

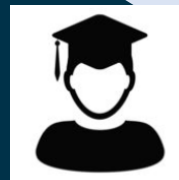
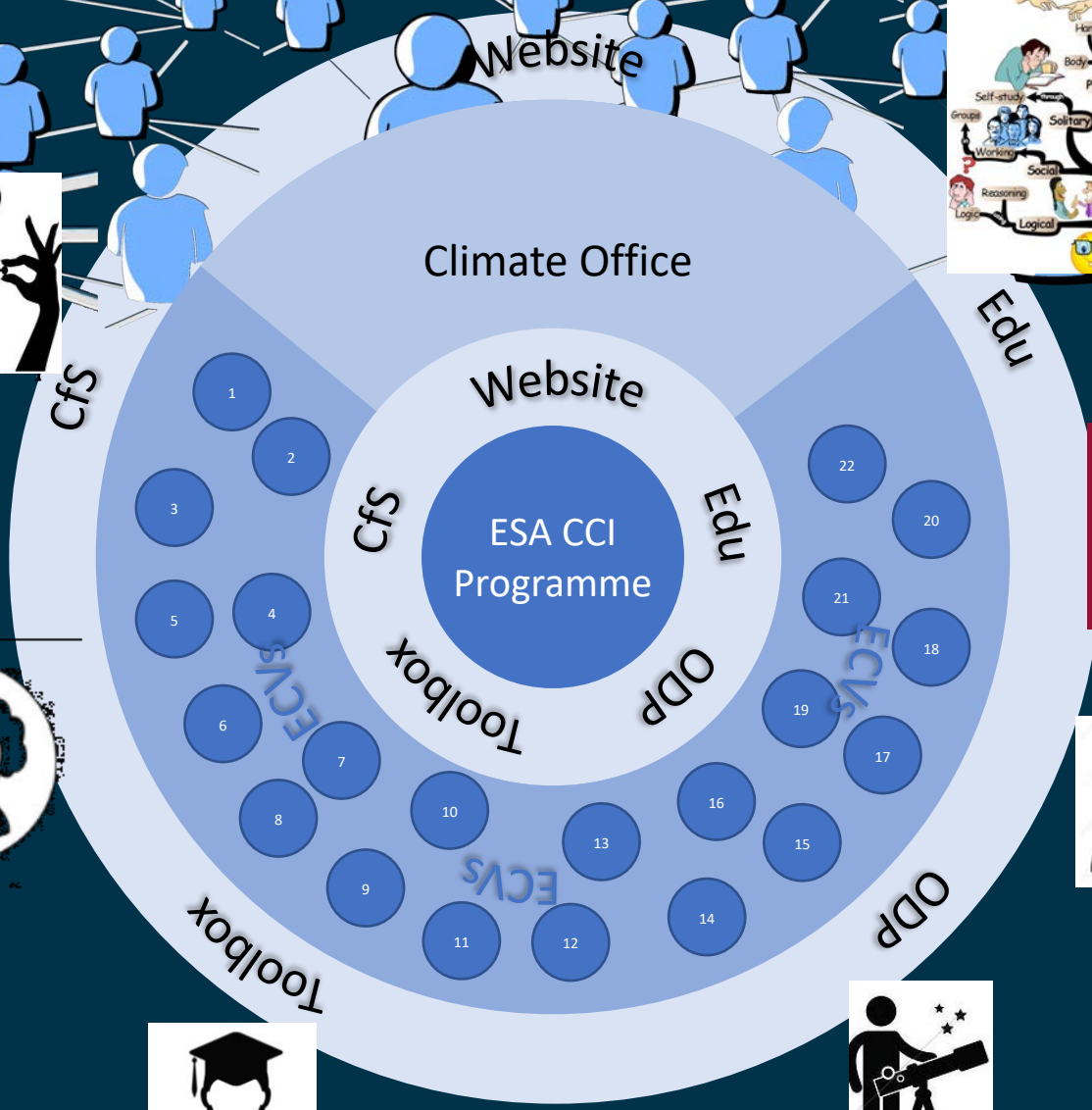
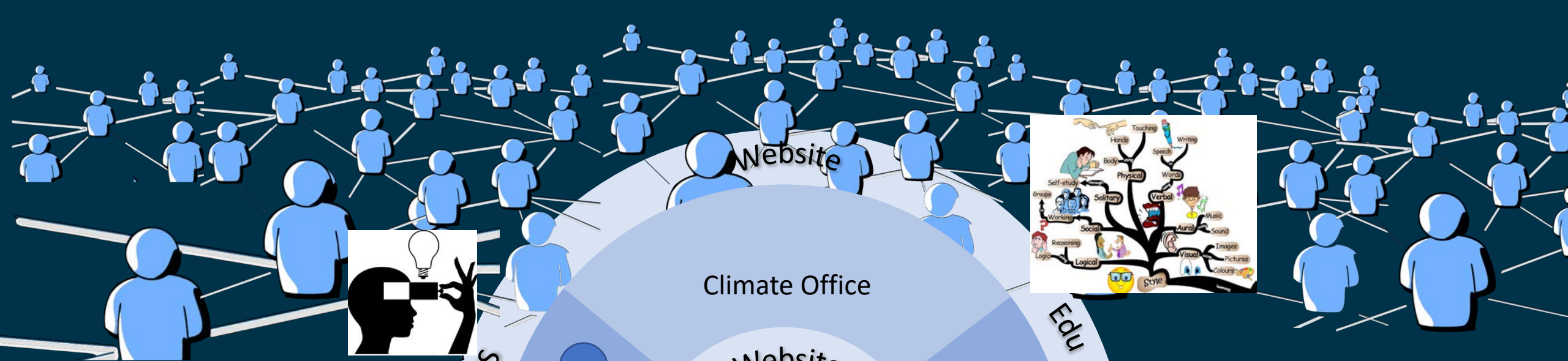
Knowledge Exchange (theme iv)

Carsten Brockmann

Maximise

- awareness
- access
- use
- understanding
- of satellite data for climate research

with an **emphasis** on promoting the **CCI Programme**



A. Strengthen the R&D profile of CCI

- A. Distinguish from C3S
- B. Supported by ECV scientists
- C. Well known by other climate scientists
- D. Known by general public

B. Develop KE products at „excellence“ level

- A. Contemporary appearance
- B. Fast, informative, intuitive
- C. Consistency across products

C. Keep KE product content up-to-date

- A. Provide latest Climate Change information
– not restricted to CCI
- B. First choice for recent, quality controlled climate change data

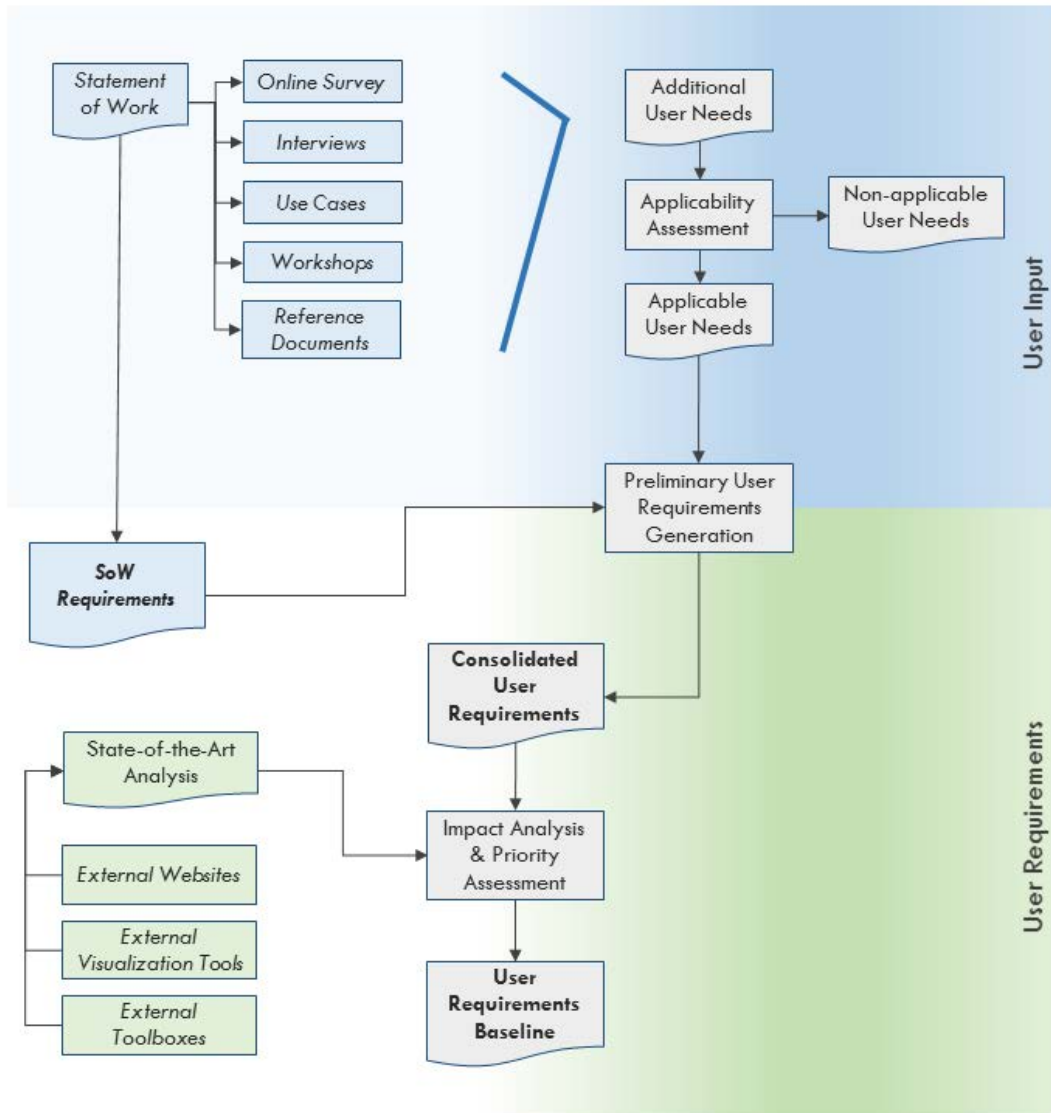
<u>ESA CCI</u>	<u>Copernicus C3S</u>
Research & Development	Consolidated science, long term consistent time series
=	
Next generation of operational products	

- 1 – Website
- 2 – Climate from Space App
- 3 – Educational Tools

- 4 – Open Data Portal
- 5 – CCI Toolbox

Working with Representative Users

	CCI Data Producers	Climate research & reanalysis community	Earth system science community	Climate service developers and providers	Undergrad., postgraduate students and supervisors	Secondary and primary school teachers	General public	ESA personnel
Repr. user								
Kaiser, DWD	X	X	X	X				
Fitzsimons, NCEO					X	X		
Kockelkorn, Museon							X	
Swinkels, Museon							X	
Hayward, TVUK				X				
Brockmann, BC	X			X				
Salama, ITC					X			
Nam, GERICS		X	X	X				
Ghent, ULeic.	X							
Maheca, MPI			X					
ESA: Rider, Oakley, Talevi, Pinto, Mecklenburg, Trofaier, Cipolini								X



Website

- content shall cover ESA climate activities + CCI projects
- contemporary design and functionality (mobile + desktop)
- safe & reliable technology

Open Data Portal

- a single point of easy, open and harmonised access to CCI ECV data products

Climate from Space App

- a 'Stories Mode' with focus for story-telling
- eye-catching visualisations of all (key) CCI project data products
- easy to install

Cate toolbox

- Container as a Service (CaaS)

Educational material

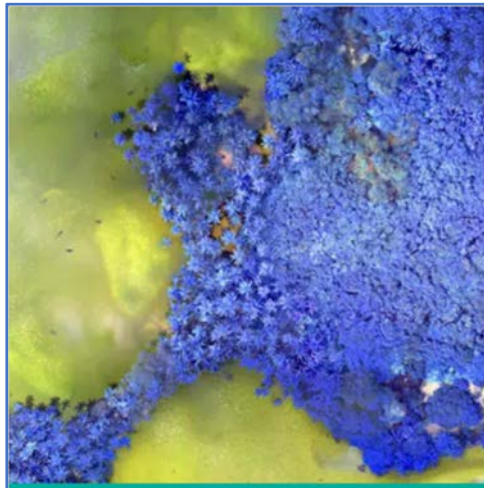
- based around narratives that explain the climate as a system of interacting CCI ECVs
- developed in conjunction with and actively promoted to Education, including school teachers

Achievements after 1 Year – 4 Products are available



new website

climate.esa.int
online August 2020



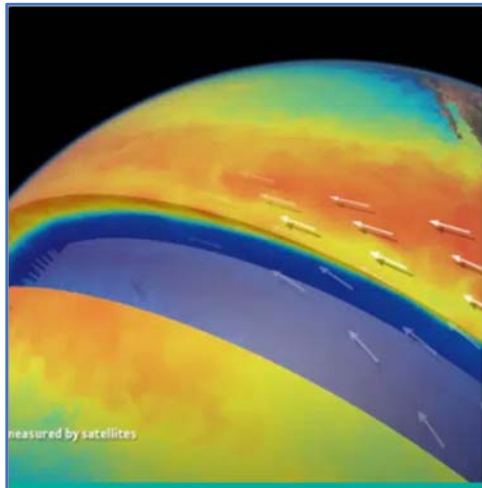
Explore Climate

Explore how our climate has evolved through 40 years of research-quality satellite data

[Learn More](#)

new app

cfs.climate.esa.int
online October 2020



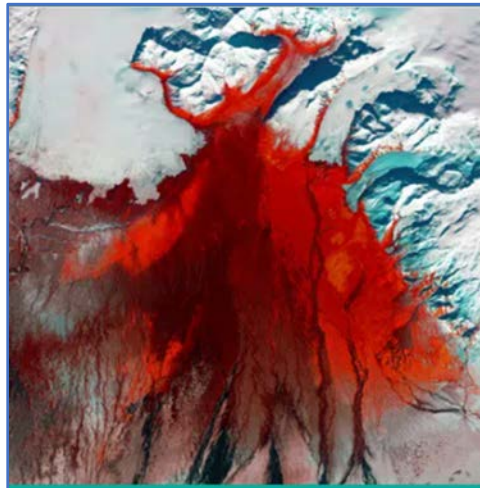
Climate from Space - interactive website

Explore the changing climate through the eyes of satellites with this interactive website

[Learn More](#)

new ODP

integrated in website
online October 2020



Access Climate Data

The Open Data Portal provides free and open access to all CCI Essential Climate Variables

[Learn More](#)

new toolbox

cate.climate.esa.int
online August 2020



Cate

The Climate Analysis Toolbox of the ESA Climate Change Initiative

[Learn More](#)

new educational
material

Integrated in website
ERPs during 2021



Learn about Climate

ESA learning resources for students on climate and environmental change

[Learn More](#)



Education
 Website
 Climate from Space
 Open Data Portal
 Toolbox

Knowledge Exchange Climate Change Initiative

CCI Style Guide

Presented by Tespazio VEGA UK Ltd

ESA ITT A0/1-9550/19/I-NB | SoW Ref: ESA-CCI-EOPS-KNOW-SOW-18-0116

Climate Change Initiative:
Knowledge Exchange Tools, Data & Education Outreach

3 Colour Palette

Main Colours

ESA Teal	ESA Teal 55%	90% black
----------	--------------	-----------

Supporting Colours (for ECV Groupings)

Deep Space	Deep Space-1	
Green	Orange	Blue

Additional Colours for graphs and tables

Excite Red	ESA Orange	Trusty Azure
------------	------------	--------------

3.1 PRIMARY COLOUR PALETTE

The primary colour palette may be used to design basic layout elements, text highlighting and backgrounds, but must not be applied to the ESA Logotype. These colours must not be used in large blocks. Instead, they must be used as subtle additions to digital channels or printed materials to identify them as part of the CCI programme. If a large amount of a primary colour is required, such as on the cover of a publication, it should use gradients or translucent colour washes over appropriate photos. Ribbons of colour can be used but should be no thicker than 3pts/10 pxls. Please see the section about *Marketing Materials* for further information.

ESA Teal	C93 M0 Y57 K0	R0 G179 B152	#00B398	PANTONE 3275 C
55% ESA Teal	C36 M0 Y18 K0	R152 G219 B206	#980BCE	PANTONE 571 C

10 Writing and Language

10.1 FOR WEBSITE

The following guidelines should be considered when writing for these types of content:

ECV Project Summaries

These should be 150-200 words maximum, providing a high level view of the project's objectives, achievements to date and future milestones. Each summary must clearly identify the climate change activity that is being addressed and what technology is being used to address it.

If problems have been overcome, explain how this was achieved (e.g. by combining different sensor technologies, or calibrating with ground measurements). For those seeking further information, explain how the project's results (data products) can be used. Subheadings can be used within a page to break up the text and give additional wayfinding.

Within each project summary should be the following compulsory sections:

- Consortium members** – each ECV consortium should list the member companies and links to their respective website. Company logos should also be included.
- Team profiles** – The list of team members must include each person's first and last names and their job title. If possible, each listed member should have a thumbnail photo and very short biography.
- Resources** – A bulleted list of resources, such as documents and reports, each of which is clearly named and link to the item (opening in a new window).
- Contact Us / Support** – For the CCI programme and general enquiries, please email climate.office@esa.int. For individual ECV, please provide at least one named contact and email address.

climate.esa.int/en/

United space in Europe

ESA climate office

Evidence | Explore | Educate | ESA & Climate

THE ESA CLIMATE CHANGE INITIATIVE

The CCI aims to realise the full potential of the long-term global Earth Observation archives that ESA has established over the past 30 years, as a significant and timely contribution to the ECV databases required by UNFCCC.

website

Cate - ESA CCI Toolbox

DATA SOURCES

- SST ESA Sea Surface Temperature Climate Change Initiative (ESA SST CCI): Analysis long term product version 1.1
- SST ESA Sea Surface Temperature Climate Change Initiative (SST_cci): Advanced Very High Resolution Radiometer (AVHRR) Level 2

World (1)

Auto ds_1_analysed_sst at time = 2010-01-01T12:00:00
ds_1_analysis_error at time = 2010-01-01T12:00:00

WORKSPACE

```
open_dataset() -> ds_1 figure  
plot() -> plot_1 figure  
plot_line() -> plot_2 figure
```

Details

Step inputs:

Name	Value
ds_id	local:ESACC1-14_GHRS...
time_range	null (default value)
region	null (default value)
var_names	null (default value)
normalize	true (default value)

VARIABLES

analysed_sst	analysis_error	mask	sea_ice_fraction	sea_ice_fraction_error
float32	float32	float32	float32	float32
NaN	NaN	NaN	NaN	NaN

cate

Climate from Space

COUCHES DE DONNÉES

- Clouds
- Ozone
- Aerosols
- Biomass
- Carbon Dioxide (CO2)
- Fire
- Greenland Ice Sheet
- Land Cover
- Methane (CH4)
- Ocean Colour
- Ozone Profile
- Permafrost
- Sea Ice - Northern Hemisphere
- Sea Ice - Southern Hemisphere
- Sea Level
- Sea State
- Sea Surface Salinity
- Sea Surface Temperature

Cfs

Secondary 11-14

climate change initiative

education resource pack

A PASSAGE OPENS

Arctic sea ice and climate change

teacher guide and student worksheets

edu

Information sheet 1: A PASSAGE OPENS


For centuries, ships travelling between Europe and Asia have had to go all the way around the land and ice that separates the two. The so-called Northwest Passage between mainland Canada and its Arctic islands would be a shorter sea route but, for most of recorded history, it proved impenetrable, locked firmly in the grip of a frozen sea. The ice deflected many, including the Royal Navy. Sir John Franklin's 1845 expedition was lost. Eighteen search parties sent out over the following thirty years failed to find any trace of him, his two ships or the crew of 130 individuals. In 1906 Roald Amundsen became the first person to get through the Northwest Passage, after a three-year voyage in a small boat.

A satellite image of summer sea ice in the Arctic. The narrow channel between mainland Canada and its Arctic islands is usually impassable. In this picture, Lancaster Sound (lower centre) is open, but ice still blocks Frobisher Channel to the west (left).

In the century that followed, only a few more ships made the journey - with the aid of icebreakers. But, at the same time, the Arctic sea ice started to melt. Satellite images show that the passage opened for the first time in 2007, decades before climate models had predicted it would. While the opening of the Northwest Passage can make the shipping of goods from Asia to Europe faster, it is a very worrying milestone for both the Arctic and our planet as a whole.

A PASSAGE OPENS 24 European Space Agency climate change initiative

Select Cate Service



Please select a Cate service provision mode

Cate Cloud Service
[Terms & Conditions](#)

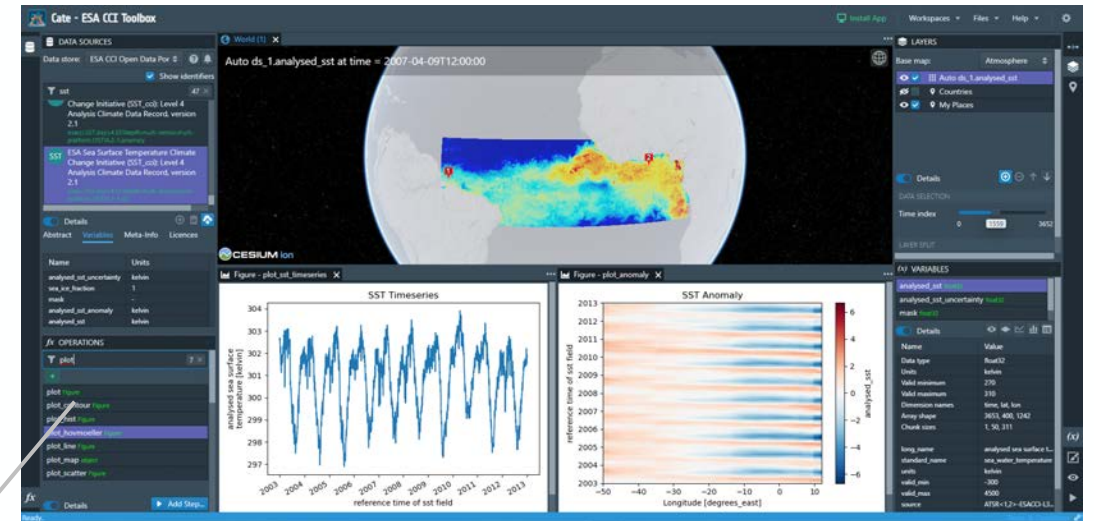
Cate Local Service
<http://localhost:9090>
[How do I run a Cate local service?](#)

**Cate Cloud /
Software-as-a-
Service mode;
*running close to ODP***

**Cate Local /
Stand-Alone
mode**

**Interactive
graphical user
interface**

Jupyter Lab



```

SST_ATL.ipynb
[6]: %matplotlib inline
import cate.ops
import numpy as np
import matplotlib.pyplot as plt
from pandas.plotting import register_matplotlib_converters
register_matplotlib_converters()

[7]: # Step 1
sst_atl = cate.ops.open_dataset(ds_id="local.SST_ATL_18Y")

[8]: # Step 2
sst_time_series = cate.ops.plot(ds=sst_atl, var="analysed_sst", indexers="lon=0.22771968203652096, lat=2.640115645463033")

[ ]: # Step 3
res_1 = cate.ops.anomaly_internal(ds=sst_atl)
    
```

In-depth analysis of educational curricula in ESA member states

Development of introductory text for climate website

Design and production of Educational Resource Packages for

- Primary education (facilitating CfS stories and software)
- Secondary education (facilitating CfS stories and software)
- Tertiary education (facilitating ODP data and Cate toolbox)

Design of Massive online course

- Course plan to be delivered in December 2020
- Course will take place in September-October 2021



ESA / C3S discussions on wider data standards

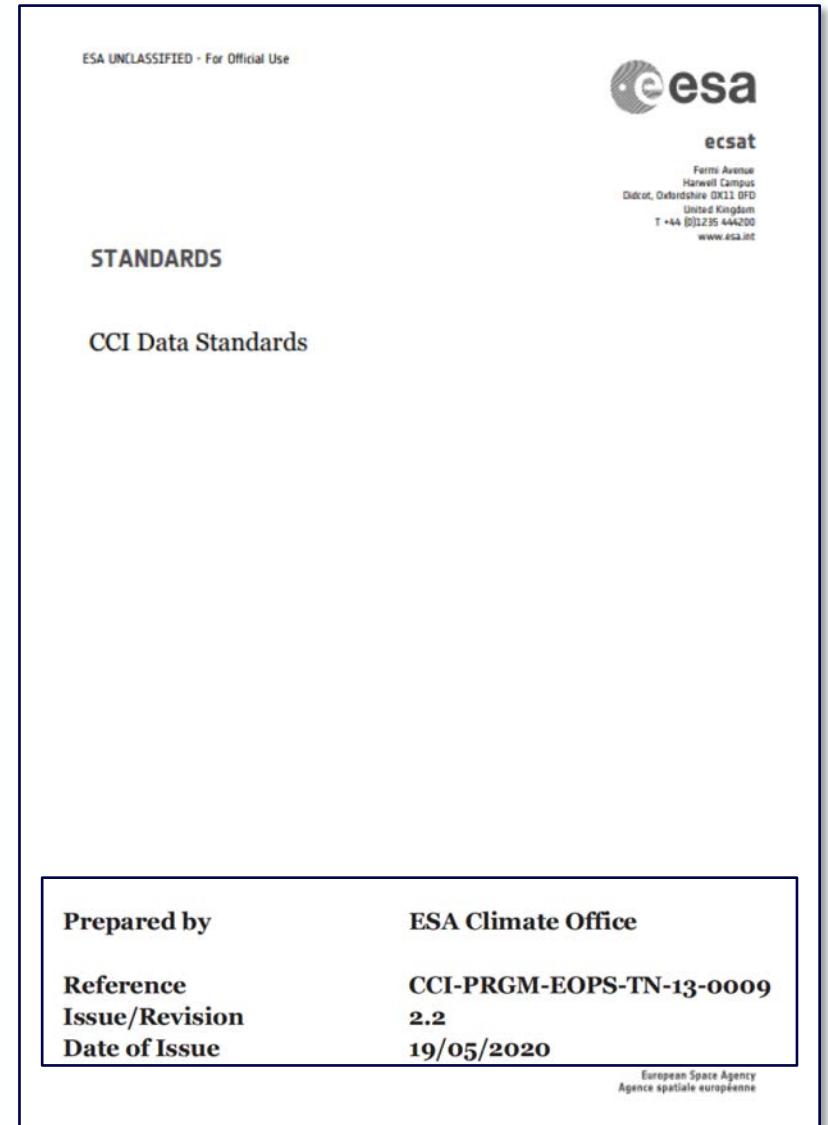
- Version 2.0 (2018) of the CCI Data Standards: first edition being developed with the support of ECMWF (C3S).
- Cooperation between the ESA Climate Office and ECMWF/C3S on the CCI Data Standards, from v2.0 onwards, optimises the sustainability of CCI datasets beyond the CCI programme, and facilitates their use and further development by ECMWF/C3S.

Data Standards version (2.2) released May 2020

- ESA-C3S bi-lateral in January 2020 gave further input to the evolution of the standards
- Work towards a common data standard

Data Standard addresses

- Minimum requirements
- Conformance with international standards
- CCI Ontology
- Data attributes
- Data structures (directory and file level)



20 ECV's (LST, WV and HR-LC still to release first datasets)

- Updates from all existing ECVs
- First and second versions from new ECVs except 3 (LST, WV, HR-LC)

164 current datasets in portal

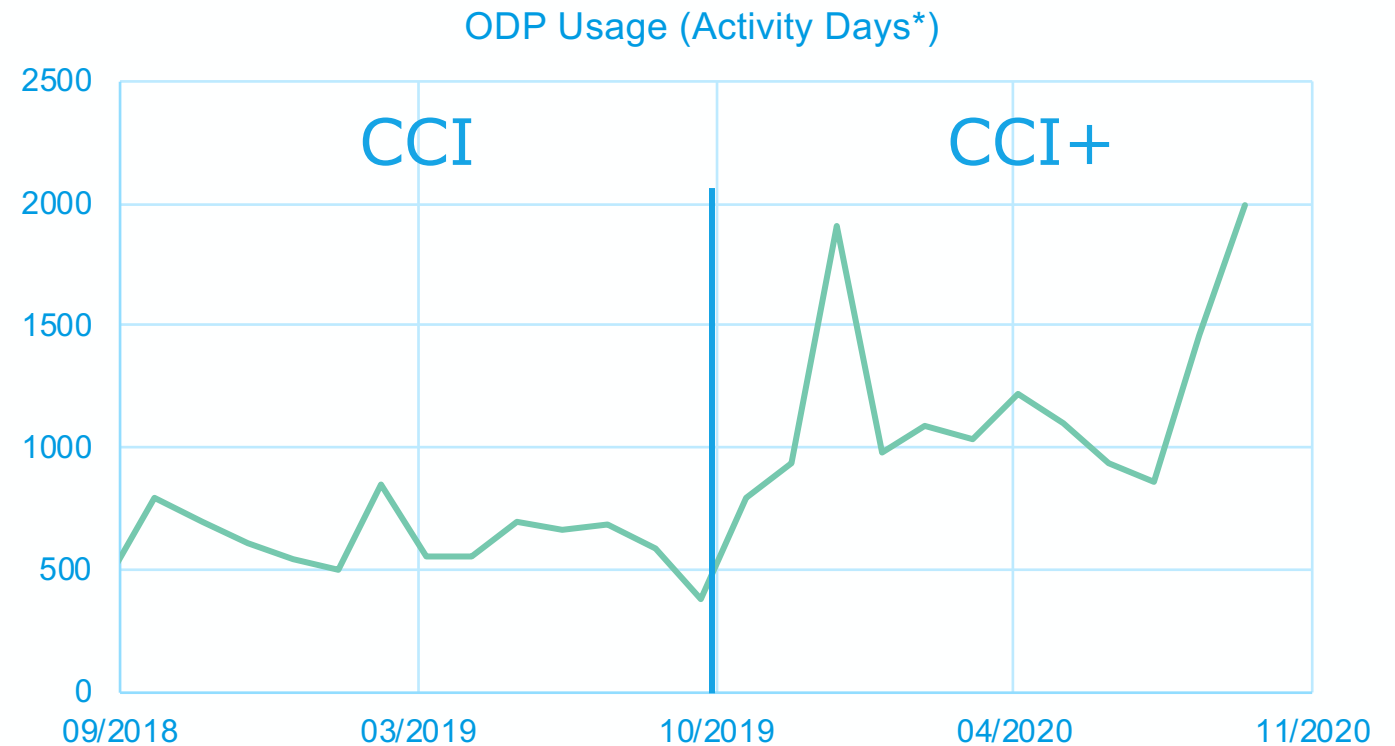
- new data waiting to be added
- ~350 current + old datasets in catalogue

> 8 million files

> 350 TB total volume (incl. old datasets)

ODP and Digital Twin Earth

- ODP is dedicated to support R&D
- ODP is flexible and can react quickly (as possible) on emerging data needs



*activity day = one unique IP address accessing a single dataset by a single download method on a single day

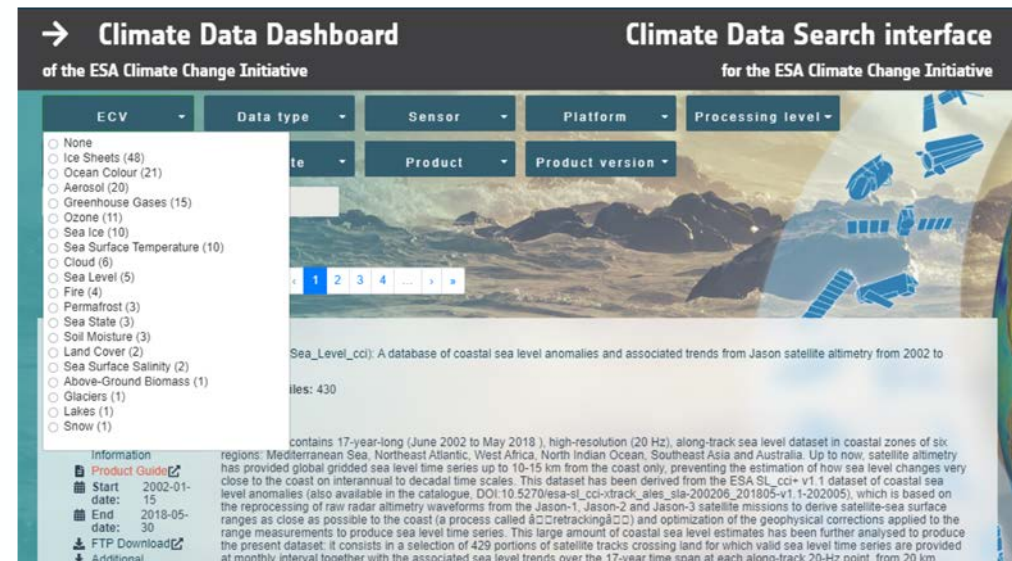
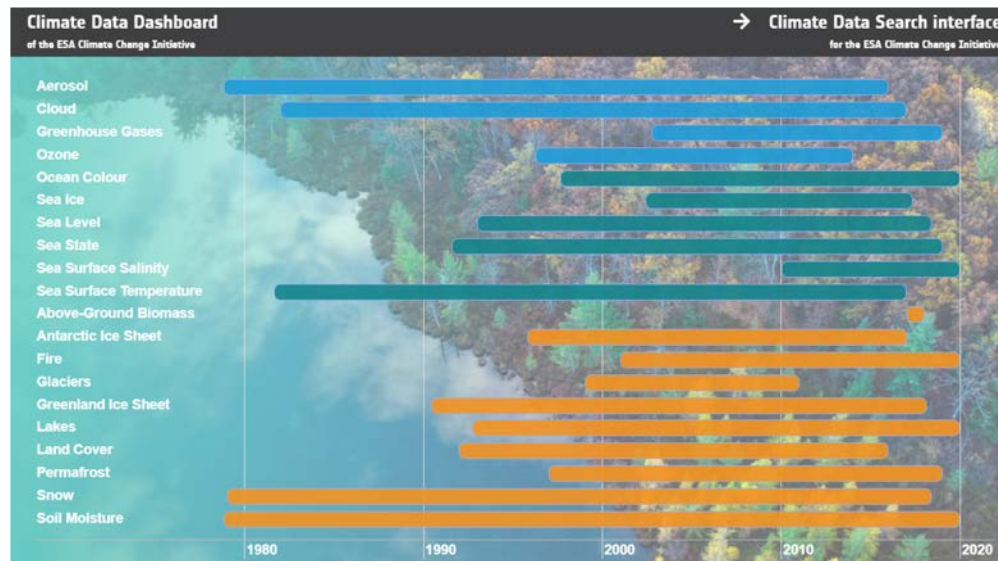
Physically hosted on Jasmin infrastructure in UK

- Significant upgrade of storage and computing resources for CCI+
- General cloud hosting and Cluster-as-a-Service system added, enabling other KE activities e.g. toolbox
- Redesigned publishing pipeline for better user experience, including serving Climate from Space App

New OpenSearch interface

- Web-API protocol developed by Amazon's A9
- Integrated extensions proposed by CEOS for geospatial data
- Supporting more data types, harmonised dataset granularity, less error prone than others

New Search Interface and updated Dashboard on Website



United space in Europe esa

ESA climate office Evidence | Explore | Educate | ESA & Climate

WHAT IS THE CLIMATE CHANGE INITIATIVE?

The CCI aims to realise the full potential of the long term global Earth Observation archives that ESA has established over the past 30 years, as a significant and timely contribution to the ICV databases required by UNFCCC.

Monitoring and Tracking Climate Change

“Scientific evidence for warming of the climate is unequivocal (IPCC Fifth Assessment Report, 2013)”

- What is climate change? →
- Climate from space: the evidence →
- Satellite-based discoveries →
- Space for understanding climate →

Evidence For Climate Change

How are satellites helping to understand Earth's climate and its change?

[Learn More](#)

Explore Climate Data

Access global climate data produced through the ESA's Climate Change Initiative

[Learn More](#)

Educational Resources

Access ESA climate change learning resources for schools and universities

[Learn More](#)

CCI Toolbox

Software tool for ingesting, operating & visualising CCI data

[Learn More](#)

News

Ice Sheet Melt On Track With 'Worst-Case Climate Scenario'

Melting rates of four glaciers in Greenland & Antarctica have tripled in 2015

New Publication In Nature Using FireCCI1.0

Global fire activity and its contribution to climate change

FireCCI1.0 Burned Area Product Added To Google Earth Engine

FireCCI1.0 Burned Area Product added to Google Earth Engine

Nature Reviews Article References CCI Lakes

Global lakes and their contribution to climate change

Permafrost

This project is developing permafrost time series maps as Essential Climate Variable products primarily derived from satellite measurement

[Visit Project](#)

RECCAP-2

RECCAP-2 supports and accelerates the analysis of regional carbon budgets based on the results of observation models and process-oriented Global Dynamic Vegetation Models

[Visit Project](#)

Sea Ice

The project aims to advance the retrieval capability for two main variables of the Sea Ice Essential Climate Variable (ECV): Sea Ice Concentration and Sea Ice Thickness

[Visit Project](#)

Sea Level

The Sea Level CCI project's main objective is to produce and validate a Sea Level Essential Climate Variable (ECV) product. This is achieved through four supporting aims

[Visit Project](#)

Sea Level Budget Closure

This project aims to reduce current uncertainties of sea level change and its individual components, resulting in better closure of the sea level budget

[Visit Project](#)

Sea State

The Sea State project is developing a 10-year data set (2010-2021) representing the full satellite altimetry, SAR, iceberg, and other data footprint available during that period

[Visit Project](#)

Sea Surface Salinity

Generating improved calibrated global Sea Surface Salinity fields over a 10-year period (2010-2020) from all available satellite & in-situ instrument measurements

[Visit Project](#)

Sea Surface Temperature

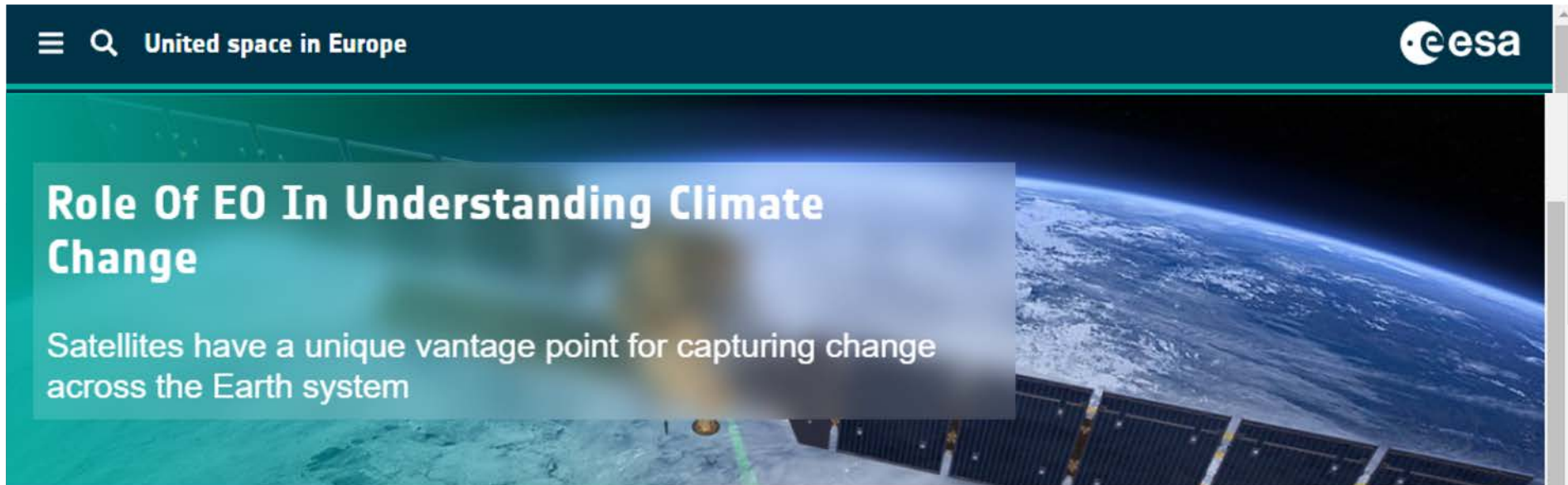
The project aims to make climate data records for SST longer, more stable and more accurate, providing data users with different forms of data and documentation

[Visit Project](#)

Snow

The Snow project generates long-term series of daily global snow extent maps from optical satellite data and daily global snow water equivalent products from passive microwave satellite data

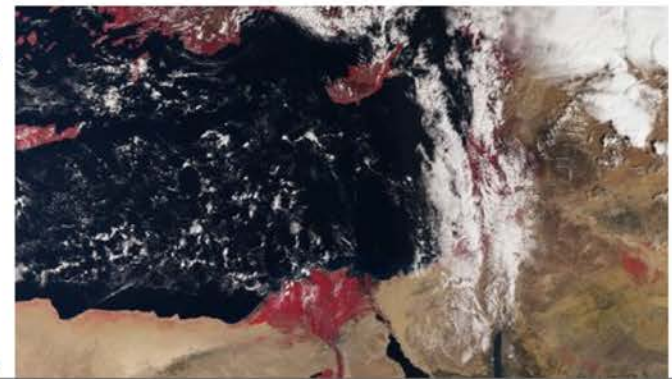
[Visit Project](#)



Satellites observing Earth provide a clear picture of changes across the entire planet. They provide regular, accurate measurements, including of areas that are difficult to reach such as the polar regions.

Earth observation satellites have unique abilities and benefits:

- **Wide area observation capability:** a single instrument on a polar orbiting satellite can observe the entire Earth on a daily basis, while instruments on geostationary satellites continuously monitor the diurnal cycle of the disk of Earth below them. Together the polar and geostationary environmental satellites maintain a constant watch on the entire globe.
- **Unintrusive observations** allowing collection of data to take place without compromising national sovereignty.
- **Uniformity** of observations across borders.
- **Rapid measurement capability:** images of remote and inhospitable areas can be



The screenshot displays the ESA climate office website interface. At the top, there is a navigation bar with the ESA logo and the text "United space in Europe". Below this, the main header area includes the text "ESA climate office" and "Home > Open Data Portal". A secondary navigation bar contains the text "Evidence | Explore | Educate | ESA & Climate". The central part of the page features a "Climate Data Dashboard" titled "of the ESA Climate Change Initiative". To the right of this dashboard is a "Climate Data Search interface" for the same initiative. The dashboard lists various climate variables, each accompanied by a horizontal bar indicating its availability or status. The variables listed are: Aerosol, Cloud, Greenhouse Gases, Ozone, Ocean Colour, Sea Ice, Sea Level, Sea State, Sea Surface Salinity, Sea Surface Temperature, Above-Ground Biomass, Antarctic Ice Sheet, Fire, and Glaciers. The bars for these variables are colored in shades of blue and orange. On the left side of the dashboard, there is a section titled "Access Climate Data" with the text "The Open Data Portal provides free Essential Climate Variables".

United space in Europe

ESA climate office

Home > Explore > Access Climate Data

United space in Europe

ESA climate office

Home > Open Data Portal

Evidence | Explore | Educate | ESA & Climate

Climate Data Dashboard

of the ESA Climate Change Initiative

Climate Data Search interface

for the ESA Climate Change Initiative

Aerosol

Cloud

Greenhouse Gases

Ozone

Ocean Colour

Sea Ice

Sea Level

Sea State

Sea Surface Salinity

Sea Surface Temperature

Above-Ground Biomass


Antarctic Ice Sheet

Fire

Glaciers

Access Climate Data

The Open Data Portal provides free Essential Climate Variables

☰ 🔍 United space in Europe 

Fire

The Fire_cci project aims to improve consistency, using better algorithms for both pre-processing and burned area detection while incorporating error characterisation.

ABOUT NEWS DATA KEY DOCUMENTS TEAM PUBLICATIONS CONTACTS

About Project

The Fire project focuses on several issues relating to fire disturbance including analysing and specifying scientific requirements relating to climate, developing and improving pre-processing and burned area algorithms, inter-comparison and selection of burned area algorithms, system prototyping and production of burned area datasets, and product validation and product assessment.

[Learn more about the fire project](#)

Fire latest news & events



Editorial process, including ECV project as editors and ESA to approve changes

Powerful, fault safe and secure infrastructure

The screenshot displays the ESA editorial interface. On the left is a dark sidebar with the ESA logo, a search bar, and a menu with items: Pages, Images, Documents, Snippets, Forms, Reports, and Settings. The main content area is divided into sections. The top section is 'HERO SECTION', which includes an image of a forest fire with buttons for 'CLEAR CHOICE', 'CHANGE IMAGE', and 'EDIT THIS IMAGE'. Below the image is a text box for the 'Intro [en]: *' containing the text: 'The Fire_cci project aims to improve consistency, using better algorithms for both pre-processing and burned ar'. A 'Style:' dropdown menu is also present. The next section is 'ABOUT [EN]', which features a rich text editor with a toolbar containing icons for bold, italic, text color, background color, bulleted list, numbered list, link, unlink, image, link icon, and undo. The text in this section reads: 'The Fire project focuses on several issues relating to fire disturbance including analysing and specifying scientific requirements relating to climate, developing and improving pre-processing and burned area algorithms, inter-comparison and selection of burned area algorithms, system prototyping and production of burned area datasets, and product validation and product assessment.' Below the text is a link: 'Learn more about the fire project'. At the bottom of the interface, there are buttons for 'SAVE DRAFT' and 'PREVIEW', and a user profile for 'EIRINI'.

Climate From Space - Interactive Website

Explore the changing climate through the eyes of satellites with this interactive website

Satellites observing the Earth from space provide a clear picture of the health of our planet and the signs of climate change.

Forty years of climate data are at your fingertips on globes and maps via the [Climate from Space website](#). The interactive website lets you take a closer look at the climate data being produced by the European Space Agency's [Climate Change Initiative](#).

[Visit Climate from Space](#)

Climate from Space (CfS)



esa Climate from Space

Stories Data Layers

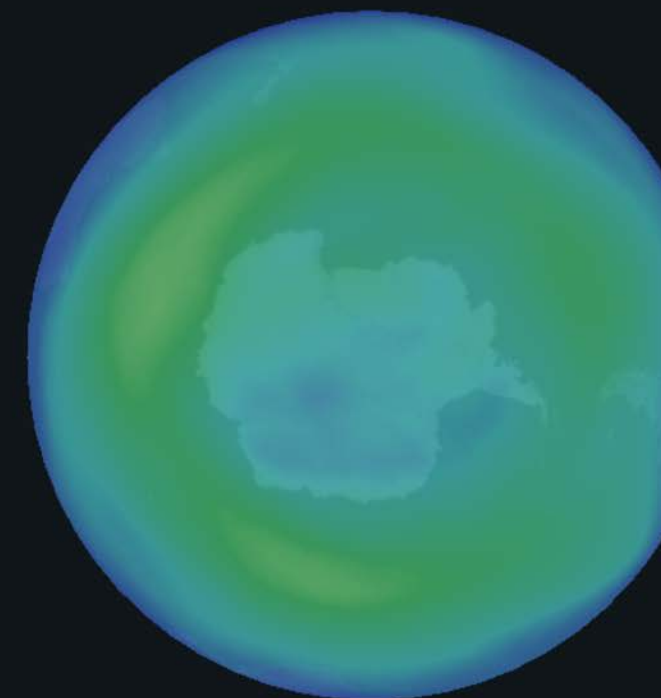
2D



500 Dobson units

100

Ozone ⓘ



January 1979



1979

DATA LAYERS



Ozone



Aerosols

Biomass

Carbon Dioxide (CO2)

Clouds

Fire

Greenland Ice Sheet

Land Cover

Methane (CH4)

Ocean Colour

Ozone Profile

Permafrost

Sea Ice – Northern Hemisphere

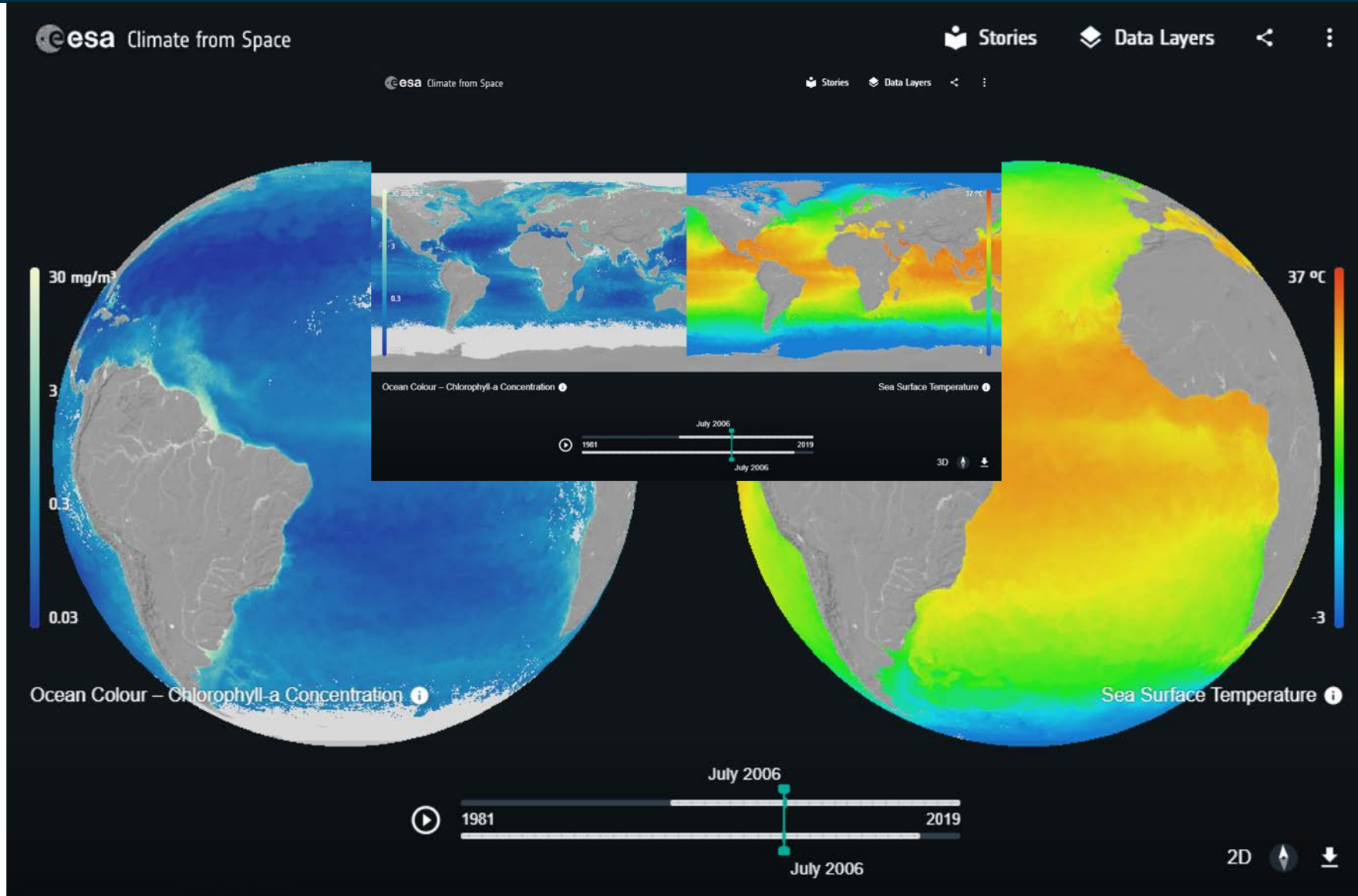
Sea Ice – Southern Hemisphere

Sea Level

Sea State

Sea Surface Salinity

Climate from Space (CfS)



Climate from Space (CfS)



The screenshot shows the 'Climate from Space' application interface. At the top left, the ESA logo and 'Climate from Space' text are visible. On the right, there are navigation icons for 'Stories' and 'Data Layers'. A central settings menu is overlaid on a globe, containing the following sections:

- Modes**
 - Presenter Mode
 - Showcase Mode
- Change language**
 - English
 - German
 - French
 - Spanish
 - Dutch
- Standalone Version**
 - Windows
 - macOS
 - Linux
- More Information**
 - About this project
 - Credits

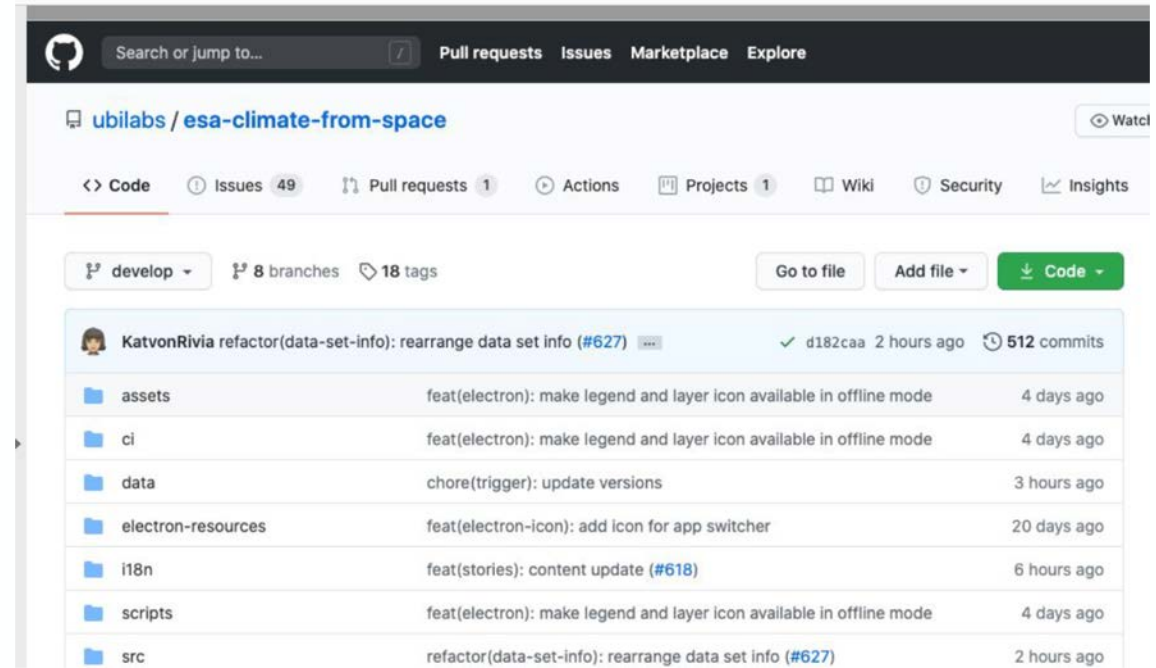
At the bottom of the interface, there are logos for 'made by Ubilabs', 'esa Climate Change Initiative 0.10.3', and 'content by PLANETARY VISIONS'.



Data pipeline from ODP into CfS

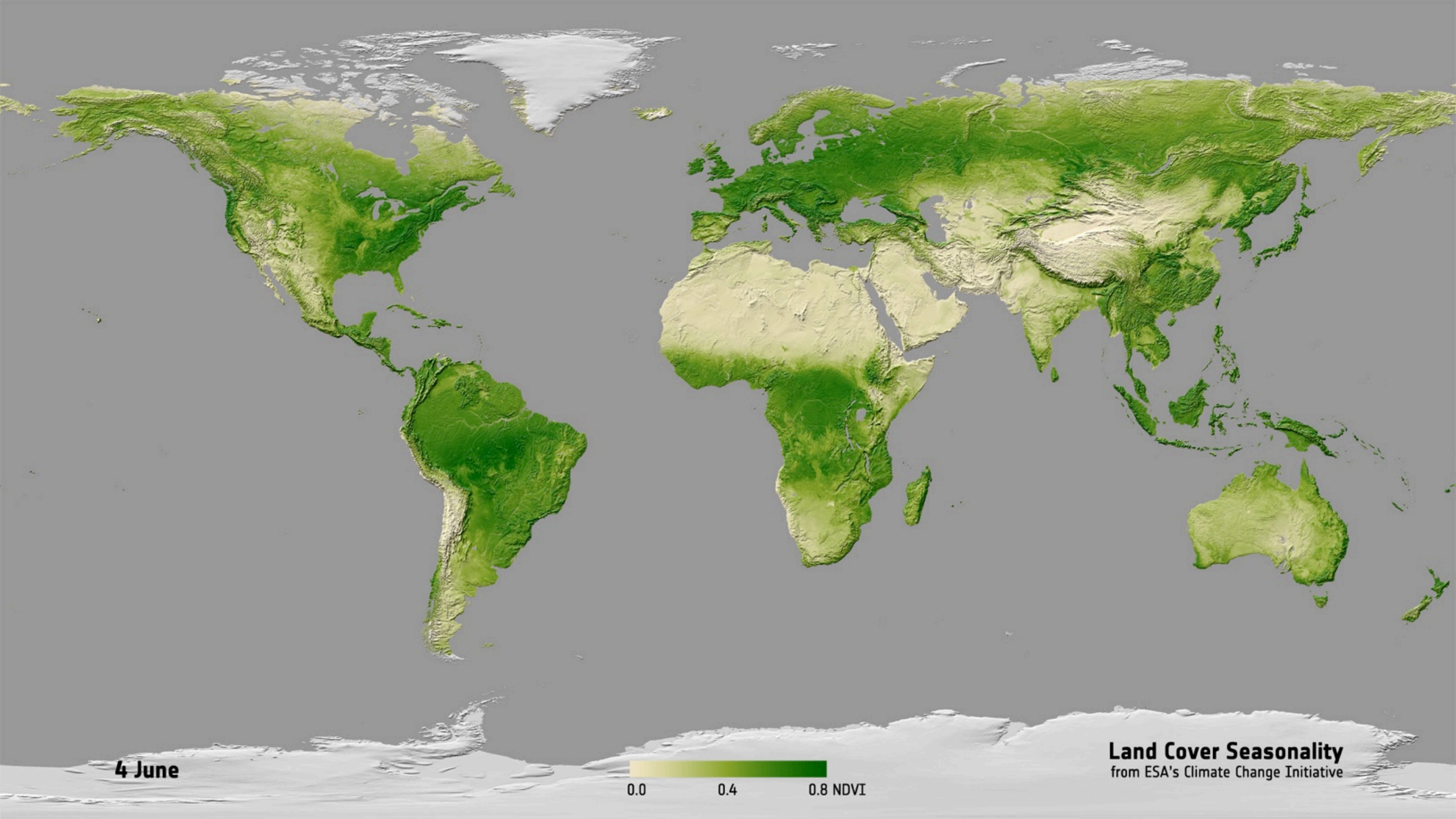
Open Source Code

Narratives and Visuals: important and intense process, driven by users and including many reviews

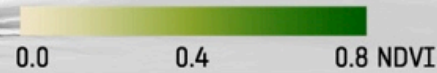


Climate from Space Story Content

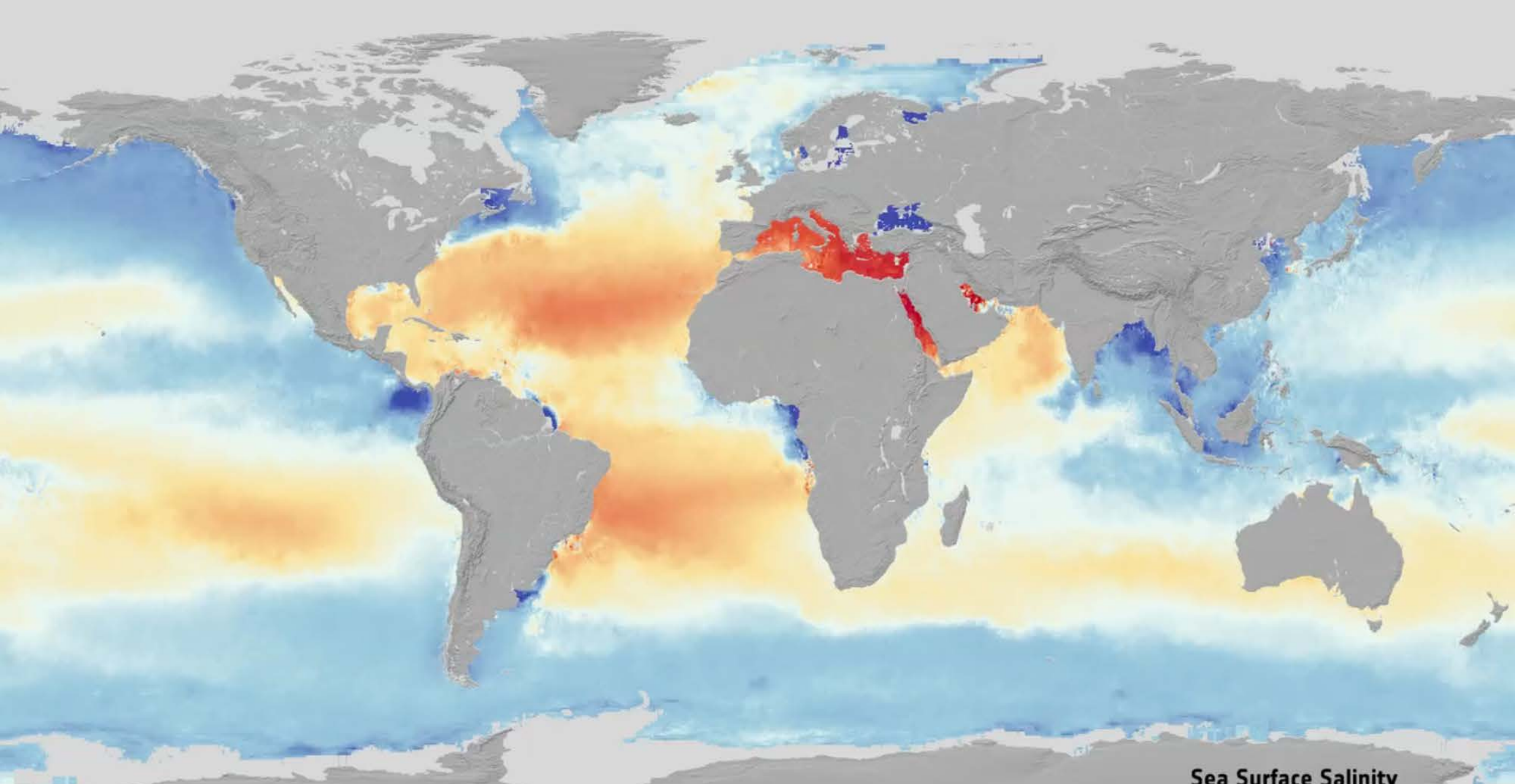
	<i>words</i>	<i>satellite images</i>	<i>photos</i>	<i>diagrams</i>	<i>all images</i>	<i>videos</i>	<i>data links</i>	<i>all illustrations</i>	<i>all screen average</i>
Heat Pumps	1,393	2	2	5	9	3	3	15	2
Ozone	1,139	3	1	5	9	2	2	13	3
Breaking the Ice	1,681	7	7	3	17	1	2	20	3
Country Under Threat	1,403	5	4	1	10	2	2	14	3
Biodiversity	1,427	7	2	1	10	2	3	15	3
Taking the Pulse	1,710	8	7	8	23	1		24	4
Total	8,753	32	23	23	78	11	12	101	3
Target	2,500 - 5,000							30-42	1



4 June



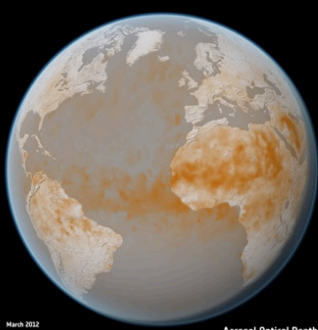
Land Cover Seasonality
from ESA's Climate Change Initiative



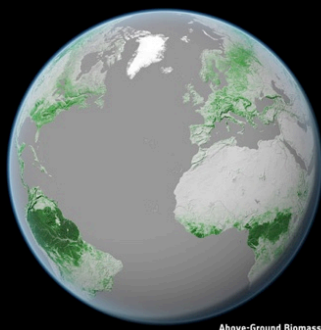
Jan 2014



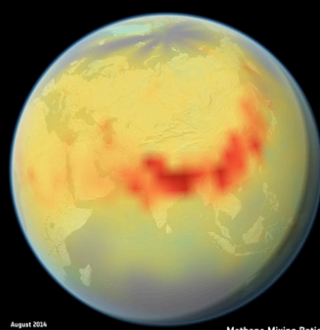
Sea Surface Salinity
from the ESA CCI Sea Surface Salinity team



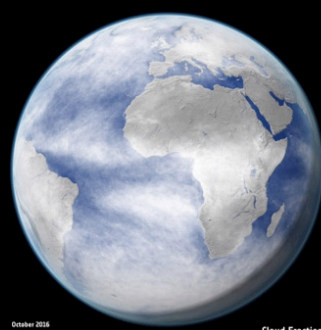
March 2012
Aerosol Optical Depth
from ESA's Climate Change Initiative



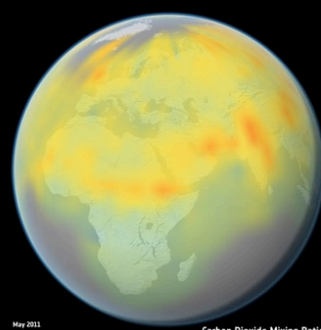
August 2018
Above-Ground Biomass
Data for 2017 from ESA's Climate Change Initiative



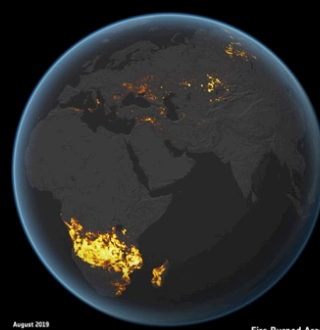
August 2018
Methane Mixing Ratio
from the ESA/CCI Greenhouse Gases team



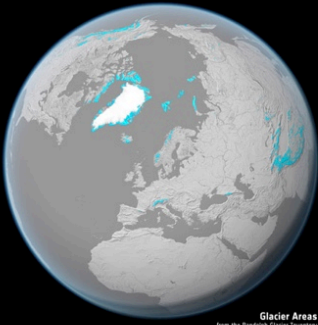
October 2016
Cloud Fraction
from ESA's Climate Change Initiative



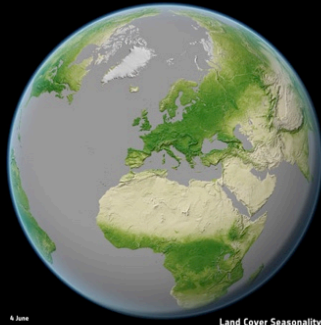
May 2011
Carbon Dioxide Mixing Ratio
from the ESA/CCI Greenhouse Gases team



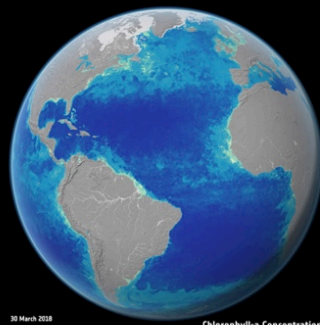
August 2018
Fire Burned Area
from ESA's Climate Change Initiative



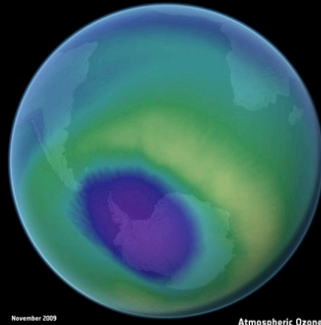
2017
Glacier Areas
from the European Space Agency and ESA's Climate Change Initiative



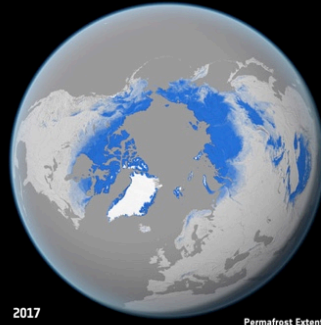
June 2018
Land Cover Seasonality
from ESA's Climate Change Initiative



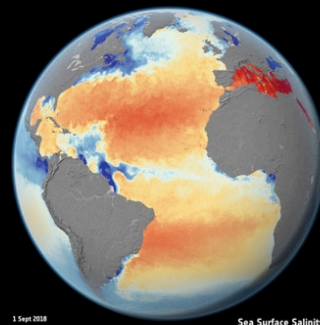
30 March 2018
Chlorophyll-a Concentration
from ESA/CCI Ocean Colour team



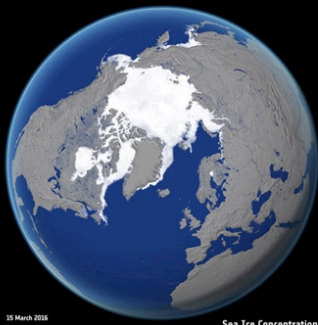
November 2009
Atmospheric Ozone
from ESA's Climate Change Initiative



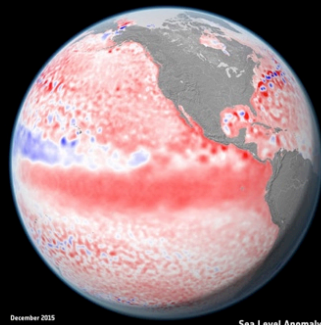
2017
Permafrost Extent
from ESA's Climate Change Initiative



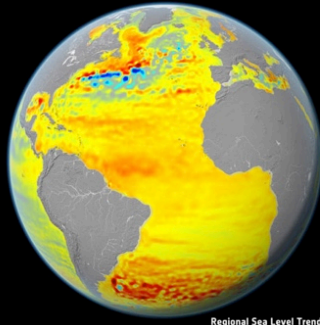
1 Sept 2018
Sea Surface Salinity
from ESA's Climate Change Initiative



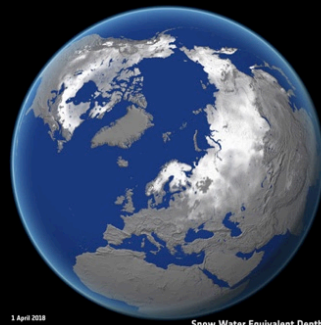
15 March 2016
Sea Ice Concentration
from ESA's Climate Change Initiative



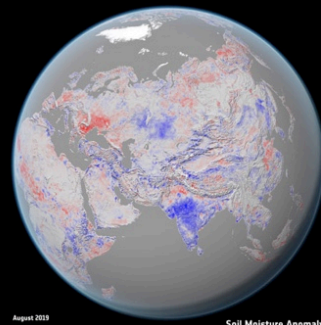
December 2015
Sea Level Anomaly
from ESA's Climate Change Initiative



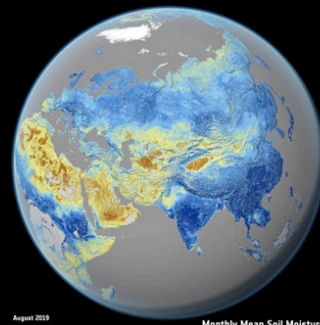
1992-2015
Regional Sea Level Trend
from ESA's Climate Change Initiative



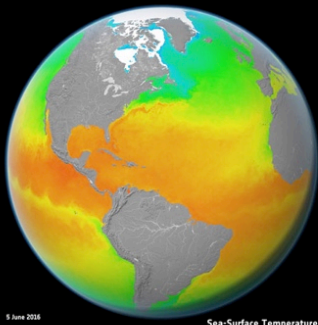
1 April 2018
Snow Water Equivalent Depth
from ESA's Climate Change Initiative



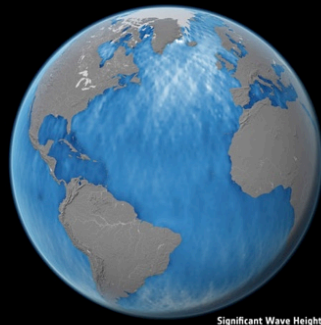
August 2019
Soil Moisture Anomaly
from ESA's Climate Change Initiative



August 2019
Monthly Mean Soil Moisture
from ESA's Climate Change Initiative



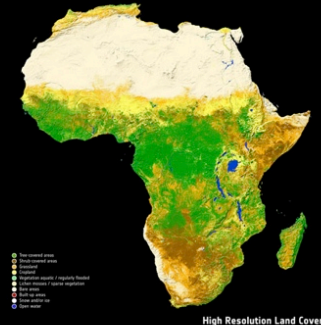
9 June 2016
Sea-Surface Temperature
from ESA's Climate Change Initiative



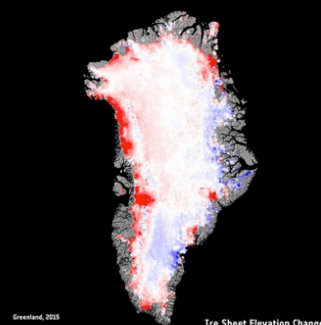
2018
Significant Wave Height
from the ESA/CCI Sea State team



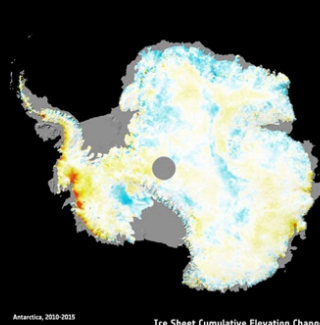
2018
Land Cover Type
from ESA's Climate Change Initiative



Africa, 2016
High Resolution Land Cover
from ESA's Climate Change Initiative



Antarctica, 2015
Ice Sheet Elevation Change
from ESA's Climate Change Initiative

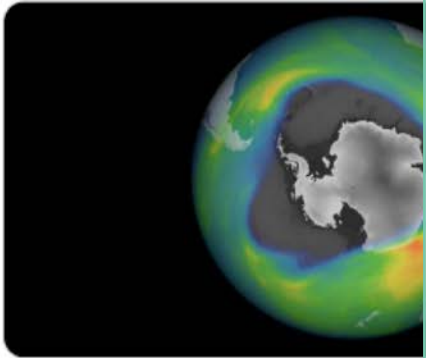


Antarctica, 2002-2015
Ice Sheet Cumulative Elevation Change
from ESA's Climate Change Initiative

Use of KE Material in ESA Climate Office Tweets



ESA Climate Office @esaclimate · 20. Okt.
Antarctic ozone hole is one of the largest and
esa.int/Applications/O...

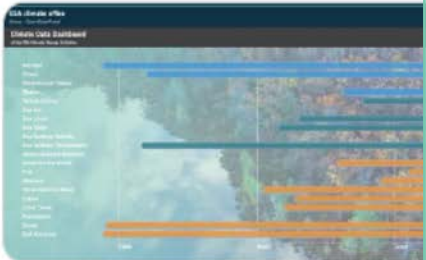


1 4

ESA Climate Office @esaclimate · 20. Okt.
Access long-term global #Ozone datasets AN
Climate Variables generated by the ESA Clima

climate.esa.int/en/odp/#/dashb...

#climate #EO



ESA EarthObservation

4

ESA Climate Office hat retweetet

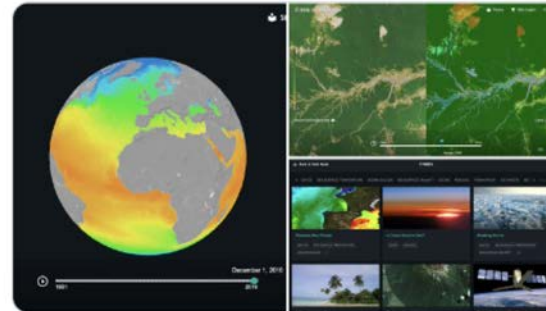
ESA EarthObservation @ESA_EO · 14. Okt.
Update from @CopernicusEU #Sentinel6 Mich

ESA Climate Office @esaclimate · 22. Okt.
Satellites provide a clear picture of the planet & the signs of climate change

Explore @ESA's new Climate from Space website

- View key aspects of the climate
- Interactive 3D globes & maps
- Pinch & zoom
- Easy-to-follow explainers

cfs.climate.esa.int #stem #scicomm



ESA EarthObservation und Eirini Politi

12

ESA Climate Office @esaclimate ·
Can better access to climate inform
#ClimateChange?

Researchers are working with loc
supported by @FutureEarth & @es
@ESA_EO



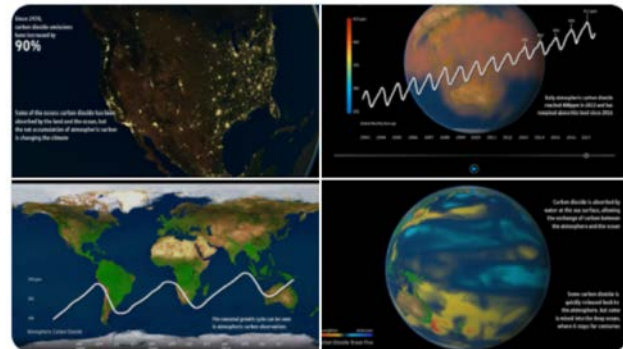
New projects to demonstrate ben
Satellite data to be used to help l
challenges.
climate.esa.int

ESA Climate Office hat retweetet
Brockmann Consult @BrockmannCon · 16. Nov.
Don't miss our @esaclimate @BrockmannCon #CCI Toolbox e-poster daily
16-19 November. Live answers to questions on Tuesday 17 Nov 14:00-15:00
CET. #EO4Water2020 #WaterCycle #Hydrology #CCIToolbox #ECVs
eo4water2020.esa.int

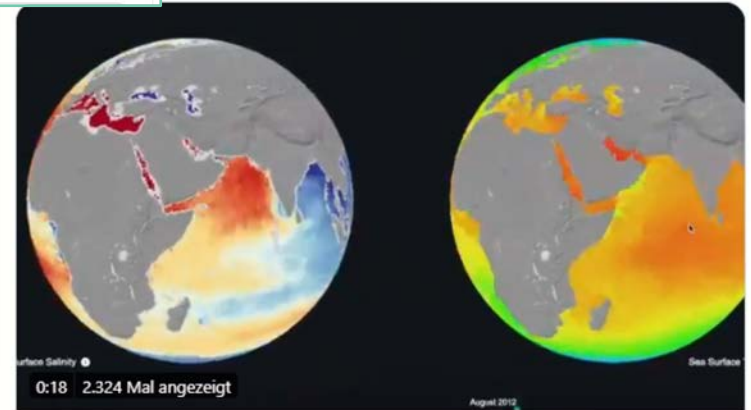


ESA EarthObservation

ESA Climate Office hat retweetet
ESA EarthObservation @ESA_EO · 26. Juli
Satellites provide unequivocal evidence of the changes taking place on
and provide the big picture. Through the @esaclimate Initiative, long-term
datasets on key indicators of climate change are being systematically
generated and preserved.
Learn more: cci.esa.int/content/what-e...



1 53 87



Explore the climate through the eyes of earth-orbiting satellites
Witness the changing planet through the eyes of earth-orbiting satellites with
#Climate from Space, a new interactive ESA website.
Developers @ubilabs & @planetarynews

<https://cfs.climate.esa.int>



CCI Knowledge Exchange

- has been designed and implemented as an **integrated approach** to **maximise awareness, access, use, understanding** of satellite data for climate research, with an emphasis on **promoting the CCI Programme**

8 different user types will be approach with 5 consistent products tailored to their specific needs

- **Website** providing full range of information on ESA and Climate, including simple high level overview as well as in-depth scientific details (e.g. from each ECV project)
- **CfS** from Space App serves the non-expert user types and education
- **Edu** provides educational resources to schools, universities and educated public
- **Cate** allows expert users to access, analyse and process data from CCI and other sources
- **ODP** is the foundation serving other KE products, and giving users direct access to all CCI data

4 of 5 products are up and running

- Educational resources under development for publication in 2021

Phase 2+3 are dedicated to reacting on user requirements

Are you ready to discover more?



www.esa.int

