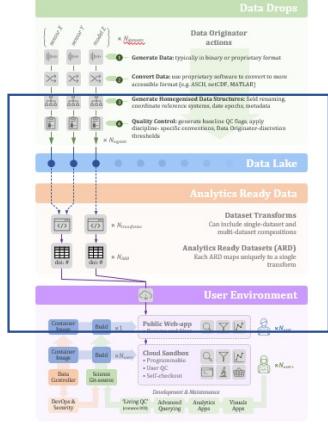
### Data Originator actions



## Data Lake

## Analytics Ready Data

# Planned Architecture



# Planned Architecture

