

ICT & Climate Services

Mainstreaming Climate Services with Applications

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Intra-ACP ClimSA - SPREP*

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- Sydney, Australia





OVERVIEW

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Joint Research Centre

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Strengthening Climate Services in the Pacific



Intra-African Caribbean Pacific Climate Services and Related Applications Programme

This European Union-funded programme was developed to support the Climate Information Services value chain in the Pacific with technical and financial assistance, infrastructure and capacity building.

Pilot Countries



Kiribati



Samoa



Nauru



Tonga

Project Components

-  14 Pacific ACP States
-  Improved understanding and use of Climate Information
-  Understanding end users of Climate Information

Focus Areas



Agriculture
& Fisheries



Disaster Risk
Reduction

Climate Services

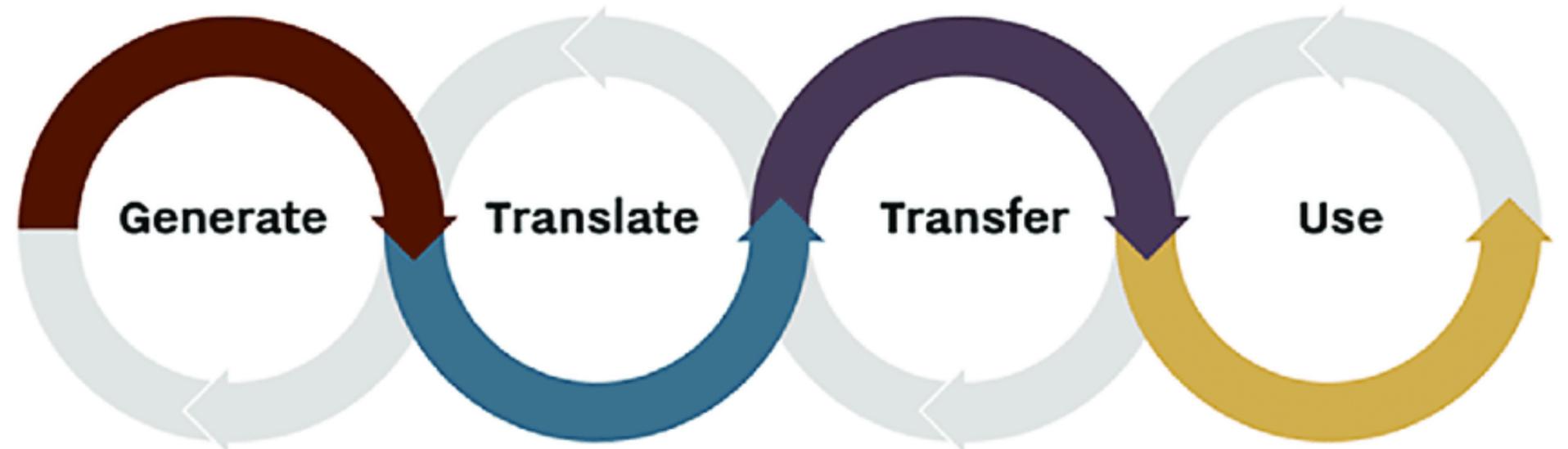
Climate services are systems to deliver the best available climate information to end-users in the most usable and accessible formats.

4 Pillars of Climate Services are:

- generation
- translation
- transfer
- use of climate information

■ Generate climate information and knowledge - learn from the past, monitor the present, forecast the future.

■ Transfer the translated information to the appropriate beneficiaries, in formats and media most useful to their operations



■ Translate the climate knowledge into information that is relevant to agriculture, public health and other target sectors.

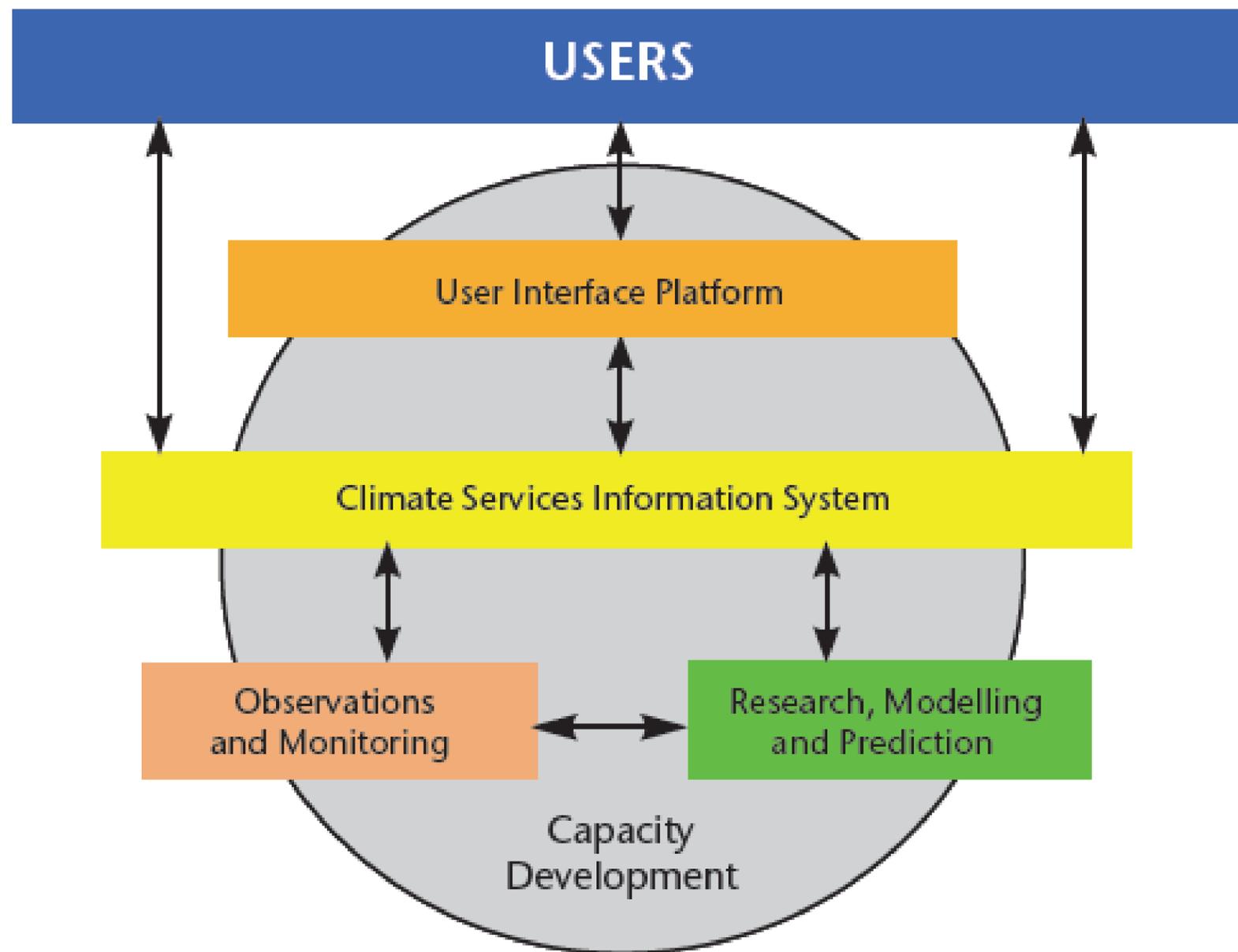
■ Put the translated and transferred climate knowledge to use in operational decision processes, policies and plans. Learn what works and what doesn't.



Climate Services

- Climate services provide climate information in a way that assists decision-making by individuals and organizations.
- Such services require appropriate engagement along with an effective access mechanism and must respond to user needs.
- Such services involve high-quality data from national and international databases on **temperature, rainfall, wind, soil moisture** and **ocean conditions**, as well as **maps, risk and vulnerability analyses, assessments, and long-term projections** and **scenarios**.
- Depending on the user's needs, these data and information products may be combined with non-meteorological data, such as **agricultural production, health trends, population distributions in high-risk areas, road and infrastructure maps** for the delivery of goods, and **other socioeconomic variables**.

Global Framework for Climate Services



GFCS Climate Services Value Chain

The **Global Framework for Climate Services (GFCS)** supports, strengthens, and coordinates the development, delivery, and use of climate services at national, regional and global levels.

The framework is built around 5 components:

1. Climate observations and monitoring,
2. Climate research, modelling and prediction,
3. Climate services information system,
4. Engagement between users and providers of climate services, and
5. Capacity development.

Challenges with Earth Observation Data

Continuity: in many institutions in the Pacific, internet is not available, or at least not continuously.

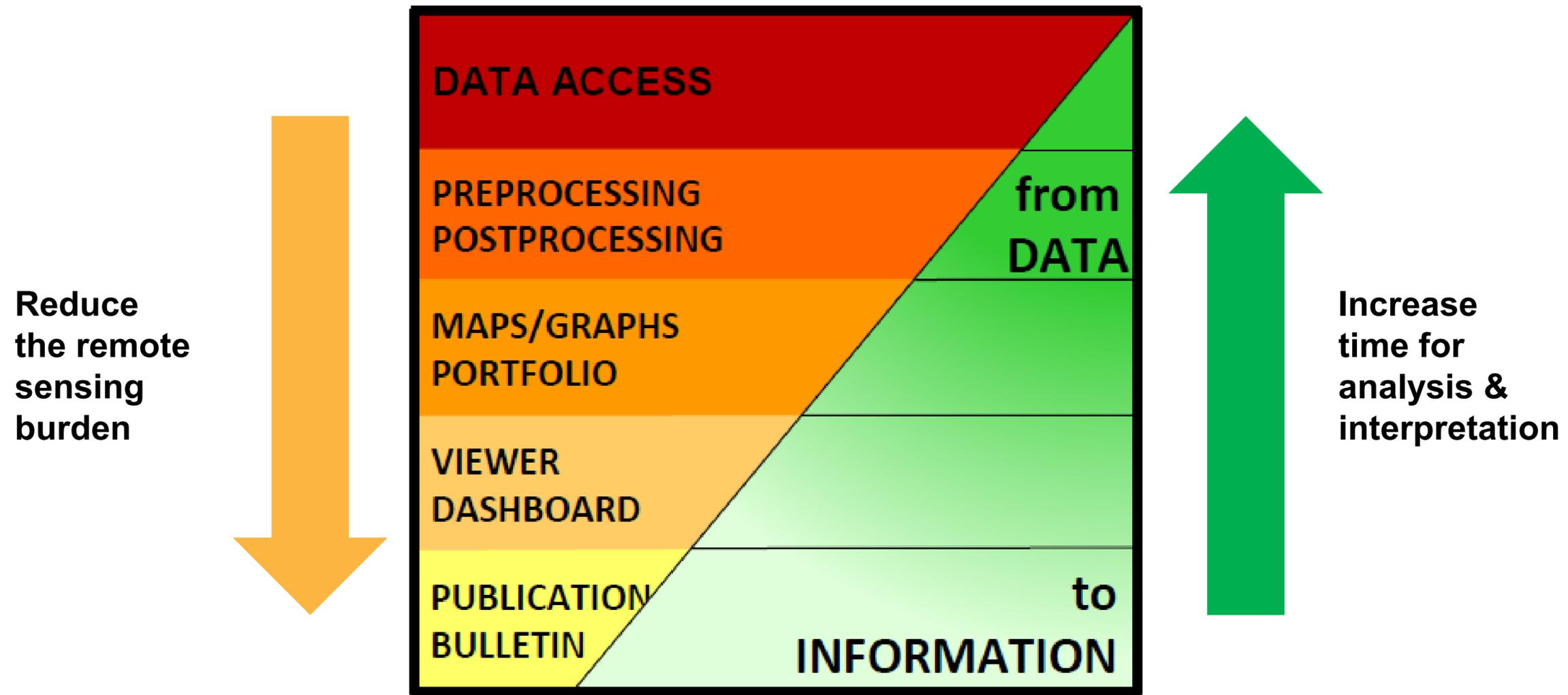
Assess data quality/suitability: which data are best suited for a specific application/region, within the offered portfolio?

Manage complexity: different files formats (.hdf, .netcdf, .grib, hrit, tiff) and projections.

Lack of localised data required for climate projections (timescale of 30+ years)



Overall Objectives of Operational Climate Stations



THE EU JOINT RESEARCH CENTRE, ISPRA

JRC is one of the technical implementing partners of the ClimSA Programme, with a specific mandate to capacitate RCCs of the African Caribbean and Pacific states in the development of climate smart informed decision-making tools.



THE CLIMATE STATION (C-STATION)

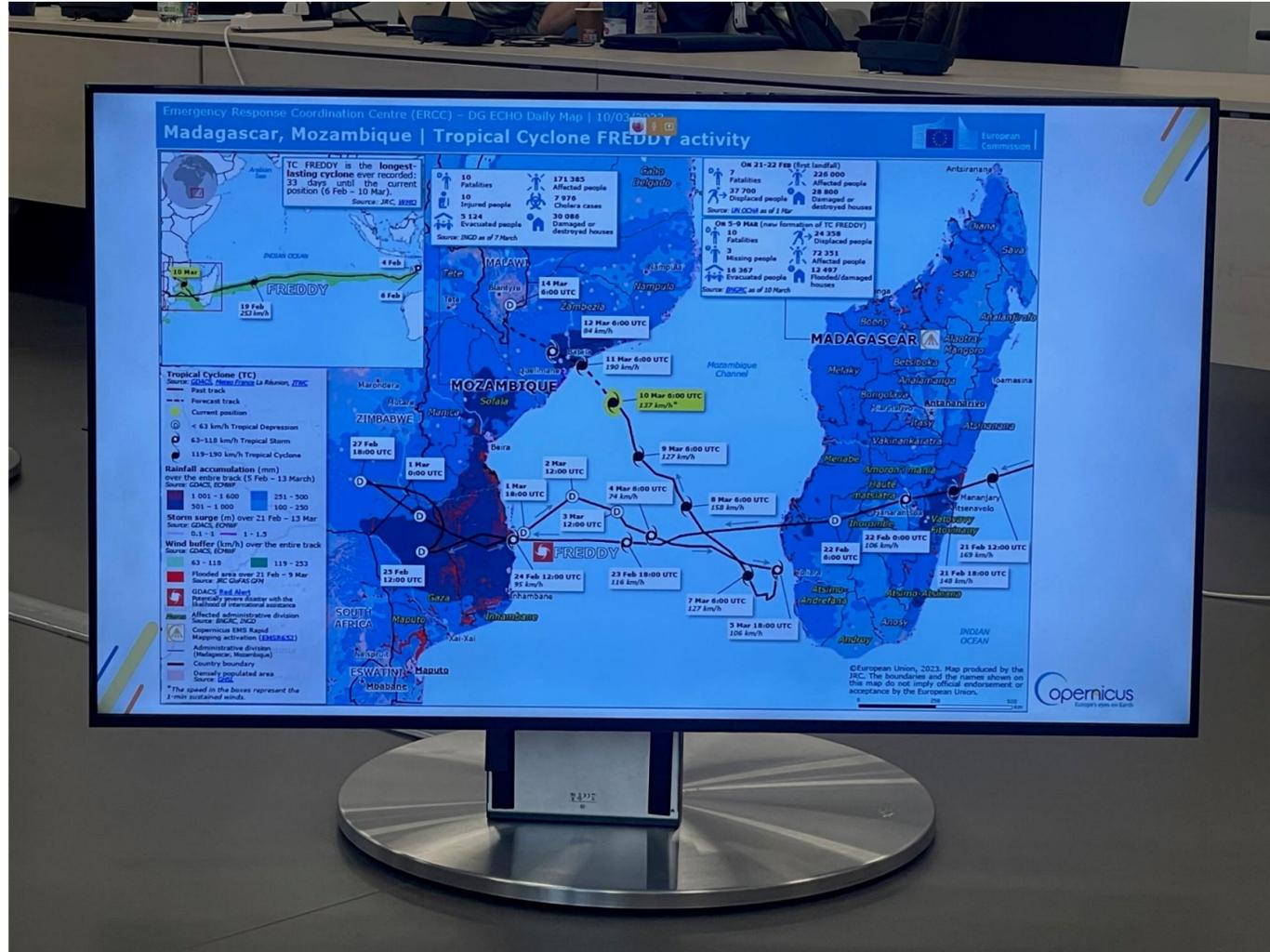
The Climate Station is a platform for **retrieving, processing and visualizing** climate and Earth Observation datasets for the implementation of climate services.

It is developed by JRC for the ClimSA Programme, and has been already deployed to the RCCs since 2021, as a prototype.

The platform is now mature for full integration in the Climate Service Information Systems (CSIS) at the regional level and deployment to the national institutions.



THE CLIMATE STATION (C-STATION)



Key Principles of the Climate Station

'Open' System: based on Open Source technologies (Ubuntu, GDAL, Mapserver/OpenLayers, postGresQL, python, php) and open to Users contributions (needs specifications and developments).

'Flexible' in the Installation/Re-Installation:

- Automatic installation on the projects HW (e.g. African Monitoring of the Environment for Sustainable Development (AMESD))
- Installation on a generic PC (Ubuntu OS or Windows)
- Installation and activation of all components on a single computer.
- Lighter Historical Datasets to facilitate re-install

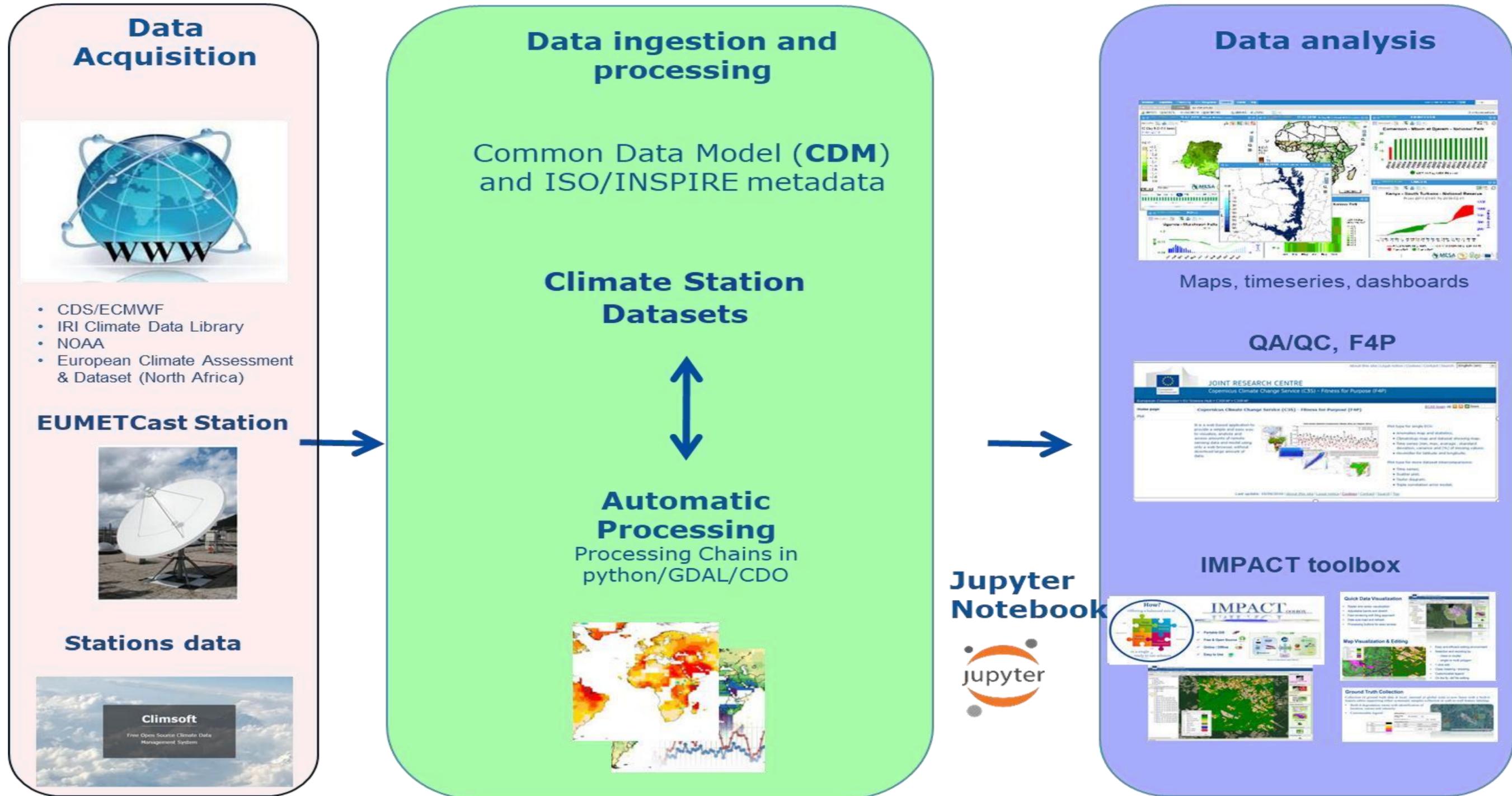
Dedicated services retrieve datasets from:

- EUMETCast
- the Internet
- Data Stores (e.g. through Application Programming Interfaces, as for Climate Data Store and Int. Resource Identifier)

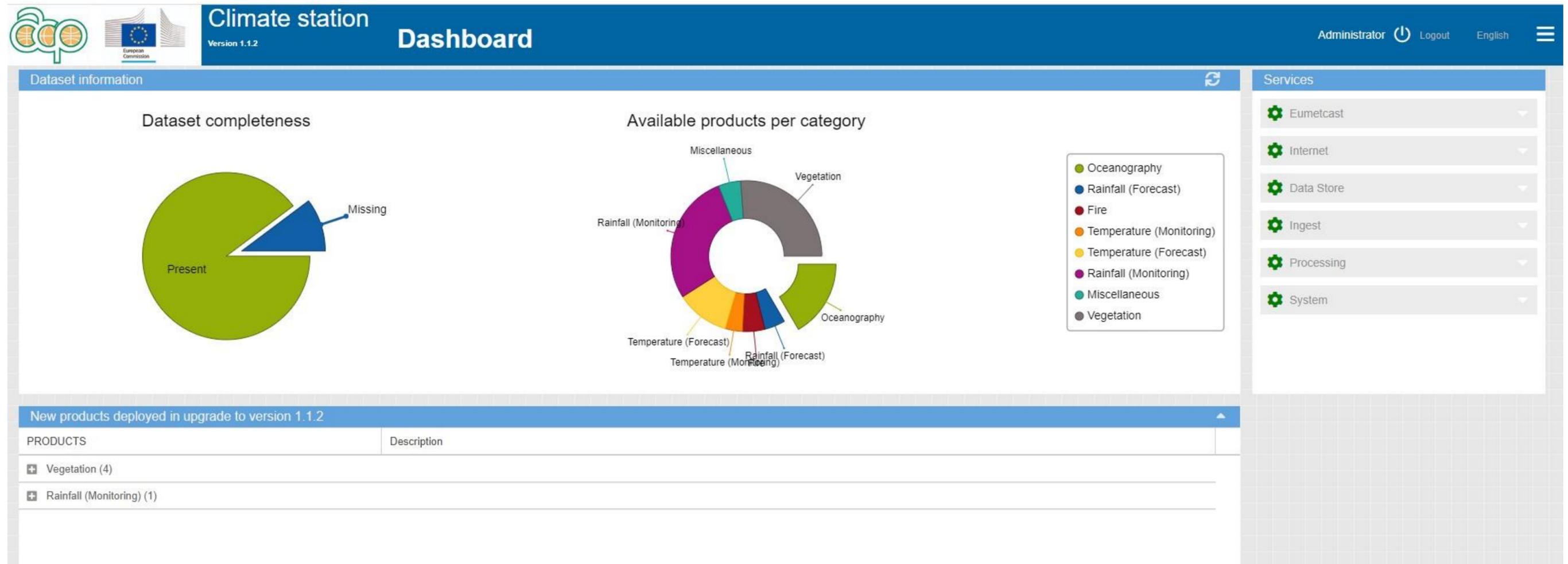
For each data record, the spatial/temporal subset is automatically downloaded and converted to C-Station standards (Common Data Model).



Climate Station: Conceptual Design



Climate Station: General User Interface - Dashboard



- Login
- Language Selection
- Overview of the local datasets
- Control of the Services
- Overview of products released on latest version

Climate Station: General User Interface - Portfolio

Climate station Portfolio
Version 1.1.2

Administrator Logout English

Search products to add to your Portfolio

Activate all Deactivate all Current Portfolio Show current Portfolio!

Theme

- Theme ↑
- Land
- Marine
- Other

Product category

- Product category
- Vegetation
- Rainfall (Monitoring)
- Rainfall (Forecast)
- Fire
- Inland water

Region

- Region ↑
- African area
- Caribbean, Pacific, Africa
- Central Africa
- Eastern Africa
- Global

Search only NEW products in version 1.1.2: Search

PRODUCTS	Active	Sub Product	Mapset	Region	Active
+ Vegetation (8)					
+ Miscellaneous (13)					
+ Rainfall (Monitoring) (9)					
+ Rainfall (Forecast) (10)					
+ Fire (1)					
+ Oceanography (10)					
+ Temperature (Monitoring) (4)					
+ Temperature (Forecast) (13)					

- Quick selection of the products of interest
- Option to work on the newest products only
- Overview of the active products

Climate Station: General User Interface - Acquisition

The screenshot displays the 'Climate station Acquisition' interface. At the top, there are logos for the European Commission and the project, along with the title 'Climate station Acquisition' and 'Version 1.1.2'. On the right, there are user controls for 'Administrator', 'Logout', and 'English'. Below the header, there are navigation tabs for 'Eumetcast', 'Internet', 'Data Store', and 'Ingest'. The main content area is a table with columns for 'Product categories', 'Get', and 'Ingestion'. The 'Get' column includes 'Source', 'Active', and 'Log' sub-columns. The 'Ingestion' column includes 'Sub Product', 'Mapset', 'Completeness', and 'Active' sub-columns. The table lists several product categories, including 'Vegetation (8)', 'MODIS FAPAR - 1.0', 'Risk of Drought Impacts for Agriculture (RDri-Agri) - v2.3.2', and 'Sentinel3-OLCI DMP 300m - olci-v1.0'. Each product category has a corresponding 'Get' and 'Ingestion' row with various status indicators and data points.

Product categories	Get			Ingestion				Log
PRODUCTS	Source	Active	Log	Sub Product	Mapset	Completeness	Active	
Vegetation (8)								
JRC/MARS WSI-HP - v1.0 Product code: wsi-hp Provider: ECMWF/JRC-MARS	JRC MARS Water satisfaction index - Crop JRC:MARS:WSI:CROP Source: INTERNET	<input checked="" type="checkbox"/>		crop	Africa 1km (SPOTV)	2003-01-01 Files: 727 Missing: 1 2023-03-01 Start date: 2003-01-01	<input checked="" type="checkbox"/>	
	JRC MARS vegetation Water satisfaction index - HP for Pasture JRC:MARS:WSI:PASTURE Source: INTERNET	<input checked="" type="checkbox"/>		pasture	Africa 1km (SPOTV)	2003-01-01 Files: 727 Missing: 1 2023-03-01 Start date: 2003-01-01	<input checked="" type="checkbox"/>	
MODIS FAPAR - 1.0 Product code: modis-fapar Provider: JRC DRO	DRO FAPAR 10day normalized (zscore) JRC:DRO:FAPAR:10ZSCORE Source: INTERNET	<input type="checkbox"/>		10dzscore	Africa 0.01 deg (MODIS)	2001-01-01 Files: 799 Missing: 13 2023-03-01 Start date: 2001-01-01	<input type="checkbox"/>	
	DRO FAPAR 10day (monitoring) JRC:DRO:FAPAR:10DFAPAR Source: INTERNET	<input type="checkbox"/>		fapar	Africa 0.01 deg (MODIS)	2001-01-01 Files: 799 Missing: 13 2023-03-01 Start date: 2001-01-01	<input type="checkbox"/>	
Risk of Drought Impacts for Agriculture (RDri-Agri) - v2.3.2 Product code: gdo-rdri Provider: JRC/GDO	Risk of Drought Impacts from JRC server JRC_GDO_RDRI_DEKAD Source: INTERNET	<input checked="" type="checkbox"/>		rdria	GPCC Global 1 degree	2010-01-01 Files: 475 Missing: 4 2023-03-01 Start date: 2010-01-01	<input checked="" type="checkbox"/>	
Sentinel3-OLCI DMP 300m - olci-v1.0 Product code: vgl-dmp Provider: VITO/Copernicus - JRC	VITO PDF server - OLCI DMP 300m V1.0 PDF:GLS:OLCI-V1.0:DMP Source: INTERNET	<input checked="" type="checkbox"/>		dmp	Africa 300m (SPOTV)	2021-01-01 Files: 79 Missing: 3 2023-03-01 Start date: 2021-01-01	<input checked="" type="checkbox"/>	

- Control of the Acquisition of incoming products
- Check the logfiles of the Services
- Check the Data completeness

Climate Station: General User Interface – Data Management

Product categories		Data set completeness				
PRODUCTS	Request	Mapset	Request	Sub Product Name	Status	Request
+ Vegetation (9)						
+ Rainfall (Monitoring) (9)						
+ Rainfall (Forecast) (10)						
+ Fire (1)						
+ Oceanography (11)						
- Temperature (Monitoring) (4)						
GTS GLOBAL gridded temperature daily - 1.0		IRI ACP 0.5 degree		Gridded temperature daily tmin cdas-daily-temperature - 1.0 - tmin	2022-03-06 Files: 366 Missing: 20 2023-03-06 Start date: 2020-09-20	
				Gridded temperature daily tmax cdas-daily-temperature - 1.0 - tmax	2022-03-06 Files: 366 Missing: 20 2023-03-06 Start date: 2020-07-01	
ERA5 hourly 2m dewpoint temperature - 1.0		CDS-ACP-25km		ERA5 hourly 2mdw era5-hourly-2mdw - 1.0 - 2mdw	2023-02-04 Files: 745 Missing: 240 2023-03-07 Start date: 2021-04-15	
ERA5 hourly 2m Temperature - 1.0		CDS-ACP-25km		ERA5 hourly 2MT era5-hourly-2mt - 1.0 - 2mt	2023-02-04 Files: 745 Missing: 240 2023-03-07 Start date: 2021-04-26	
				ERA5 Hourly 2MT min era5-hourly-2mt - 1.0 - 2mtmin	2023-02-04 Files: 745 Missing: 240 2023-03-07 Start date: 2022-08-01	
				ERA5 Hourly 2MT max era5-hourly-2mt - 1.0 - 2mtmax	2023-02-04 Files: 745 Missing: 240 2023-03-07 Start date: 2022-08-01	

- Check the completeness of each Product
- Create 'Requests' for retrieving missing files, to be sent or executed directly if the Station is connected to the internet)

Climate Station: General User Interface – Analysis



Interactive Map view windows

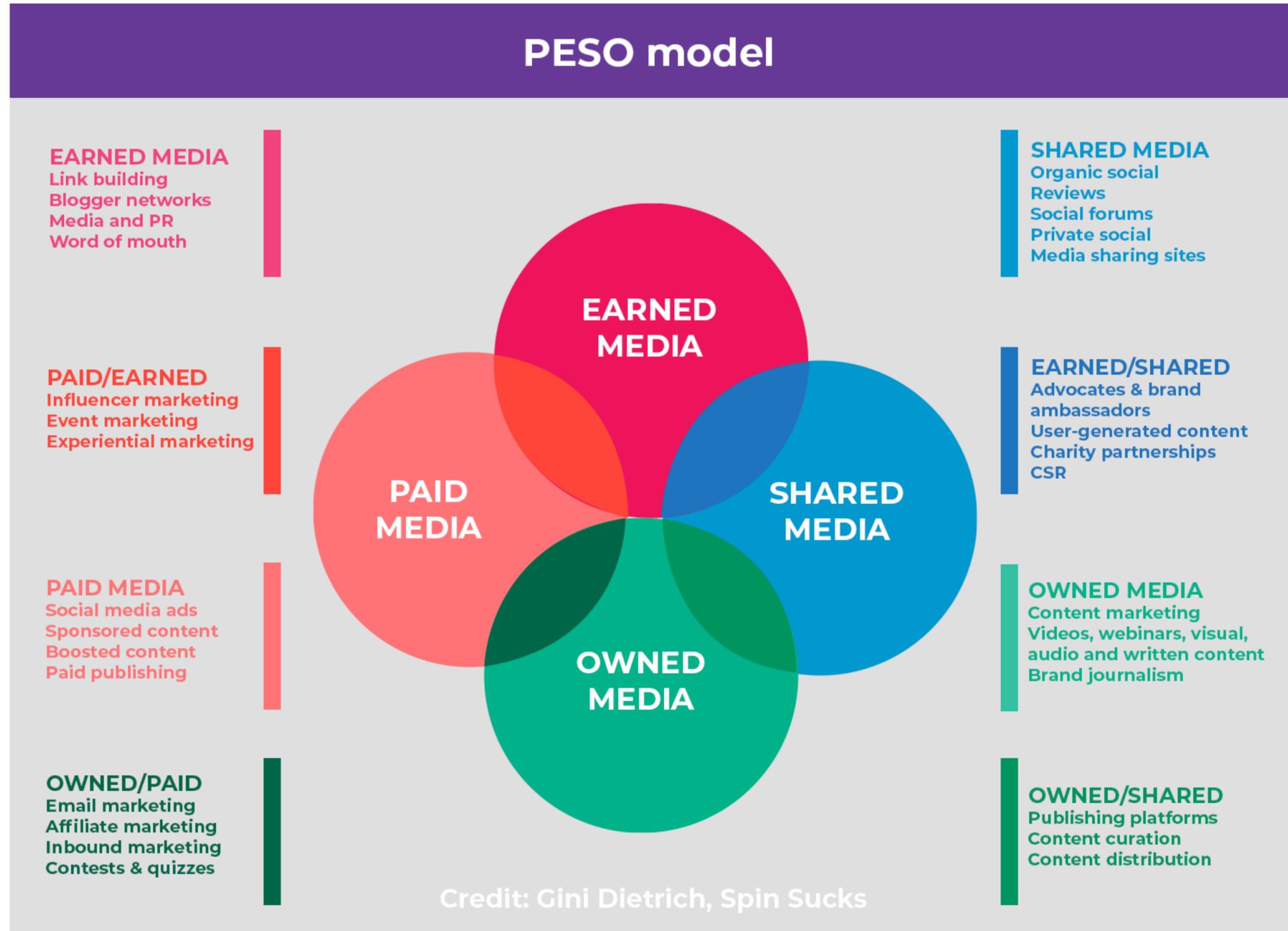
- View products with selected color pallet applied
- Product timeline
- Add vector layers (GAUL border, EEZ, Protected areas, user uploaded, etc.)
- Draw geometries (polygon, line, point, etc.)
- View and administer logos, title and disclaimer objects in the map area
- Outmask selected geometry
- Save map as PNG image
- Save Map view window as a template

Link map view windows

- with zooming, panning and timeline (selected product date)

- 1. Introductory training has been attended by staff at the regional and country level.**
- 2. Installation of the Climate Station on SPREP's server.**
- 3. Adapt the maps for the Pacific Region (now presented under 2 windows)**
- 4. Training at the regional level with customised data**
- 5. Strong interest in Sub-Products: Global Drought Observatory, IMPACT toolbox, Fisheries (OPFish)**

The PESO Approach to Mainstreaming Climate Services



WORLD MET DAY

Samoa Social Media Campaign

- Visibility and branding exercise
- Virtual tour of Samoa Met Office
- Capacity building for SMD Team
- Launch of billboards

50K
target

7
days

150K +
reach

Meet
Afa'ese Luteru Tauvale
Assistant Chief Executive Officer (ACEO)

Meet
Taume'asina Fōma'i
Senior Climate Scientist

WORLD METEOROLOGICAL DAY
23 March 2024
On the frontline of climate action

Planning a day at the beach and need temperature forecasts? Need to know when to expect more rainfall for farming? Seeking updates on severe weather or tropical cyclone forecasts? Going on a fishing trip and need more ocean info? Connect with Samoa Met Division to better understand the value of climate and weather information they provide, so that you're prepared.

ClimSA SPREP M.N.R.E. @samoa.met

World Meteorological Day 2024
LIVE Virtual Tour of the Samoa Met Office in Mulinu'u
Saturday, 23 March 2024 at 10.00AM Samoa Time

LANDSLIDE AREA ELE'ELE SOLO
EMERGENCY ALERT
YOU ARE NOW ENTERING A LANDSLIDE PRONE AREA
UA E ULUFALE NEI I NOFOAGA E A'AFIA GÖFIE I ELE'ELE SOLO

Explore the climate & weather of **Samoa**

Saleapaga
Apia Harbour
Savai'i

Prizes

How to Enter
1. Twice a day we will post an image of a location in Samoa.
2. Simply tell us the location or hazard in the image.
3. Correct entries go into a draw to win prizes.
Competition from 18-22 March

Connect with Us
@samoa.met

SCIENCE TO SERVICES

June 2023

Tarawa, Kiribati

one-day training on how to interpret a tide predictions calendar and use online software to create early warning graphics on mobile devices.

Tools used: COSSPac Tide Predictions Calendar (print), Canva, smartphones

22

attendees

22+

products

3

tools



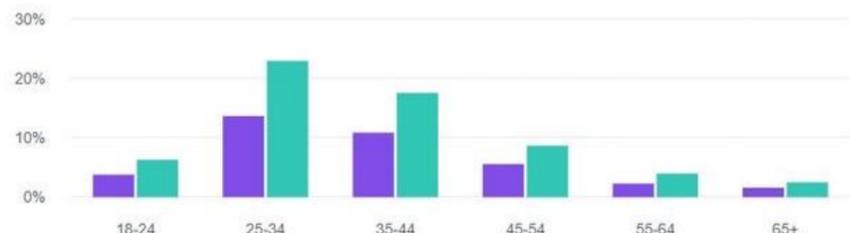
Audience

These values are based on total followers of your Page or profile.

Create a post

Age and Gender

Men 37.80%
Women 62.20%



Location

Cities Countries

Apia, Samoa	25,524
Auckland, New Zealand	4,529
Sydney, NSW, Australia	1,672

Page overview

Create a post Last 28 days

Discovery

Post reach	149,978
Post engagement	129,801
New Page Followers	444

Interactions

Reactions	32,657
Comments	6,580
Shares	1,016
Photo views	13,173
Link clicks	56

Content

Create a post

Last 60 Days

Post reach



FA'AMATALAGA OLE VEVELA 🌅 Ua maitauina le vevela o le atunu'u. Mo le masina o Mati lava ia, ole vevela maualuga fa'amauina i aso ta'itasi sa matele ina la'asia le 30 tikeri ma luga...

Wed, Mar 27

Post reach 49,757 Engagement 3,396

Boost post



NAMASTE from Christoph Mason • ws Village: Si'usega, Fusi-Safotulafai • Work Experience: 8 years • Qualifications: Certified self-proclaimed Formula 1 driver • Favorite Quote:...

Tue, Mar 26

Post reach 44,188 Engagement 6,940

Boost post



Fa'amatalaga Lata mai o le Tau — 2 Mati 2024 ws • Vevela Fa'amauina mo Apia i le 3:22pm = 32.8°C • Matā'upolu 30–40 kilomita i le itulā Galu e 1.5–2.0 mita Timu pupu'u ma e...

Sat, Mar 2

Post reach 39,270 Engagement 8,423

Boost post





ClimSA

INTRA-ACP CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAMME



An initiative of the Organisation of African, Caribbean and Pacific States funded by the European Union



SPREP

Secretariat of the Pacific Regional Environment Programme

Thank you