

# Data access and training

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*Chairperson of the RAIDEG expert group*

*15<sup>th</sup> EUMETSAT User Forum in Africa  
HIGHLIGHTS – 29 September 2022*



Scope of the session

Summary of the presentations.

Key messages and main recommendations



Introduce the various systems operated by EUMETSAT to provide access to data and products.

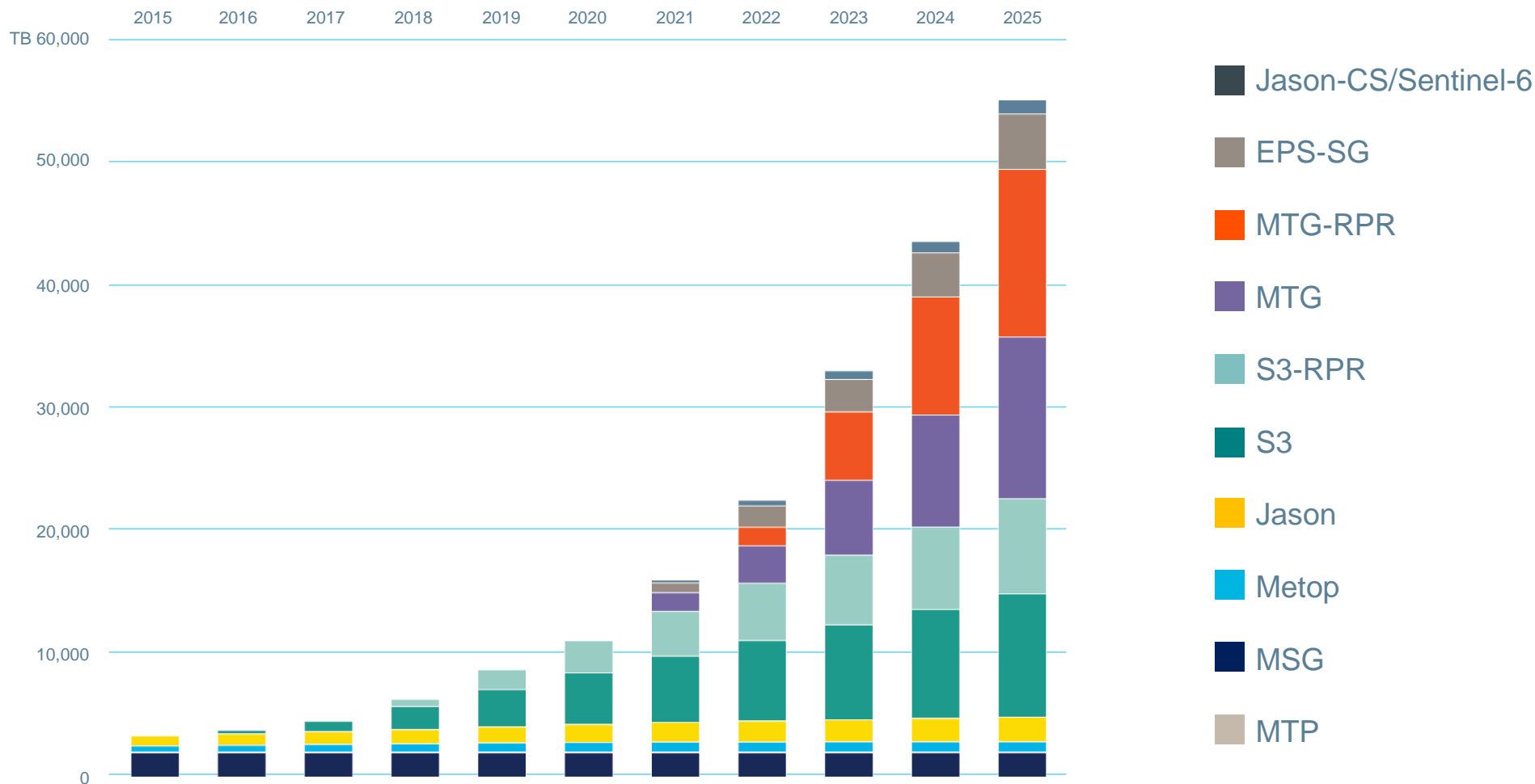
- Inform and discuss about the various means to access EUMETSAT data,
- Learn more about EUMETCAST Terrestrial, Africaconnect initiative and cloud computing solution,
- Present open-source solution to process and display EUMETSAT data,
- Inform about the training activities in link with the VLab CoE.



# The challenge: big increase of volume of satellite data in the years to come

www.eumetsat.int

## Data centre growth (prognosis) related to missions





## 05 Introductory presentations:

- Report of the RAIDEG and EUFA Technical Sessions (***Sarah Kimani*** / *RAIDEG Chair*)
- Data access and User services, and latest EUMETSAT products (***Sally Wannop*** / *EUMETSAT*)
- Data access live demonstration (***Erdem Erdi*** / *EUMETSAT*)
- Using Pytroll for creating visualisations of SEVIRI and FCI data and products (***Martin Raspaud*** / *Pytroll - SMHI*)
- Use of NREN for Meteorology and climate (***Yousef Torman*** / *AfricaConnect / ASREN*)
- EUMETSAT Training activities (***Vesa Nietosvaara*** / *EUMETSAT*)

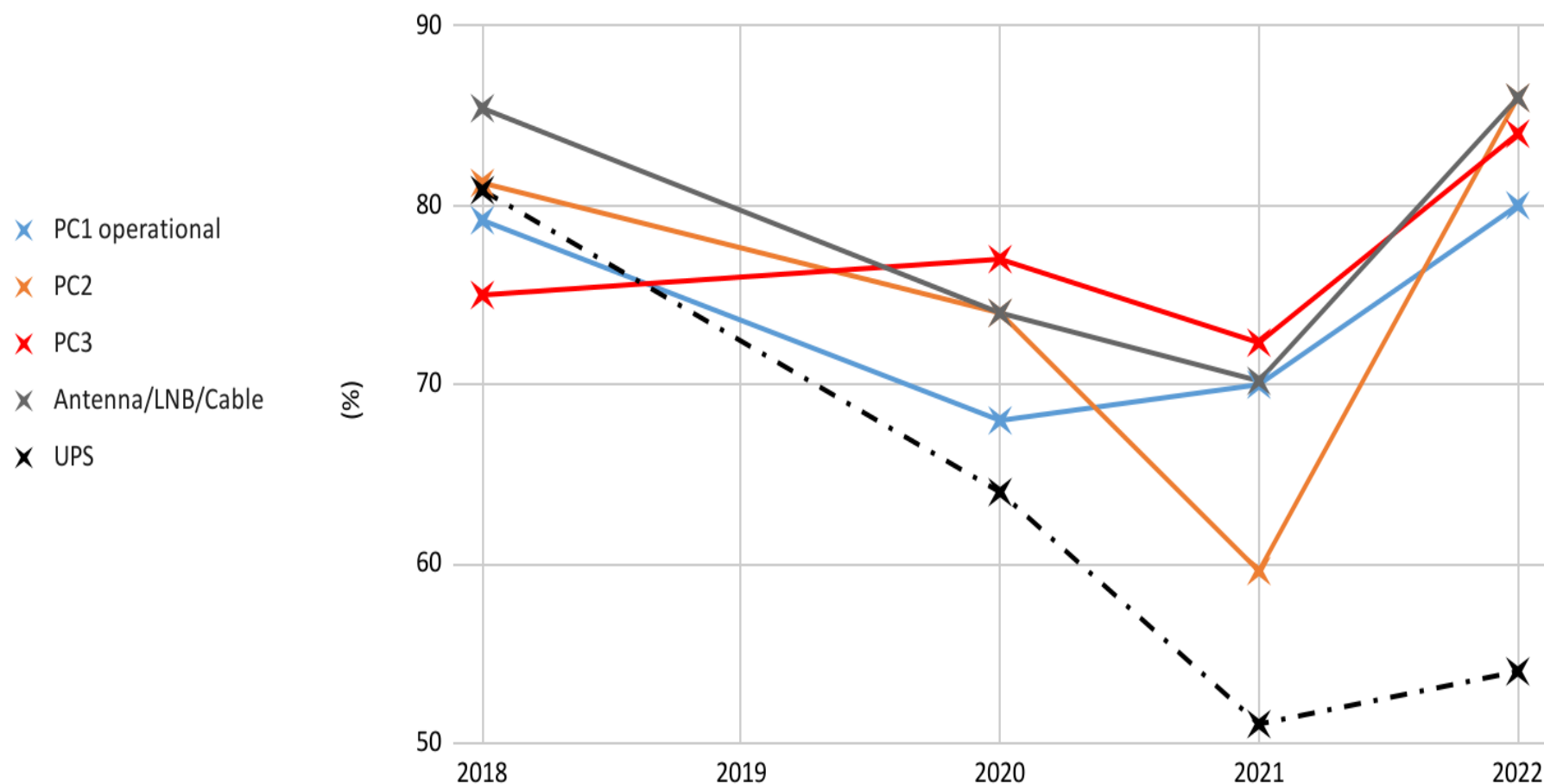
## Q&A session

## Current activities of the RAIDEG group:

- EUMETCast - Africa baseline of products (MTG)
- Investigation of EUMETCast-Terrestrial data feed in RA-I
- User needs for satellite, NWP and relevant software
- Defining training needs for satellite and NWP (incl. MTG)
- PUMA and MESA station performance status
- Marine products and services requirements

## PUMA 2015 Stations Survey (August 2022) – trend from 2018

PUMA-2015 Hardware status



=> Operational rate increased since last survey (2021):

- More respondents
- Recent efforts by partners (incl. Reg Centers) to support to maintain the PUMA stations at NMHSs

However 80% of the Hosting sites encountered issues since the last 12 months : (HW and SW issues)



## Overview of Data Services Portfolio

### New data services



Viewing your data...

*EUMETView*

<https://view.eumetsat.int>



Improving data access...

*EUMETSAT Data store*

<https://data.eumetsat.int>

### PULL SERVICES



Customising your data...

*Data Tailor*

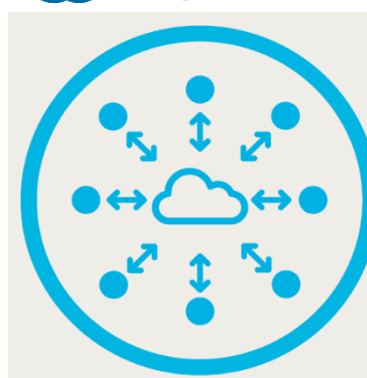
### PUSH SERVICES



Near-real time data delivery via terrestrial networks.

*EUMETCast Terrestrial*

### SHARED SERVICES



Hosted data processing...

*European Weather Cloud*

### Existing services



*EUMETCast Satellite*



*Data Centre*



*WEkEO*



*WIS*



*Direct Dissem.*





EUMETCast satellite – MTG Africa, new PUMA/Climate stations are coming



EUMETCast terrestrial – full MTG data set and lots more



Data store & data tailoring service for NRT & historical data



EUMETView – ready-made imagery NRT & 2-yr+ archive



WEkEO Copernicus data download and processing service

European Weather Cloud



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

Something for everyone. Give them a try!

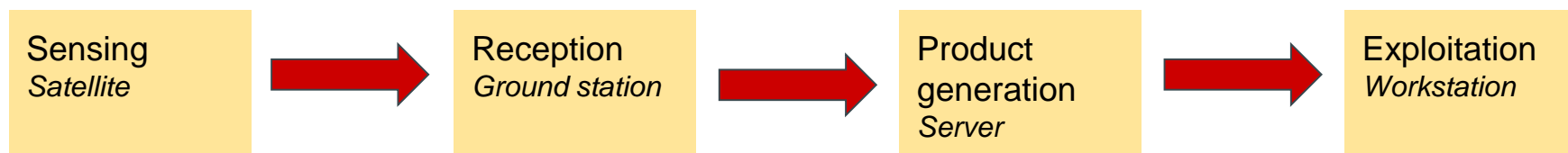


- Access the data access services:
  - Go to EUMETView: <https://view.eumetsat.int/>
  - Go to Data Store: <https://data.eumetsat.int/>
- More resources on the internet:
  - Self-help knowledgebase: <https://eumetsatspace.atlassian.net/wiki/spaces/EUM/overview>
  - EUMETSAT Youtube Channel :  
<https://www.youtube.com/channel/UCiN59j5b1fAGnXVzIYFpaMw>
- Need support:
  - Webinars are advertised through the website and in the Training calendar:  
<https://trainingevents.eumetsat.int/>
  - Helpdesk [ops@eumetsat.int](mailto:ops@eumetsat.int) can be contacted for any question or support you might need.

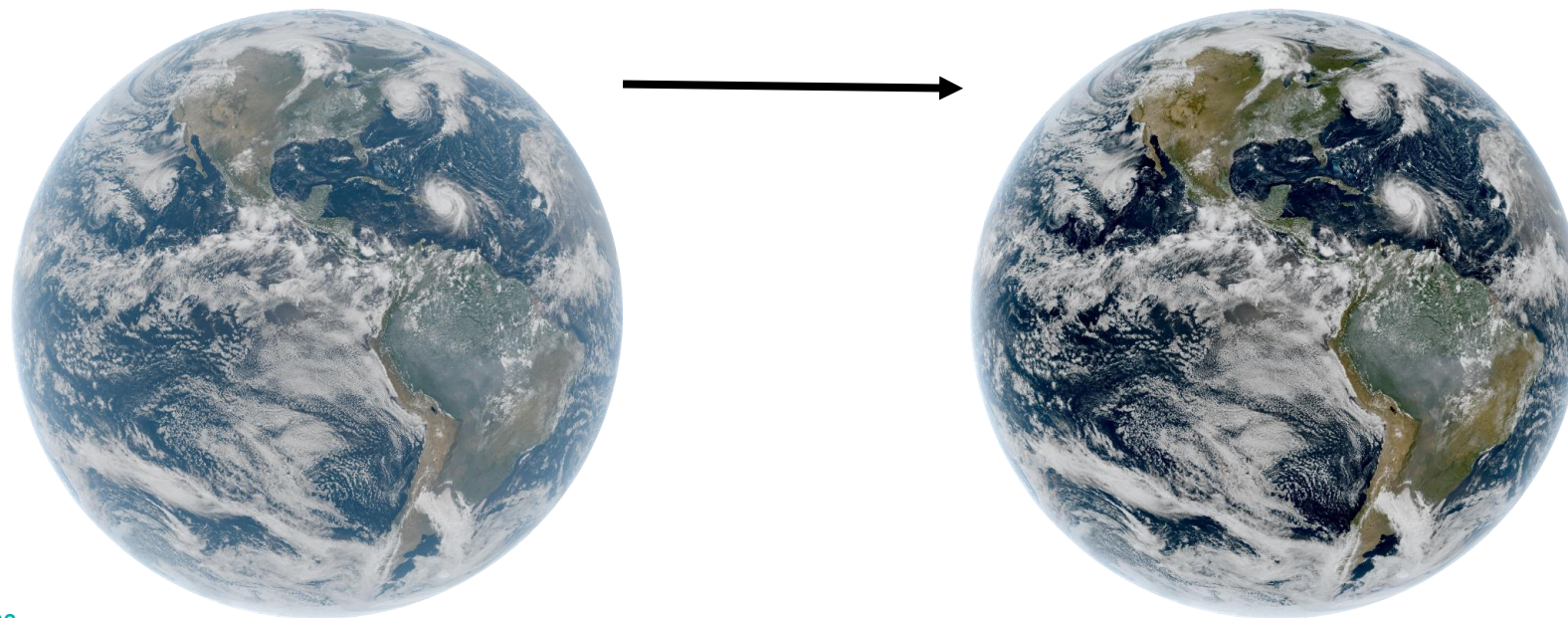
## What is Pytroll ?

- Collection of FOSS python packages
- For processing of earth observation satellite data

## Usual workflow



Pyspectral:  
Corrections to channels

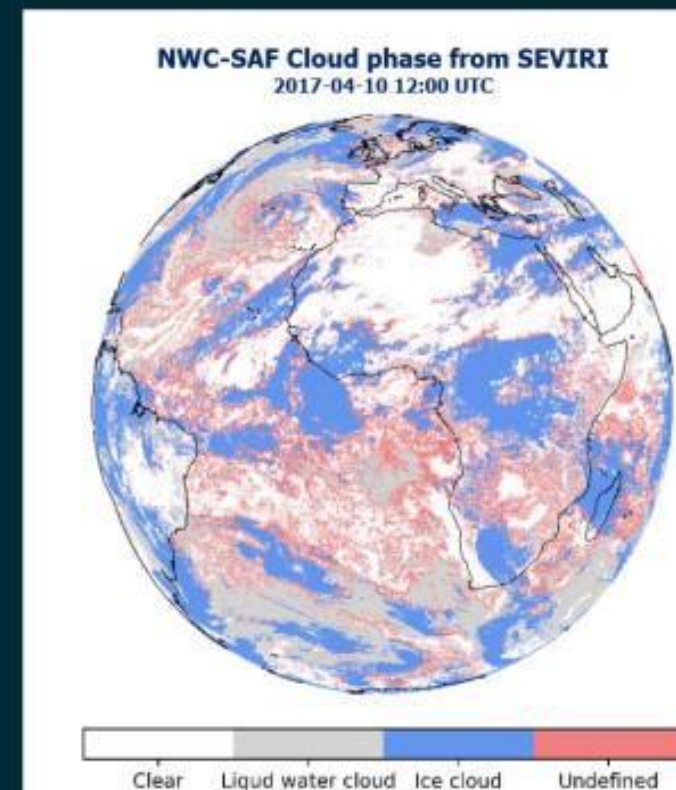
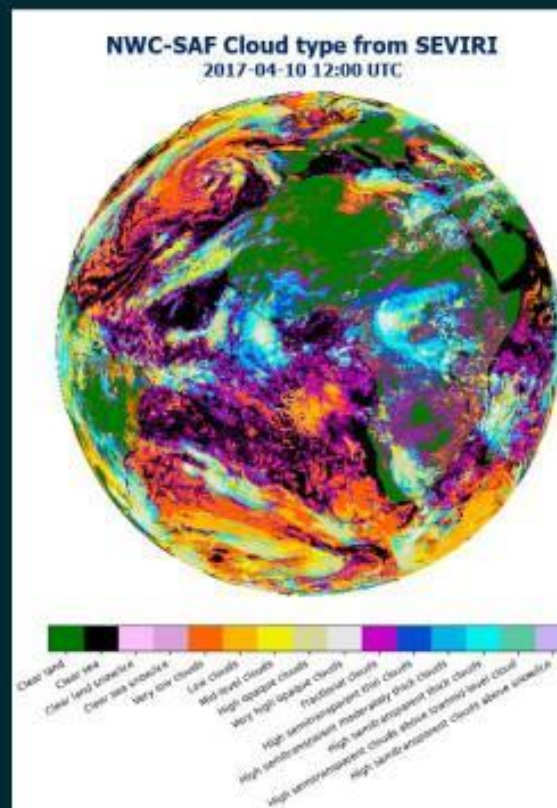
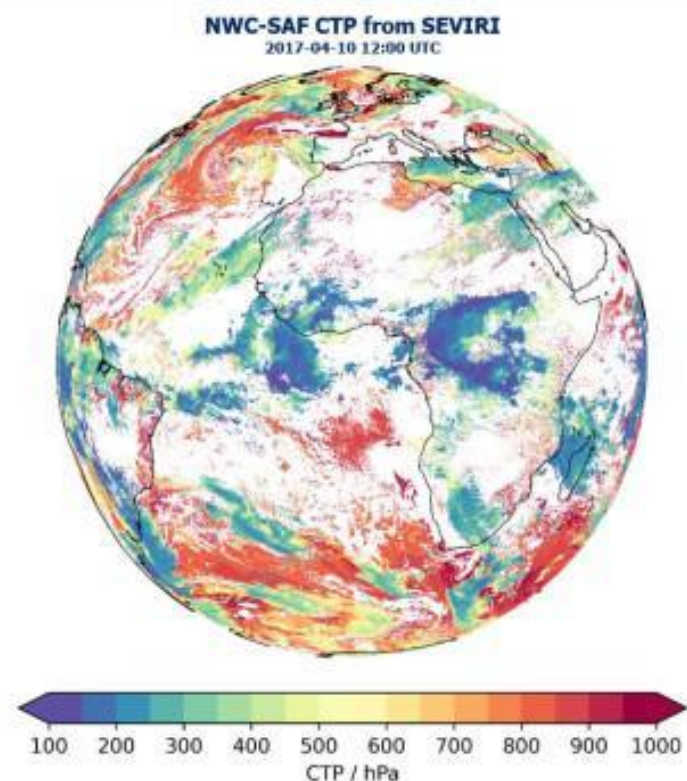




## Generating SEVIRI imagery with Pytroll

## Other data

Credits: Johan Strandgren







# Africaconnect: NRENs for Science and More (2/3)

www.eumetsat.int

**NRENs** are a non-for profit organisations dedicated to supporting **research and education** nationally and internationally through **high-capacity connectivity** and **other value added services**.

**ASREN**  
Algeria, ARN  
Egypt, EUN  
Marocco, MARWAN  
Tunisia, CCK

**WACREN**  
Bénin, ReBénin and RBER  
Burkina Faso, FasoREN  
Cameroon, RIC  
Tchad, Tchad REN  
Côte d'Ivoire, RITER  
Ghana, GARNET and GhREN  
Guinea, Gn-REN  
Liberia, LRREN  
Mali, MaliREN  
Nigeria, NgREN and Eko-Konnect  
Niger, NigerREN  
Sierra Leone, SLREN  
Togo, TogoRER

**UbuntuNet Alliance**  
Botswana, BotsREN  
Burundi, BERNET  
D. R. Congo, Eb@le  
Ethiopia, EthERNet  
Kenya, KENET  
Madagascar, i RENALA  
Malawi, MAREN  
Mozambique, MoRENnet  
Namibia, Xnet  
Rwanda, RwEdNet  
Somalia, SomaliREN  
South Africa, TENET  
Sudan, SudREN  
Tanzania, TERNET  
Uganda, RENU  
Zambia, ZAMREN  
Zimbabwe, ZAMREN



www.africaconnect3.net

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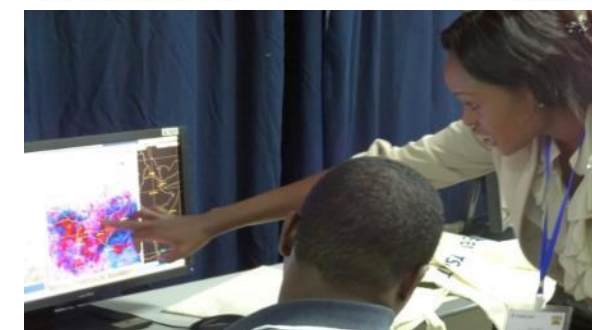
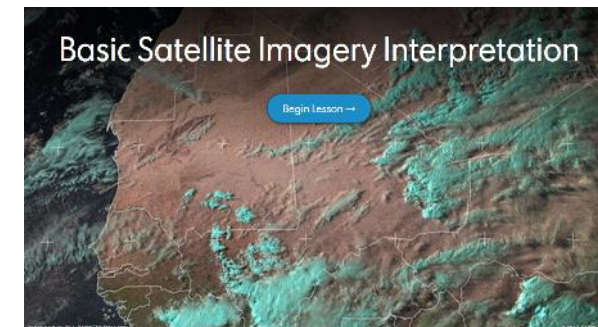
## Katowice Declaration

Increased Collaboration to support Earth Observation efforts



## Lessons and Courses supporting national and regional training

- 1-2 lessons produced each year
- Online courses EN/FR
- 60 people attended in 2022
- EN/FR presence courses (practical forecasting based) – when possible.
- Specialist courses & support:
  - Marine forecasting (EN/FR)
  - Marine applications (as part of the Copernicus programme)
  - Land applications
  - Climate applications
  - Remote sensing & data manipulation (FR)
  - Testbeds



**Promotion of both online and face to face learning**

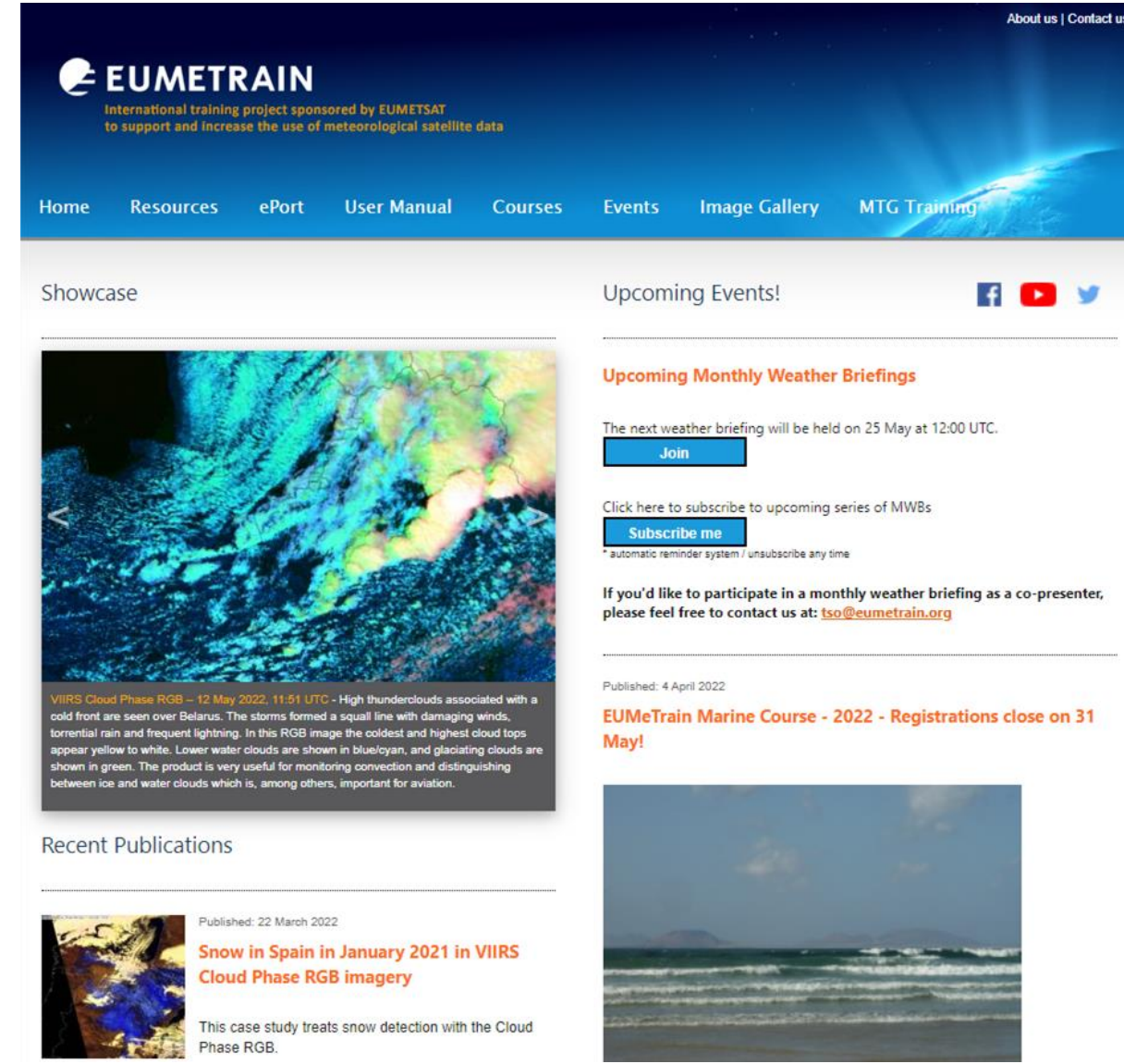
WMO – CGMS Centres of Excellence:  
*South Africa & Kenya – English*  
*Niger and Morocco – French*  
*Oman – [English / Arabic]*  
*Supported by EUMETSAT*



EUMETSAT training program will focus on MTG applications in the following years.  
There will be a range of opportunities:

- ASMET
- Satellite Application Course (SAC)
- EUMETSAT Online learning
- **EUMeTrain** (<http://www.eumetrain.org/>)

Upcoming Training courses – see Training Calendar!  
[trainingevents.eumetsat.int](http://trainingevents.eumetsat.int)



The screenshot shows the EUMeTrain website interface. At the top is a blue header with the EUMeTrain logo and tagline: "International training project sponsored by EUMETSAT to support and increase the use of meteorological satellite data". Navigation links include Home, Resources, ePort, User Manual, Courses, Events, Image Gallery, and MTG Training. The main content area is divided into two columns. The left column, titled "Showcase", features a large satellite image of a storm system with a caption: "VIIRS Cloud Phase RGB – 12 May 2022, 11:51 UTC - High thunderclouds associated with a cold front are seen over Belarus. The storms formed a squall line with damaging winds, torrential rain and frequent lightning. In this RGB image the coldest and highest cloud tops appear yellow to white. Lower water clouds are shown in blue/cyan, and glaciating clouds are shown in green. The product is very useful for monitoring convection and distinguishing between ice and water clouds which is, among others, important for aviation." The right column, titled "Upcoming Events!", includes social media icons for Facebook, YouTube, and Twitter. It features a section for "Upcoming Monthly Weather Briefings" with a "Join" button and a "Subscribe me" button. Below this, it mentions the next briefing on 25 May at 12:00 UTC and provides contact information for participation. At the bottom, there is a "Recent Publications" section with a link to "Snow in Spain in January 2021 in VIIRS Cloud Phase RGB imagery" and a "Published: 4 April 2022" date. A large satellite image of a coastline is visible at the bottom right.

**EUMETRAIN**  
International training project sponsored by EUMETSAT  
to support and increase the use of meteorological satellite data

Home Resources ePort User Manual Courses Events Image Gallery MTG Training

Showcase

Upcoming Events!

Upcoming Monthly Weather Briefings

The next weather briefing will be held on 25 May at 12:00 UTC.

Join

Click here to subscribe to upcoming series of MWBs

Subscribe me

\* automatic reminder system / unsubscribe any time

If you'd like to participate in a monthly weather briefing as a co-presenter, please feel free to contact us at: [tso@eumetrain.org](mailto:tso@eumetrain.org)

Published: 4 April 2022

**EUMeTrain Marine Course - 2022 - Registrations close on 31 May!**

Recent Publications

Published: 22 March 2022

**Snow in Spain in January 2021 in VIIRS Cloud Phase RGB imagery**

This case study treats snow detection with the Cloud Phase RGB.



- **PyTROLL as an open source solution to exploit data for RARS Stations**
  - **RARS Hosting Sites and partners** to use PyTROLL for the exploitation of the data received through the RARS Station.
  - NMHS with good IT to **test the PyTROLL** as a parallel system to the PUMA station.
- **Access to all MTG data & products through EUMETCAST-Terrestrial: NMHS to engage with NREN**
  - *AfricaConnet-3 project will engage meteorological and climate community.*
  - *NRENs might play a significant role in facilitating “big” data exchange*
  - **NMHSs and RCCs Volunteers to contact their NREN and test connections with the technical support of EUMETSAT.**
  - **NMHS and other partners to stay engage with NRENs and express their needs in terms of connectivity, access, data dissemination and other services.**



**Thank you!**  
Questions are welcome.