



Observing Water - Related Events for Evidence - Based Decision - Making

Joao Pita Costa * *****, M.Besher Massri *, Inna Novalija *, Ignacio Casals del Busto **, Iulian Mocanu ***, Maurizio Rossi *****, Jan Šturm *, Eva Erzin *, **Alenka Guček** *, Matej Posinković *, Marko Grobelnik * *****

* Institute Jozef Stefan, Slovenia, ** Aguas del Alicante, Spain, *** Apa Braila, Romania, **** Ville de Carouge, Switzerland, ***** Quintelligence, Slovenia





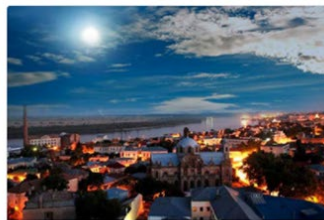
Greening the economy in line with the sustainable development goals



Ville de Carouge, Switzerland



Alicante, Spain



Brăila, Romania



AIM: For users to extract important insights in the relation to the water sector from heterogeneous data sources



Water Data Sensing

Global/local News
SDG 6 indicators
World Bank Open Data
Statistical Data
Weather Data

Data Integration

Data curation
Data cleaning
Data preprocessing
Analysis of outliers
Exploratory data analysis

Water Observatory

Interactive data visualisation of indicators and statistics
News on priority topics
Biomedical research on water contamination

Water Digital Twin

Data interoperability
Insights from heterogeneous data sources
Advanced analysis of streams of data, and forecasts

Usage on NAIADES

Focused dashboards
Exploratory dashboards
Public instance for decision-makers
APIs for 3rd party integration

Table 2: Data Sources feeding the NIAADES Water Observatory

ID	Name	Source	Usage in NIAADES	Short description
N1	Worldwide News	Newsfeed.ijs.si	Explore news on water-related topics	News articles with timestamp, title and URL
N 2	Facebook Impact	Event Registry	Assess the impact of news in social media	Number of posts in Facebook mentioning a certain article
N 3	UN Open Dataset	UN Portal	Get access to global indicators	Global indicators on water resource management
N 4	Worldbank Open Data	Worldbank	Get access to global indicators	Global indicators on the access to clean and drinkable water
N 5	SDGs	SDG 6 web portal	Get access to global indicators	Global indicators of progress on the achievement of SDG 6
N 6	JRC	Global Surface Water	Assess available water sources	The volume of available water by GIS coordinates over time
N 7	Statistical Water Data	Eurostat	Assess water-related statistics	Different statistical time series on water-related aspects
N 8	European Water Data	EU Open Data Portal	Assess European water priorities	A range of water-related topics described by time series
N 7	Google Trends	Google	Get alerts on recent search patterns	The Google Trends data on any query over the restricted API
N 10	Twitter Feed	Twitter	Get alerts on recent	The historical data of a part of the global Twitter feed
N 11	Weather data	ECMWF	Obtain forecast of extreme weather conditions	The current data and forecasts on the weather conditions
N 12	MEDLINE	USA National Library of Medicine	Explore the research and best practices	The 26+ million biomedical research article abstracts and titles
N 13	Microsoft Academic Graph	Microsoft Academic	Explore the research and patents	The published research articles and patents (including MEDLINE)
N 14	WHO data	World Health Organization	Access health indicators	The global health indicators over WHO priority domains

* the listed datasets are planned to be ingested according to availability at source in the lifetime of the project.



Navigation

Dashboard information

Country:
Global

Indicators

Information page
Global Indicators

Media

Information page
Live news
Twitter Dashboard
Document Explorer

Research

Information page
Top countries
Top trends
Research Explorer

Resources

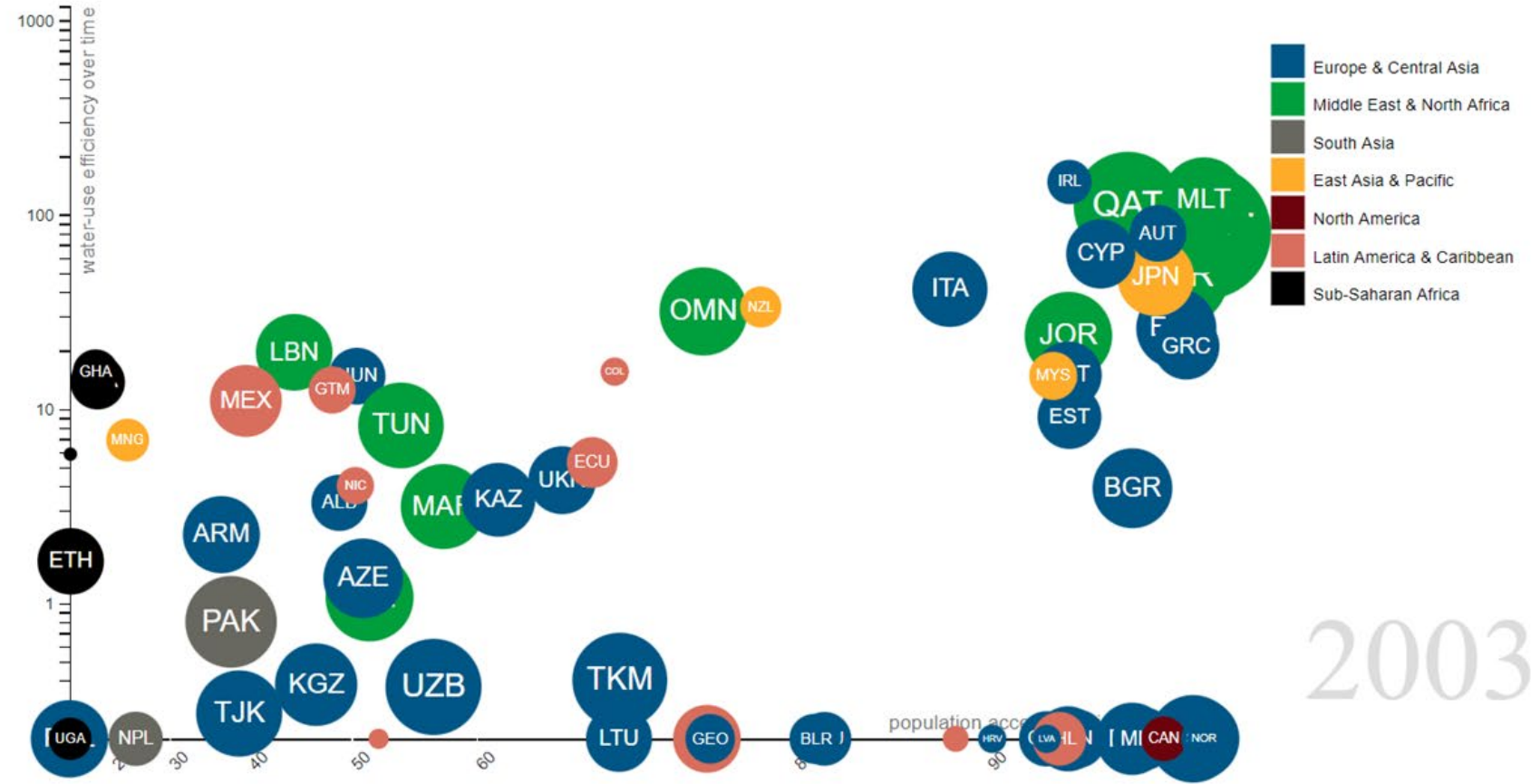
Information page
Prediction
Exploration

Contact

About

WATER OBSERVATORY

X-axis: population access to drinking water Y-axis: water-use efficiency over time Bubble-size: water stress level Country: -- All countries -- Year: 2000 2003 2010 2015 2020 [Resume](#)



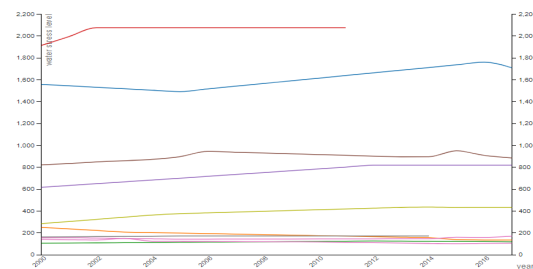
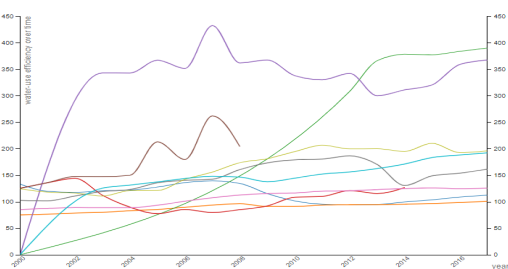
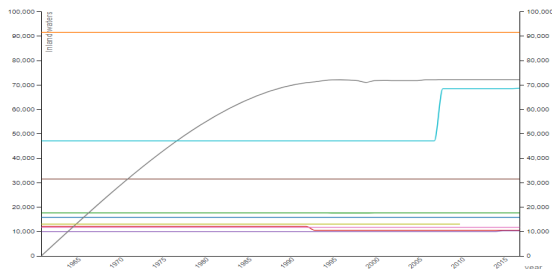
Global indicators

X-axis: population access to drinking water Y-axis: water-use efficiency over time Bubble-size: water stress level Country: -- All countries -- Year: 2000 2005 2010 2015 2020 Resume



overview

explore in detail



Navigation

Dashboard information

Country:
Alicante

Indicators

- Information page
- Global indicators
- Local indicators
- Local indicators time series

Media

Research

Resources

Contact

About

Local indicators

News feed and research

Navigation

- Dashboard Information
- Country: Global
- Indicators
- Media
- Live news
- Twitter Dashboard
- Document Explorer
- Research
- Resources
- Contact
- About

WATER OBSERVATORY

Query: Water scarcity Country: --All countries-- Reading mode: Show English only: Paused

Map showing global water scarcity visualization. Legend: Positive (Green), Neutral (Blue), Negative (Red).

eventregistry

SEARCHPOINT

Water management Microsoft academic graph Search Topics

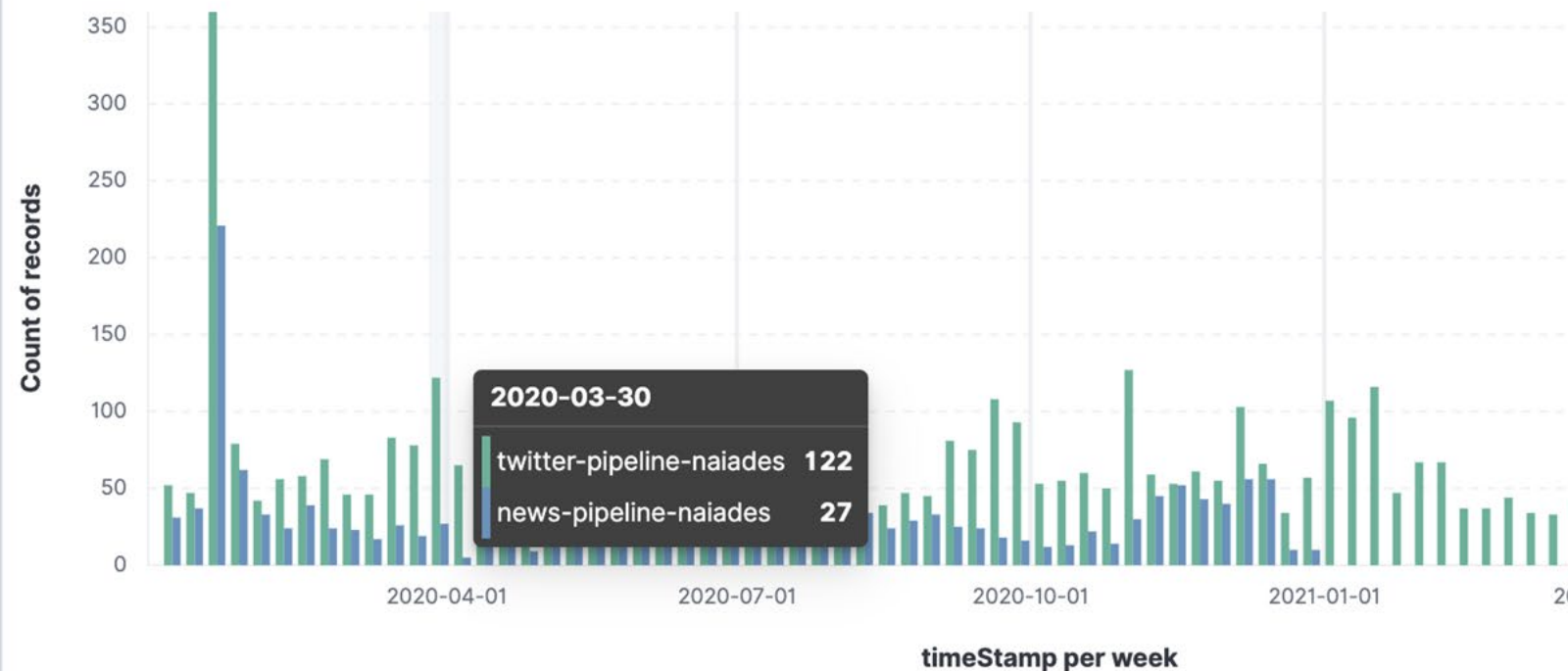
- (8) [Water Resource Management with the management software MANUELA](https://academic.microsoft.com/paper/2527068763)
Water Resource Management with the management software MANUELA
- (74) [Water Resource Management](https://academic.microsoft.com/paper/2745190588)
Water Resource Management
- (33) [LibGuides: Water Resources Management \(PDT379/3\): Water Resources Management](https://academic.microsoft.com/paper/2942245611)
LibGuides: Water Resources Management (PDT379/3): Water Resources Management
- (79) [Water resources management](https://academic.microsoft.com/paper/2241588016)
Water resources management
- (22) [From water resources management to integrated water resources management: an analysis of the establishment of new water management organisations in Namibia](https://academic.microsoft.com/paper/2615006987)
From water resources management to integrated water resources management: an analysis of the establishment of new water management organisations in Namibia
- (85) [Water Resources Management](https://academic.microsoft.com/paper/2768958348)
Water Resources Management
- (89) [Water resource management](https://academic.microsoft.com/paper/2498811102)
Water resource management
- (19) [Module 3 : entrepreneurship development in integrated water resource management, financial management in capital management in water resource](#)

Word cloud visualization of search results.

SEARCHPOINT

Integration of media search

news-vs-tweets over time

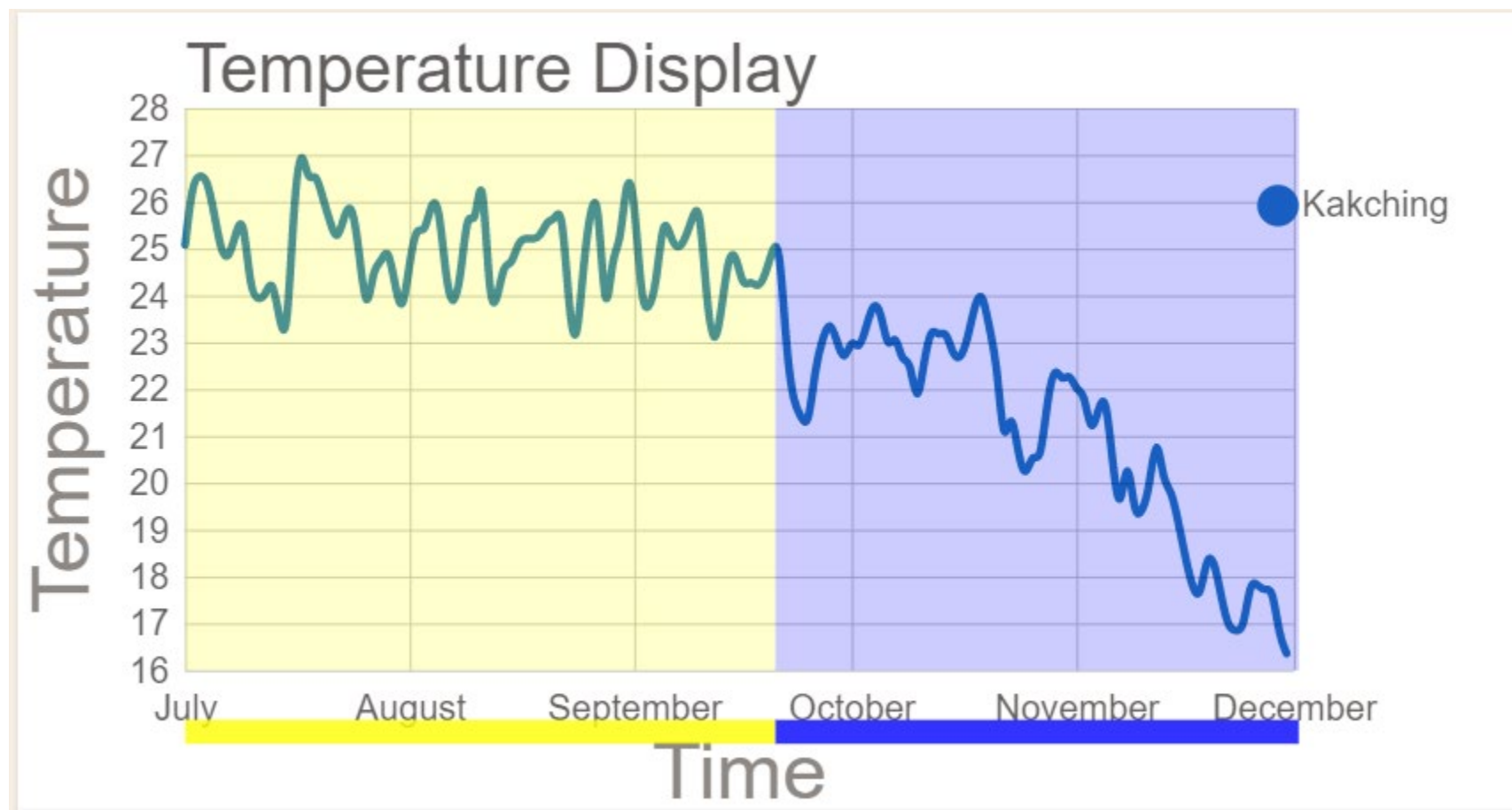


The screenshot shows the SEARCHPOINT interface with a search for 'flood'. The search parameters are: Start year: 01/01/2020 00:00, End year: 31/12/2021 23:59. The search results list five items:

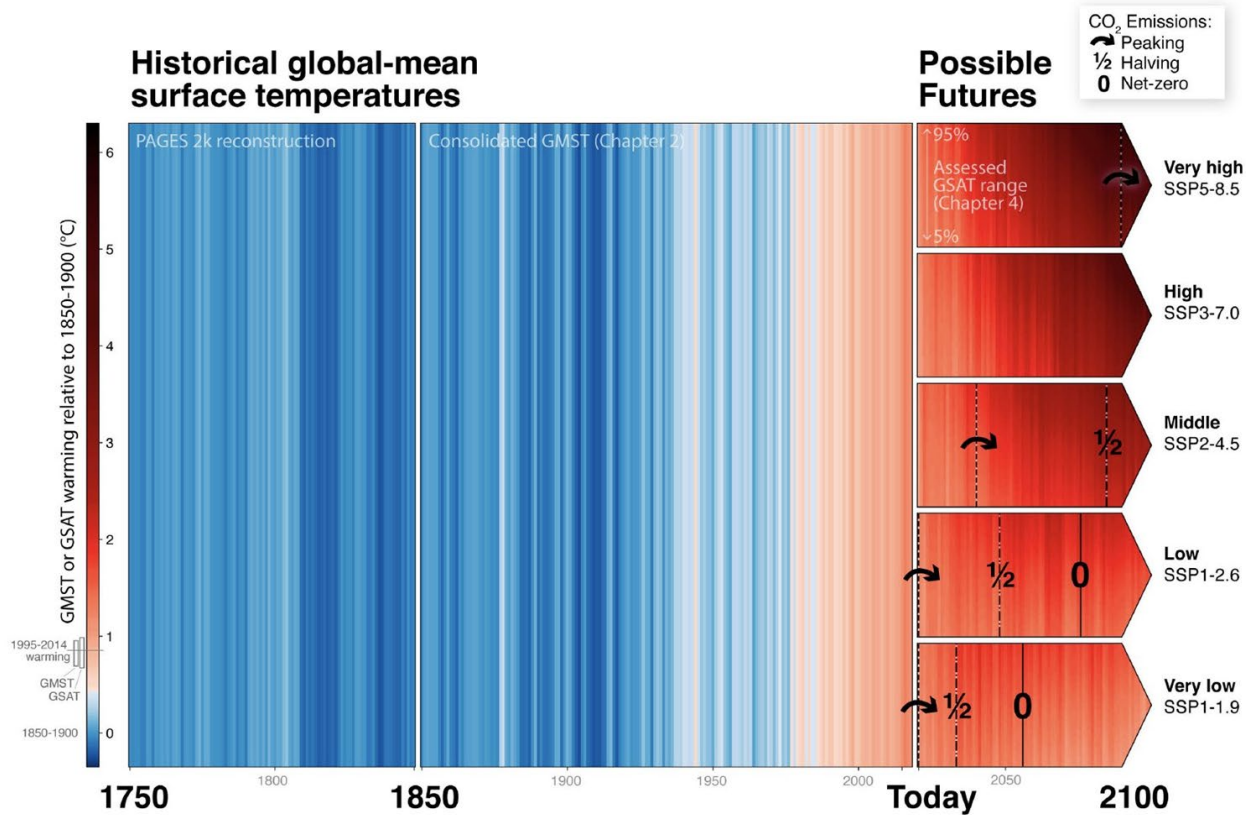
- [\(0\) WATCH: Climate change is coming 'whether you like it or not'](#)
1430743829
WATCH: Climate change is coming 'whether you like it or not'
Miami agent Nick Quay argued Thursday that real estate professionals can thrive by helping their clients understand how climate change will impact them.
- [\(1\) Council bashes downloading, but backstops conservation authorities](#)
1430658845
Council bashes downloading, but backstops conservation authorities
Debate on day two of budget deliberations keeps returning to a central theme, whether city hall should cover costs from provincial downloading.
- [\(2\) GE20: Know your candidates for Roscommon-Galway - Shannonside](#)
1430739691
GE20: Know your candidates for Roscommon-Galway - Shannonside
The countdown is on to GE20 on Shannonside FM and we've put together a list of information on candidates to help you the voter make up your mind in the race for the 33rd Dail in Rosco...
- [\(3\) We're not fixing this environmental crisis. Could one ditch show us the way?](#)
1429312885
We're not fixing this environmental crisis. Could one ditch show us the way?
This story is part of a series by the Center for Public Integrity, Grist and The World about how our overuse of fertilizer harms the climate and endangers the public.
- [\(4\) Border barrier vulnerable to flash floods, needs large storm gates left open for months](#)
1430602407
Border barrier vulnerable to flash floods, needs large storm gates left open for months
President Donald Trump's border barrier likely will require the installation of hundreds of storm gates to prevent flash floods from undermining...
- [\(5\) Federal flood prevention program bogged down by bureaucracy, audit finds](#)
1429602465
Federal flood prevention program bogged down by bureaucracy, audit finds
The federal government had trouble spending half of the \$184 million earmarked over the last few years to prevent flood damage in Canadian communities, an internal evaluation has...
- [\(6\) South Dakota bill would stop cities from banning plastic bags](#)
1428098882
South Dakota bill would stop cities from banning plastic bags
PIERRE, S.D. - A bill approved by a South Dakota Senate committee on Tuesday would prohibit cities in the state from banning

On the right side of the interface, there is a word cloud with 'CLIMATE' as the largest word. A blue speech bubble contains the text 'Drag this ball to reorder results!'. Below the word cloud is a circular refresh icon and the SEARCHPOINT logo.

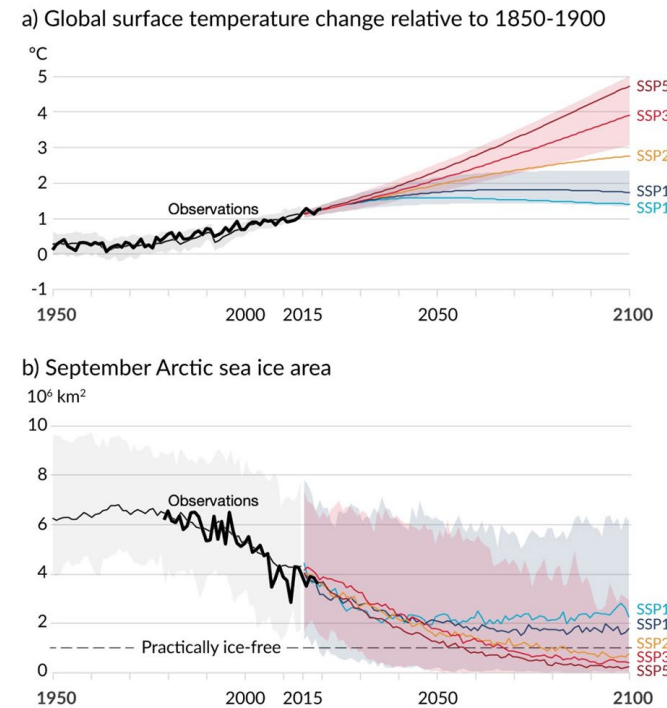
under development: trend predictions for the next 5-10 years



inspiration: IPCC report



Human activities affect all the major climate system components, with some responding over decades and others over centuries

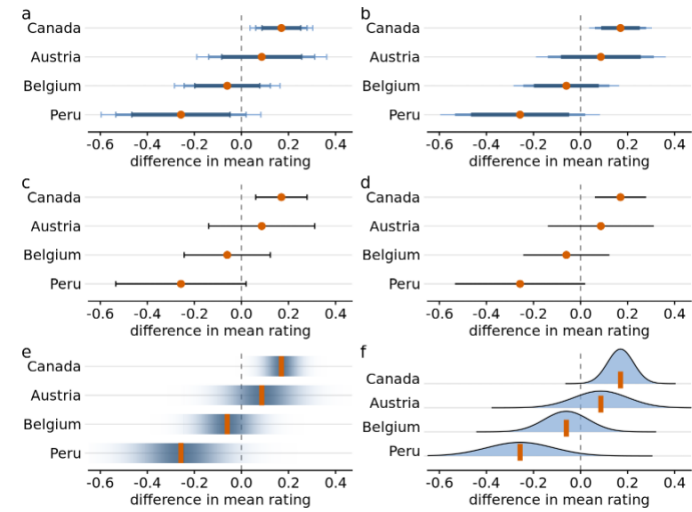
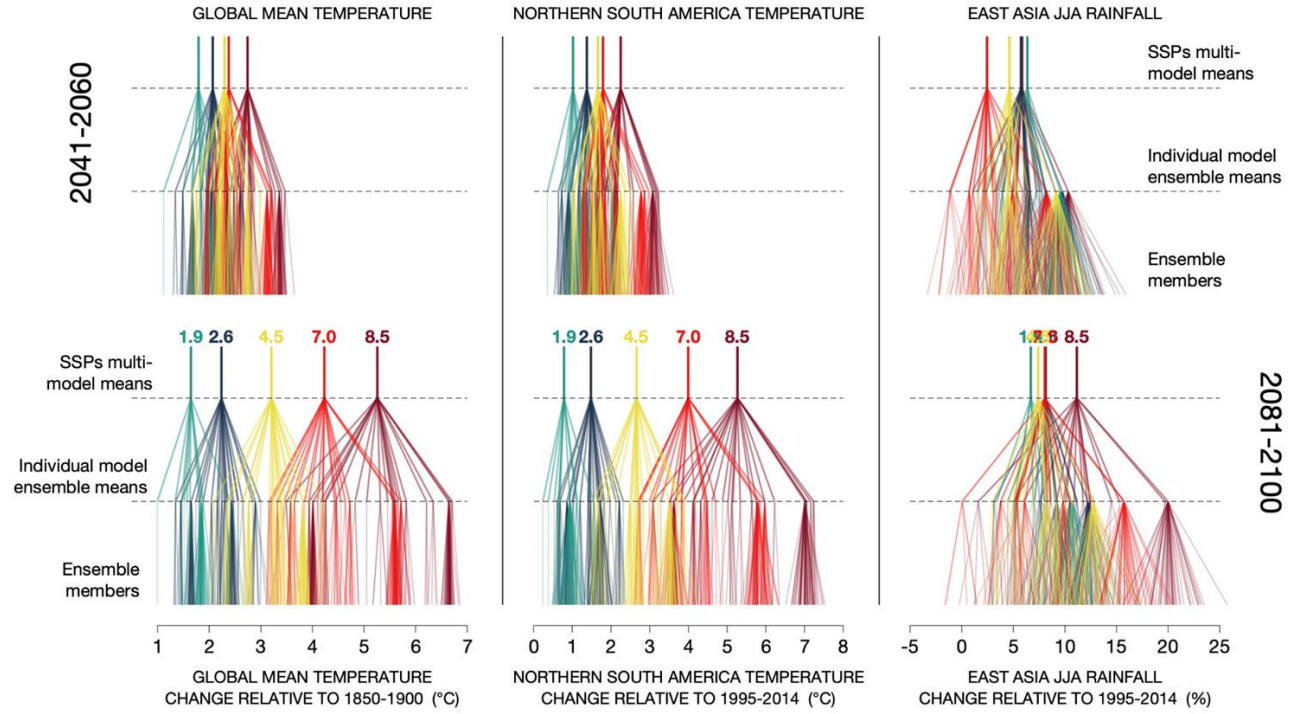
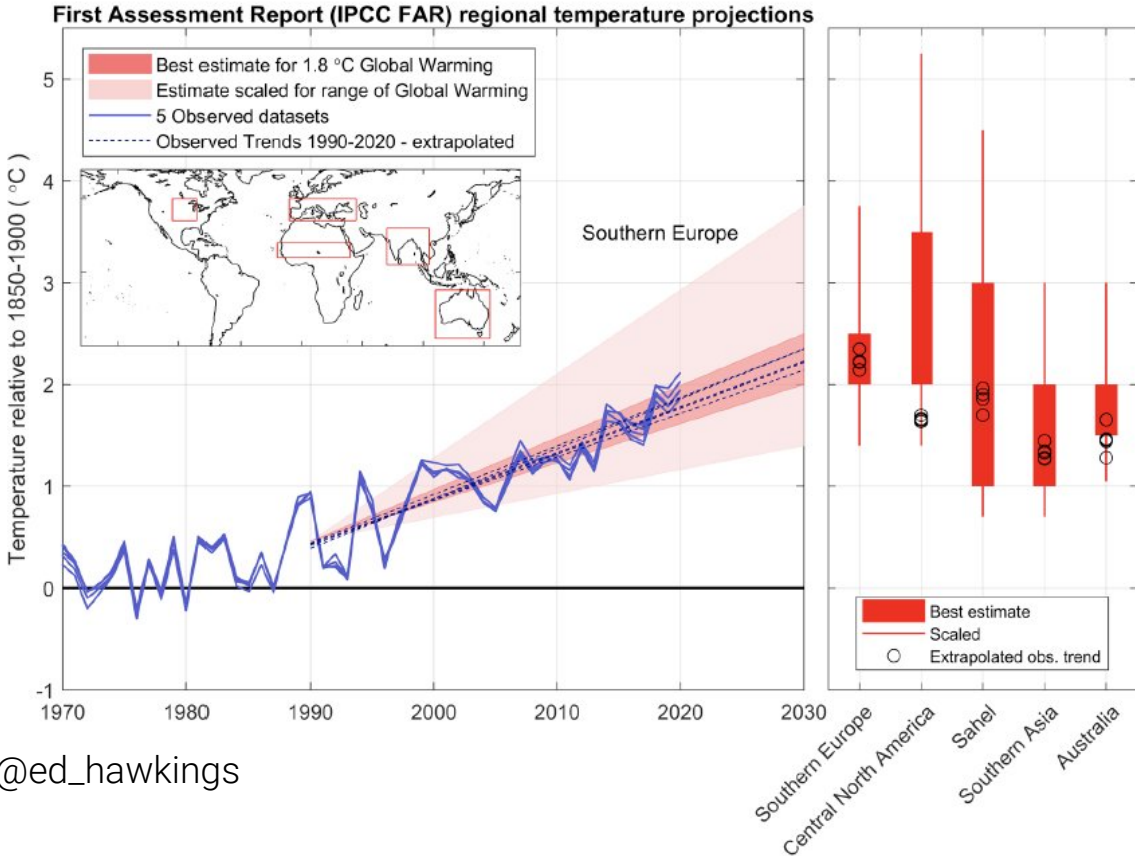


visualizing AI model uncertainty

@ed_hawkings

Cascade of uncertainties in climate projections

Different sources of uncertainty dominate the total uncertainty in projections for different variables, regions and time periods



@ed_hawkings



Under development: streamstory

Visualization - Influenzanet-weather (Zoom: 0%) time unit: month

Temperature HIGHEST (1.2)
The state is characterized by high Temperature
Typically lasts 1.3e+8 months
It can be characterized by the following rules:
Temperature > 14.55
Humidity < 27.95

Options: + Font, - Font

Details

State name: Humidity LOW

Description:

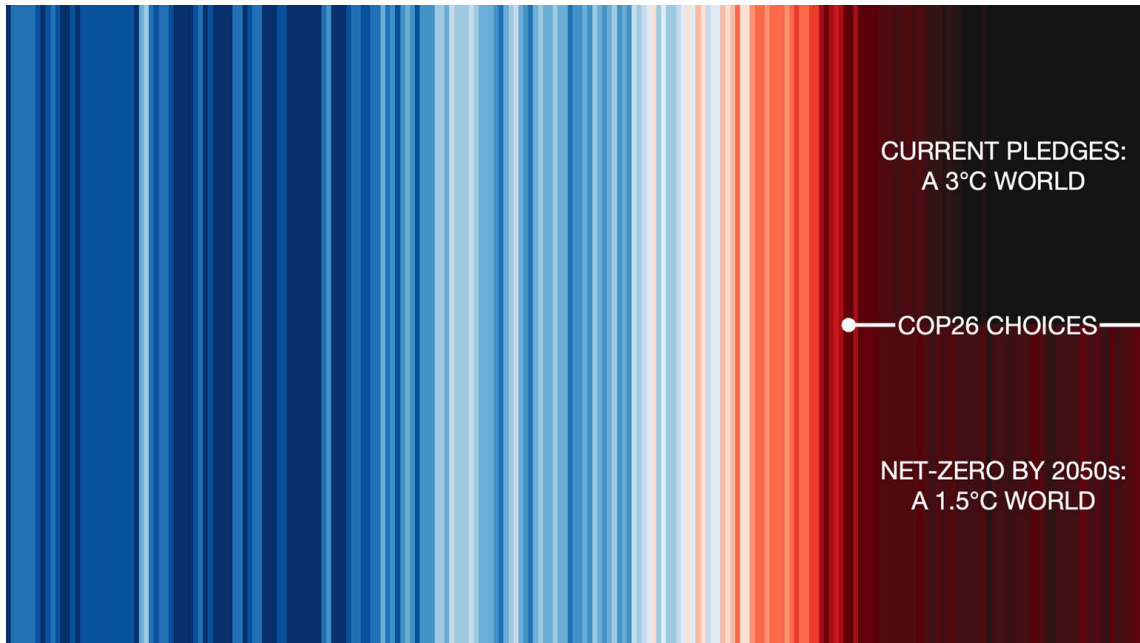
Attributes

- Influenza: 3.381
- Temperature: 5.669
- Humidity: 20.26
- Rainfall: 40.53

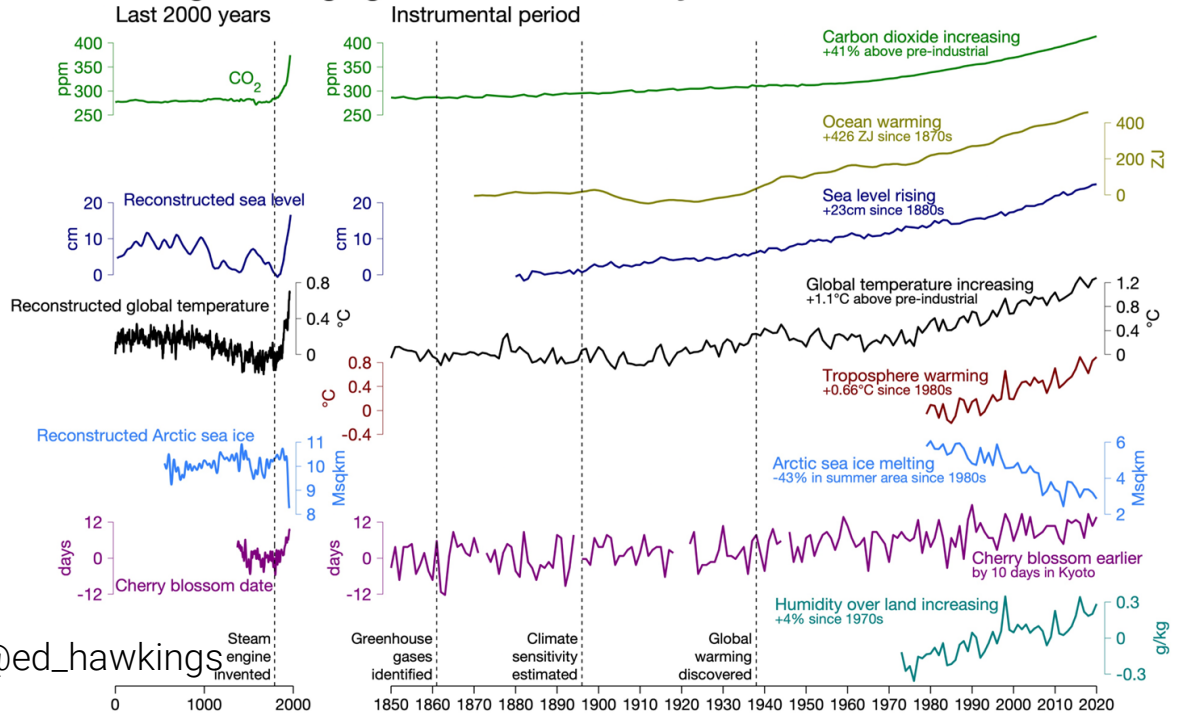
State History

State History	Coordinates	Time	Explanation Tree
100%			
51%			
34%			

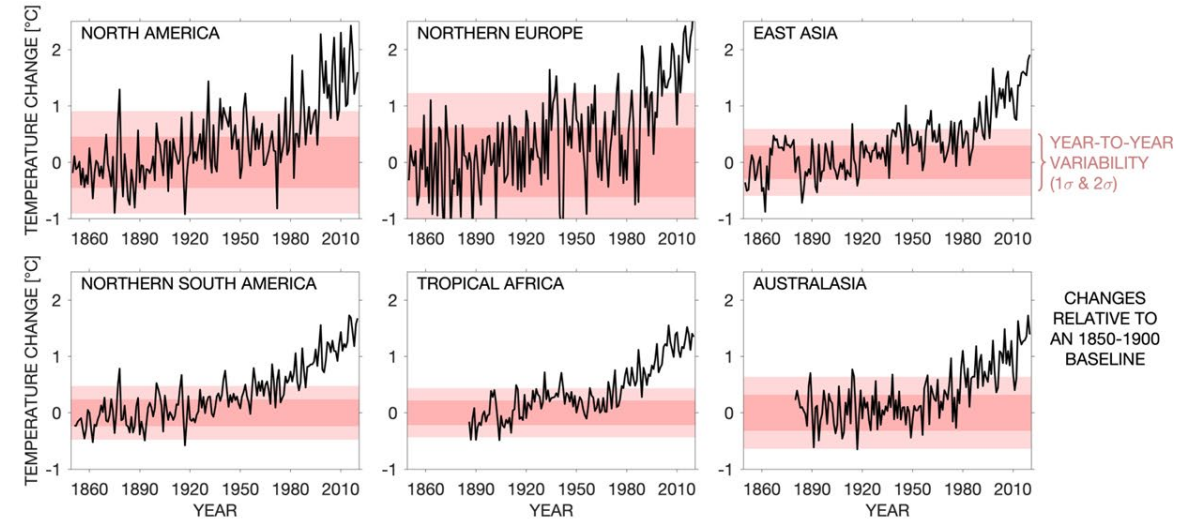
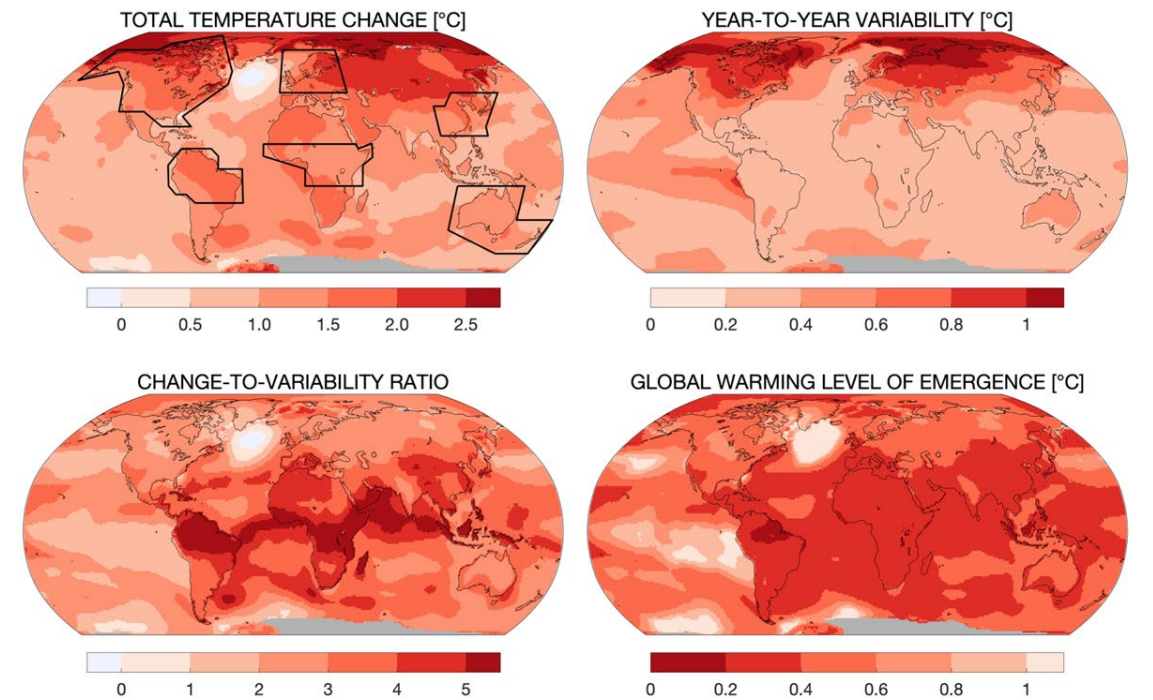
Thank you!



Changes emerging across the climate system

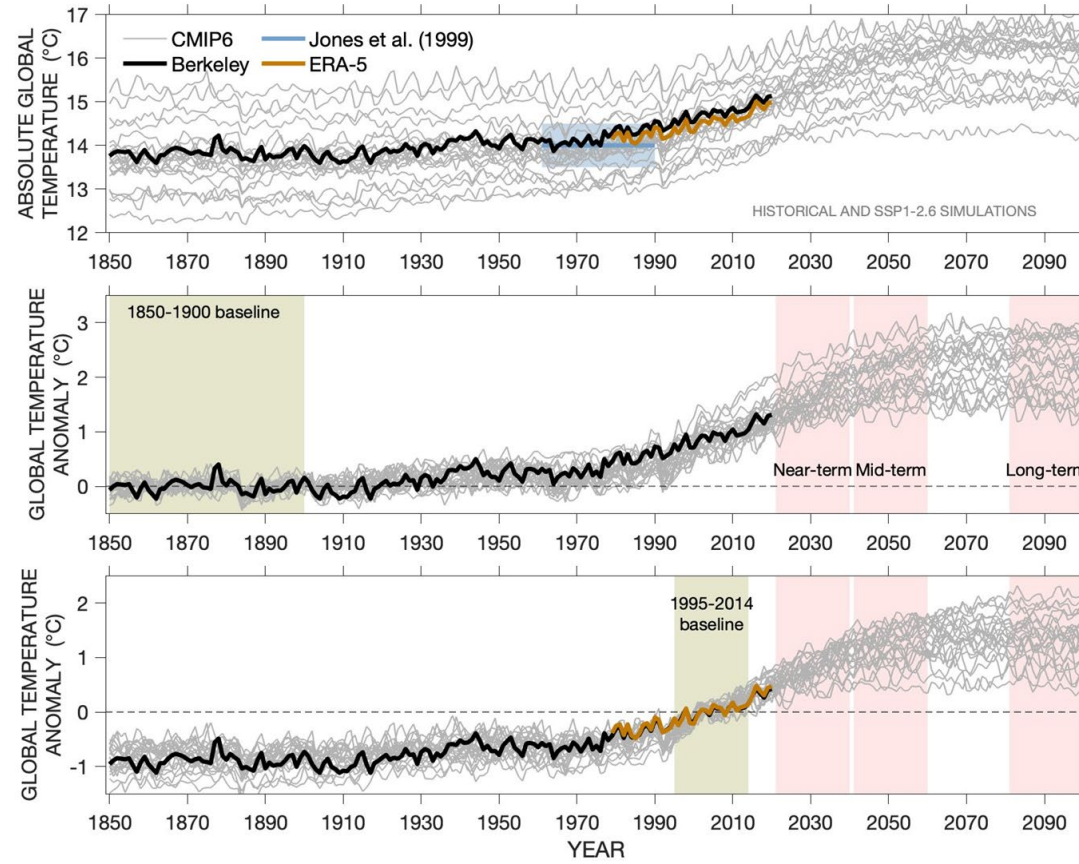


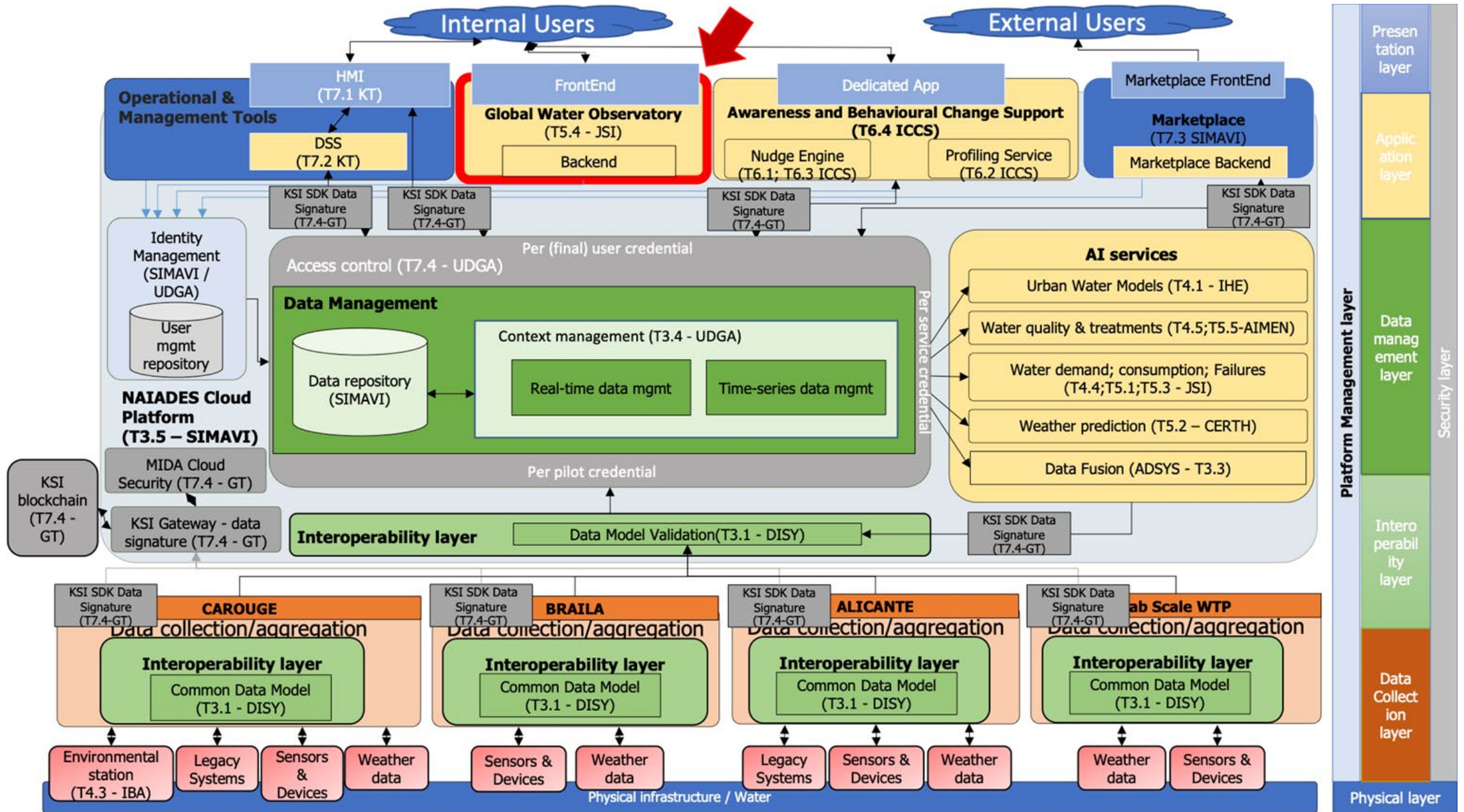
Observed changes in temperature have emerged in most regions



@ed_hawkings

Global temperature variations and baseline choices





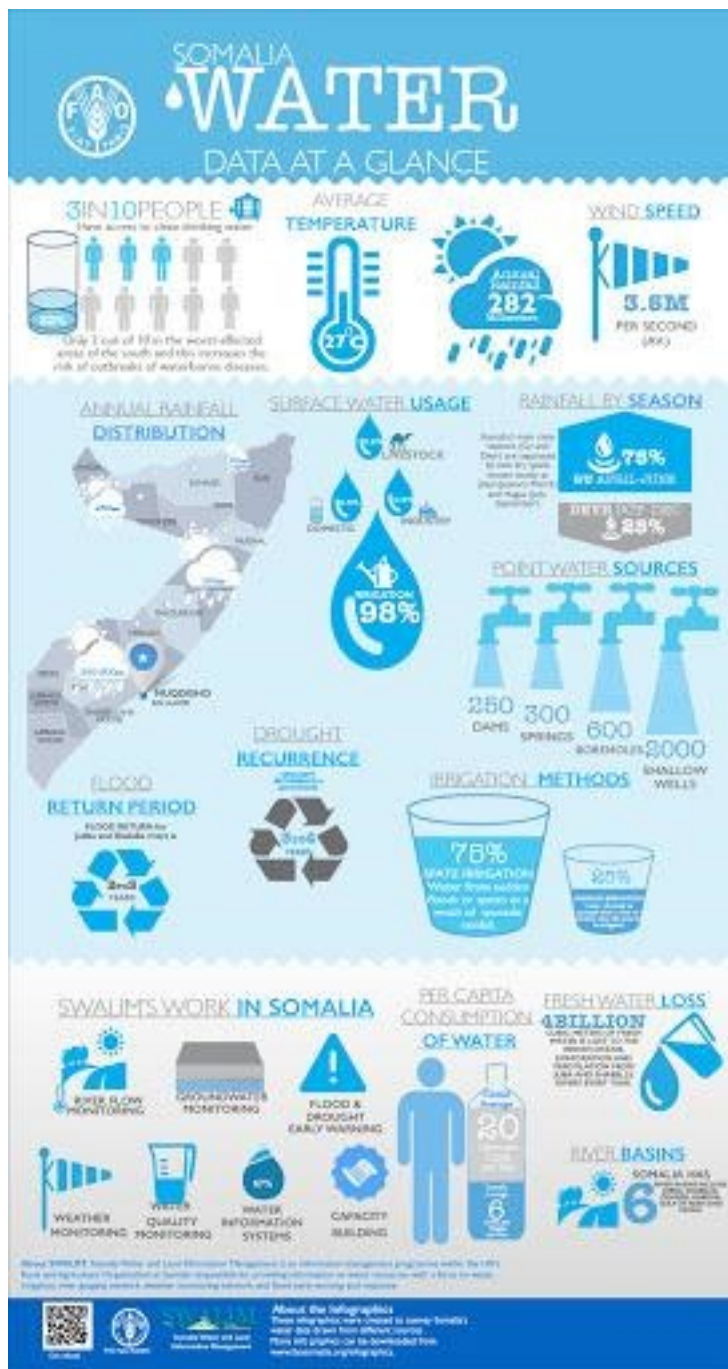


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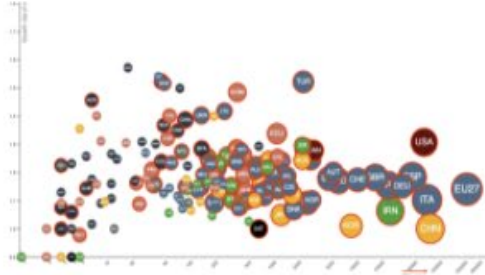
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Indicators

NAIADES DASHBOARD



EXPLORATORY DASHBOARD



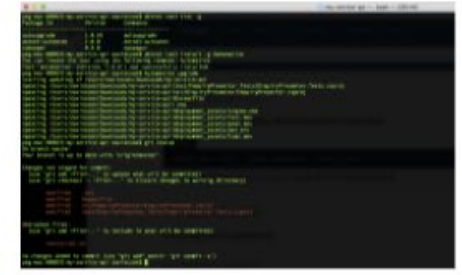
EXTERNAL

PUBLIC Instance



EXTERNAL

API Integration



News



Biomedical

<https://www.ncbi.nlm.nih.gov/pubmed/27121945>
 BACKGROUND | BACKGROUND: In 2008 the Department of Health and the National Institute for Health and Clinical Excellence (NICE) published guidance on the management of childhood obesity based on primary care practices. Little is known, however, about...

[14] Parents' views and experiences of childhood obesity management in primary care: a qualitative study
<https://www.ncbi.nlm.nih.gov/pubmed/2211382>
 BACKGROUND | BACKGROUND: Primary care has been cited as an appropriate setting for childhood obesity management. Little is known about parents' views and experiences of obesity management within this clinical setting. These views and experiences are...

[14] An overview of national clinical guidelines for the management of childhood obesity in primary care.
<https://www.ncbi.nlm.nih.gov/pubmed/23889494>
 STUDY DESIGN | METHODS: Review of clinical guidelines.
 BACKGROUND | BACKGROUND: Most national clinical guidelines for the management of childhood obesity in primary care were published since 2003. It is unknown whether there is a substantial consensus...

