European Weather Cloud – Use Case Webinar

-Using the EUMETSAT Pull Data Access Services through EWC-

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CLOUD COMPUTING-BASED INFRASTRUCTURE, FOCUSED ON THE NEEDS OF THE METEOROLOGICAL COMMUNITY

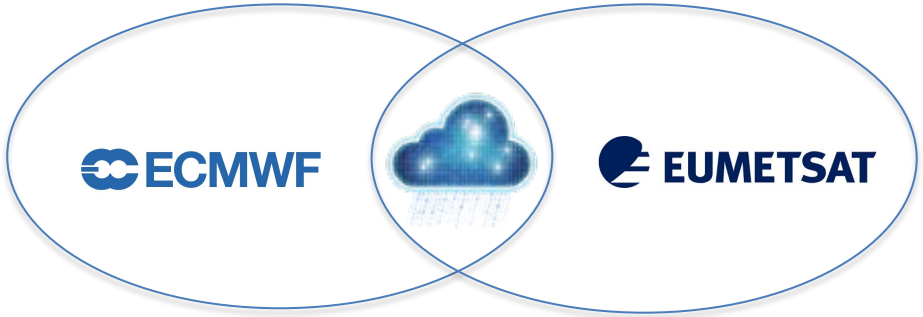
ECMWF EUMETSAT

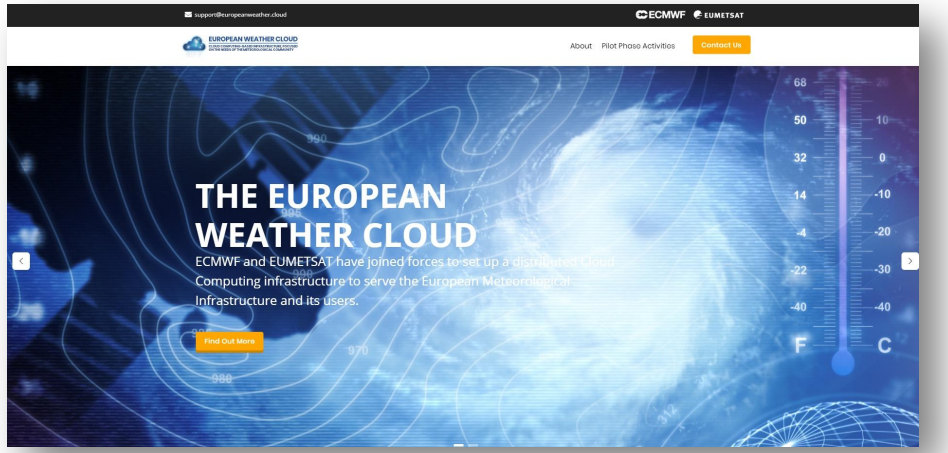
Agenda

- The European Weather Cloud
- Getting a tenancy workflow
- Data Access Services
  - Data Store
  - Data Tailor
  - EUMDAC
- Demonstration

European Weather Cloud

- Pilot project started 2019 by ECMWF and EUMETSAT
- ECMWF new operational infrastructure in ECMWF Bologna Data Centre
- EUMETSAT running on public cloud infrastructure
- **Start of Operations on 26 September 2023**





www.europeanweather.cloud

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ECMWF EUMETSAT

Who is it for?

Member and Cooperating States

Research & Development

ECMWF Special Projects
EUMETSAT annual R&D calls

EMI Partners (e.g. EUMETNET)

Internal use at ECMWF and EUMETSAT

Member and Cooperating States usage authorized by Computing Representatives

- Access requests via Computing Representatives or EWC support

ECMWF *EUMETSAT*

EWC provides compute capacity and access to ECMWF and EUMETSAT data holdings, additional external data sets and allows users to easily share their own data with others.

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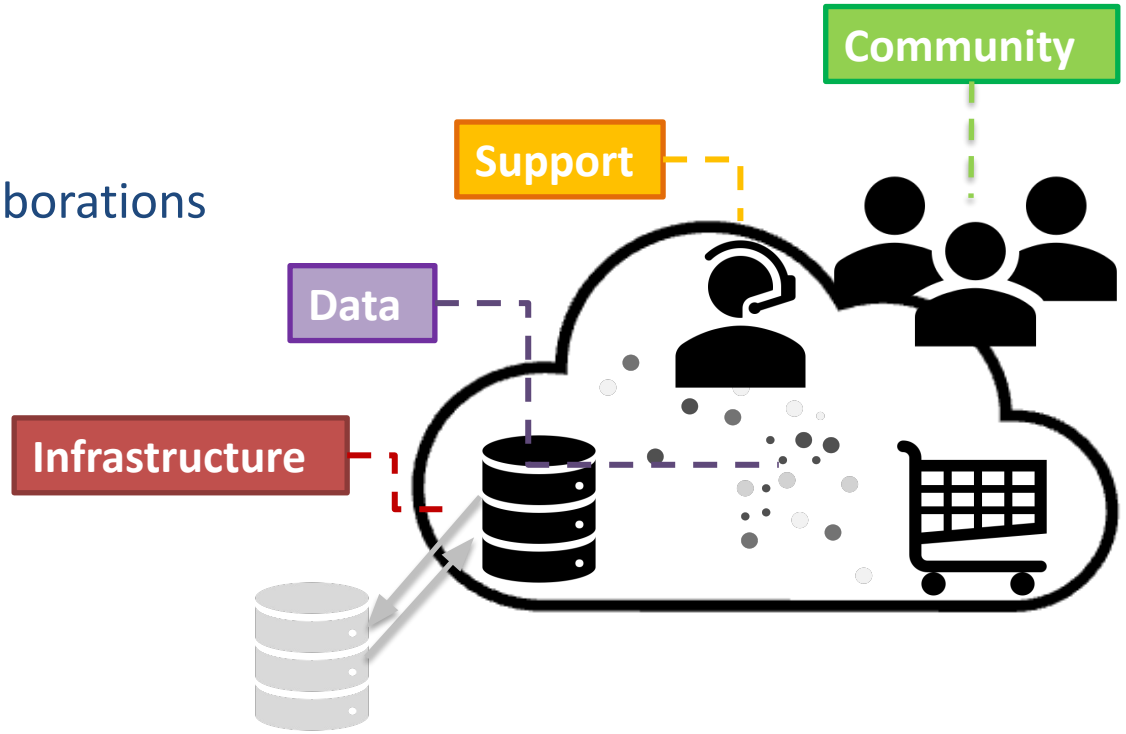
Benefits to the users

- Online access to the cloud computing resources
- Flexibility in provisioning, managing and deleting resources on-demand
- Data availability and data locality for processing
- Community : knowledge, applications, synergies, collaborations



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Cloud Service Description

The service consists of cloud computing resources provided by ECMWF and EUMETSAT and controlled by cloud management software Morpheus.

Virtual Environments

- Isolated cloud tenancy
- Virtual Machines
- Block and Object Storage
- Virtual Networking
- . . . . .

Resources Management

- Blueprints and Instance types
- Automation tools
- Monitoring and Reporting
- Metering and Accounting Service
- . . . . .

Support and Collaboration

- Support Portal
- Knowledge Base Documentation
- Discussion Platform
- . . . . .

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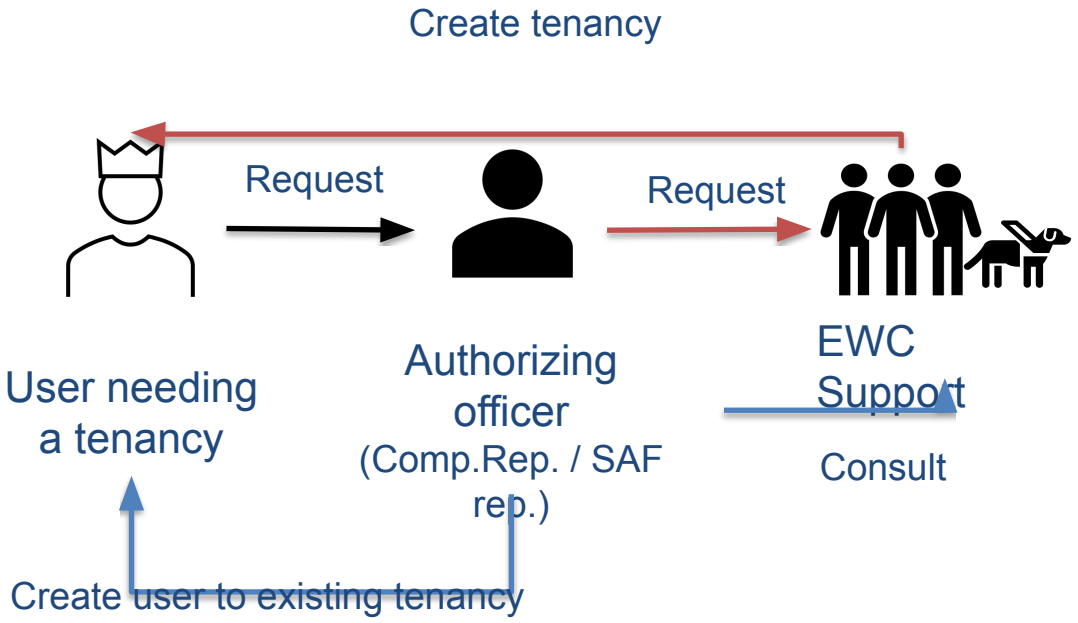
Getting a tenancy workflow

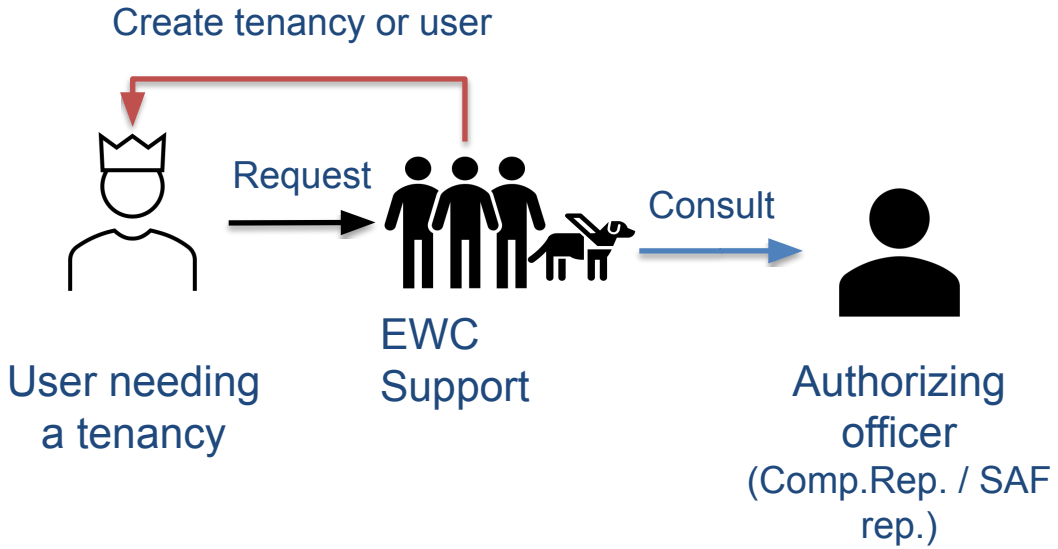
Default flow



Tenancy will be created to either ECMWF or EUMETSAT side based on the primarily use case

- Tenancy can have resources at both sides
- Member states can have tenancies at both sides

Alternative flow



Users may be directly in contact with EWC support in which case support will consult authorizing officer or forward the request

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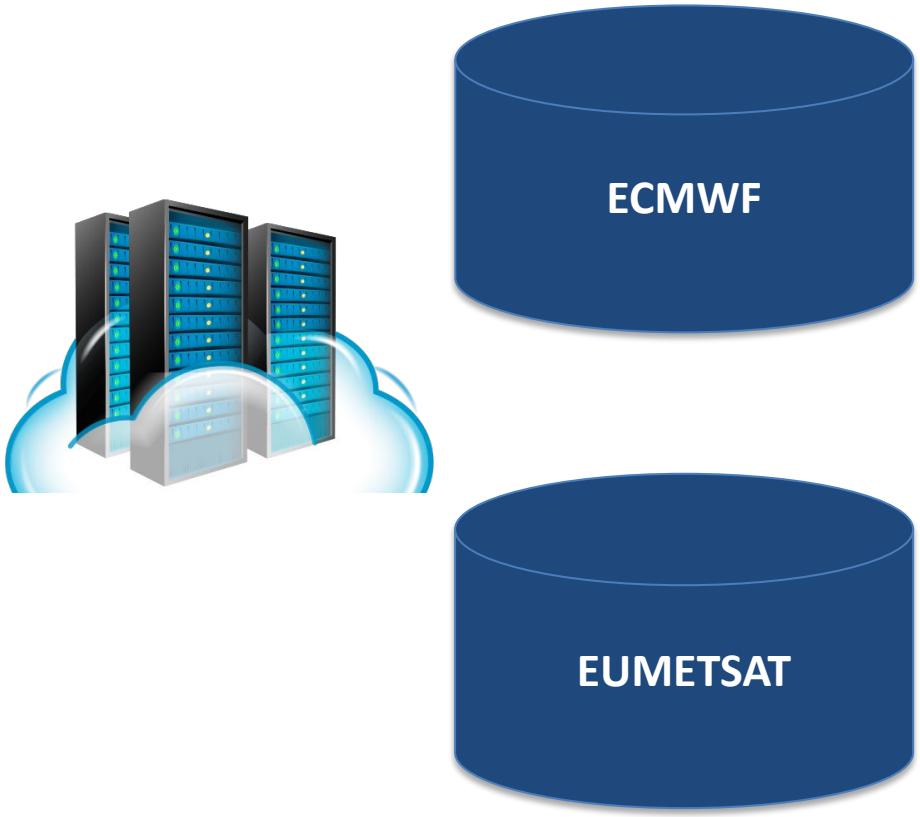
Data Access from EWC

Combined set of “pull” and “push” data access services:



- Meteorological Archival and Retrieval System (MARS)
  - ECMWF Petabytes-scale data archive providing APIs for data discovery and retrieval
- ECMWF Production Data Store (ECPDS)
  - Data dissemination service for customised data delivery
- Copernicus Climate and Atmospheric Data Stores (CDS/ADS)
  - Copernicus Climate Change (C3S) and Atmospheric Monitoring (CAMS) services data
- EUMETSAT Data Store & Data Tailor
  - Access to all EUMETSAT meteorological, climate and ocean data through a suite of APIs, and incorporating data tailoring capability (including DT Standalone)
- EUMETCast Terrestrial
  - Near-real time data delivery via terrestrial network

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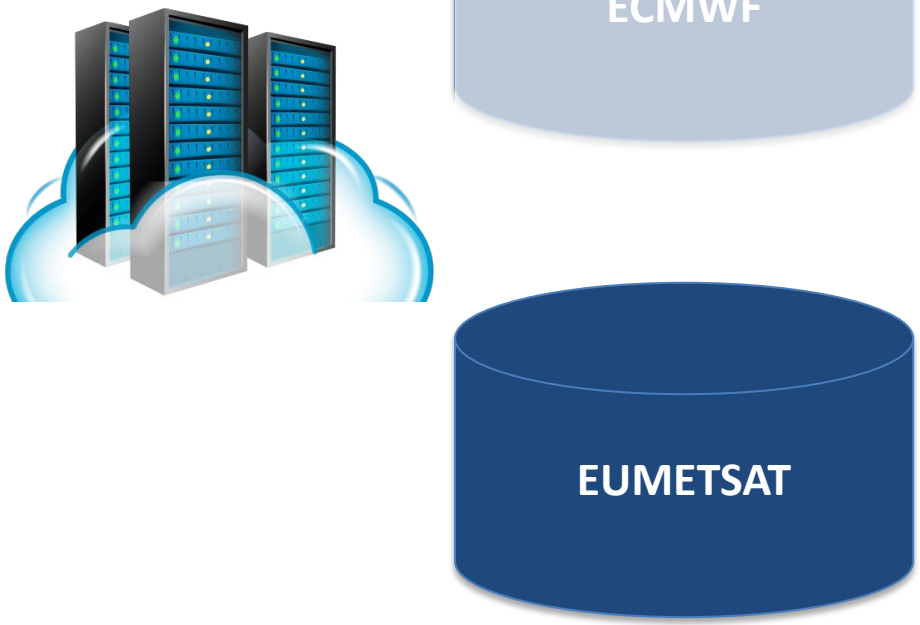

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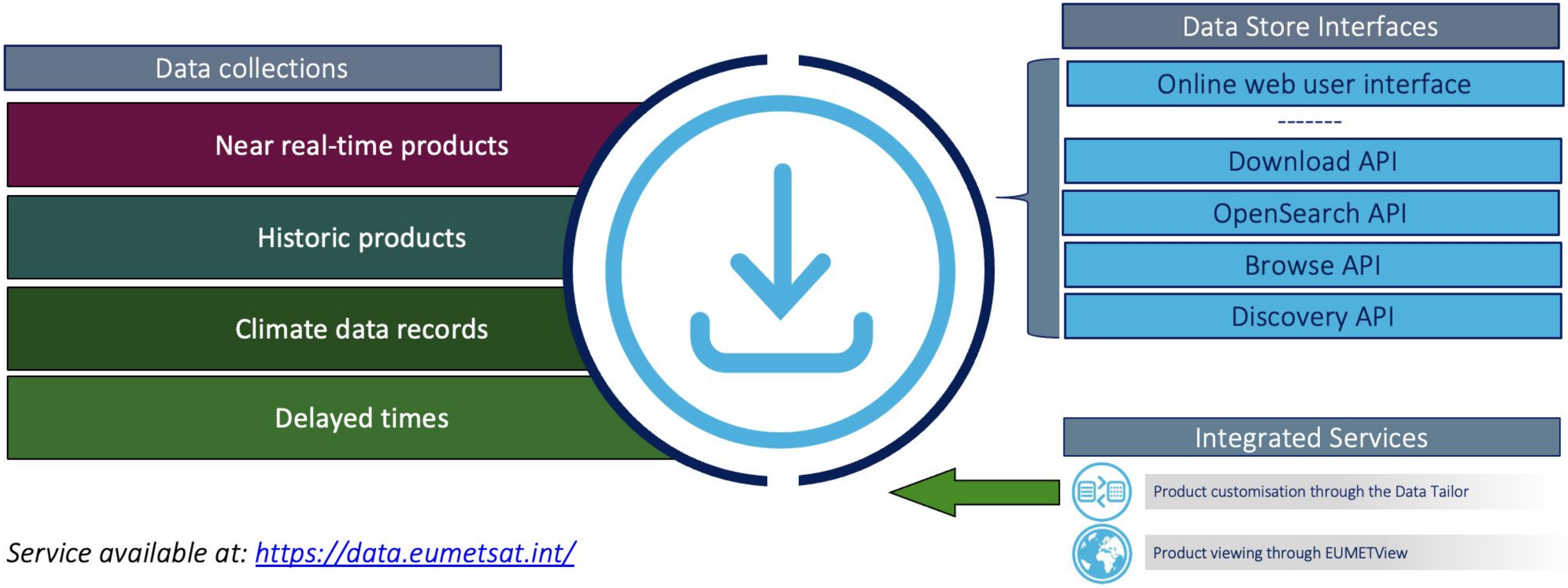
EUMETSAT Data Store

The **EUMETSAT Data Store** provides users with a download and linked data tailoring service for online data; providing access through an online web user interface and via a suite of APIs.



Service available at: https://data.eumetsat.int/

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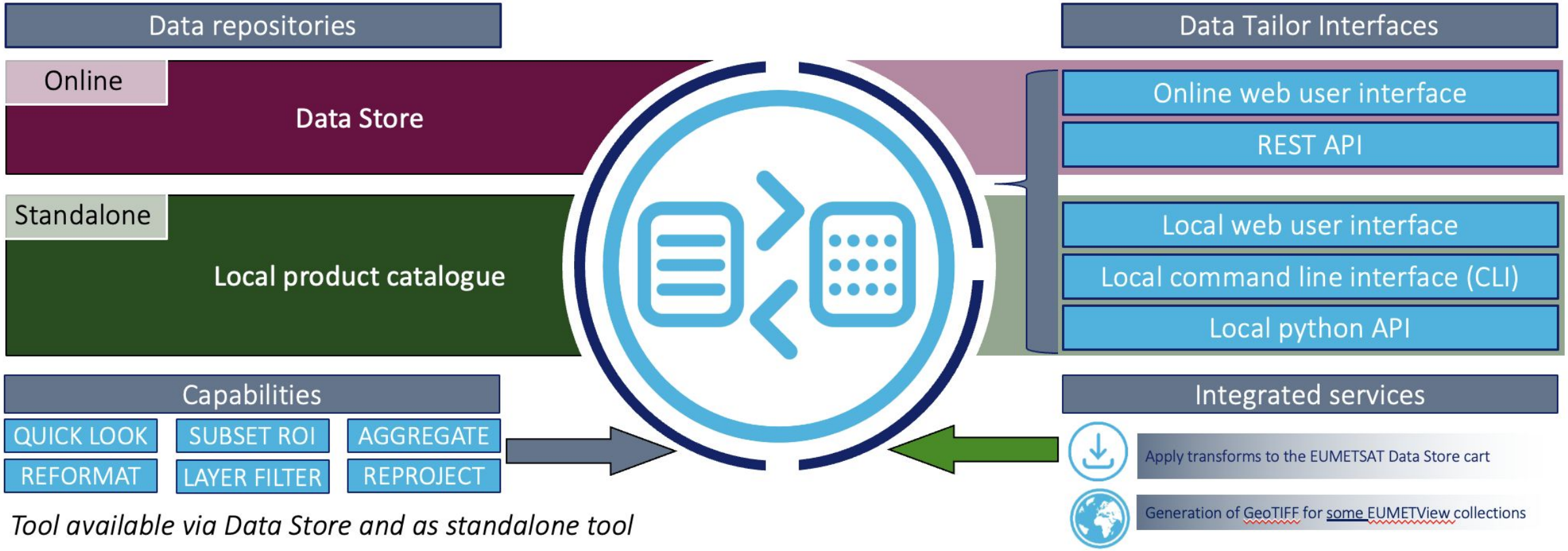
EUMETSAT Data Tailor

The **EUMETSAT Data Tailor** allows users to subset and aggregate our data products in space and time, filter layers, generate quicklooks, re-project, and reformat into common GIS formats (netCDF, GeoTIFF, etc.). It offers a uniform way to transform both historical and near real-time satellite data provided by EUMETSAT.



Tool available via Data Store and as standalone tool

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EUMETSAT Data Access Client (EUMDAC)

Catalogue of the Data Store

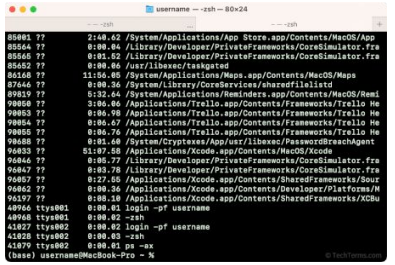
Catalogue of EUMETView

Customisation through Data Tailor

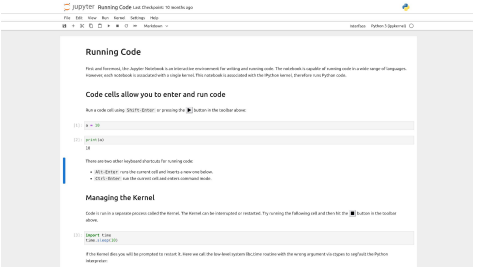
EUMDAC Interfaces

- Client Command Line (CLI)
- CLI Binary
- Python Library

CLI



Python Library



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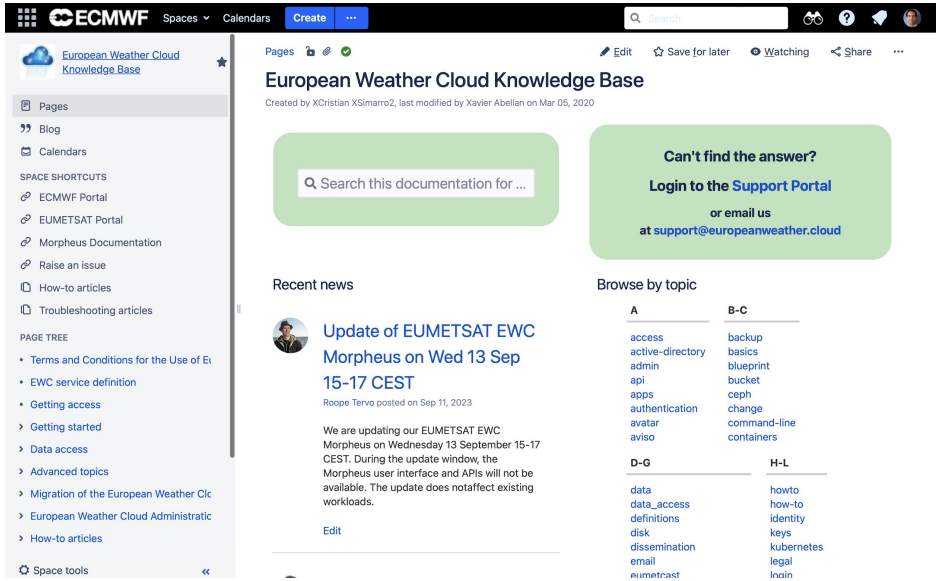
EUMDAC Commands

```
# installing eumdac
$ conda install -c conda-forge eumdac

# print available collections
$ eumdac describe

# describe a collection
$ eumdac describe -c EO:EUM:DAT:METOP:AMSUL1

# search options
$ eumdac search -c EO:EUM:DAT:MSG:MSG15-RSS --start 2022-09-21T12:15 --end 2022-09-21T12:45

# download options
$ eumdac download -c EO:EUM:DAT:MSG:MSG15-RSS --start 2022-09-21T12:15 --end 2022-09-21T12:45

# use Data Tailor Web Service on latest HRSEVIRI product
$ eumdac download -c EO:EUM:DAT:MSG:HRSEVIRI --limit 1 --tailor "product: HRSEVIRI, format: geotiff"

# download latest HRSEVIRI product
$ eumdac download -c EO:EUM:DAT:MSG:HRSEVIRI --limit 1
# run it with Data Tailor Standalone
$ epct run-chain -f chain.yaml MSG3-SEVI-MSG15-0100-NA-20240321094242.192000000Z-NA.zip

# Script for downloading from Data Store and customising it with the Data Tailor Web Service
$ python examples/eumdac_dt_standalone.py
```

Knowledge Base



https://confluence.ecmwf.int/x/6J83Cg

KB Content

- Terms and Conditions
- Getting access
- Getting started
- Data access
- Advanced topics
- How-to articles
- Troubleshooting articles
- Discussion platform

Blog Posts

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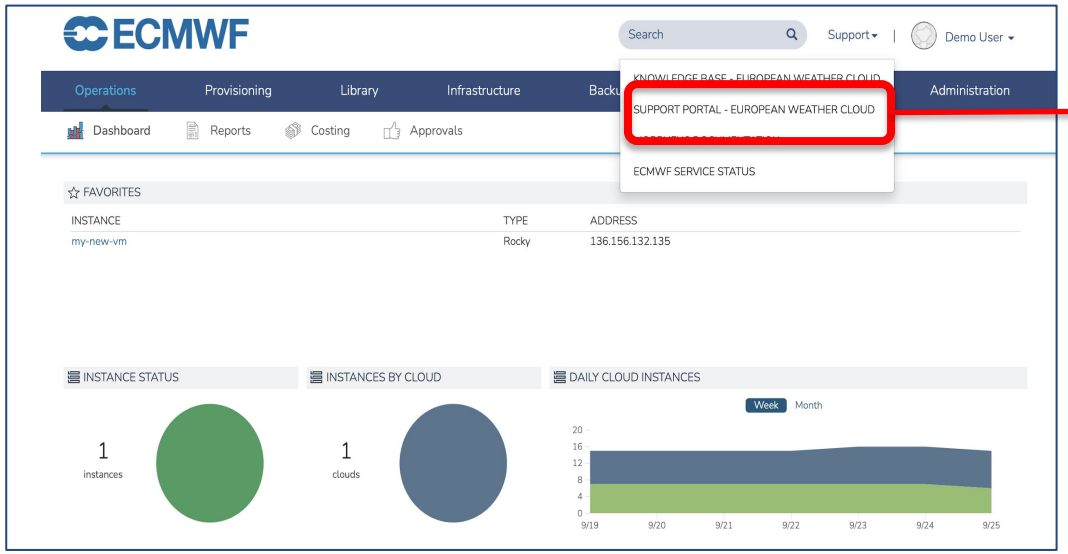
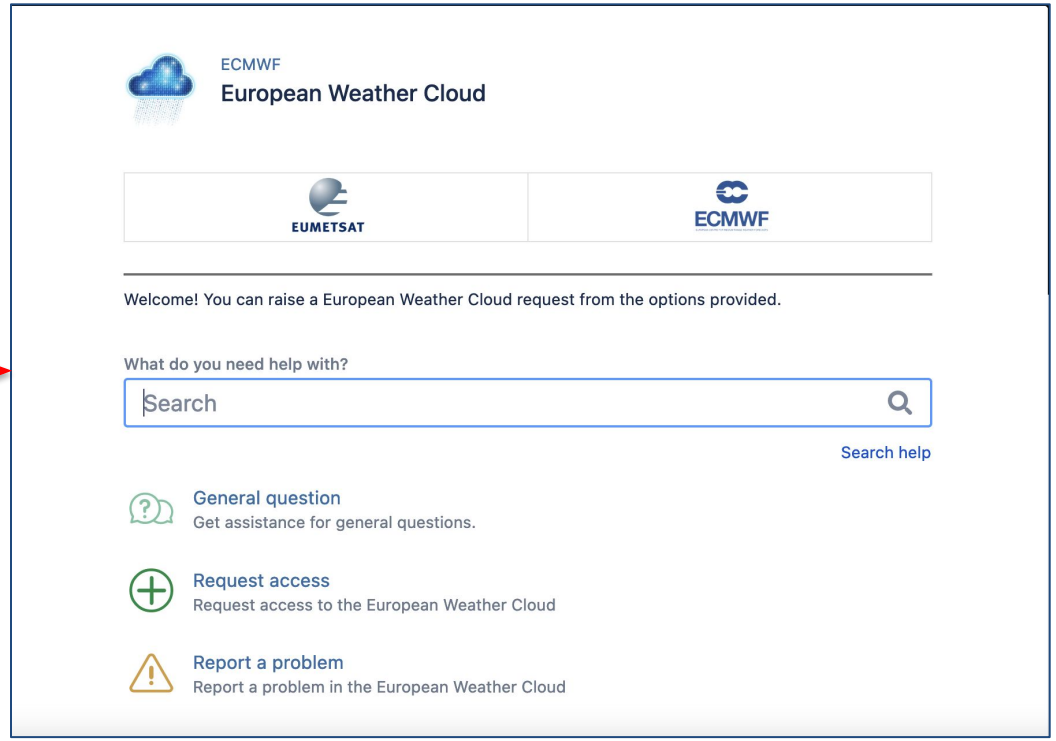
Support Portal





https://jira.ecmwf.int/servicedesk/customer/portal/9

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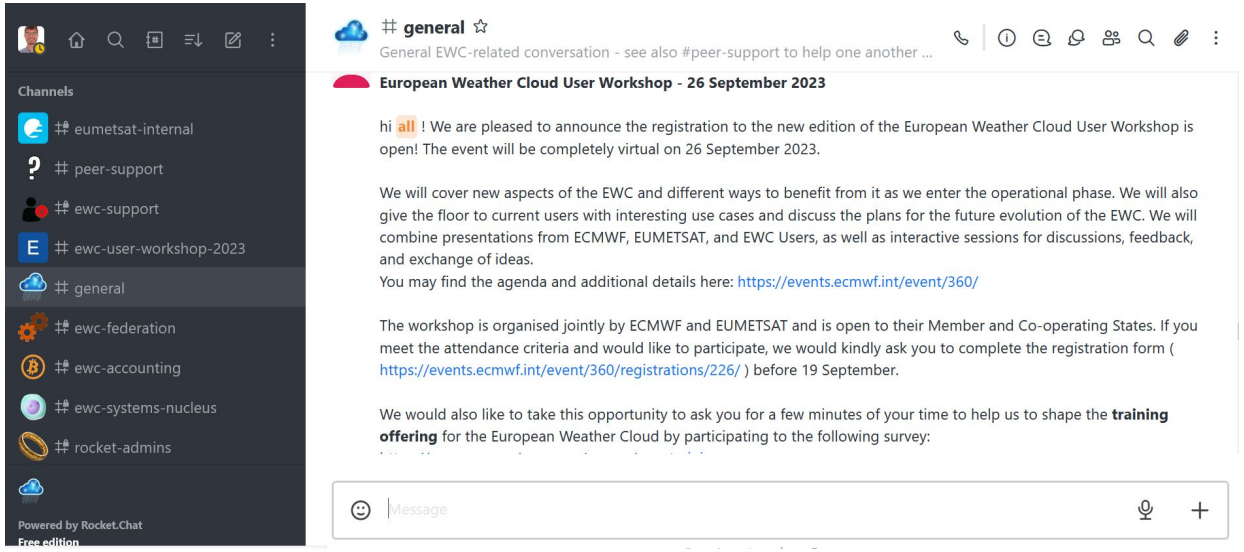
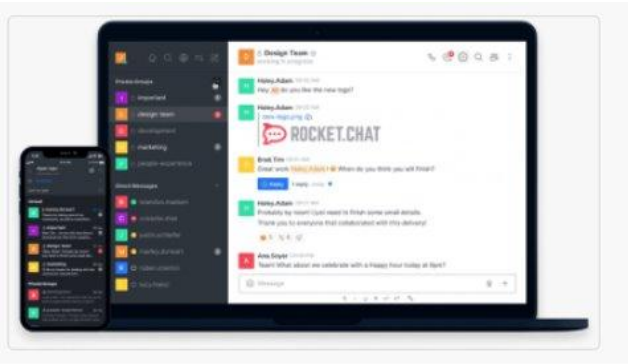
EWC Discussion Platform: Rocketchat



Installation

- Web based
- Desktop App
- Mobile



How do I join?

Member and Cooperating States users can self-register (based on email domain): https://chat.europeanweather.cloud

External users can't self-register but can be invited. They need to be accepted by admins.

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Contact Us and Request Access

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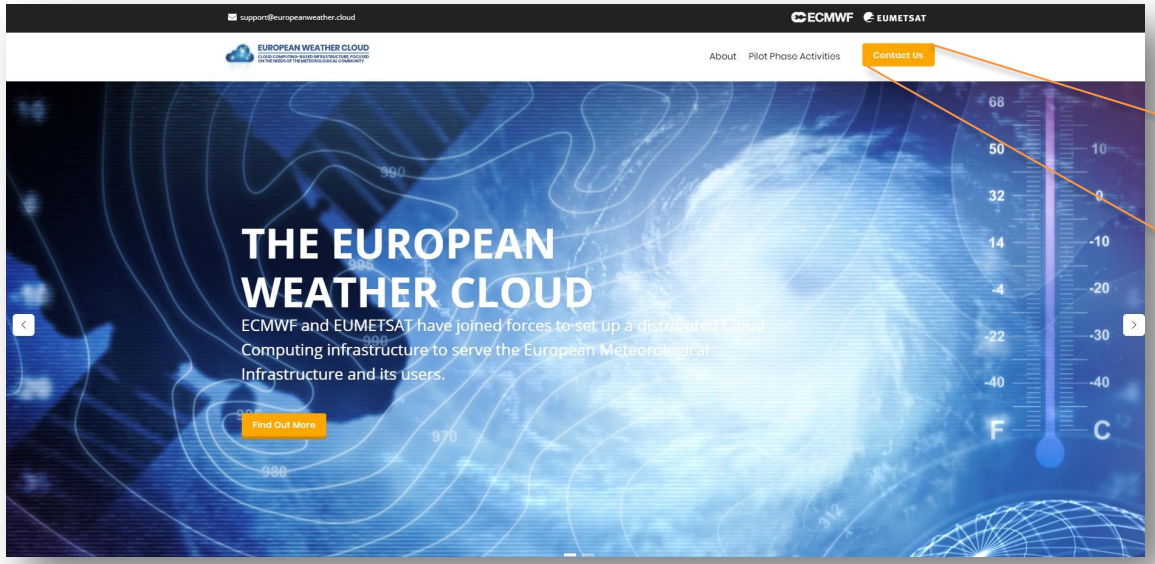

Contact Us

support(at)europeanweather.cloud

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Questions?

Tutorial:

https://confluence.ecmwf.int/x/IwKaFQ