ACCESSING AND *USING* CLIMATE DATA TO DEVELOP *CLIMATE SERVICES*

MED-GOLD Living Lab – June, 11th, 2020

M A S S I M I L I A N O P A S Q U I | C N R - I B E

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Consiglio Nazionale delle Ricerche

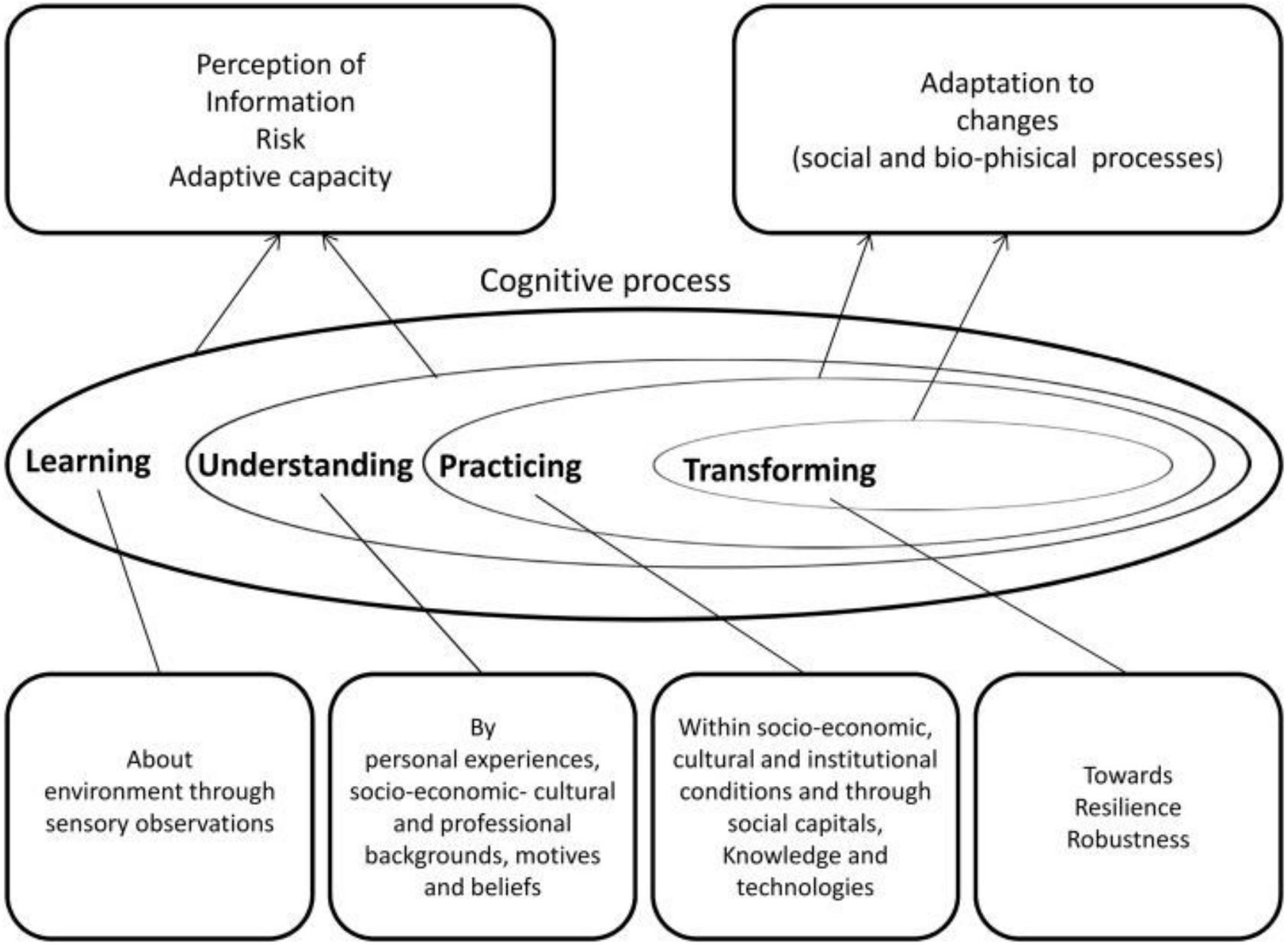
> Since the beginning, life has relied upon the transmission of messages. — RFC 3164 (syslog)

Since the beginning, life has relied upon the transmission of messages.

For the self-aware organic unit, these messages can relay many different things. The messages may signal danger, the presence of food or the other necessities of life, and many other things. In many cases, these messages are informative to other units and require no acknowledgement. As people interacted and created processes, this same principle was applied to societal communications. As an example, *severe weather warnings* may be delivered through any number of channels - a siren blowing, warnings delivered over television and radio stations, and even through the use of flags on ships. The expectation is that people hearing or seeing these warnings would *realise their significance and take appropriate action*. In most cases, no responding acknowledgement of receipt of the warning is required or even desired.

Source: The BSD syslog Protocol

CONCEPTUAL FRAMEWORK OF PERCEIVING AND ADAPTING PROCESS.



Nguyen T., et al., 2016 "Perceiving to learn or learning to perceive? Understanding farmers' perceptions and adaptation to climate uncertainties", Agricultural Systems, Volume 143, 2016, 205–216, http://dx.doi.org/10.1016/j.agsy.2016.01.001

THE BURNING QUESTIONS

Are we, as scientists, really addressing users' needs on climate information?

What about the information chain between data purveyors/providers and end-users?

Is the information trustable/usable enough?

time

initialization time:
May 1st

uncertainty in
initial conditions:
ensemble
members

target season:
Jun-Jul-Aug

uncertainty in
predictions

Probabilistic
forecast

ensemble
spread

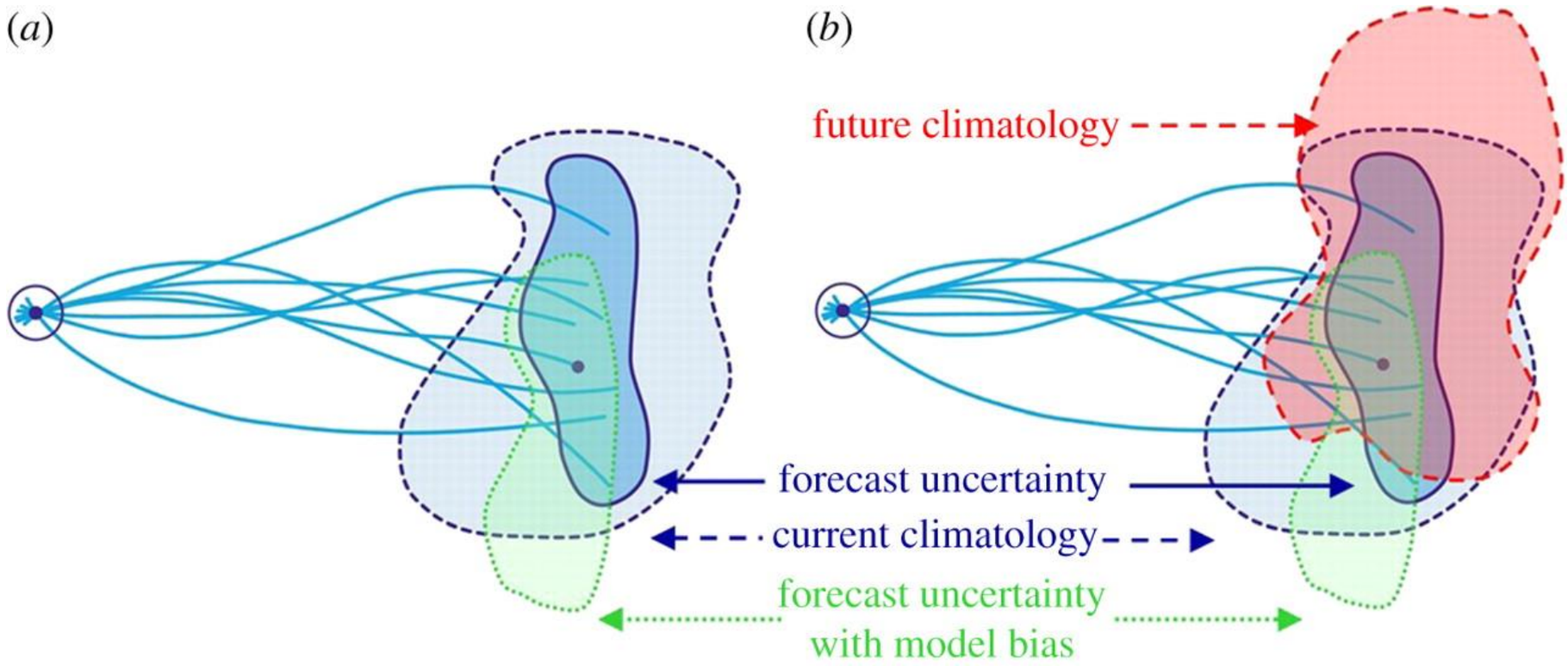
target season:
Sept-Oct-Nov

uncertainty in
predictions

Probabilistic
forecast

leadtime: 1 month

leadtime: 4 months



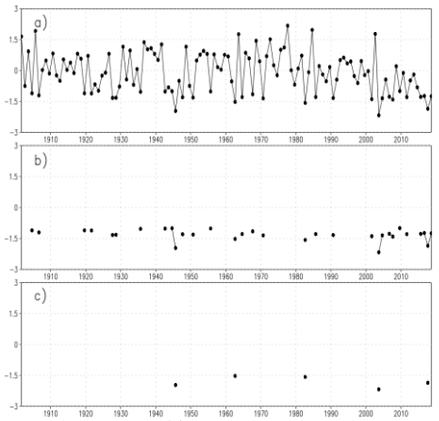
Schematic of ensemble prediction system on seasonal to decadal time scales, showing (*a*) the impact of model biases and (*b*) a changing climate. The uncertainty in the model forecasts arises from both initial condition uncertainty and model uncertainty.

Uncertainty in weather and climate prediction, Julia Slingo, Tim Palmer Published 31 October 2011.DOI: 10.1098/rsta.2011.0161

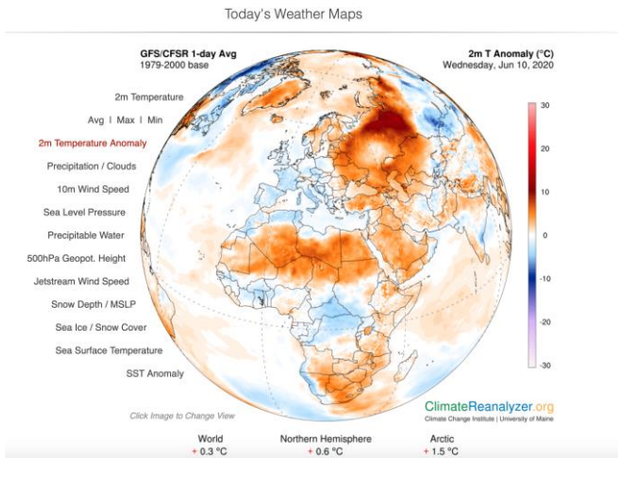
DECISION SUPPORT PATHWAYS

A STORY OF CHOICES

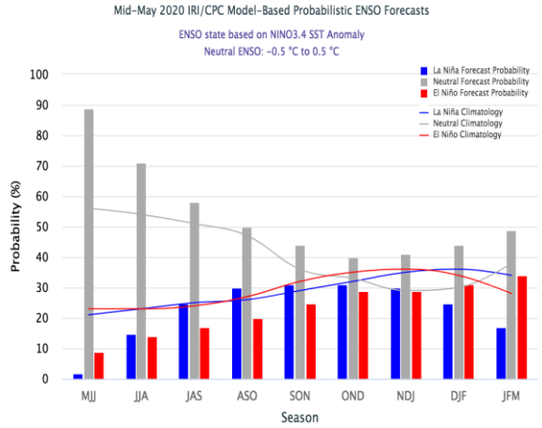
Past Obs



Real Time Status



Future Scenarios



What we know

Where we are now?

What should do we expect for the future?

Safe conditions
then
business as usual

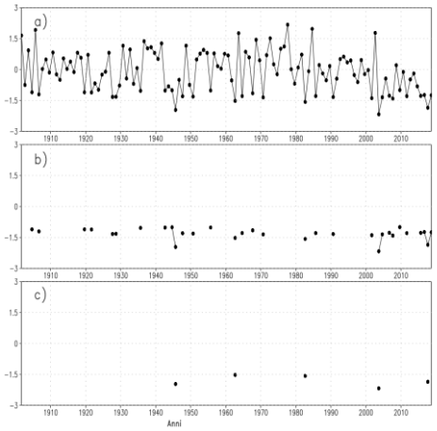
Unsafe conditions
then
actions are needed

Linking knowledge to the action by "*bridging*" information through boundaries of monitored and modelled systems.

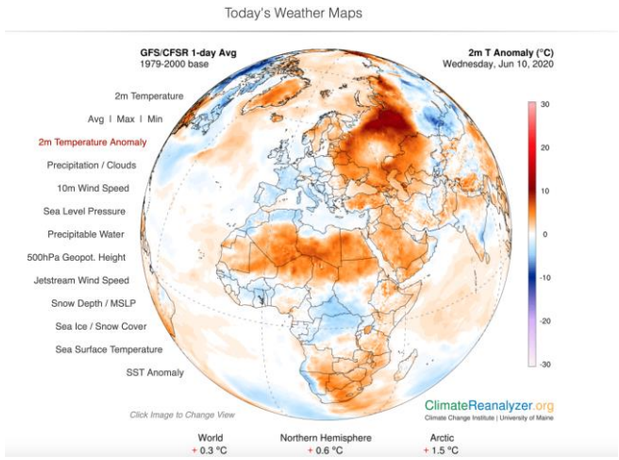
DECISION SUPPORT PATHWAYS

A STORY OF CHOICES

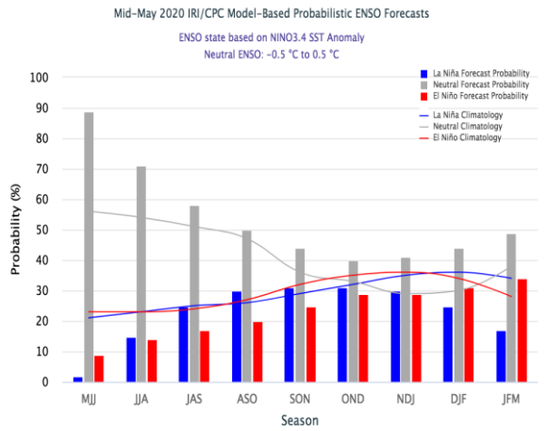
Past Obs



Real Time Status



Future Scenarios



What we know

Critical Issues #1

- Unsmooth transitions
- No near real time
- …

Where we are now?

What should do we expect for the future?

Critical Issues #2

- Unsmooth transitions
- Low level of conceptual coherence
- …

Often the available tools are “partially usefull” or “unconfortable”.

WHERE TO FIND WHAT IS NEEDED? SOME EXAMPLES

DIFFERENT SOURCES OF INFORMATION # 1

A |BULLETINS

Info repositories based on consensus analysis

- MedCOF
- SEECOF
- Ciifen

WHERE TO FIND WHAT IS NEEDED? SOME EXAMPLES

DIFFERENT SOURCES OF INFORMATION # 2

B | HYBRID PORTALS

Repositories with maps, data and tools

IRI – Seasonal Forecasts Copernicus C3S

WMO – LRF MME

ICPAC

CNR- Drought Observatory ACMAD

DIFFERENT SOURCES OF INFORMATION # 3

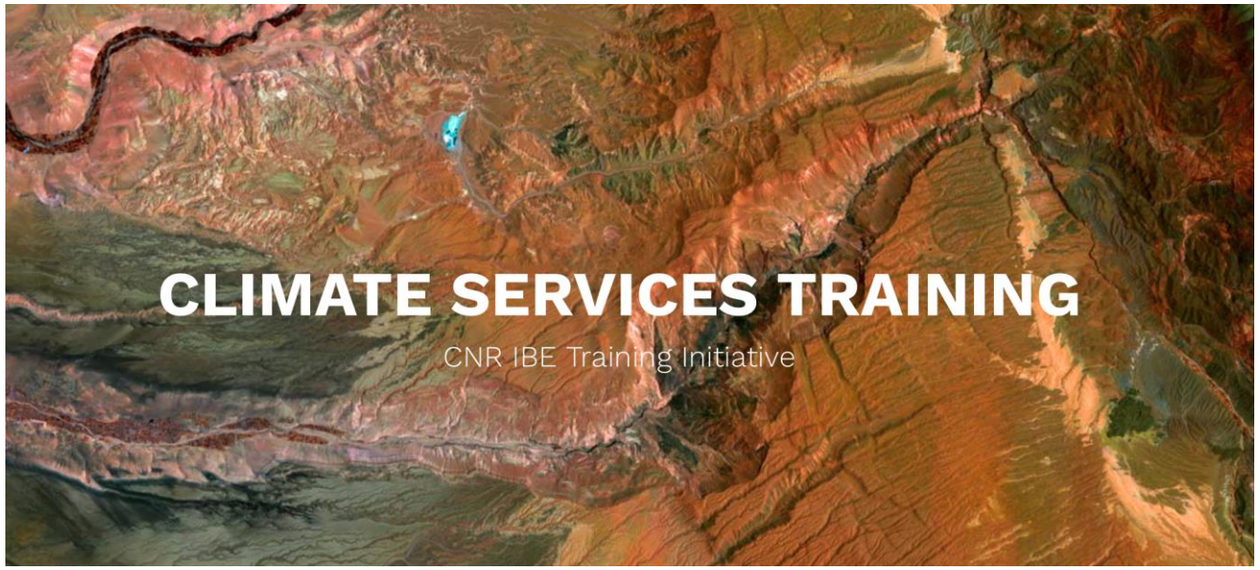
C |MED-GOLD

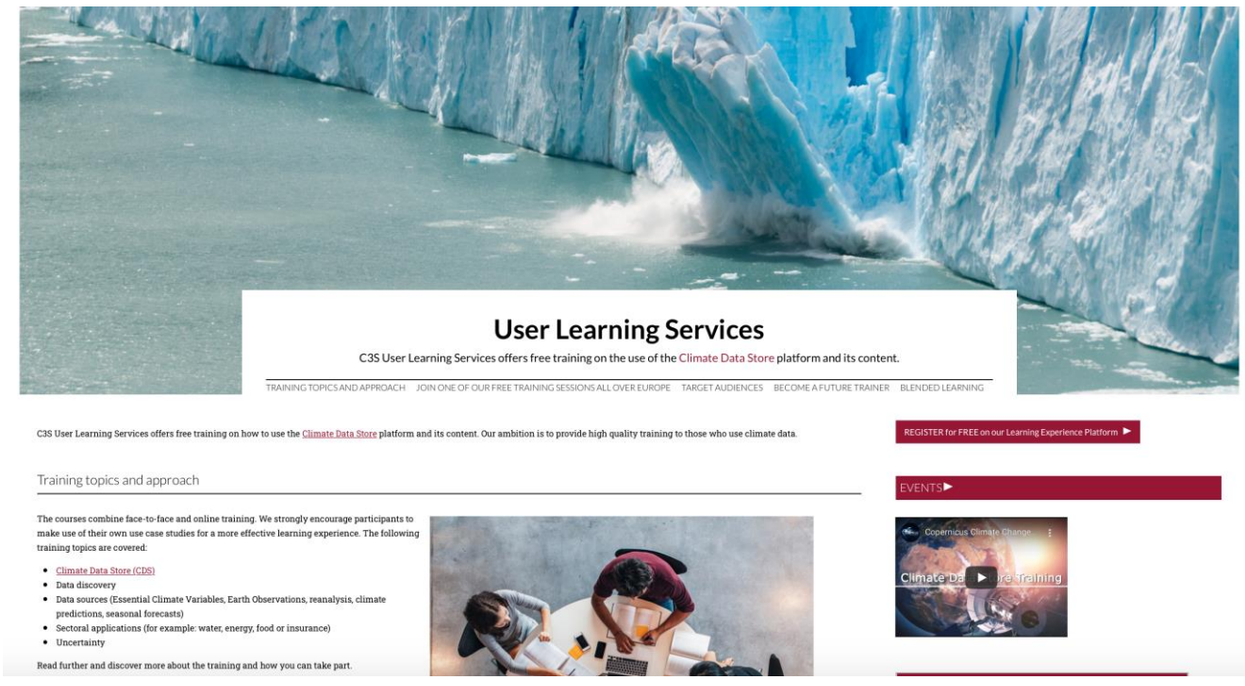
Improved Usability & Integration

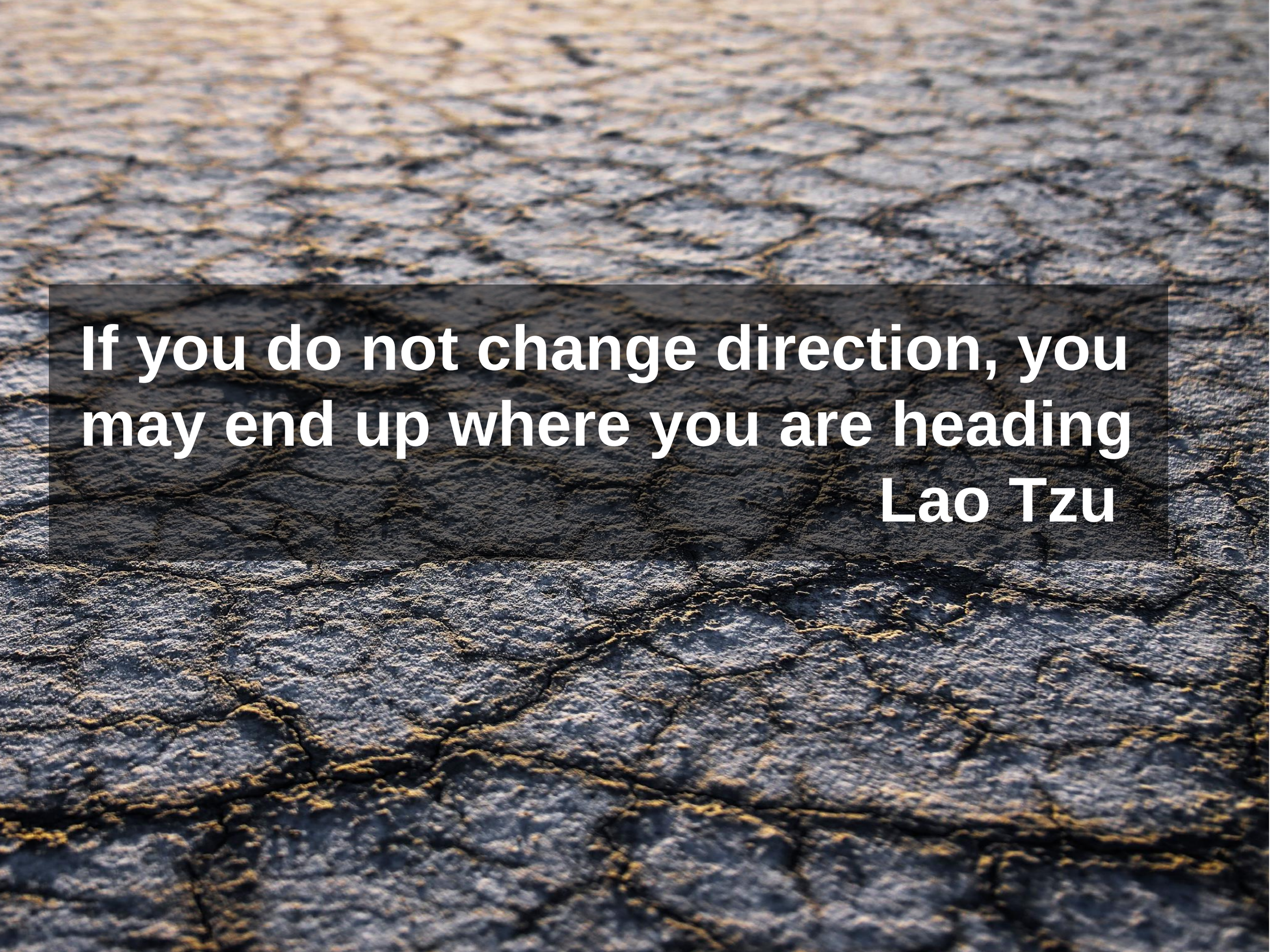
DASHBOARD

DO YOU WANT TO LEARN MORE ABOUT CLIMATE SERVICES?

ON - LINE TRAINING RESOURCES





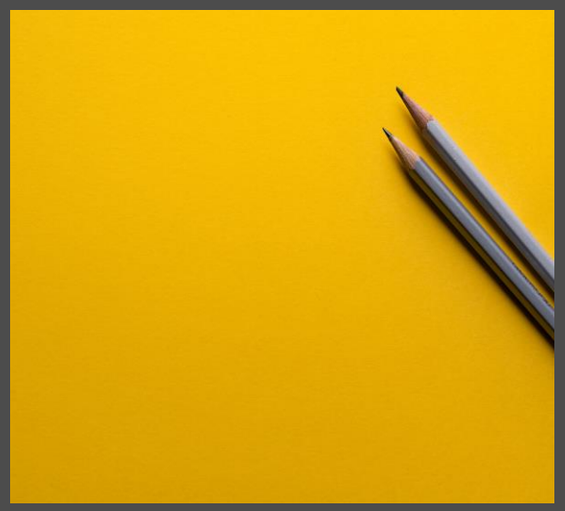

If you do not change direction, you may end up where you are heading
Lao Tzu

Thank You!

MASSIMILIANO PASQUI | CNR-IBE

MASSIMILIANO.PASQUI@CNR.IT

@MASSI_PASQUI



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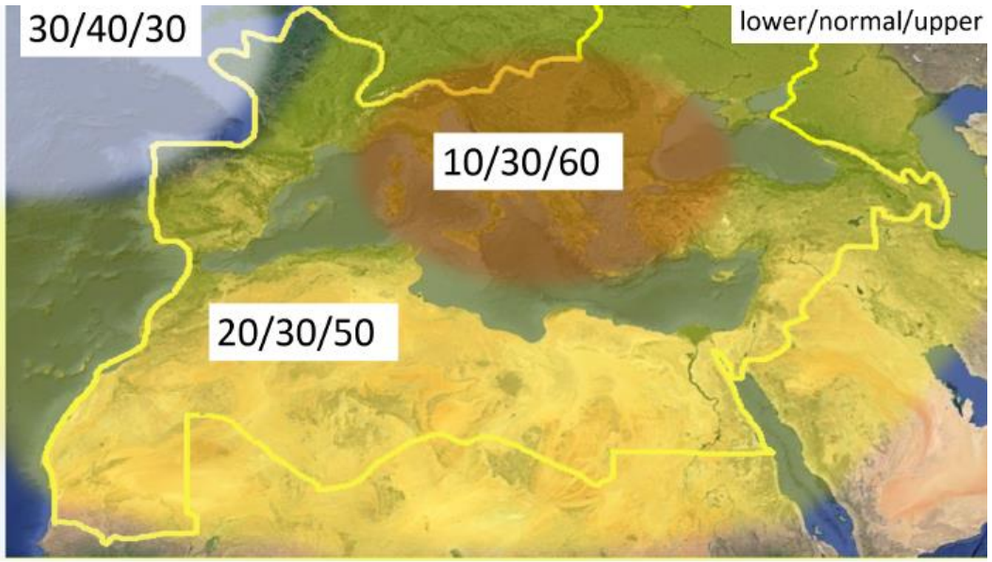
© Katerina Kamprani - The Uncomfortable

Mind the gaps!



2020 SUMMER TEMPERATURE OUTLOOK

Search ...

AEMet Agencia Estatal de Meteorología

WMO Northern Africa RCC Network

WMO RA VI RCC Network

WMO OMM

MedCOF Mediterranean Climate Outlook Forum

Home | About | Events | FAQ | Links | Online Forum

Username

Password

Remember Me

Log in

Forgot your username?
Forgot your password?

RELEVANT LINKS

APCC APEC Climate Center
ECMWF Seasonal Forecast
IRI Climate and Forecast Products
JMA Stratospheric Circulation
NOAA CPC ENSO

The Fourteenth MedCOF

MedCOF 14 online

Fourteenth MEDITERRANEAN CLIMATE OUTLOOK FORUM (ON-LINE)

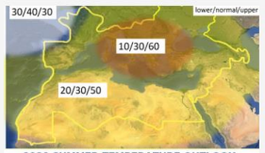
April 15 - May 29, 2020

>> Online Forum

MedCOF-14 comprises 3 steps. The first one has been devoted to verification of the MedCOF-13 winter forecast; the second one to the assessment of current state of climate and, finally, the third one to the building of consensus statements.There has also been a preCOF on-line session.

Read more ...

Latest Consensus Outlook



2020 SUMMER TEMPERATURE OUTLOOK

2020 SUMMER PRECIPITATION OUTLOOK

WMO

WMO Northern Africa RCC Network

WMO RA VI RCC Network

AEMet Agencia Estatal de Meteorología

Step 3 of the
MEDITERRANEAN CLIMATE OUTLOOK FORUM (MedCOF-14)
Updated 22nd May 2020

SEASONAL OUTLOOK FOR THE SUMMER SEASON 2020 FOR THE MEDITERRANEAN REGION

Climate experts from WMO RA VI RCC Network Node on long-range forecasting (Meteo France), WMO RA VI RCC Network Node on climate monitoring (Deutscher Wetterdienst, Germany), WMO Northern Africa RCC Network Node on long-range forecasting (Directorate of National Meteorology, Morocco), WMO Northern Africa RCC Network Node on climate monitoring (National Institute of Meteorology, Tunisia), South East Europe Virtual Climate Change Centre (SEEVCCC, Serbia), National Hydrometeorological Services and Research Institutes of MedCOF region provided their valuable contribution to the successful implementation of MedCOF-14 by developing the relevant documents and providing scientific guidance and recommendations.

The MedCOF-14 comprised of the following steps:

Back

Implemented by ECMWF as part of The Copernicus Programme

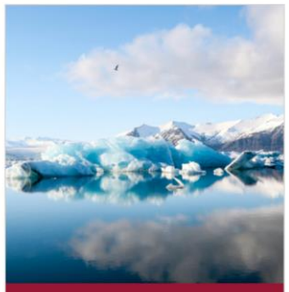
Climate Change Service

News Events Press Tenders Help & Support

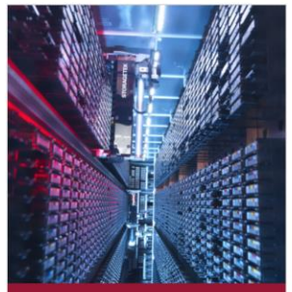
ABOUT US WHAT WE DO DATA SEARCH

We provide authoritative information about the past, present and future climate, as well as tools to enable climate change mitigation and adaptation strategies by policy makers and businesses.

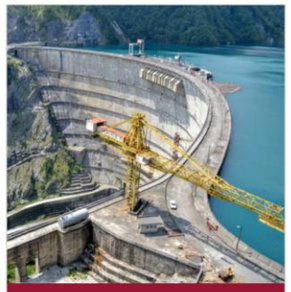
Key products and services



Climate bulletins



Climate Data Store

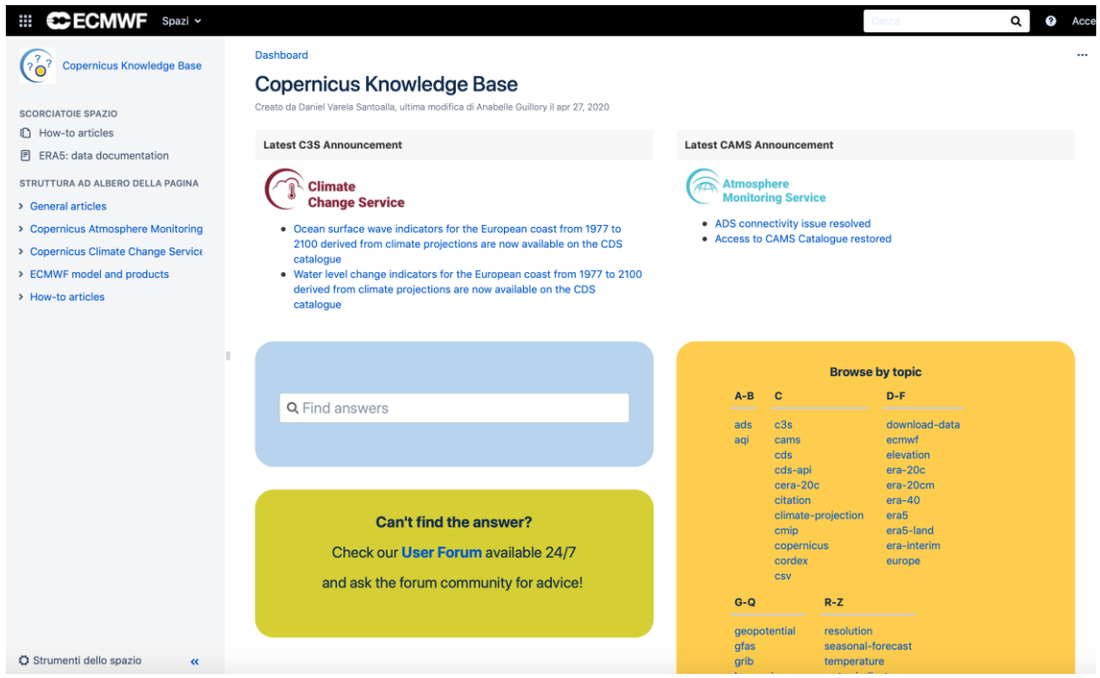


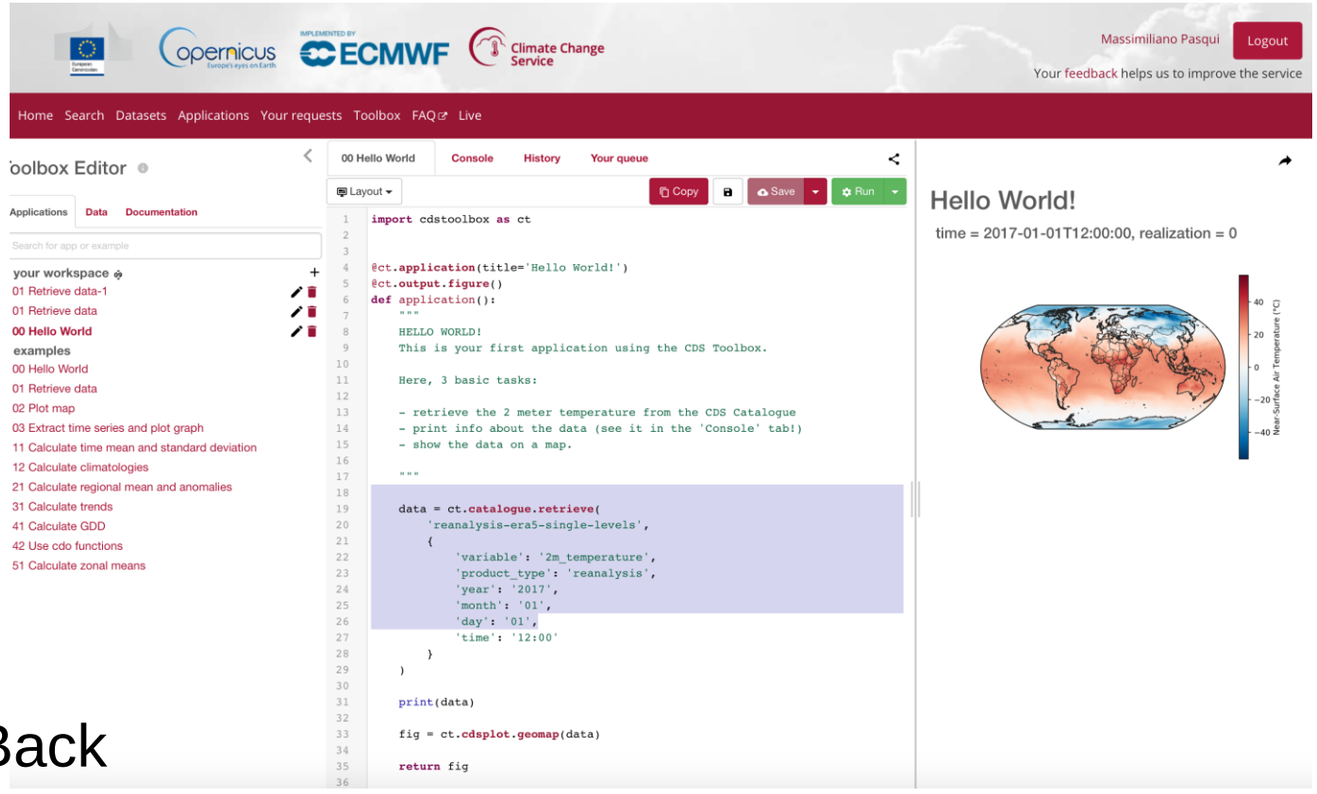
Data in action

In focus

The *European State of the Climate 2019*, an essential snapshot of the region and a useful benchmark for future assessments of the environment.

Read More ►





Back

Next

C3S seasonal charts

Filters

Filter

Parameters

- MSLP (7)
- SST (14)
- T2m (7)
- T850 (7)
- geopotential height 500hPa (7)
- precipitation (7)

Plot type

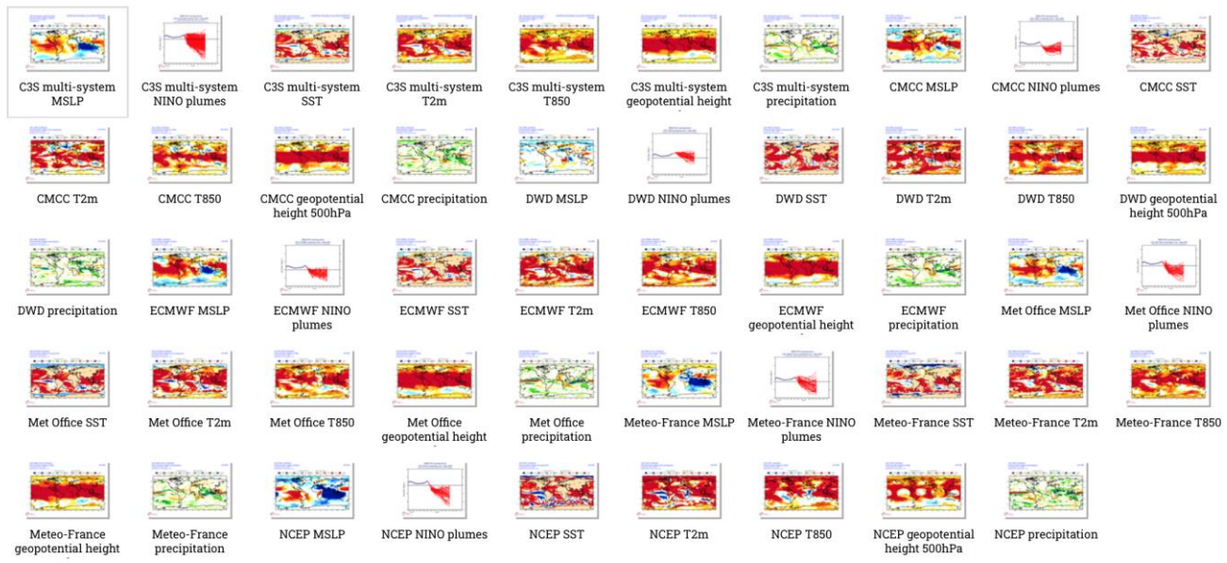
- Maps (42)
- Time series (7)

Centres

- C3S multi-system (7)
- CMCC (7)
- DWD (7)
- ECMWF (7)

49 matching items

No filters applied



Monthly climate explorer for COVID-19

10 June 2020: The cumulated number of deaths related to COVID-19 for the month of June in Peru is incorrect due to an error in the JHU COVID-19 mortality data. This will be fixed tomorrow when the daily data is updated.

Overview | Application | Documentation | Source code

Copy to clipboard

Application source code

```python
import calendar
import datetime

import cdstoolbox as ct

# Specific gas constant for dry air (J K-1 kg-1)
R = 287.058
# Density of air at 20 degrees C and 101.325 kPa
rho_0 = 1.2041
# Simple conversion
approx_conversion = False

TODAY = datetime.date.today()
CURRENT_MONTH = TODAY.month
CURRENT_DAY = TODAY.day

SWITCH_MONTH_DAY = 9
ERA5T_DATE = TODAY - datetime.timedelta(days=6)
DEFAULT_MONTH = CURRENT_MONTH if CURRENT_DAY >= SWITCH_MONTH_DAY else CURRENT_MONTH - 1

MONTHS = [f"{month:02}" for month in range(1, 12 + 1)]
```

Back

Search results

Search dataset

All | Applications | Datasets

Sort by
Relevancy
Title

Product type
- Climate indices (2)
- Climate projections (14)
- In-situ observations (1)
- Reanalysis (20)
- Satellite observations (19)
- Seasonal forecasts (6)

Spatial coverage
- Global (6)

Temporal coverage
- Future (6)
- Past (6)

Showing 1-6 of 6 results for Seasonal forecasts ×

Seasonal forecast anomalies on single levels

This entry covers single-level data post-processed for bias adjustment on a monthly time resolution. Seasonal forecasts provide a long-range outlook of changes in the Earth system over periods of a f...

Seasonal forecast monthly statistics on single levels

This entry covers single-level data aggregated on a monthly time resolution. Seasonal forecasts provide a long-range outlook of changes in the Earth system over periods of a few weeks or months, as a...

Seasonal forecast monthly statistics on pressure levels

This entry covers pressure-level data aggregated on a monthly time resolution. Seasonal forecasts provide a long-range outlook of changes in the Earth system over periods of a few weeks or months, as...

Seasonal forecast anomalies on pressure levels

This entry covers pressure-level data post-processed for bias adjustment on a monthly time resolution. Seasonal forecasts provide a long-range outlook of changes in the Earth system over periods of a...

PRéVISIONS CLIMATIQUES SAISONNIèRES 2019

PRESAC 12 : quel type de saison pluvieuse pour l'Afrique Centrale ???

Après Douala au Cameroun en 2018, c'est Bangui la capitale de la République Centre Africaine qui accueille depuis lundi 26 Aout 2019 la 12ème édition du Forum Régional de Prévisions Climatiques saisonnières et Dialogue sur l'Information Climatique et Météorologique entre les Experts GRC et Météo de l'Afrique Centrale. Ce PRESAC 12 est coorganisé par le projet SAWIDRA Afrique Centrale et SAWIDRA Continentale respectivement du Centre d'Applications et de Prévisions Climatologiques de l'AfriqueCentrale (CAPC-AC) et du Centre Africain des Applications de la Météorologie au Développement (ACMAD). Ce Forum s'articule autour des services de qualité pour un développement durable et résilient face aux changements climatiques en Afrique Centrale. Conscients que la production d'une information de qualité détermine la qualité de la prise de décision dans le cadre de la réduction des risques de catastrophes dus aux aléas climatiques et météorologiques, CAPC-AC et ACMAD avec les experts en climatologie des pays de la région de l'Afrique Centrale ont décidé de mutualiser leurs connaissances et leurs efforts pour que la prévision saisonnière consensuelle de cette année délivre un message de clarté et de qualité. Cette prévision de qualité permettra une meilleure prise de décision pour des actions de prévention des risques de catastrophes, depréparation et de réponse.

Read more

****

LE PRESASS 6 S' EST ACHEVE CE MATIN A NOUAKTHOTT AVEC UNE NOTE D'ESPOIR : LA ZONE SAHÉLIENNE ET SOUDANIENNE, L'ANNÉE 2019 CONNAÎTRA, GLOBALEMENT, DES QUANTITÉS DE PLUIES SUPÉRIEURES À ÉQUIVALANT AUX MOYENNES

/ACMAD_Bulletin_PRESAnord08_en.pdf" in un nuovo pannello

PRODUCTS

Webmail

New Perspectives

Projet SAWIDRA Continental ACMAD

SAWIDRA-ACMAD 3rd STEERING COMMITTEE MEETING AND 7th ACMAD Board Meeting 06-08 January 2020, Intercontinental Hotel Addis Ababa, Ethiopia.

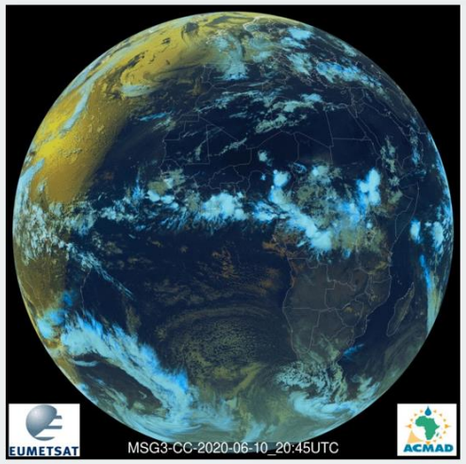
GeoServer ACMAD

Weather

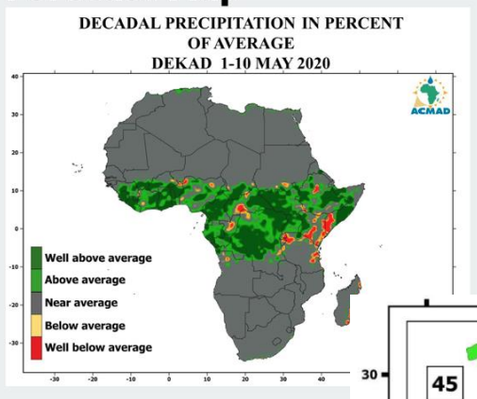
- Forecast Briefing/Discussion
- Rapid Developing Thunderstorm (RDT) *[version 2016]*
- ITD & ITCZ positions
- Heavy rain/flood risk
- Weekly monitoring rainfall
- Daily rainfall observation
- Daily_Forecast
- SASA_SASF_Bulletin
- WASA_WASF_Bulletin
- Weekly_Forecast

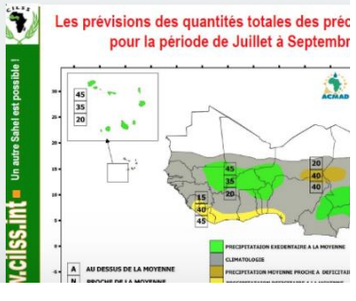
Climate

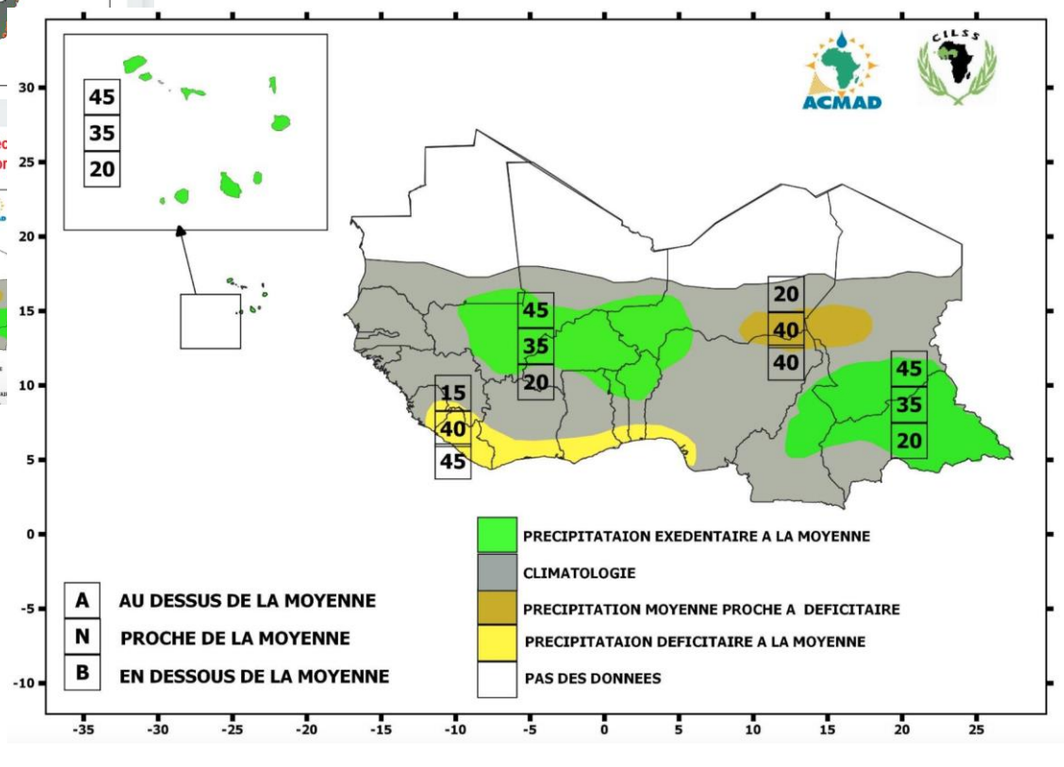
- Climate Service for Resilience in the Sahel -CSIRS
- Seasonal Climate Outlook PRESANORD 08
- Seasonal Climate Outlook PRESAC 08



Forecast Map







Back

South East European Virtual Climate Change Center

SEARCH

Operational Products | Climate Change | Research & Devel. | International Collab. | Events | About SEEVCCC

» More Details — Seasonal Forecast

» More Details — MedCOF

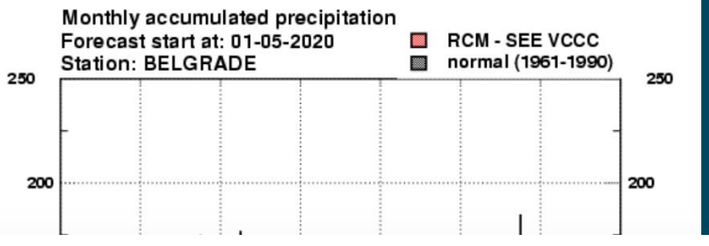
» More Details — SEECOF 23

OPERATIONAL PRODUCTS > SEASONAL FORECAST

Seasonal forecast is scientifically based approach for providing information on climate characteristics for several months or several seasons ahead. In basic, seasonal forecast has much in common with numerical weather prediction (NWP) in sense that both approaches relay on numerical integration of complex hydrodynamics equations. On the other hand, seasonal forecast's goal is mainly to predict monthly and seasonal anomalies from long term climatology, rather than to provide a day to day forecasts of weather patterns, as it is the case in NWP. For further reading please visit **ECMWF's page** about this topic.

SEEVCCC started to issue seasonal forecast for South East Europe region from June 2009. The system is based on dynamical downscaling of ECMWF seasonal forecast, using a regional atmosphere-ocean coupled model (**RCM-SEEVCCC**). The forecast consists of 41 ensemble members and is issued ones per month between 15th and 20th of a current month. The forecast run is for 7 months. Horizontal resolution is 0.25 degrees for atmospheric model and 0.2 degrees for the ocean model. Atmosphere is resolved with 32 and ocean with 21 vertical levels. T connection between the two components is through a coupler that performs the exchange of atmospheric surface fluxes and SST after every atmospheric physical time step. Exchanged flu are calculated using the atmospheric component and are used directly, without any additional parametrization.

Percipitation | Diagrams | Serbia | Belgrade | 2020 | May



Monthly prec. | Maps | 2020 | Jun

SELECTED OPTION IS EMPTY

Back

SEECOF-23 CLIMATE OUTLOOK FOR THE 2020 SUMMER SEASON

Similarly, to MedCOF-14 seasonal climate outlook, SEECOF-23 prediction is based on the output from dynamical models, including, inter alia, the operational products of the SEEVCCC centre, statistical models and teleconnections of large-scale climate features.

The maps show the probabilistic consensus forecast for the tercile categories of anomalies for seasonal mean temperature and precipitation, relative to the 1981-2010 period. Due to the climate warming trend, anomalies are affected by the selected reference period.

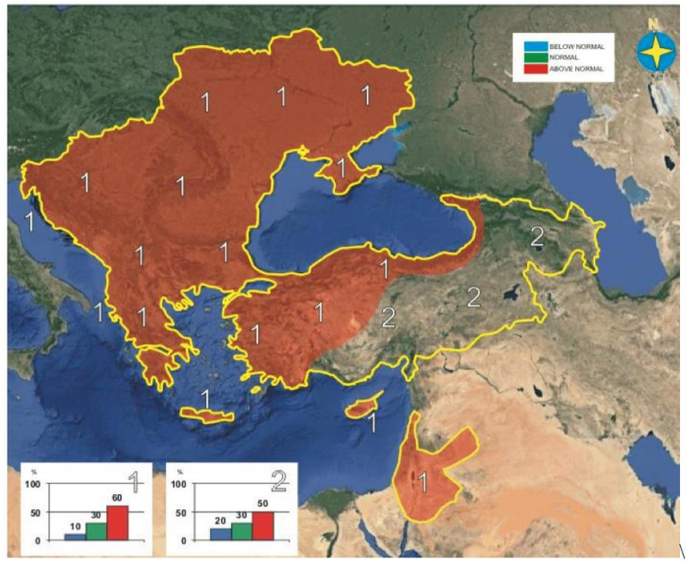
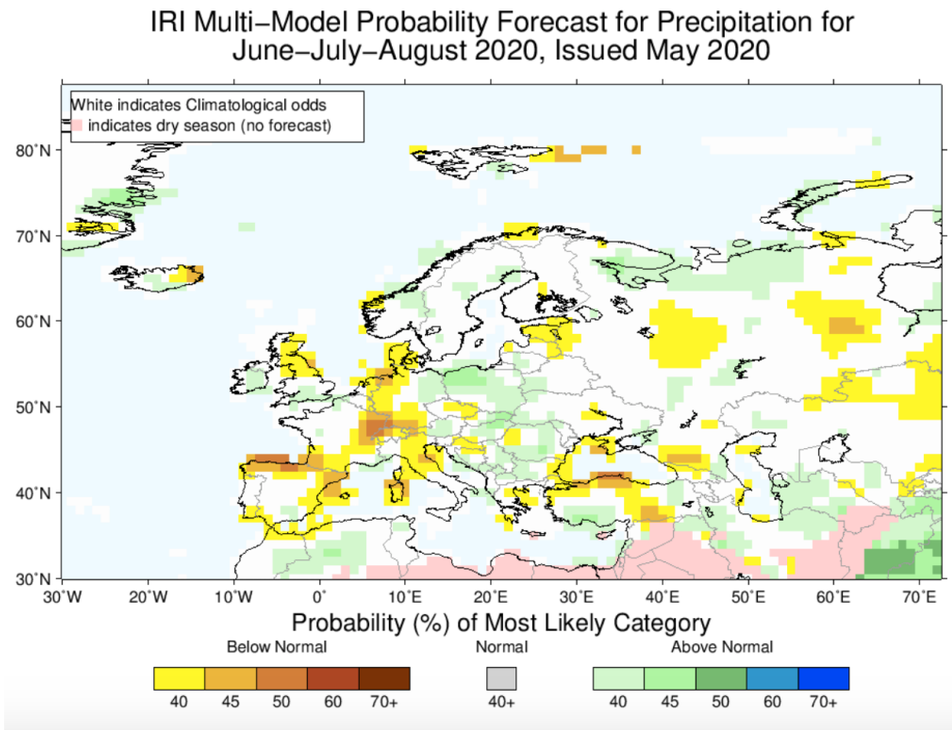


Figure 1. Graphical presentation of the 2020 summer temperature outlook

Please refer to our licensing agreement for permission to use any IRI forecast material.

Seasonal Climate Forecast

Region: Europe | Type: Precip | Issue Year: 2020 | Issue Month: May | Leads: JJA20



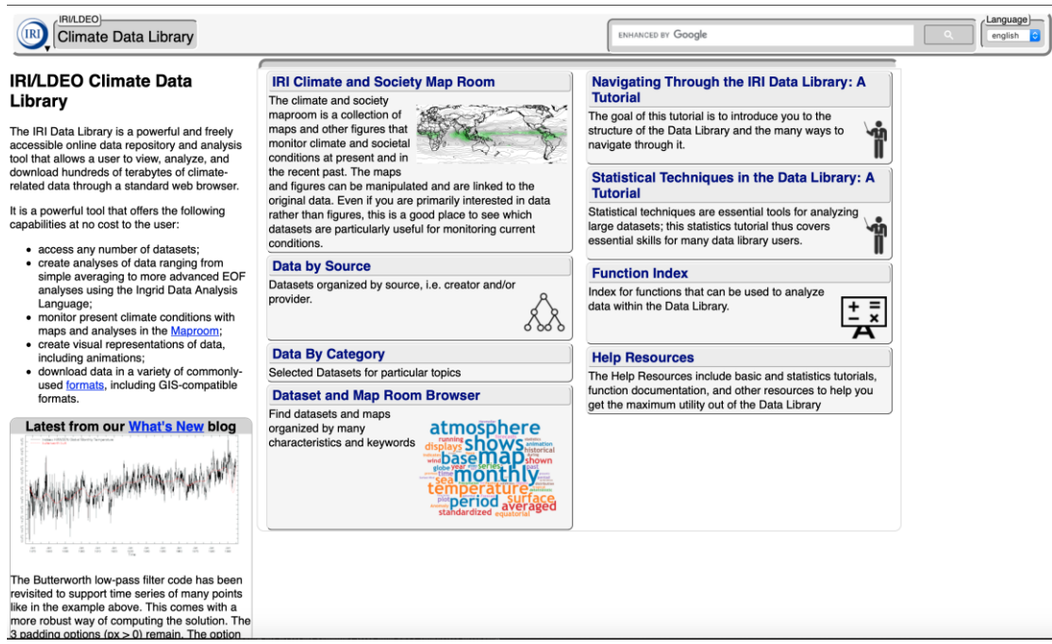
Overview

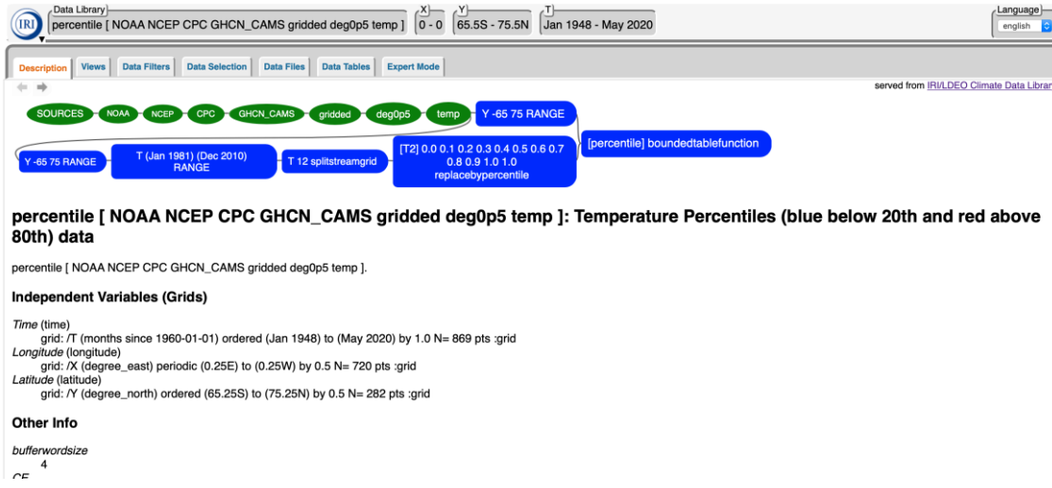
Starting in April 2017, the IRI probabilistic seasonal climate forecast product is based on a re-calibration of model output from the U.S. National Oceanographic and Atmospheric Administration (NOAA)'s North American Multi-Model Ensemble Project (NMME). This includes the ensemble seasonal prediction systems of NOAA's National Centers for Environmental Prediction, Environment and Climate Change Canada, NOAA/Geophysical Fluid Dynamics Laboratory, NASA, NCAR and COLA/University of Miami. The output from each NMME model is re-calibrated prior to multi-model ensembling to form reliable probability forecasts. The forecasts are now presented on a 1-degree latitude-longitude grid.

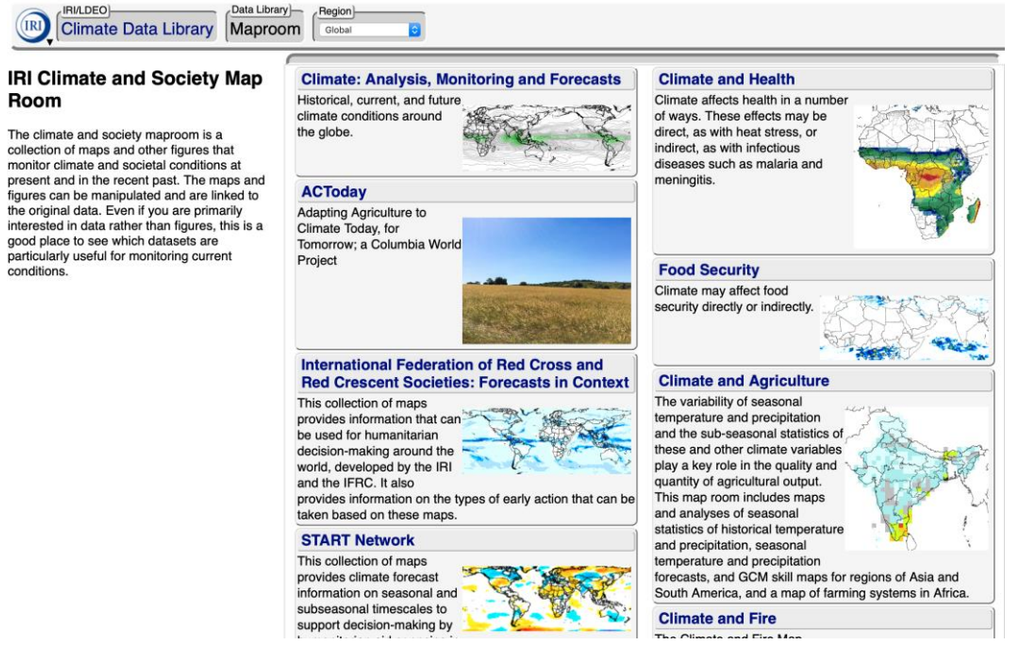
> **Disclaimer**: *The IRI seasonal forecast is a research product. Please see the NOAA CPC forecast for the official seasonal forecast over the U.S. Please consult your country's national meteorological service for the official forecast for your country.*

Please see the 'Discussion' item for an overview of the individual forecasts.

The climatological base period used is 1982-







Back

EVENTOS

Diplomado - Fortalecimiento de capacidad...

11-06-2019 Hits:8550

NOTICIAS

Publicación "Comprendiendo la vulnerabilidad, el r...

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TRABAJOS Y OPORTUNIDADES

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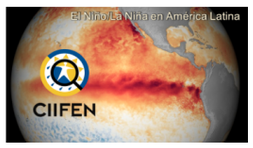
El Niño/La Niña en América Latina - Junio 2020



Pacífico ecuatorial se enfría; se espera que enfriamiento continúe

Al momento no hay condiciones de El Niño o La Niña, prevalecen condiciones normales.

Durante mayo la Temperatura Superficial del Mar (TSM) experimentó reducción de sus valores pasando de valores de anomalía cálida a valores ligeramente por debajo de lo normal.

Hacia fines de mayo se fortalece la franja fría locaalizada en el Pacifico ecuatorial junto además de la franja costera junto a las costas de Perú.

La diferencia de TSM entre la última semana de mayo y última semana de abril muestra un enfriamiento generalizado en el Pacífico Sur, particularmente en la región ecuatorial del océano Pacífico; al sur de 40°S y 150°W y a lo largo de la región costera de Sudamérica.

La circulación atmosférica tropical muestra consistencia con características de ENSO-neutral.

Existe probabilidad de ~ 58% de ENOS neutral durante el verano 2020 del hemisferio norte, y las posibilidades se reducen durante el otoño (a 45-40%).

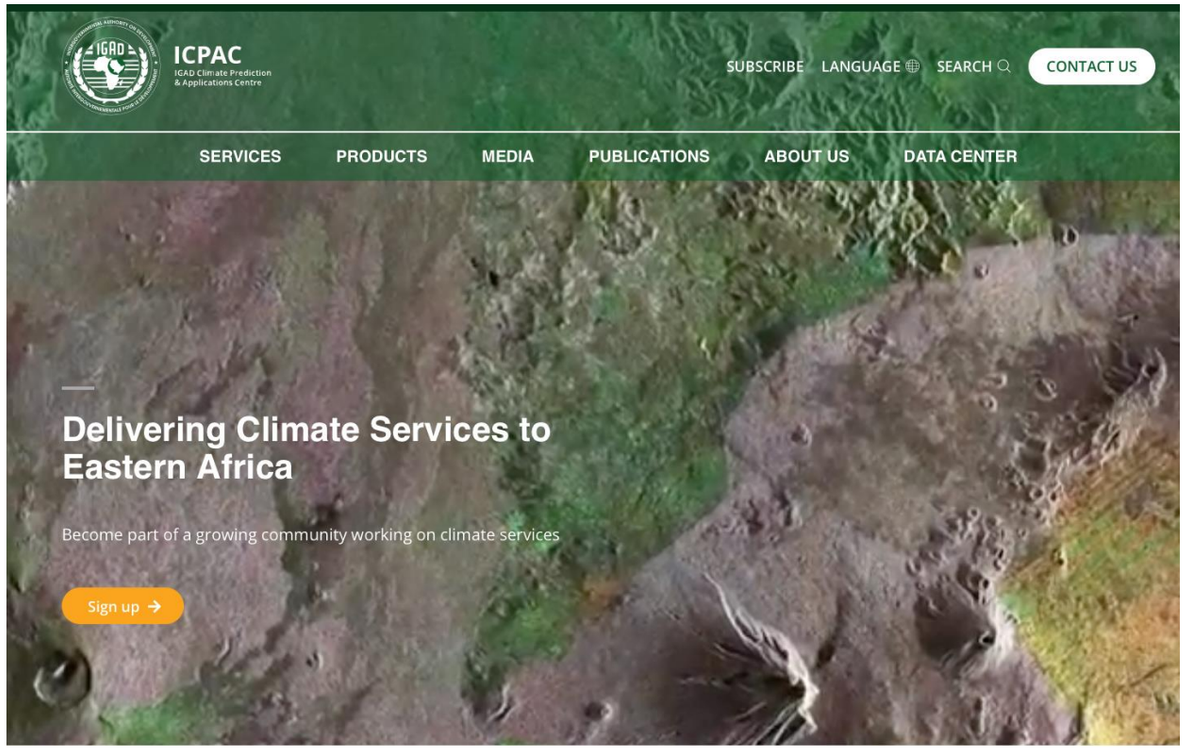
Leer más...

Pronóstico Estacional Oeste y Sur de Sudamérica Mayo-Julio 2020

Síntesis regional

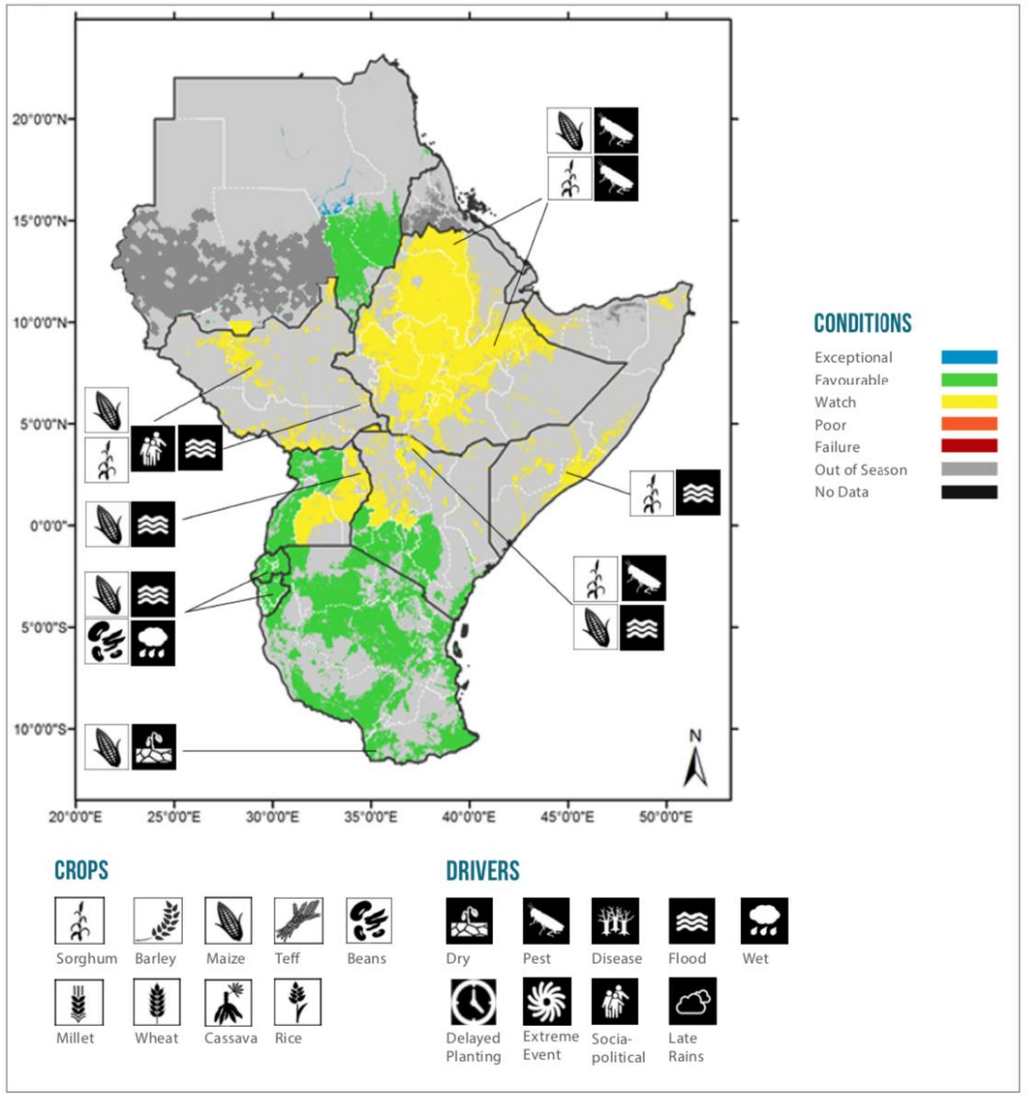
Del análisis estadístico de las estaciones de los Servicios Meteorológicos de Bolivia, Chile, Colombia, Ecuador, Perú y Venezuela (438 de temperatura y

Back



Our Areas of Work

- Climate Forecasting
- Disaster Risk Management
- Water Resources
- Climate Information Dissemination
- Agriculture and Food Security
- Environmental Monitoring
- Capacity Development
- Climate Change
- Data and Maps

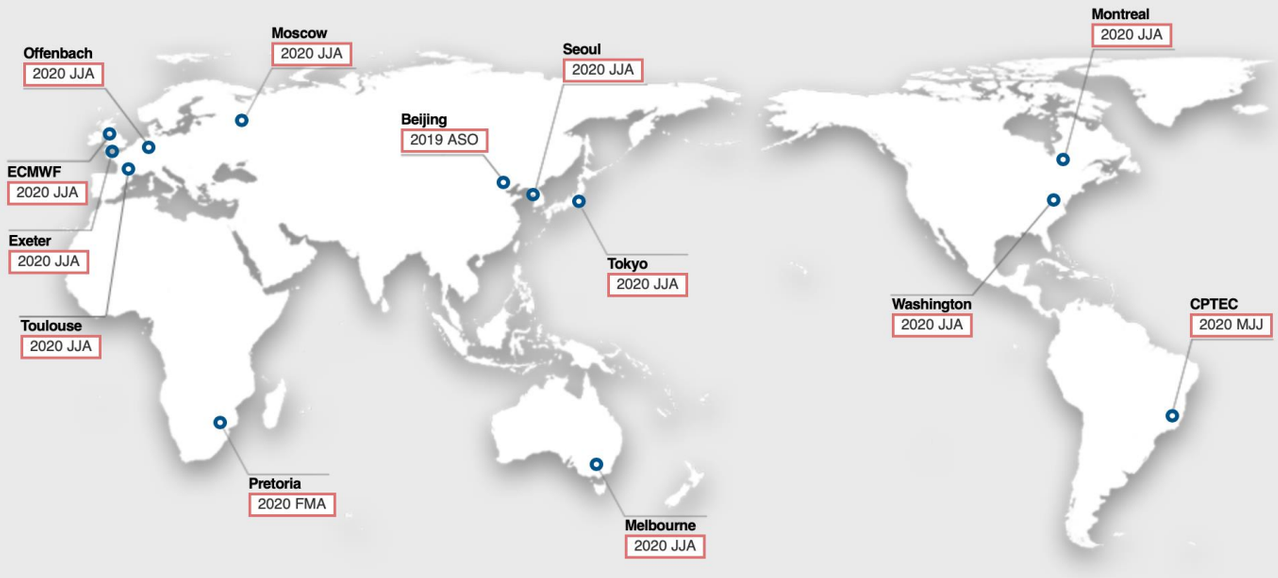


Back

WMO Lead Centre for
Long-Range Forecast Multi-Model Ensemble

Home About us News Seasonal Related Sites WMO Lead Centre for SVSLRF

Latest Forecast data



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Notice & News

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Check! System Requirements

NOTICE A new leaflet of LC-LRFMME is published!	2016-08-31
GPCs(10) for JJA 2020 are uploaded	2020-06-01
All GPCs(11) for AMJ 2020 are uploaded	2020-03-30
All GPCs(11) for DJF 2019 are uploaded	2019-12-02
All GPCs(11) for NDJ 2019 are uploaded	2019-10-22

PMME DMME ENSO

today : 37
total : 996109

Korea Meteorological Administration
61 16-GIL YEOUIDAEBANG-RO DONGJAK-GU SEOUL 07062 Republic of Korea
Email. lc_lrfmme@korea.kr Tel. 82-2-2181-0486 Fax. 82-2-2181-0489
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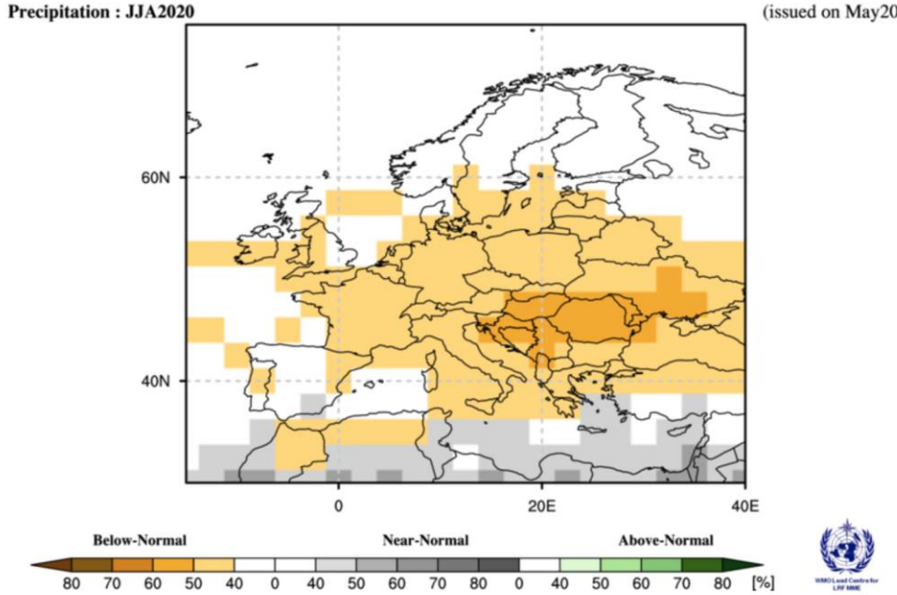
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Issued date : 2020 MAY **Select Period :** 2020 JUN ~ 2020 AUG Plot Download Print

Probabilistic Multi-Model Ensemble Forecast
ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

Precipitation : JJA2020 (issued on May2020)



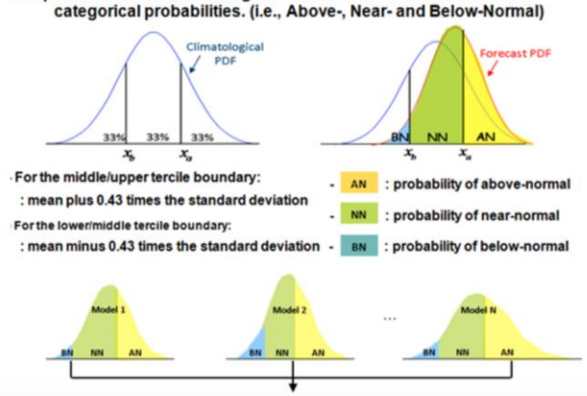
Probabilistic forecast

The probabilistic multi-model ensemble prediction system used at WMO LC-LRFMME is based on an uncalibrated MME with moc weights being inversely proportional to the random errors in the forecast probability associated with the standard error of the ense mean (i.e., proportional to the square root of model ensemble size), and a Gaussian fitting method for the estimation of tercile-bas categorical probabilities (Min et al. 2009).

Probabilistic forecasts are issued in the form of tercile-based categorical probabilities (hereafter, tercile probabilities), that is, the probability of the below-normal (BN), near-normal (NN), and above-normal (AN) categories, with respect to climatology. A Gaussi approximation was applied to estimate tercile probabilities. The lower (x_b) and upper (x_a) terciles are estimated as

$x_b = \mu - 0.43\sigma$ and $x_a = \mu + 0.43\sigma$, respectively, with μ and σ being the mean and standard deviation of the hindcast sample. Forecast probability of each category is estimated as a portion of the cumulative probability of the forecast sample assoc with this category.

■ A parametric Gaussian fitting method for estimate of tercil-based categorical probabilities. (i.e., Above-, Near- and Below-Normal)



Back

Back

monitoring and forecasting to reduce response time

climate-based and vegetation indices

open and interoperable system

CLIMATE PROGRAM OFFICE

ADVANCING SCIENTIFIC UNDERSTANDING OF CLIMATE, IMPROVING SOCIETY'S ABILITY TO PLAN AND RESPOND

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MAPP
Modeling, Analysis, Predictions, and Projections

- North American Multi-Model Ensemble
- Climate Test Bed
- Subseasonal Experiment

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Modeling, Analysis, Predictions & Projections

JUNE 2020

Mon	Tue	Wed	Thu	Fri	Sat	Sun
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

Back

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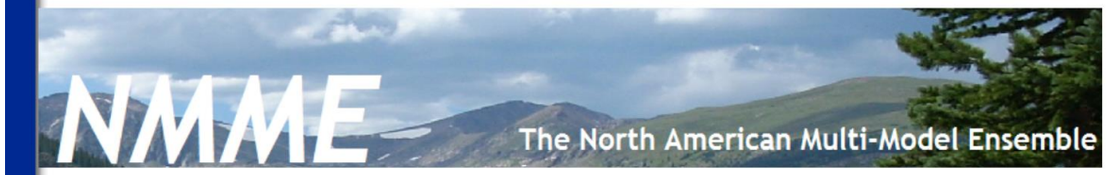
Climate Prediction Center

home | Site Map | News | Organiza

HOME > NMME Forecasts of Monthly Climate Anomalies



Welcome to the North American Multi-Model Ensemble home!

NMME News and Model Upgrade

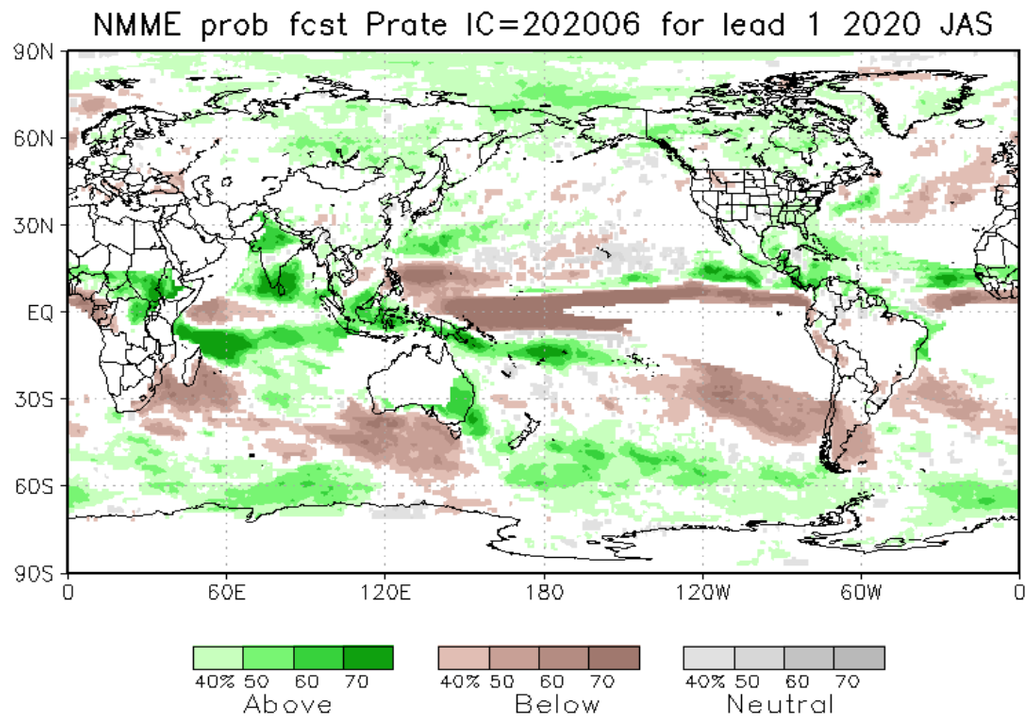
3-month mean spatial anomalies
1-month mean spatial anomalies

Niño3.4 Plumes
International MME
Experimental: Probability forecasts
Preview: additional variables
Real-time verification (preliminary)

NMME Realtime Forecasts **Archive**
***** Data Access *****

About the NMME
Join the NMME mailing list
Report an issue with the CPC NMME plots/pages

For additional information, contact Qin Zhang (**Qin.Zhang@noaa.gov**)



MED-GOLD

Turning climate-related information into added value for traditional MEDiterranean Grape, OLive and Durum wheat food systems

Historical Climate | Seasonal Forecast | Long Term Projections | *Leave your feedback*

Select type of data:

Seasonal Forecast - SprR - 2020

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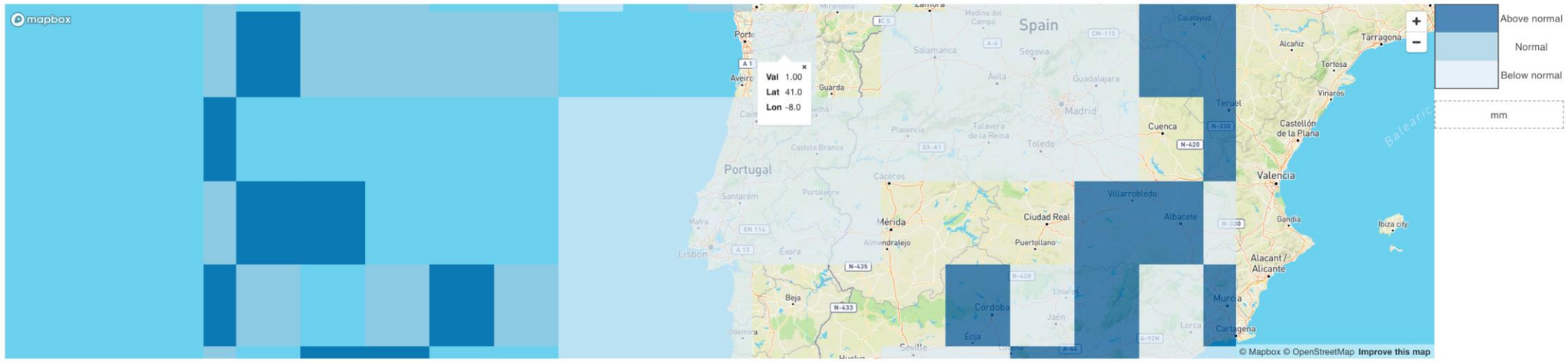

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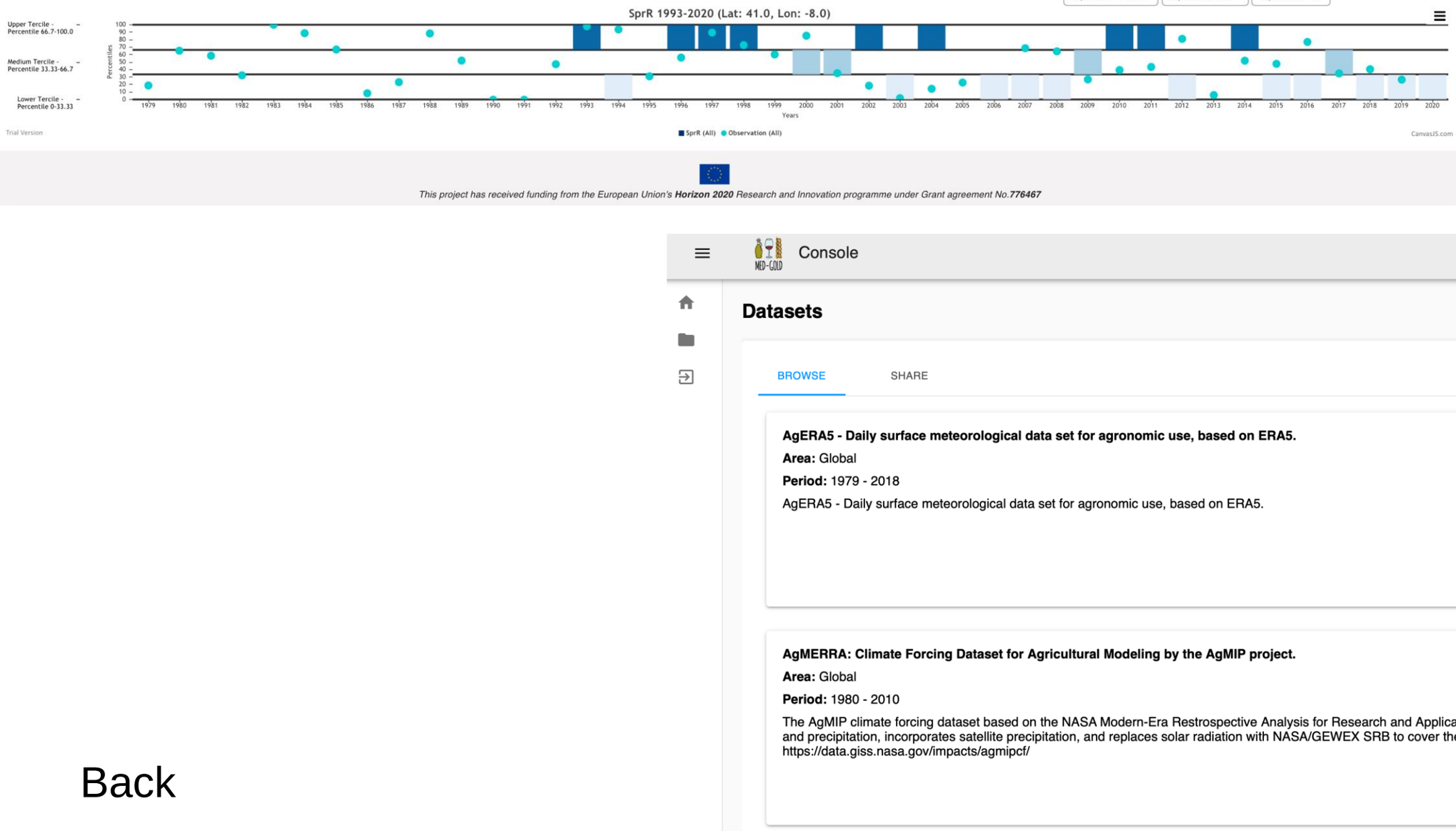

*This project has received funding from the European Union's **Horizon 2020** Research and Innovation programme under Grant agreement No.**776467***

Back

Console

Datasets

BROWSE | SHARE

AgERA5 - Daily surface meteorological data set for agronomic use, based on ERA5.

Area: Global

Period: 1979 - 2018

AgERA5 - Daily surface meteorological data set for agronomic use, based on ERA5.

AgMERRA: Climate Forcing Dataset for Agricultural Modeling by the AgMIP project.

Area: Global

Period: 1980 - 2010

The AgMIP climate forcing dataset based on the NASA Modern-Era Restrospective Analysis for Research and Applications (MERRA). AgMERRA corrects to gridded temperature and precipitation, incorporates satellite precipitation, and replaces solar radiation with NASA/GEWEX SRB to cover the 1980-2010 period. See https://data.giss.nasa.gov/impacts/agmipcf/