



# European Weather Cloud

## Building our future platform for collaboration

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[www.europeanweather.cloud](http://www.europeanweather.cloud)

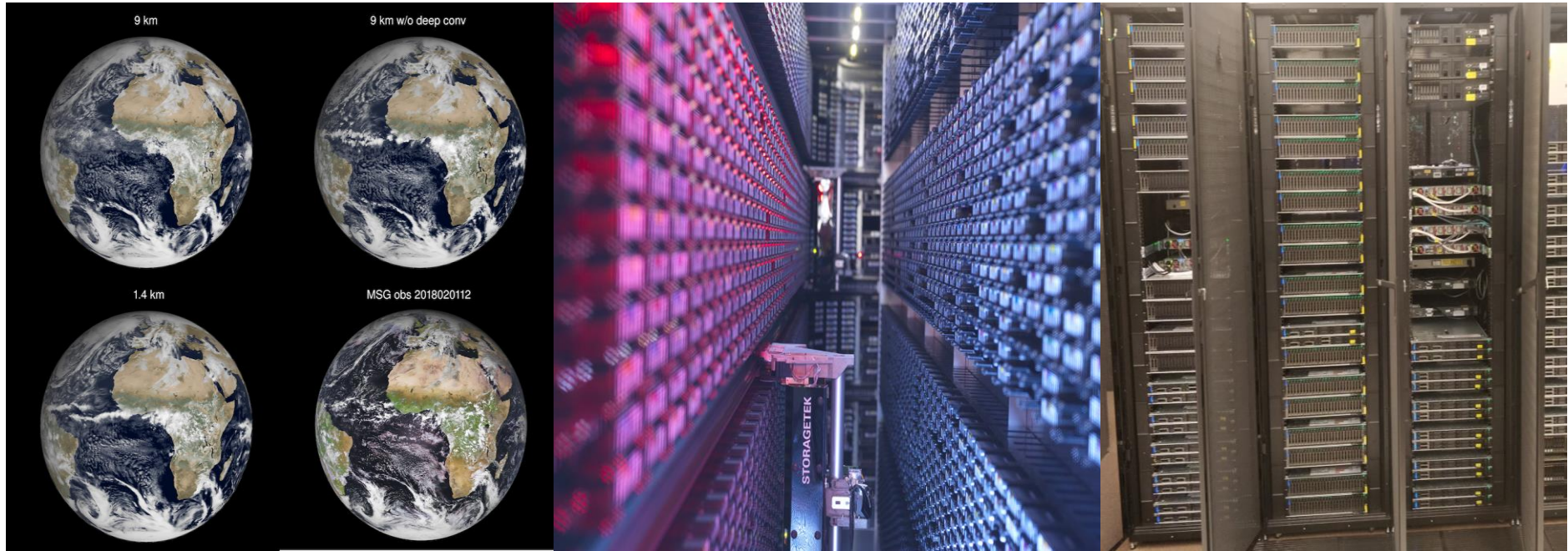


**EUROPEAN WEATHER CLOUD**  
CLOUD COMPUTING-BASED INFRASTRUCTURE, FOCUSED  
ON THE NEEDS OF THE METEOROLOGICAL COMMUNITY



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# What is the Vision?

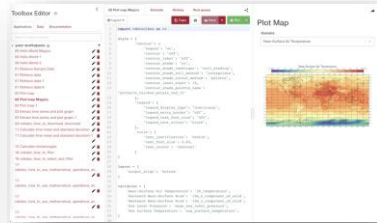


*The European Weather Cloud aims to become the **cloud-based collaboration platform** for meteorological application development & operations in Europe and contributes to the digital transformation of the European Meteorological Infrastructure*

*"a community cloud"*



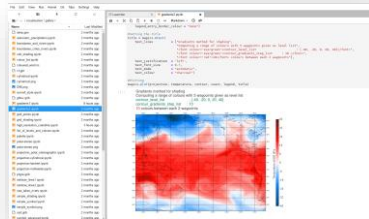
# The European Weather Cloud is part of wider developments



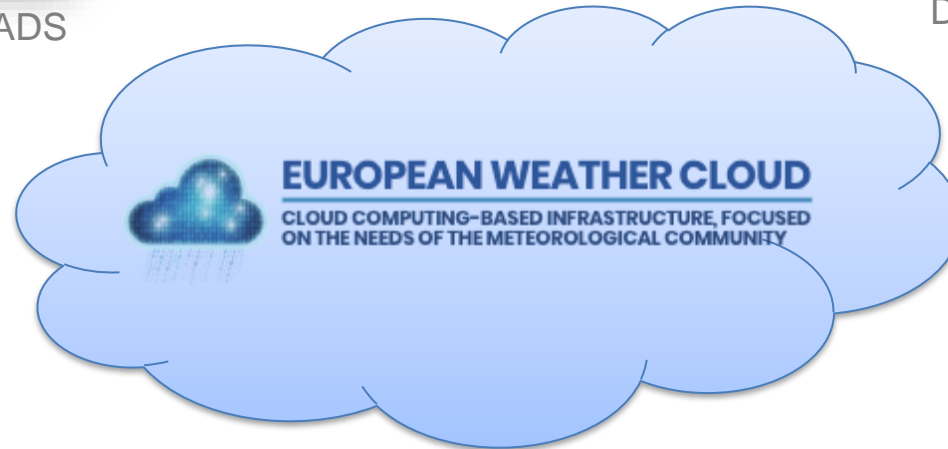
Copernicus CDS & ADS



DIAS WEkEO



Environments for ML  
data analytics



Big Data Services  
Roadmap



Destination Earth



Future HPC & cloud

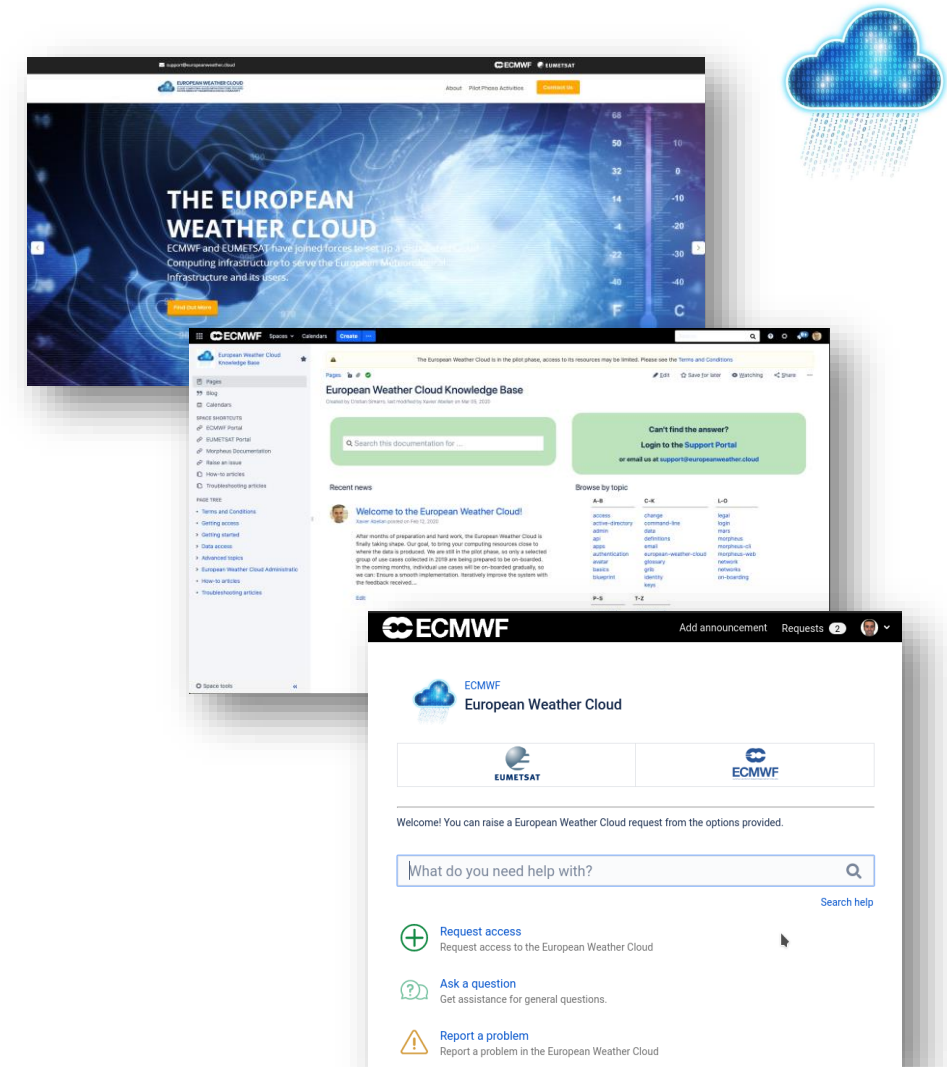


# European Weather Cloud pilot status

- Pilot phase has been extended until Q4 2021
- Pilot infrastructure is in place
- Joint landing page and support portal is in place
- Use cases continue to develop with first success stories
- More technical developments on-going (data access and notifications)
- Addressing challenges: technical, policy, governance



*European Weather Cloud time line*



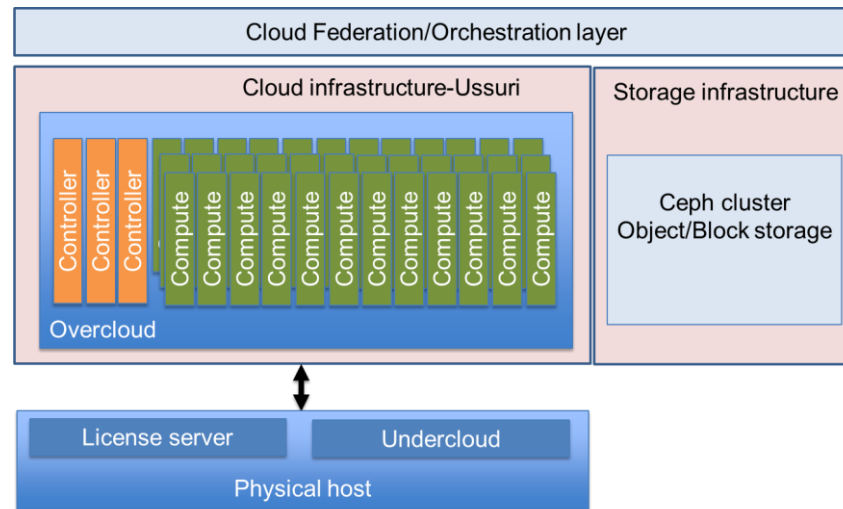
Joint support portal:

<https://confluence.ecmwf.int/display/EWCLOUDKB/>

# European Weather Cloud: pilot infrastructures

Completed in first year of pilot

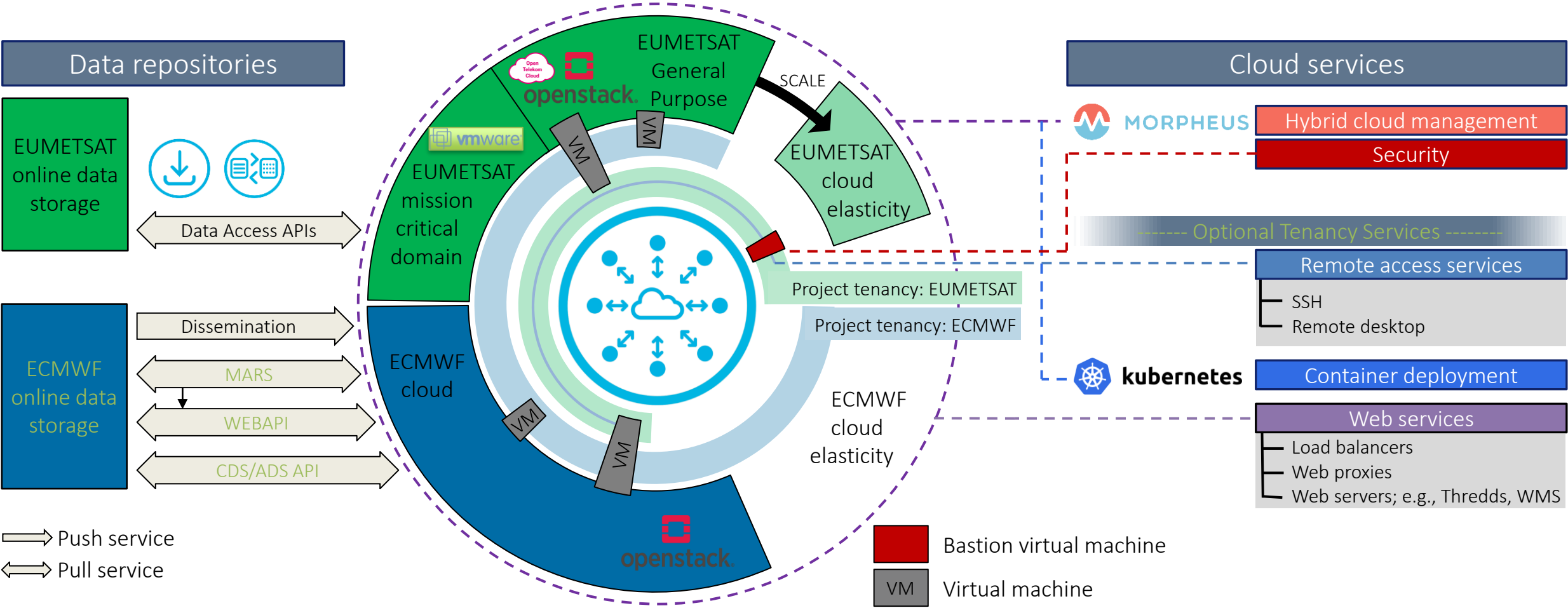
- Successfully build-up of the infrastructure
- Successfully deployed Morpheus as cloud management platform
- Added GPUs for ML, following user feedback
- Enabled fast access to data storage (e.g. MARS archive)



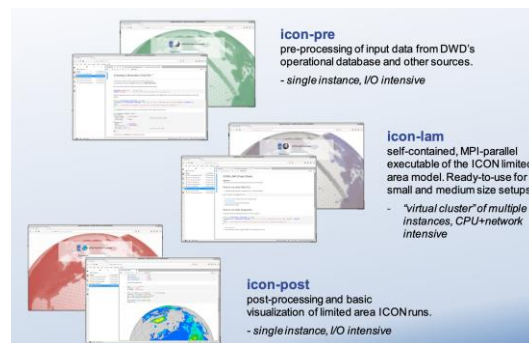
## ECMWF Spec:

- Cores : ~3000
- RAM : ~21TB
- Storage: ~1PB (HDD+SDD)
- GPUs : 2x5 NVIDIA Tesla V100

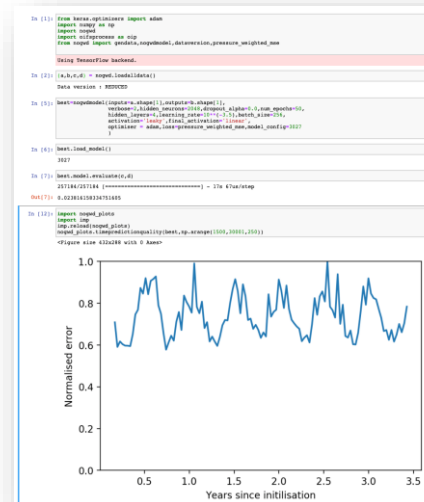
# A technical depiction of the European Weather Cloud



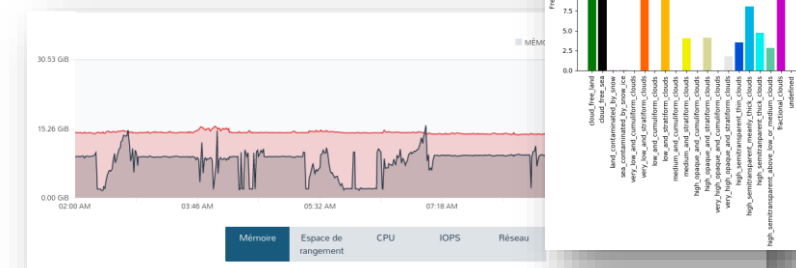
# Use cases - Demonstrating the new way of working with MS/CS



DWD use case on offering notebooks to train and develop the ICON model on the European Weather Cloud

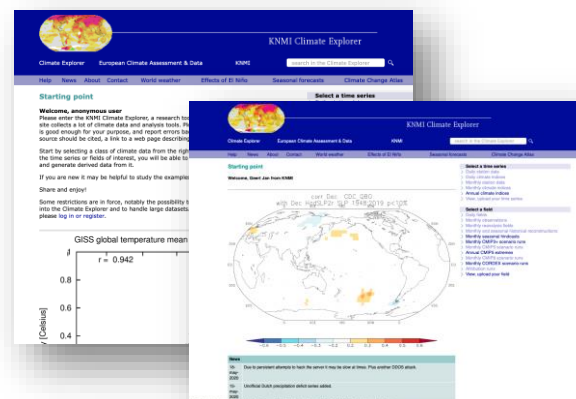


Oxford University offering Jupyter notebook environments for Machine Learning on weather & climate data sets

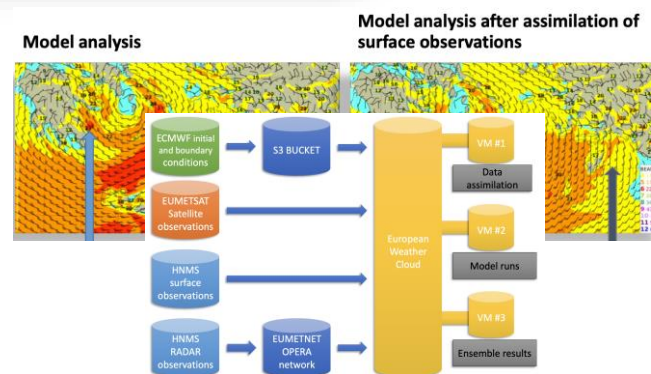


Forecast and climatology of cloud cover for Energy and Spatial sectors  
Météo-France

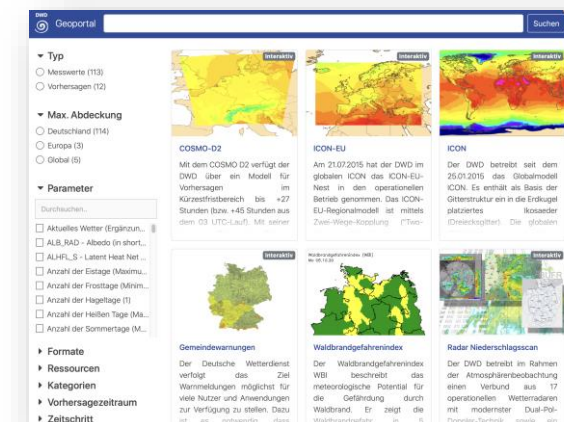
Hosted on both ECMWF and EUMETSAT



KNMI Climate Explorer running on the European Weather Cloud



HNMS uses ECMWF forecast as boundary condition for model and assimilation trials

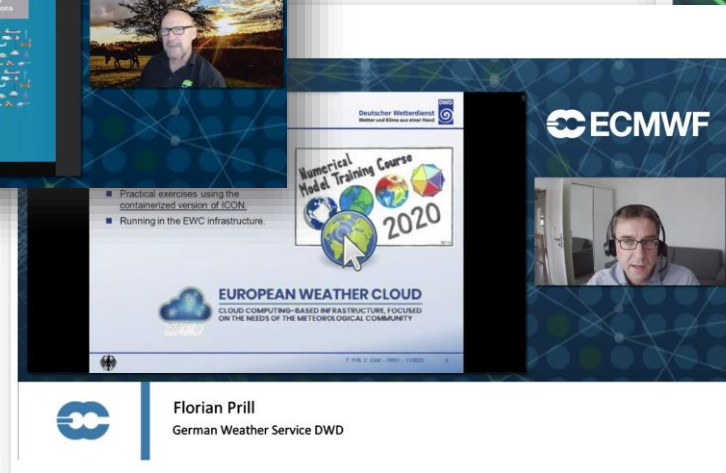
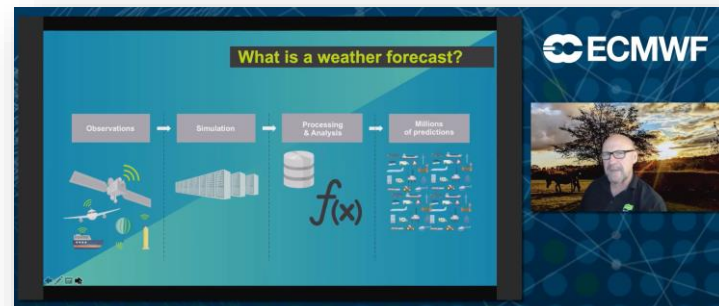


OGC web map services integrating maps in DWD's Geoportal



# Engaging with Member States - User workshops

- Around 200 participants joined for our joint cloud user workshops in 2020
- The feedback from the audience was very positive and gave very valuable input for upcoming developments on the cloud



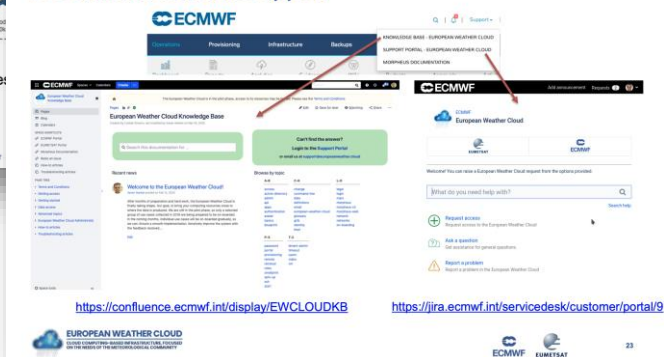
## ECMWF Data Services



S – pull data from archive

ECPDS - data pushed to desired de

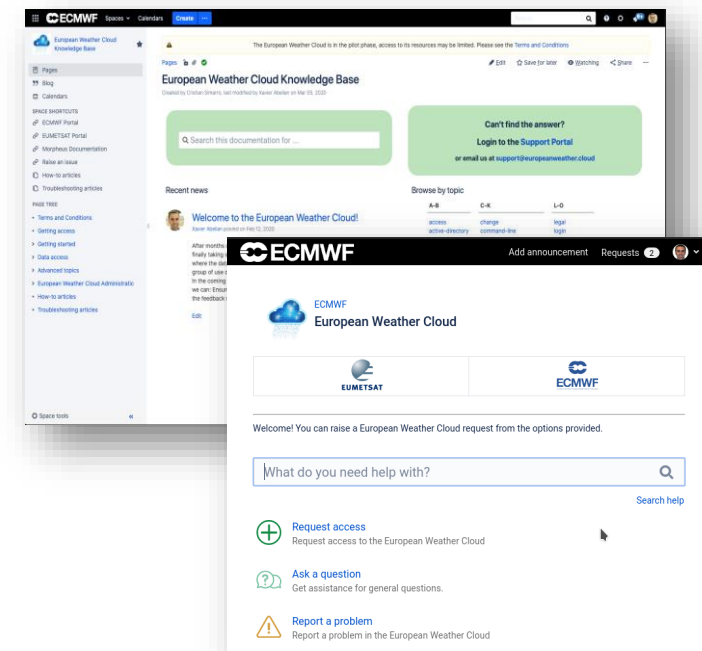
## Documentation and support





# Strength of European Weather Cloud

- Users see same support portal, documentation, user interfaces and APIs
  - Hide underlying (technical & organisational) difference between partners
  - Differences are tiny and well documented
- A *community cloud* tailored to our users need
  - Build catalogue of common applications for easy deployment (e.g. dispersion model on latest forecast data - no need for technical setup or define data access)
  - We speak the “same language” and have support which understands users
- Fast access to *all* our data
  - No limit of access partners large and valuable data sets
  - Vital for novel data analytics like Machine Learning



Joint support portal

# EWC usage types - Concepts and definitions



When using any of the services, the following usage types are relevant:

- **Internal Use:** usage by E&E for their own activities, including agreed SAF activities;
- **“Official Duty”:** usage of resources for “Official Duty” by EMI Members;

*“... to fulfil national governmental obligations related to the protection of life and property, or for Research Projects and Educational Use, provided that any such activity is carried out strictly on a non-commercial basis.”*

- **Other usages:** usage of resources is unambiguously accounted for and paid by the user (e.g. compliance with the regulation on “state aid”...).

## The next steps

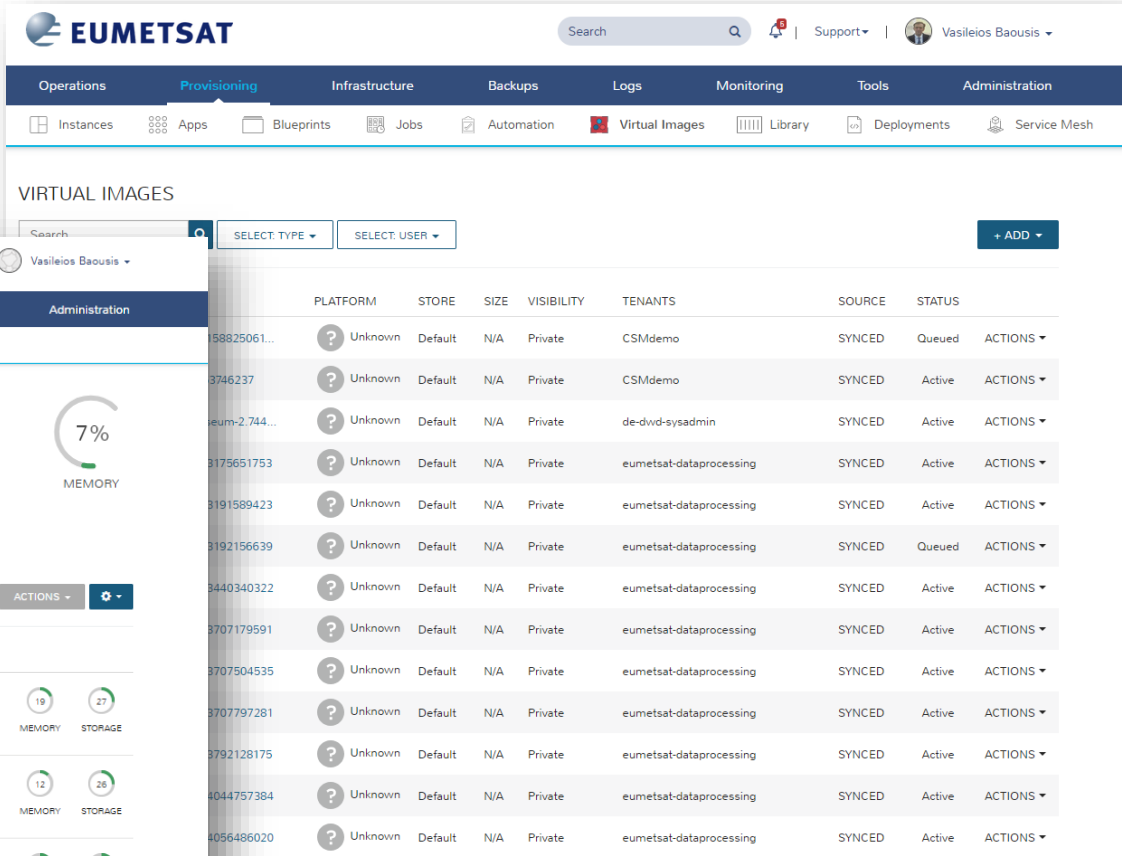
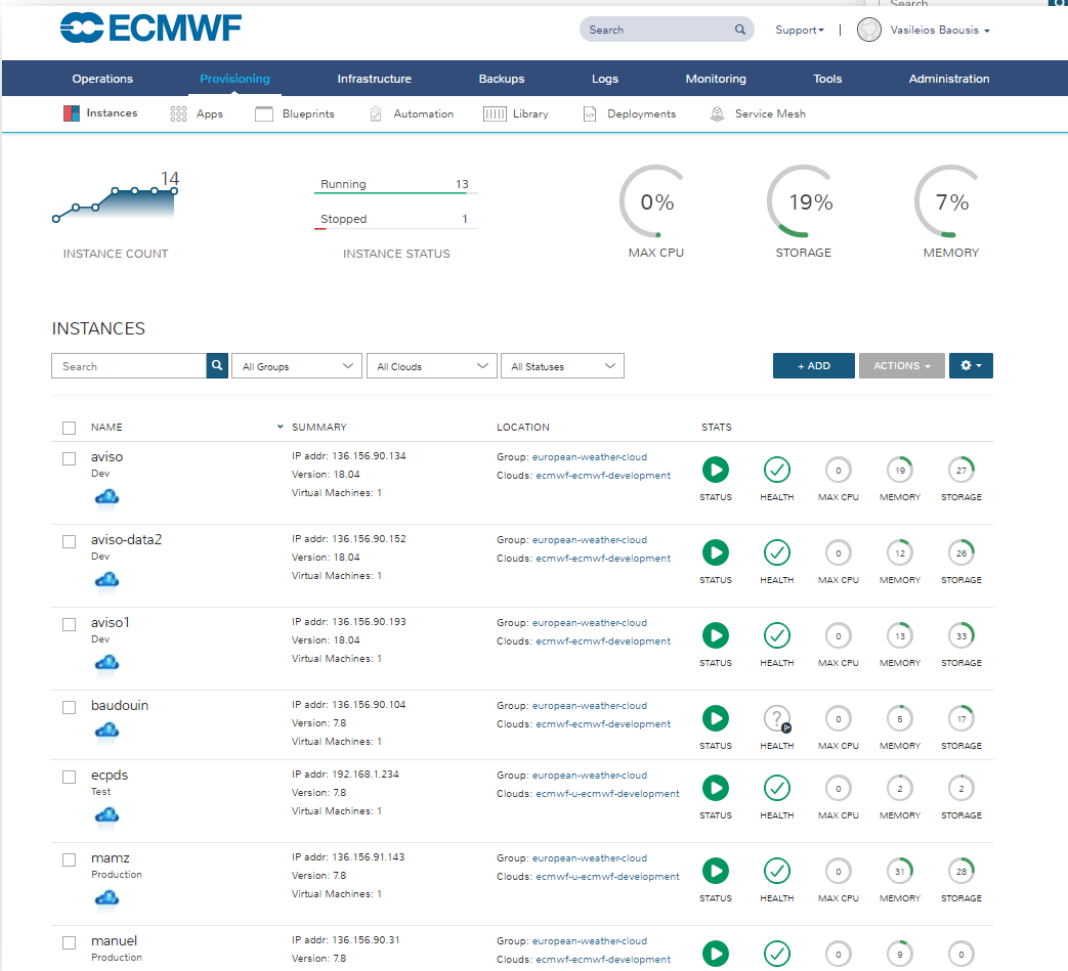


- Planning for Operational Phase with Council decisions in spring on Governance and Management
- Advancing the federation of additional data (EUMETNET Third Party Sat Providers)
- Accounting & review of allocations with Member States
- Explore options for production infrastructure
  - Study different modalities of procuring the European Weather Cloud to explore the most cost-efficient solution giving the best technical and financial return
- Provide building blocks for services building
  - Go beyond infrastructure (IaaS → PaaS → SaaS)
  - Blueprints for common tasks / services
  - Build with you a platform and shared within community

More in Vasilis' presentation on Wednesday ...



# How does it look?



More in Xavi's demonstration ...