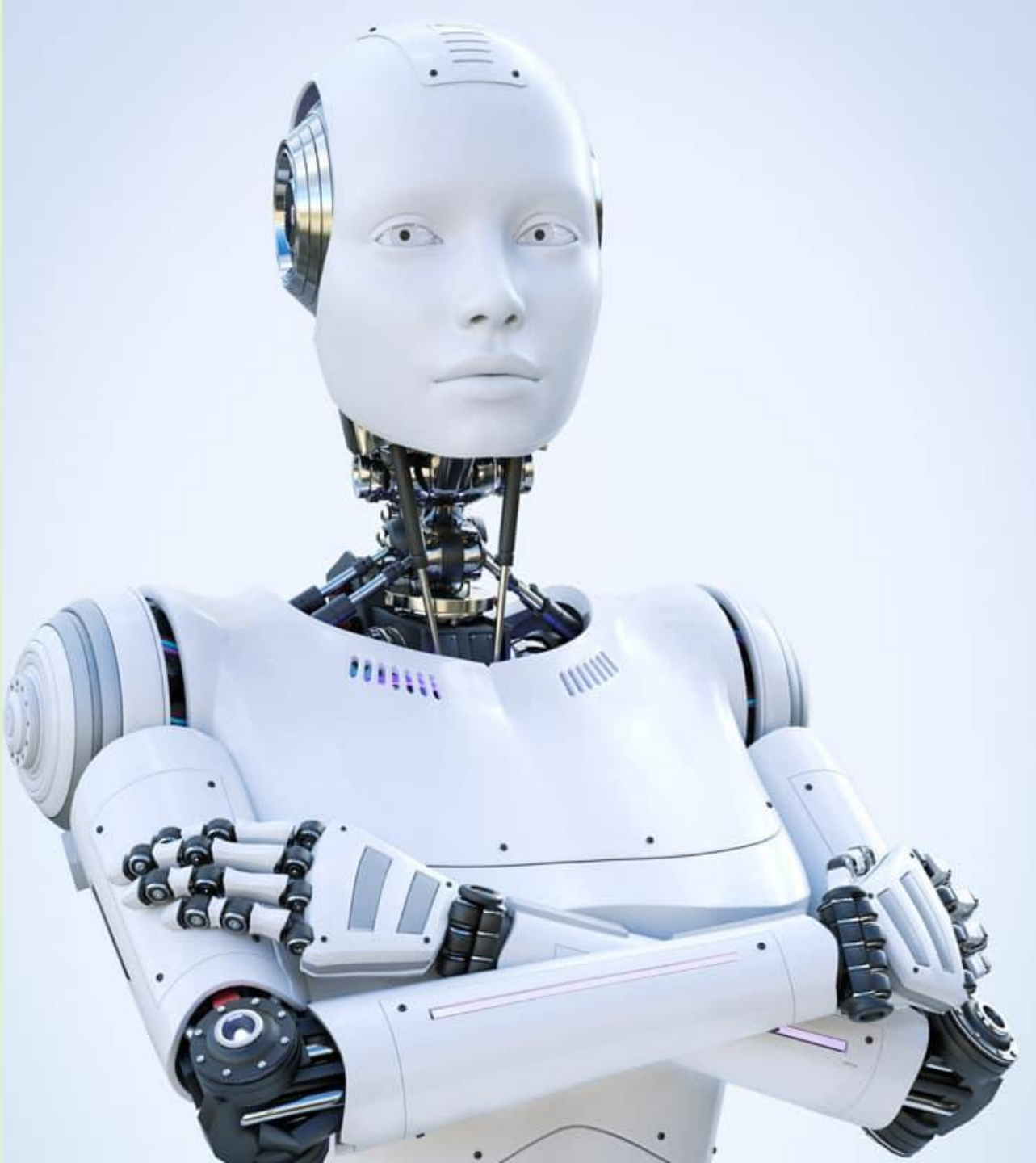
Norad

March 2024

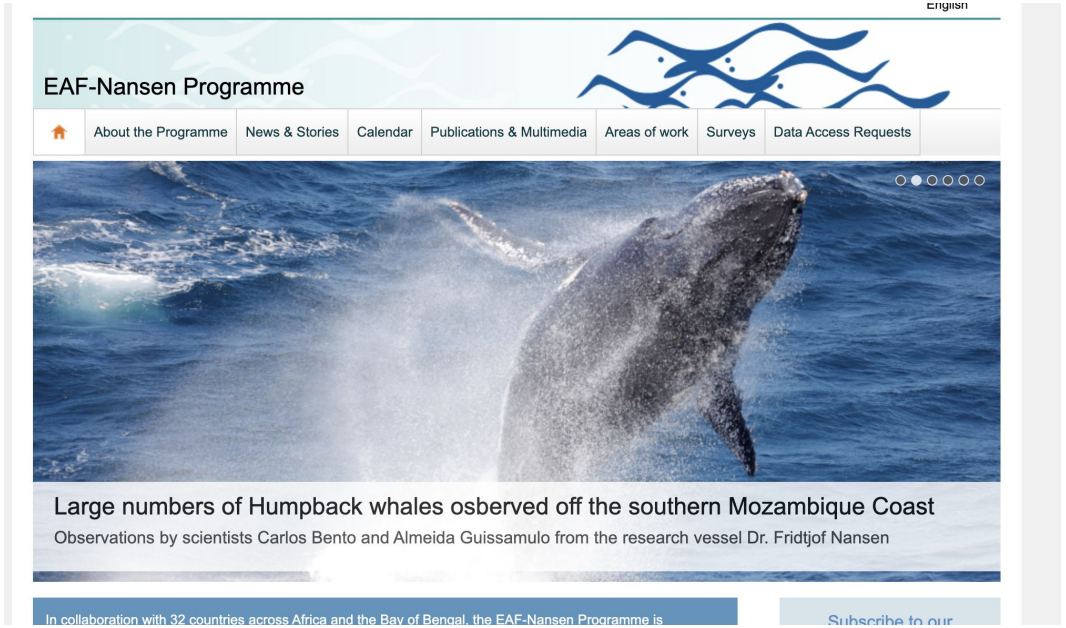
Open Data - Open Tech

Local innovation

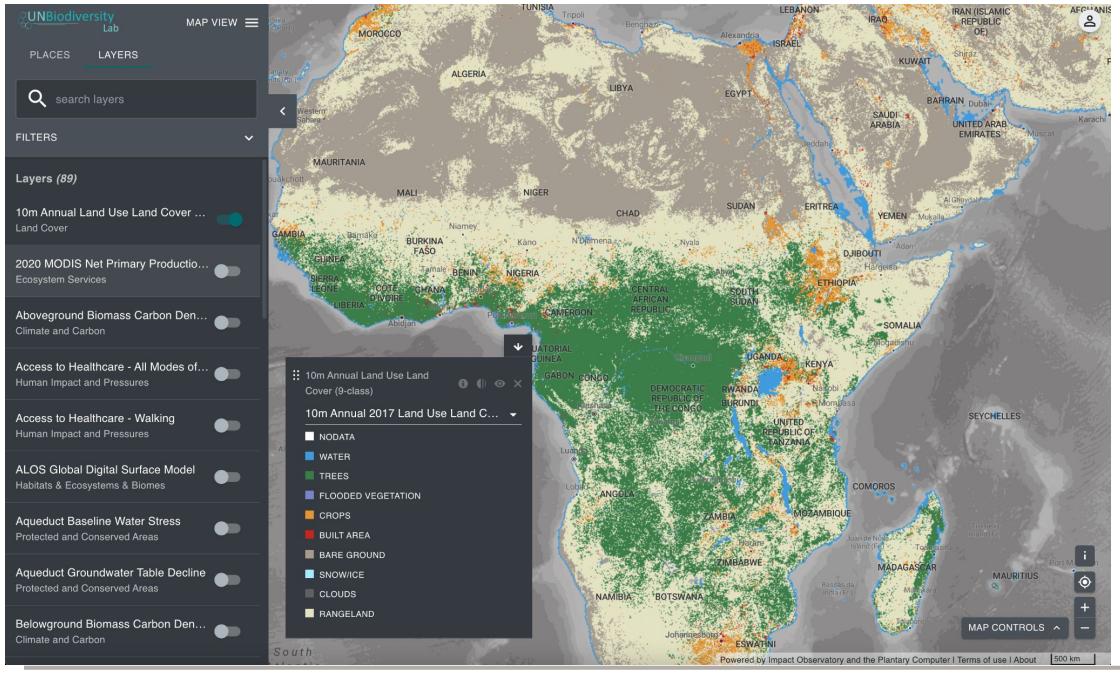
Christer Solheim Gundersen

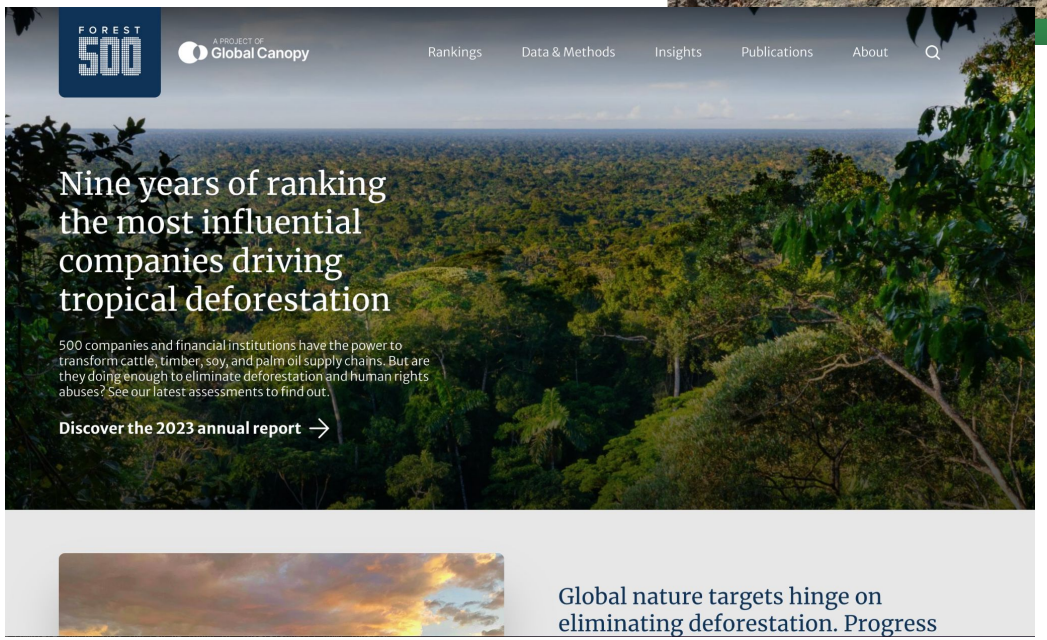


Norwegian strategies and OpenEPI


English
EAF-Nansen Programme
About the Programme
News & Stories
Calendar
Publications & Multimedia
Areas of work
Surveys
Data Access Requests
Large numbers of Humpback whales osberved off the southern Mozambique Coast
Observations by scientists Carlos Bento and Almeida Guissamulo from the research vessel Dr. Fridtjof Nansen
In collaboration with 32 countries across Africa and the Bay of Bengal, the EAF-Nansen Programme is
Subscribe to our

WORLD RESOURCES INSTITUTE
40 YEARS
RESEARCH
DATA
INITIATIVES
INSIGHTS
All Eyes on COP27
Key Outcomes from the COP27 Climate Summit
Insights
What Is "Loss and Damage" from Climate Change? 6 Key Questions, Answered
Insights
Closing the Emissions Gap: A Climate Action Roadmap for Limiting Warming to 1.5 Degrees C
Our Approach
Our Work
DONATE


UNBiodiversity Lab
MAP VIEW
PLACES
LAYERS
search layers
FILTERS
Layers (89)
10m Annual Land Use Land Cover ...
Land Cover
2020 MODIS Net Primary Productio...
Ecosystem Services
Aboveground Biomass Carbon Den...
Climate and Carbon
Access to Healthcare - All Modes of...
Human Impact and Pressures
Access to Healthcare - Walking
Human Impact and Pressures
ALOS Global Digital Surface Model
Habitats & Ecosystems & Biomes
Aqueduct Baseline Water Stress
Protected and Conserved Areas
Aqueduct Groundwater Table Decline
Protected and Conserved Areas
Belowground Biomass Carbon Den...
Climate and Carbon
10m Annual Land Use Land Cover (9-class)
10m Annual 2017 Land Use Land C...
NODATA
WATER
TREES
FLOODED VEGETATION
CROPS
BUILT AREA
BARE GROUND
SNOW/ICE
CLOUDS
RANGELAND
MAP CONTROLS
Powered by Impact Observatory and the Planetary Computer | Terms of use | About


FOREST 500
A PROJECT OF Global Canopy
Rankings
Data & Methods
Insights
Publications
About
Nine years of ranking the most influential companies driving tropical deforestation
500 companies and financial institutions have the power to transform cattle, timber, soy, and palm oil supply chains. But are they doing enough to eliminate deforestation and human rights abuses? See our latest assessments to find out.
Discover the 2023 annual report
Global nature targets hinge on eliminating deforestation. Progress

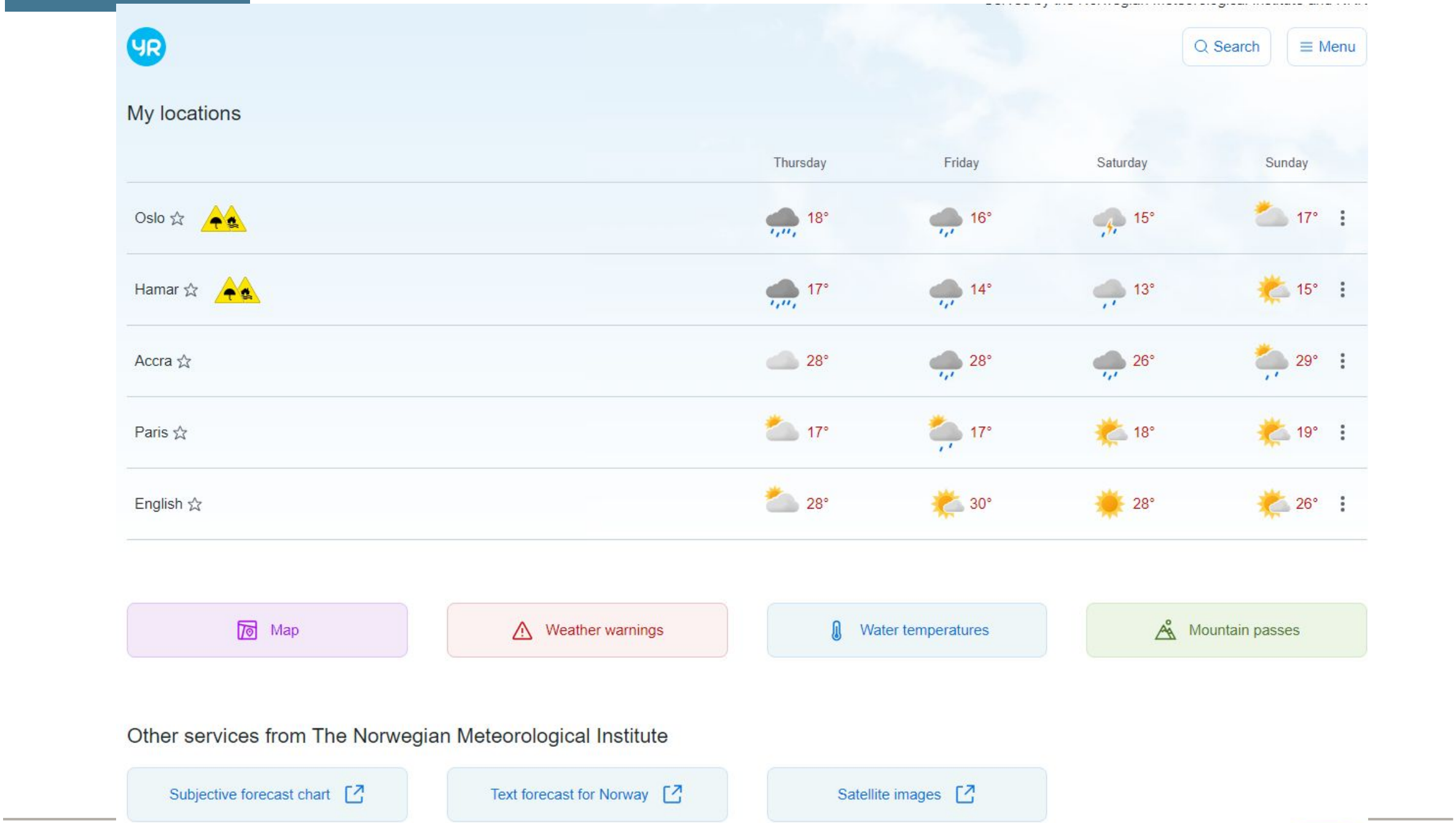
DR. FRIDTJOF NANSEN
DR. FRIDTJOF NANSEN
BERGEN

Every year, humans continue to expand into large areas of tropical forests. The IPBES report published in 2019 noted that 100 million hectares of tropical forest has been lost in the years from 1980 to 2000. This is equivalent to tropical forest loss three times the size of Germany.

Drivers of Deforestation

Tropical forests have been and are still being converted to other land uses on a large scale worldwide. The main reasons are governance failures and the use of forest areas for agricultural lands and pastures.

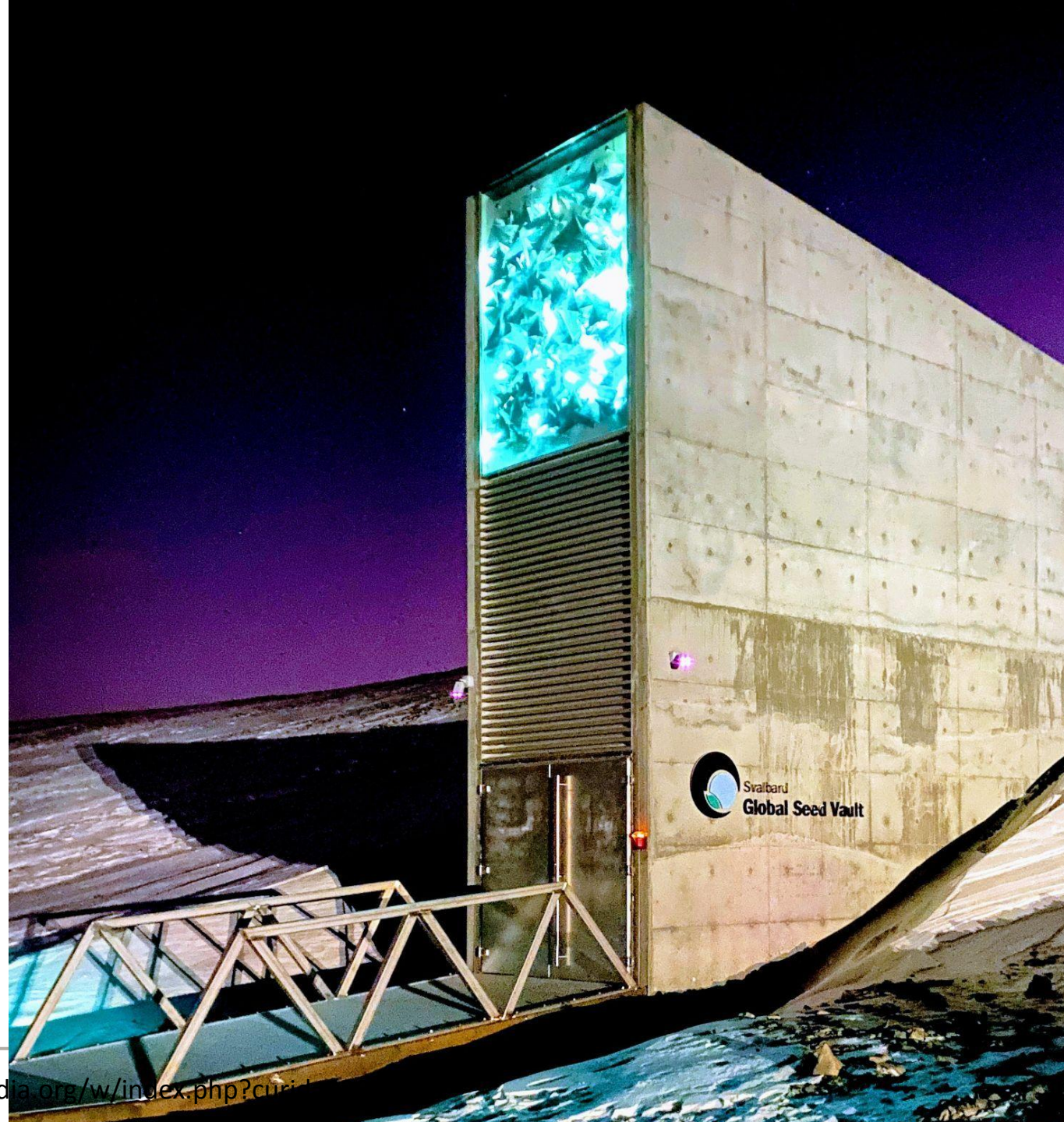
What drives deforestation is a complex mix of many different actors and underlying causes:


Search
Menu
My locations
Thursday
Friday
Saturday
Sunday
Oslo ☆
18°
16°
15°
17°
Hamar ☆
17°
14°
13°
15°
Accra ☆
28°
28°
26°
29°
Paris ☆
17°
17°
18°
19°
English ☆
28°
30°
28°
26°
Map
Weather warnings
Water temperatures
Mountain passes
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images

Norad Open Policy for Climate, Nature, Ocean and Food security

Challenges?

No long term plans for storage and archive of selected high value datasets



By Subiet - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=

Photo by Doan Tuan on Unsplash

Vendor lock-in kills open data

Photo by Venti Views on Unsplash

Organizational lock-in kills open data

Photo by Venti Views on Unsplash

No scalable way to support existing bedrock of the open movement

that we are all depending on….

Photo by Luca Bravo on Unsplash

long road from
datasets to
meaningful product

No real way to support the open source developer community in our collaborating countries

Global digital infrastructure investments
drive local innovation

OpenEPI focus

- projects with **higher quality**
- projects with **lower risk**
- **shorter implementation** runways
- **more local involvement** and innovation

Open Earth Platform Initiative

Help governments, NGOs and private sector working to solve climate related issues and maximize their impact

through open data, open source technologies and open AI

Two main focus avenues

Long term Global Data Vault Storage and archive of High Value Data

Product implementation
Kenya (Gov)
Rwanda (Gov)
Reference Implementation /Components
NGO
Multilateral
Private Sector
Aggregated data sets and services
Flood
Crop Optimization
Drought
Climate Adaptation
Loss And Damage
Climate Mitigation
Weather
Soil
Water
Air
Forrest
AI/ML Models
Raw Data Lake (Example: Satellite, Soil, Forrest, Water)
AI/ML Trainingdata

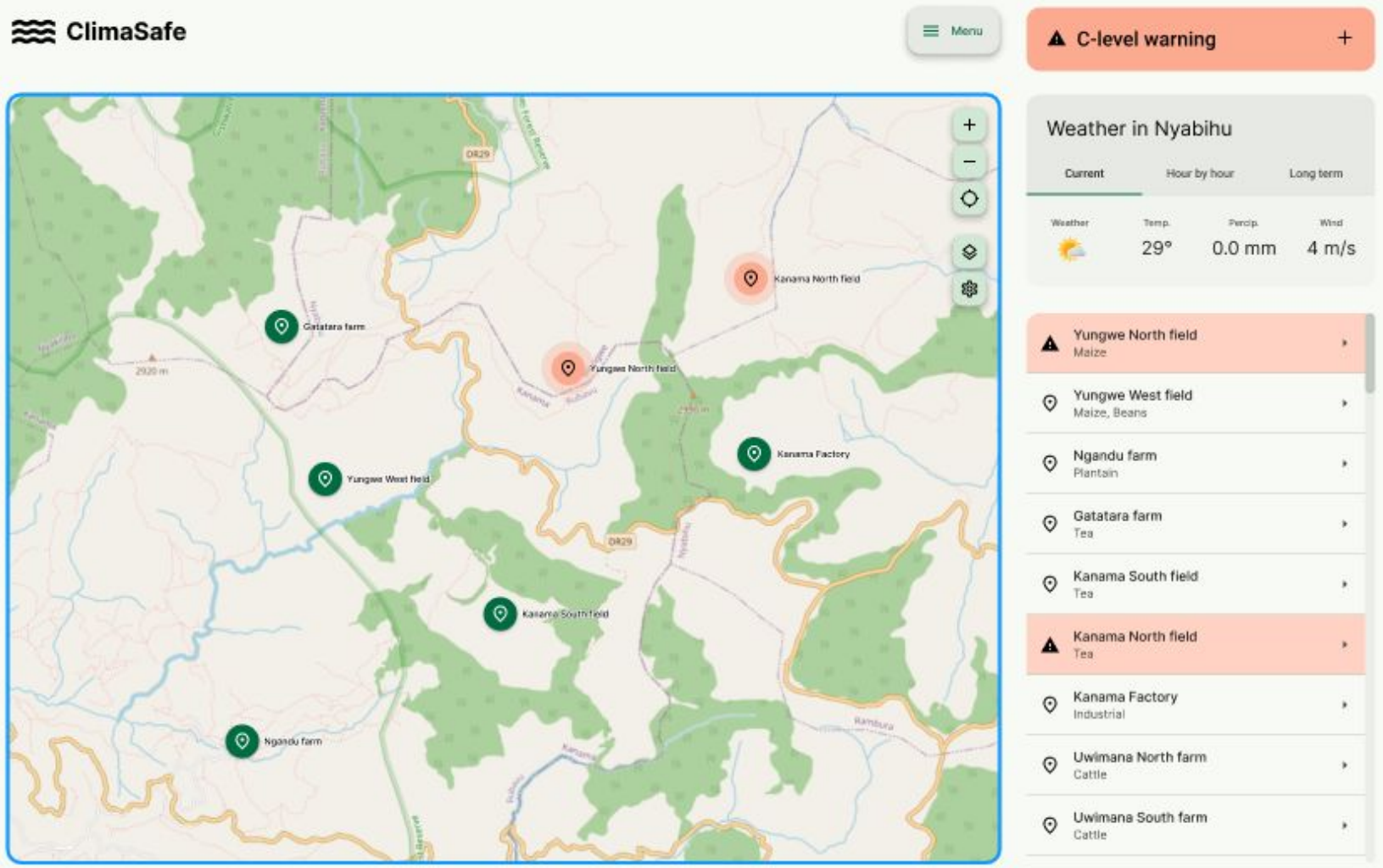
Not one platform - a platform of interoperable platforms

Local innovation?

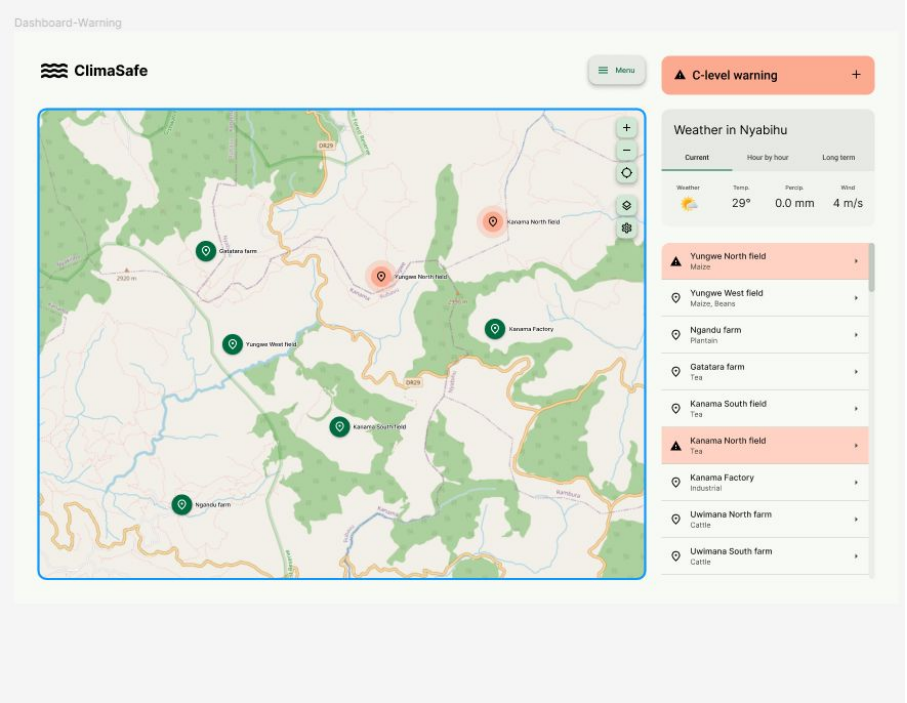
Open Policy

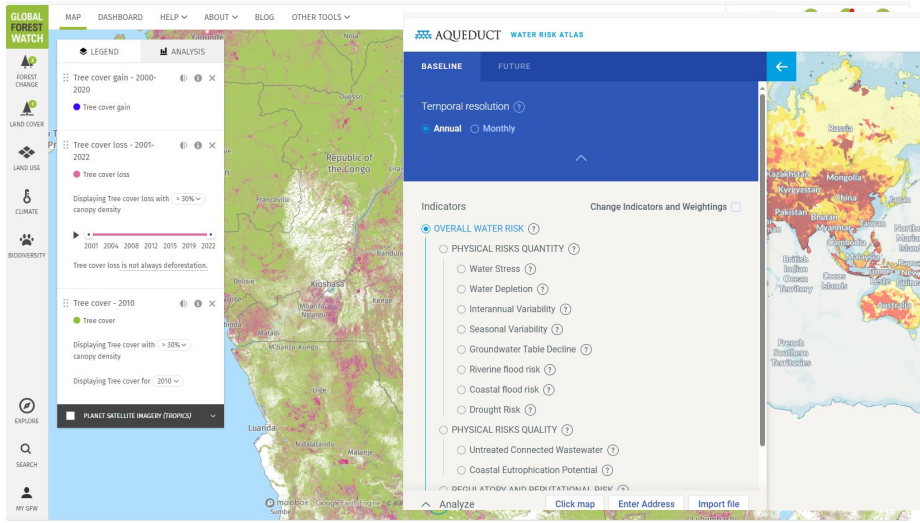
Third party perspective

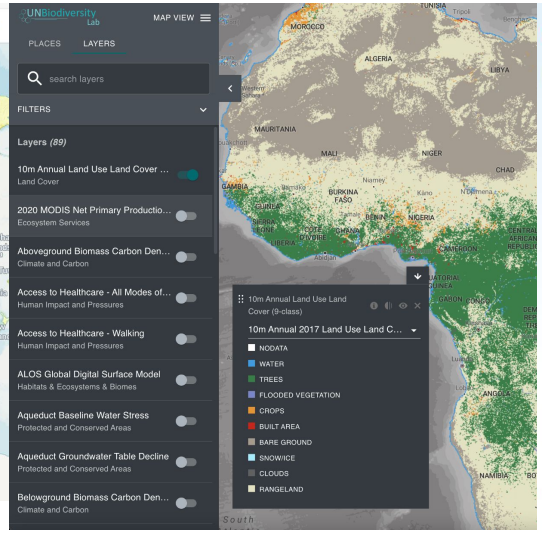
Dashboard-Warning

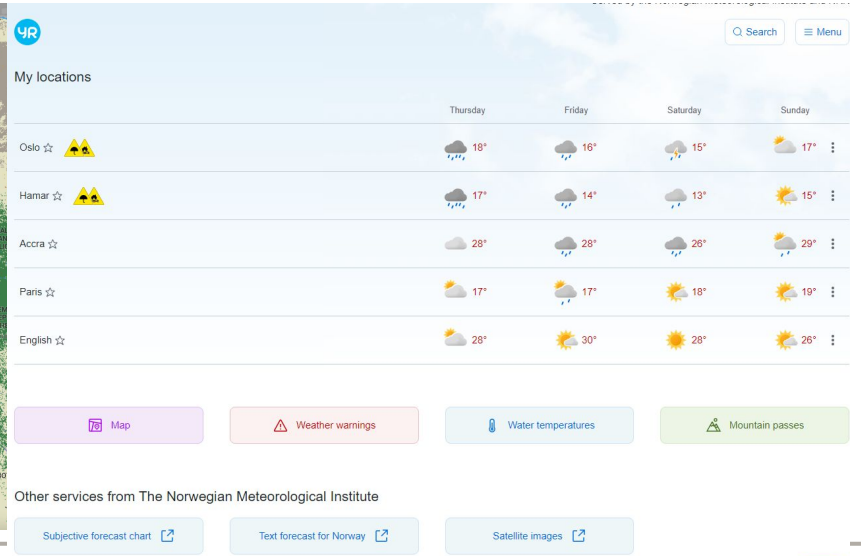


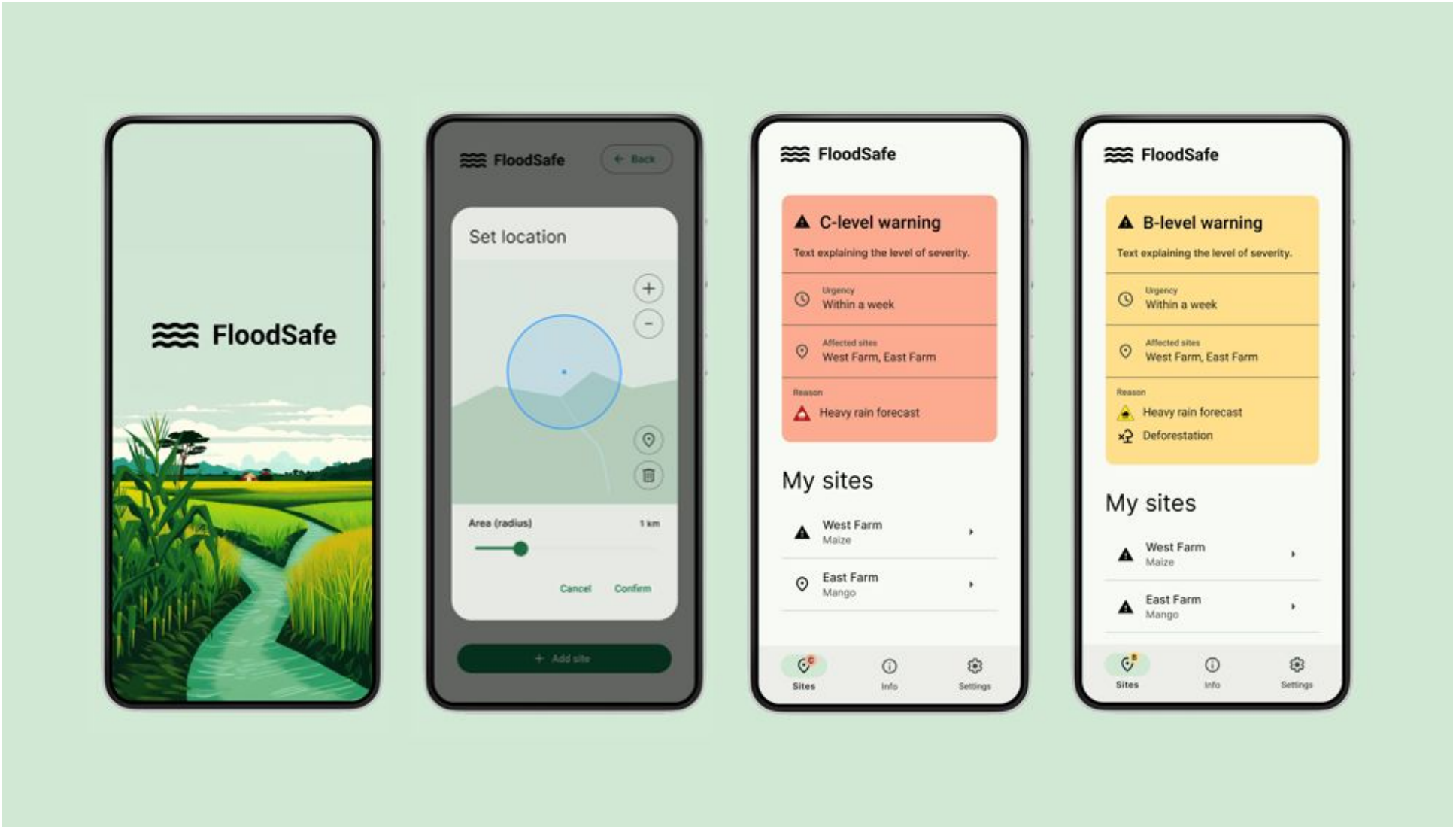
Third party perspective

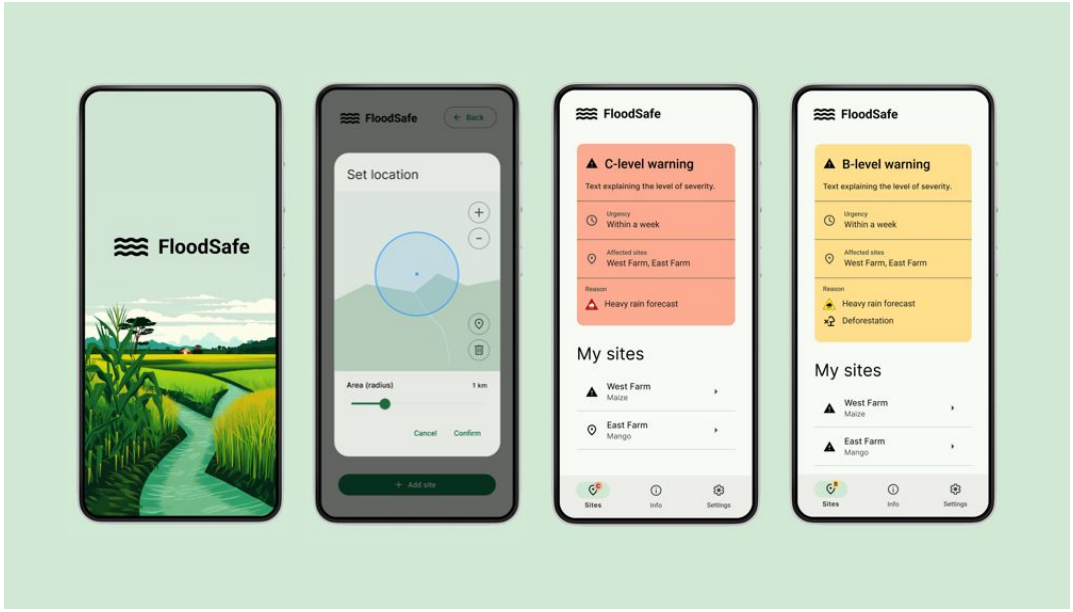


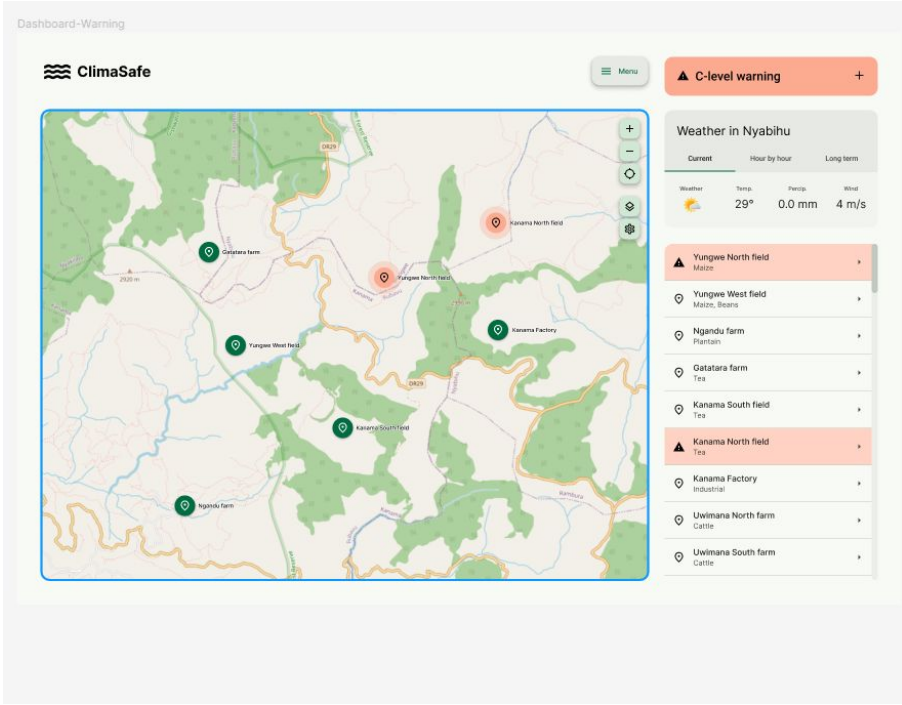


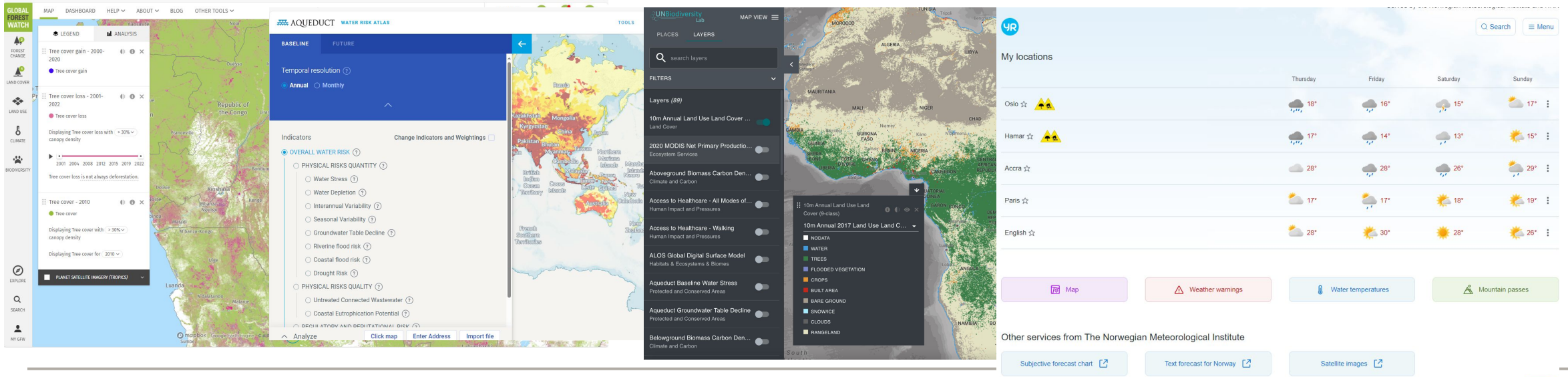


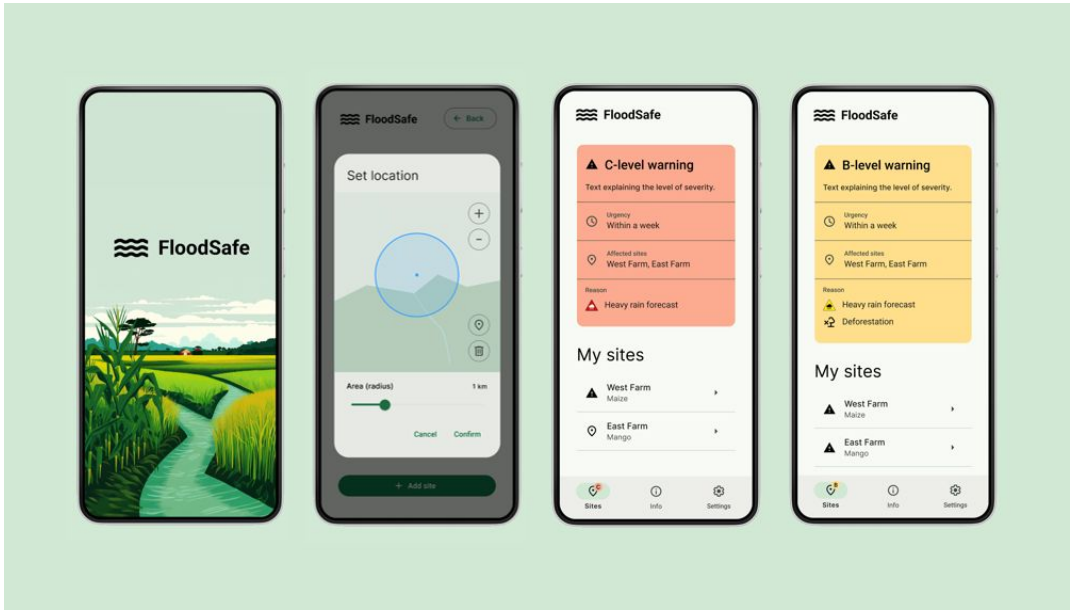


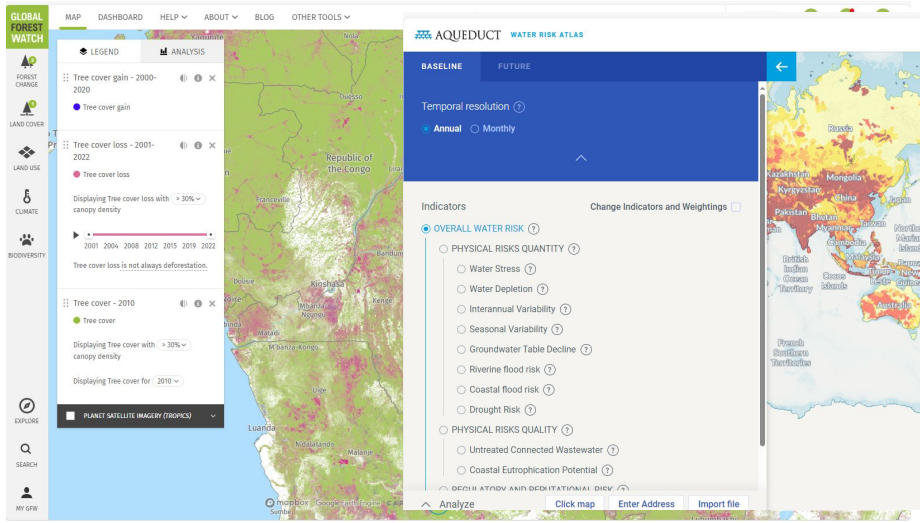

FloodSafe
FloodSafe
Back
Set location
Area (radius)
1 km
Cancel
Confirm
Add site
FloodSafe
C-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings
FloodSafe
B-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
Deforestation
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings


FloodSafe
FloodSafe
Set location
Area (radius)
1 km
Cancel
Confirm
FloodSafe
C-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings
FloodSafe
B-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
Deforestation
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings

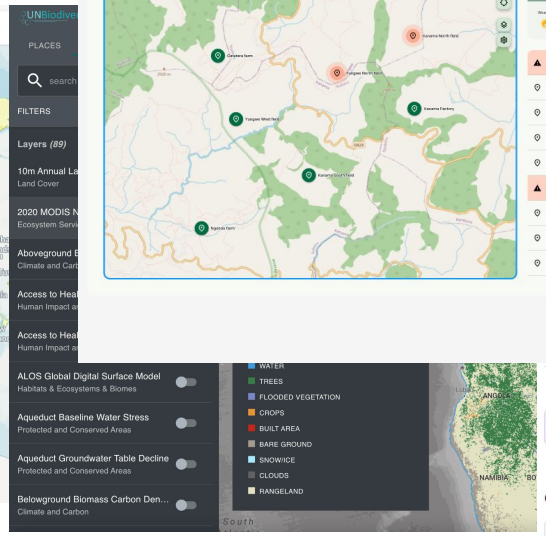

Dashboard-Warning
ClimaSafe
Menu
C-level warning
Weather in Nyabihu
Current
Hour by hour
Long term
29°
0.0 mm
4 m/s
Yungwe North field
Maize
Yungwe West field
Maize, Beans
Ngandu farm
Plantain
Gatatara farm
Tea
Kanama South field
Tea
Kanama North field
Tea
Kanama Factory
Industrial
Uwimana North farm
Cattle
Uwimana South farm
Cattle


GLOBAL FOREST WATCH
MAP
DASHBOARD
HELP
ABOUT
BLOG
OTHER TOOLS
LEGEND
ANALYSIS
Tree cover gain - 2000-2020
Tree cover loss - 2001-2022
Tree cover - 2010
PLANET SATELLITE IMAGERY (TROPICS)
AQUEDUCT
WATER RISK ATLAS
TOOLS
BASELINE
FUTURE
Temporal resolution
Annual
Monthly
Indicators
Change Indicators and Weightings
OVERALL WATER RISK
PHYSICAL RISKS QUANTITY
Water Stress
Water Depletion
Interannual Variability
Seasonal Variability
Groundwater Table Decline
Riverine flood risk
Coastal flood risk
Drought Risk
PHYSICAL RISKS QUALITY
Untreated Connected Wastewater
Coastal Eutrophication Potential
Analyze
Click map
Enter Address
Import file
UNBiodiversity Lab
MAP VIEW
PLACES
LAYERS
search layers
FILTERS
Layers (89)
10m Annual Land Use Land Cover ...
Land Cover
2020 MODIS Net Primary Productio...
Ecosystem Services
Aboveground Biomass Carbon Den...
Climate and Carbon
Access to Healthcare - All Modes of...
Human Impact and Pressures
Access to Healthcare - Walking
Human Impact and Pressures
ALOS Global Digital Surface Model
Habitats & Ecosystems & Biomes
Aqueduct Baseline Water Stress
Protected and Conserved Areas
Aqueduct Groundwater Table Decline
Protected and Conserved Areas
Belowground Biomass Carbon Den...
Climate and Carbon
10m Annual Land Use Land Cover (9-class)
10m Annual 2017 Land Use Land C...
NODATA
WATER
TREES
FLOODED VEGETATION
CROPS
BUILT AREA
BARE GROUND
SNOW/ICE
CLOUDS
RANGELAND
Search
Menu
My locations
Thursday
Friday
Saturday
Sunday
Oslo
Hamar
Accra
Paris
English
Map
Weather warnings
Water temperatures
Mountain passes
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images


FloodSafe
Set location
Area (radius)
1 km
Cancel
Confirm
FloodSafe
C-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings
FloodSafe
B-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
Deforestation
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings

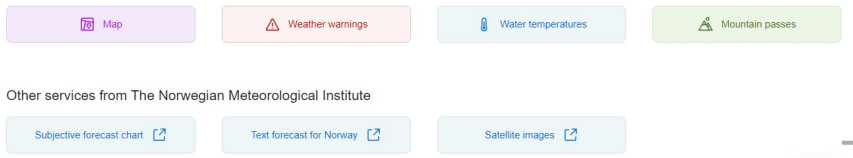

GLOBAL FOREST WATCH
MAP
DASHBOARD
HELP
ABOUT
BLOG
OTHER TOOLS
LEGEND
ANALYSIS
Tree cover gain - 2000-2020
Tree cover gain
Tree cover loss - 2001-2022
Tree cover loss
Tree cover loss is not always deforestation.
Tree cover - 2010
Tree cover
PLANET SATELLITE IMAGERY (TROPICS)
FOREST CHANGE
LAND COVER
LAND USE
CLIMATE
BIODIVERSITY
EXPLORE
SEARCH
MY GFW

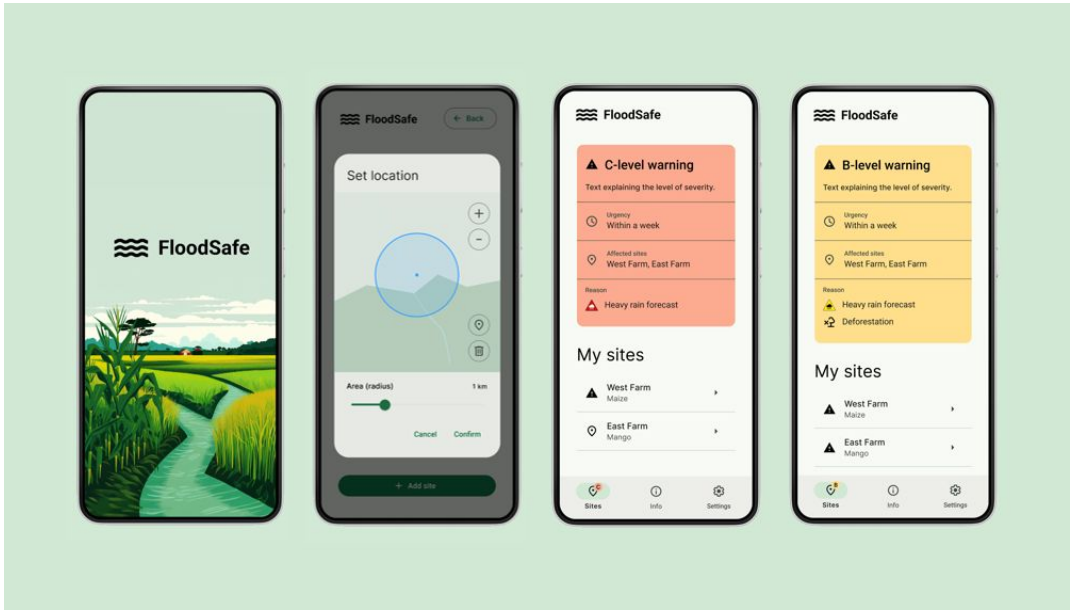
AQUEDUCT
WATER RISK ATLAS
TOOLS
BASELINE
FUTURE
Temporal resolution
Annual
Monthly
Indicators
Change Indicators and Weightings
OVERALL WATER RISK
PHYSICAL RISKS QUANTITY
Water Stress
Water Depletion
Interannual Variability
Seasonal Variability
Groundwater Table Decline
Riverine flood risk
Coastal flood risk
Drought Risk
PHYSICAL RISKS QUALITY
Untreated Connected Wastewater
Coastal Eutrophication Potential
Analyze
Click map
Enter Address
Import file

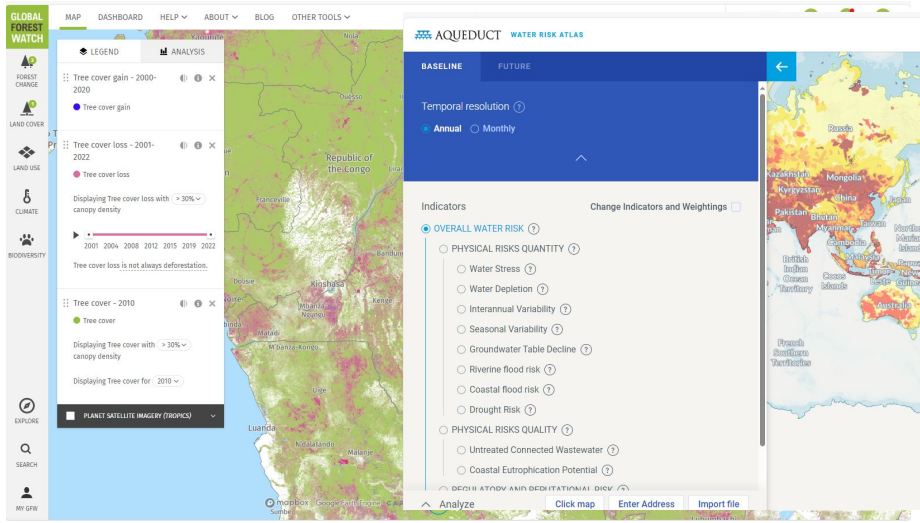

PLACES
FILTERS
Layers (89)
ALOS Global Digital Surface Model
Habitats & Ecosystems & Biomes
Aqueduct Baseline Water Stress
Protected and Conserved Areas
Aqueduct Groundwater Table Decline
Protected and Conserved Areas
Belowground Biomass Carbon Den...
Climate and Carbon
WATER
TREES
FLOODED VEGETATION
CROPS
BUILT AREA
BARE GROUND
SNOW/ICE
CLOUDS
RANGELAND

Dashboard-Warning
ClimaSafe
Menu
C-level warning
Weather in Nyabihu
Current
Hour by hour
Long term
29°
0.0 mm
4 m/s
Yungwe North field
Maize
Yungwe West field
Maize, Beans
Ngandu farm
Plantain
Gatatara farm
Tea
Kanama South field
Tea
Kanama North field
Tea
Kanama Factory
Industrial
Uwimana North farm
Cattle
Uwimana South farm
Cattle

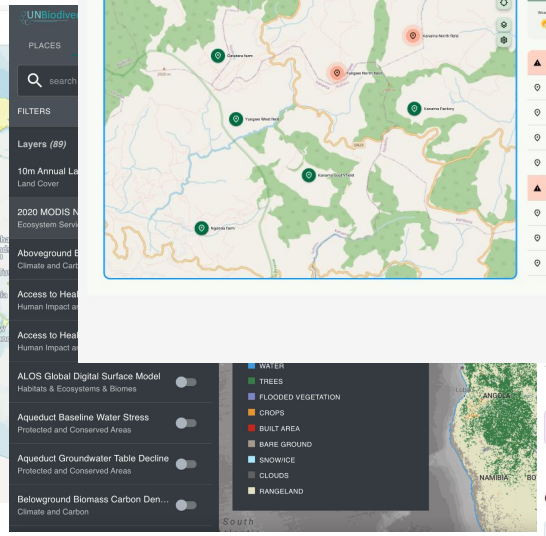
Search
Menu
Thursday
Friday
Saturday
Sunday
18°
16°
15°
17°
17°
14°
13°
15°
28°
28°
26°
29°
17°
17°
18°
19°
28°
30°
28°
26°


Map
Weather warnings
Water temperatures
Mountain passes
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images


FloodSafe
Set location
Area (radius)
1 km
Cancel
Confirm
FloodSafe
C-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings
FloodSafe
B-level warning
Text explaining the level of severity.
Urgency
Within a week
Affected sites
West Farm, East Farm
Reason
Heavy rain forecast
Deforestation
My sites
West Farm
Maize
East Farm
Mango
Sites
Info
Settings

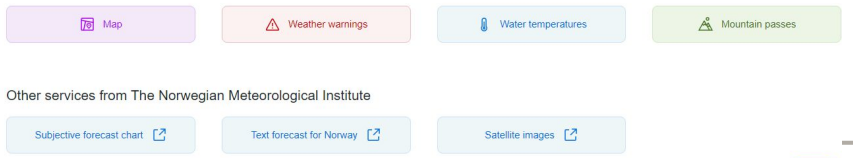

GLOBAL FOREST WATCH
MAP
DASHBOARD
HELP
ABOUT
BLOG
OTHER TOOLS
LEGEND
ANALYSIS
Tree cover gain - 2000-2020
Tree cover gain
Tree cover loss - 2001-2022
Tree cover loss
Tree cover loss is not always deforestation.
Tree cover - 2010
Tree cover
PLANET SATELLITE IMAGERY (TROPICS)
FOREST CHANGE
LAND COVER
LAND USE
CLIMATE
BIODIVERSITY
EXPLORE
SEARCH
MY GFW

AQUEDUCT
WATER RISK ATLAS
TOOLS
BASELINE
FUTURE
Temporal resolution
Annual
Monthly
Indicators
Change Indicators and Weightings
OVERALL WATER RISK
PHYSICAL RISKS QUANTITY
Water Stress
Water Depletion
Interannual Variability
Seasonal Variability
Groundwater Table Decline
Riverine flood risk
Coastal flood risk
Drought Risk
PHYSICAL RISKS QUALITY
Untreated Connected Wastewater
Coastal Eutrophication Potential
Analyze
Click map
Enter Address
Import file


PLACES
FILTERS
Layers (89)
ALOS Global Digital Surface Model
Habitats & Ecosystems & Biomes
Aqueduct Baseline Water Stress
Protected and Conserved Areas
Aqueduct Groundwater Table Decline
Protected and Conserved Areas
Belowground Biomass Carbon Den...
Climate and Carbon
WATER
TREES
FLOODED VEGETATION
CROPS
BUILT AREA
BARE GROUND
SNOW/ICE
CLOUDS
RANGELAND

Dashboard-Warning
ClimaSafe
Menu
C-level warning
Weather in Nyabihu
Current
Hour by hour
Long term
29°
0.0 mm
4 m/s
Yungwe North field
Maize
Yungwe West field
Maize, Beans
Ngandu farm
Plantain
Gatatara farm
Tea
Kanama South field
Tea
Kanama North field
Tea
Kanama Factory
Industrial
Uwimana North farm
Cattle
Uwimana South farm
Cattle

Search
Menu
Thursday
Friday
Saturday
Sunday
18°
16°
15°
17°
17°
14°
13°
15°
28°
28°
26°
29°
17°
17°
18°
19°
28°
30°
28°
26°


Map
Weather warnings
Water temperatures
Mountain passes
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images

Data catalog of open data

We currently have 5 APIs available.

Weather

This section provides access to real-time weather data.

Flood

This section provides access to real-time flood forecasts.

Geocoding

This section provides geocoding and address lookup services.

Deforestation

This section provides data on deforestation and environmental conservation efforts.

Soil

This section provides precise soil data on a global scale.

Client libraries

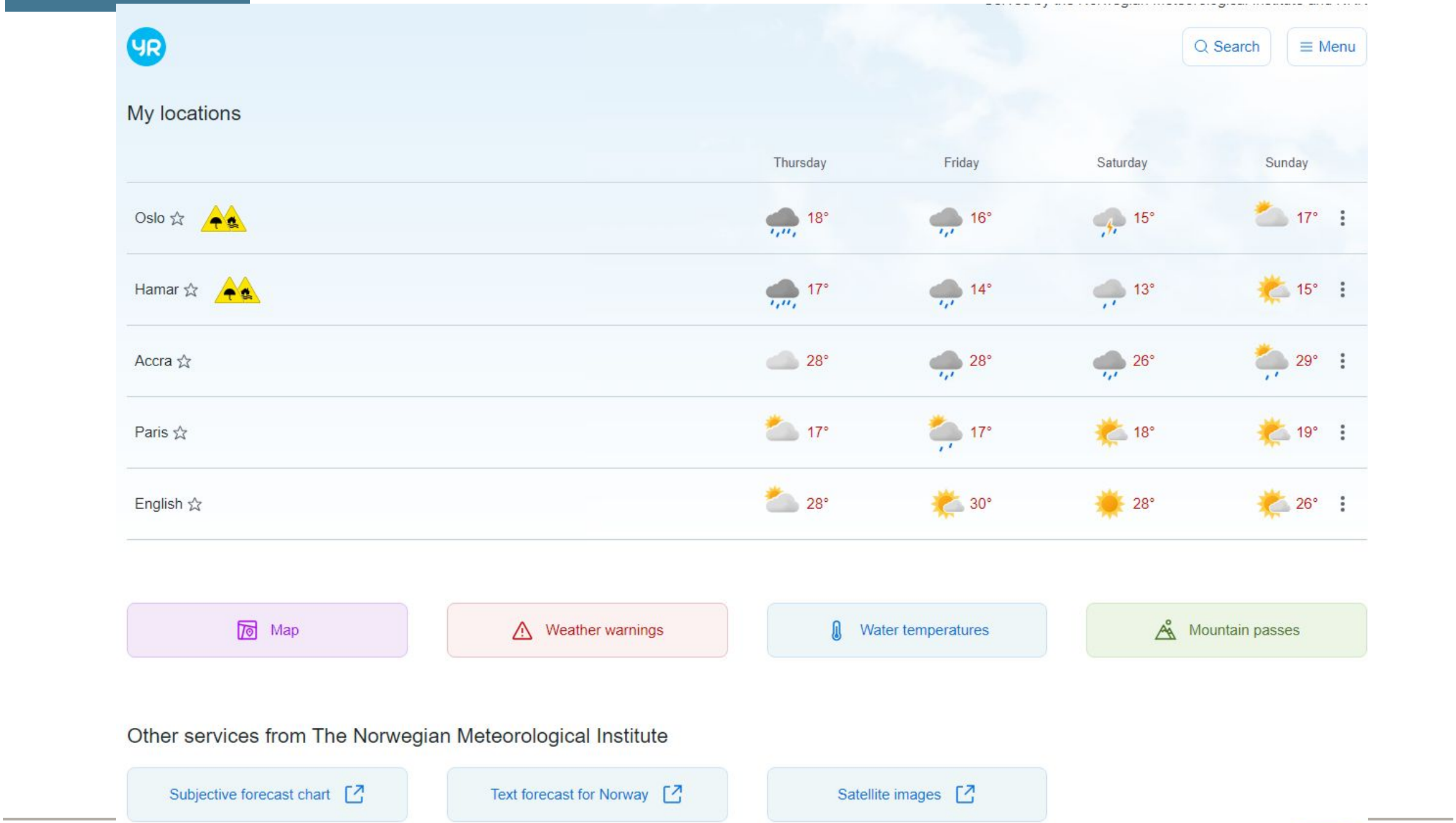
We provide two client libraries to make use of our data easier.

Javascript

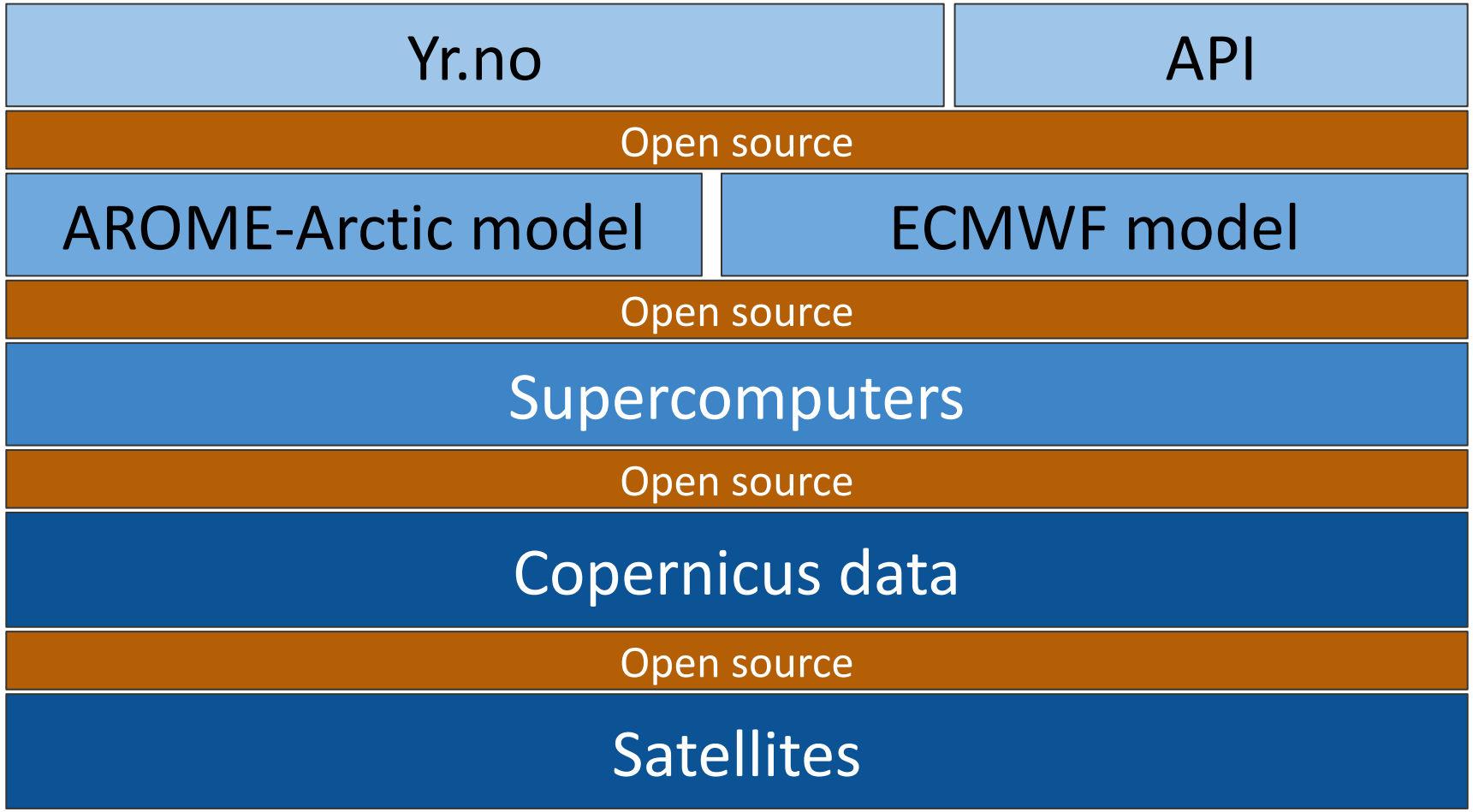
A javascript client for accessing data from OpenEPI.

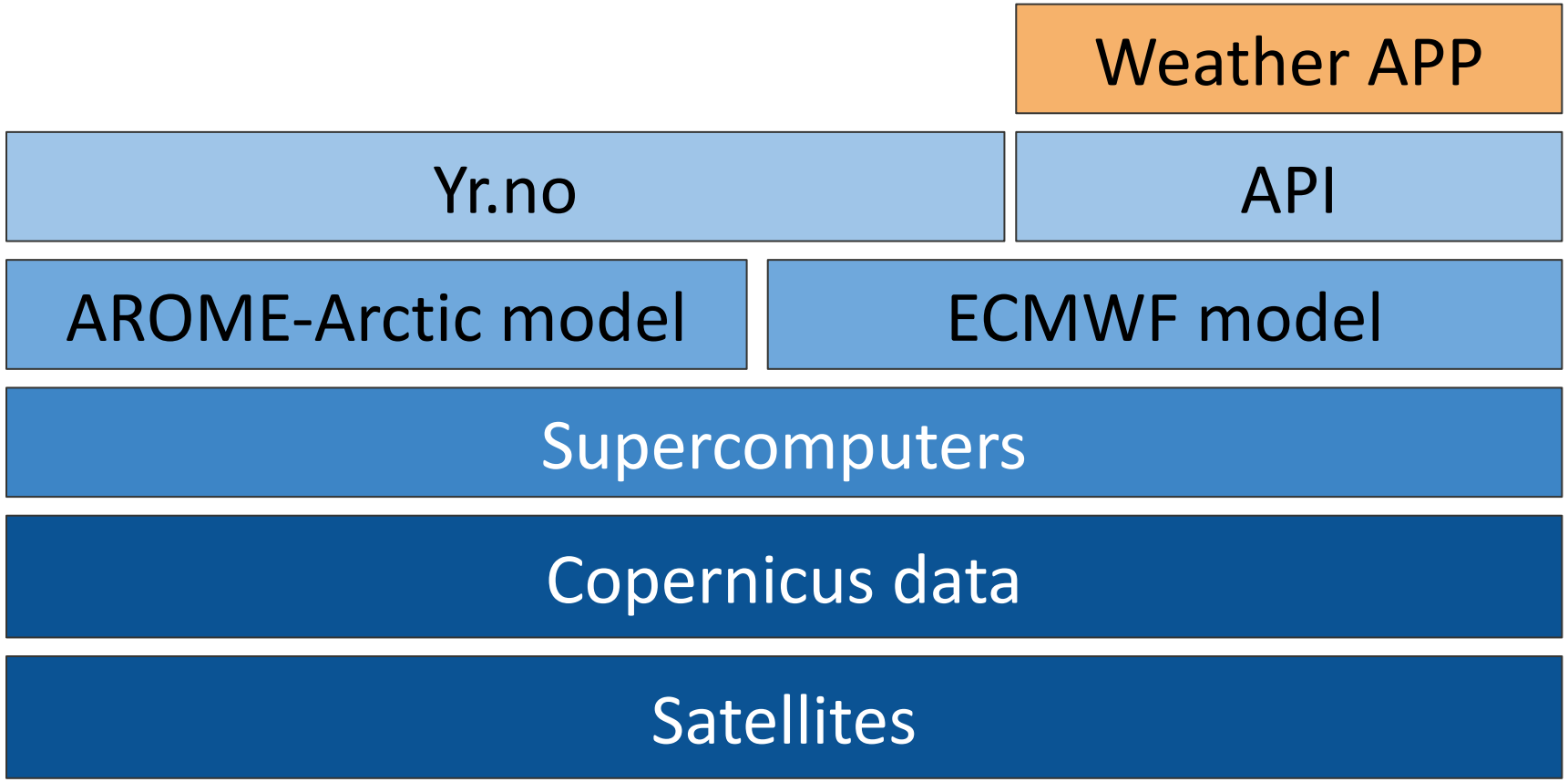
Python

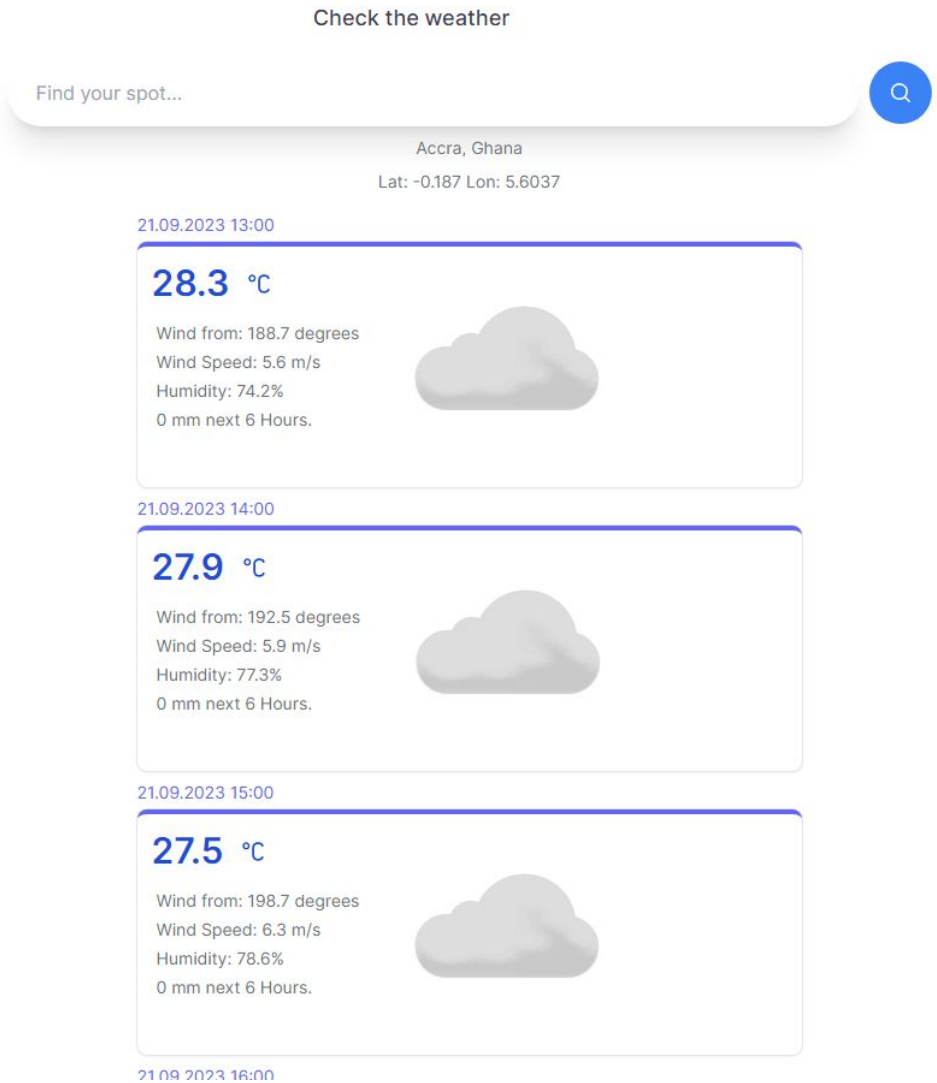
A python client for accessing data from OpenEPI.

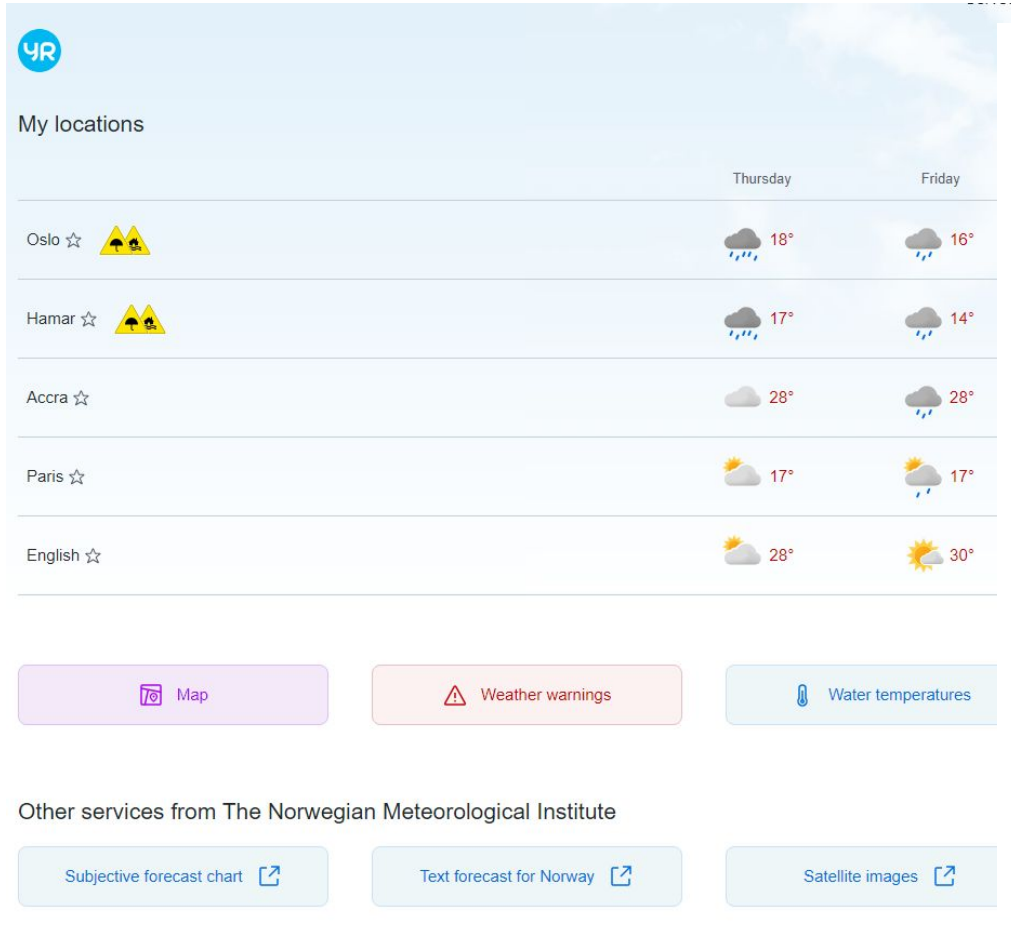

Search
Menu
My locations
Thursday
Friday
Saturday
Sunday
Oslo ☆
18°
16°
15°
17°
Hamar ☆
17°
14°
13°
15°
Accra ☆
28°
28°
26°
29°
Paris ☆
17°
17°
18°
19°
English ☆
28°
30°
28°
26°
Map
Weather warnings
Water temperatures
Mountain passes
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images

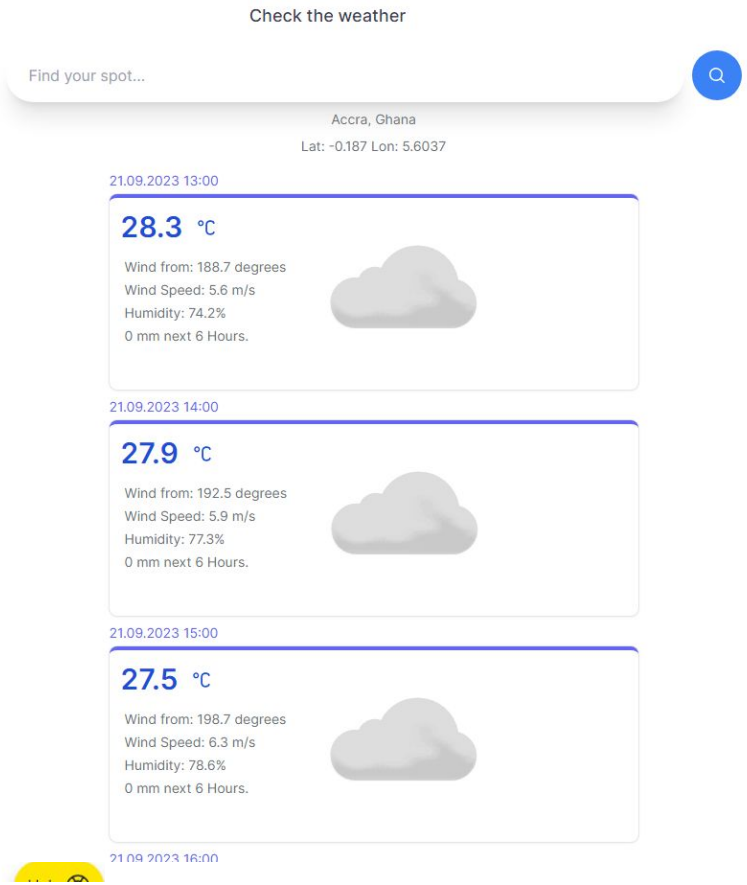
IBM
Blue Gene/P

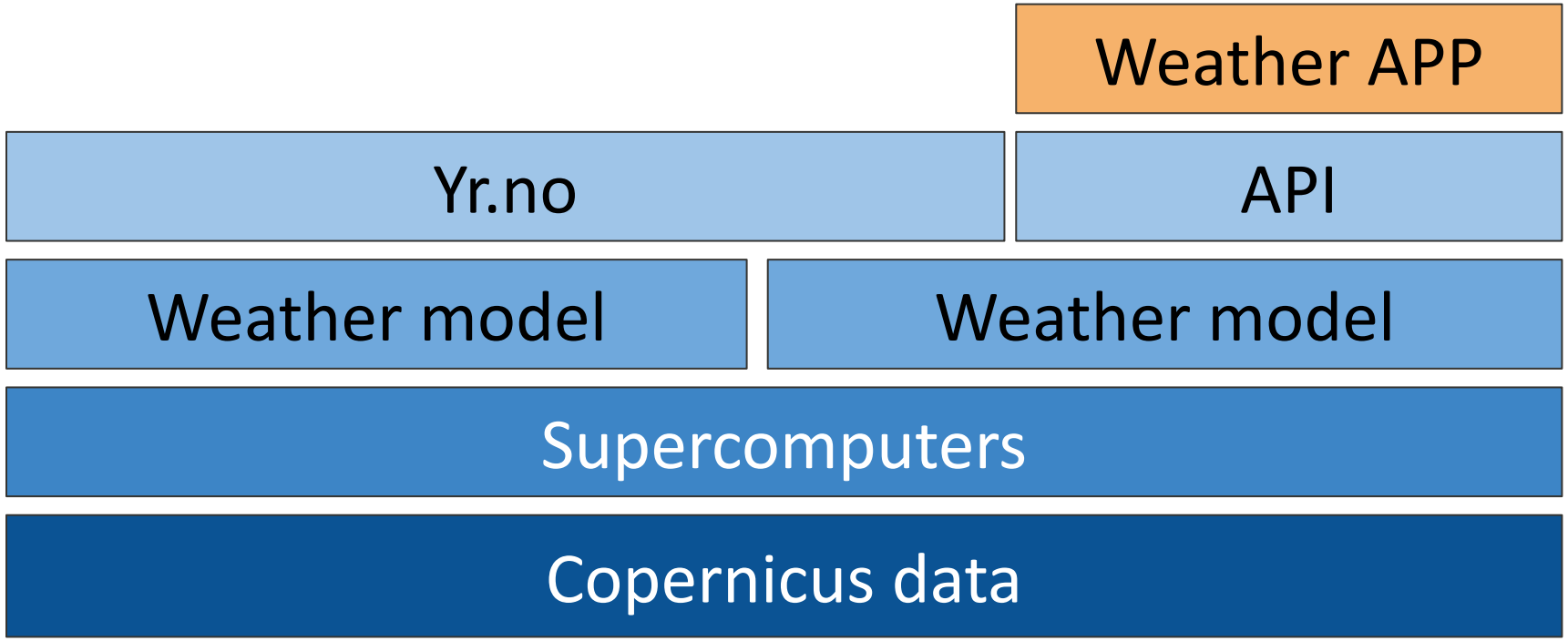

Yr.no
API
Open source
AROME-Arctic model
ECMWF model
Open source
Supercomputers
Open source
Copernicus data
Open source
Satellites

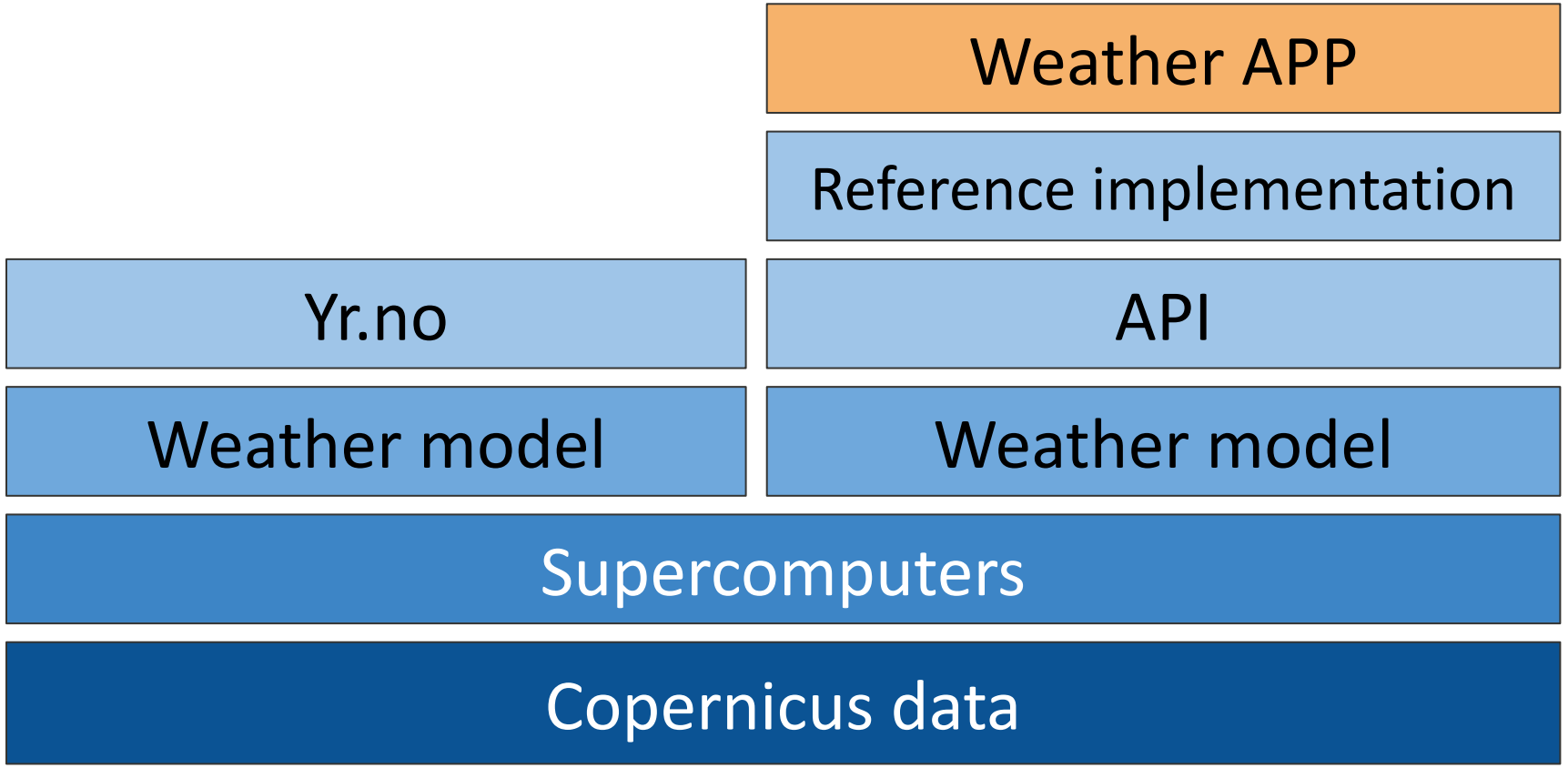

Weather APP
Yr.no
API
AROME-Arctic model
ECMWF model
Supercomputers
Copernicus data
Satellites

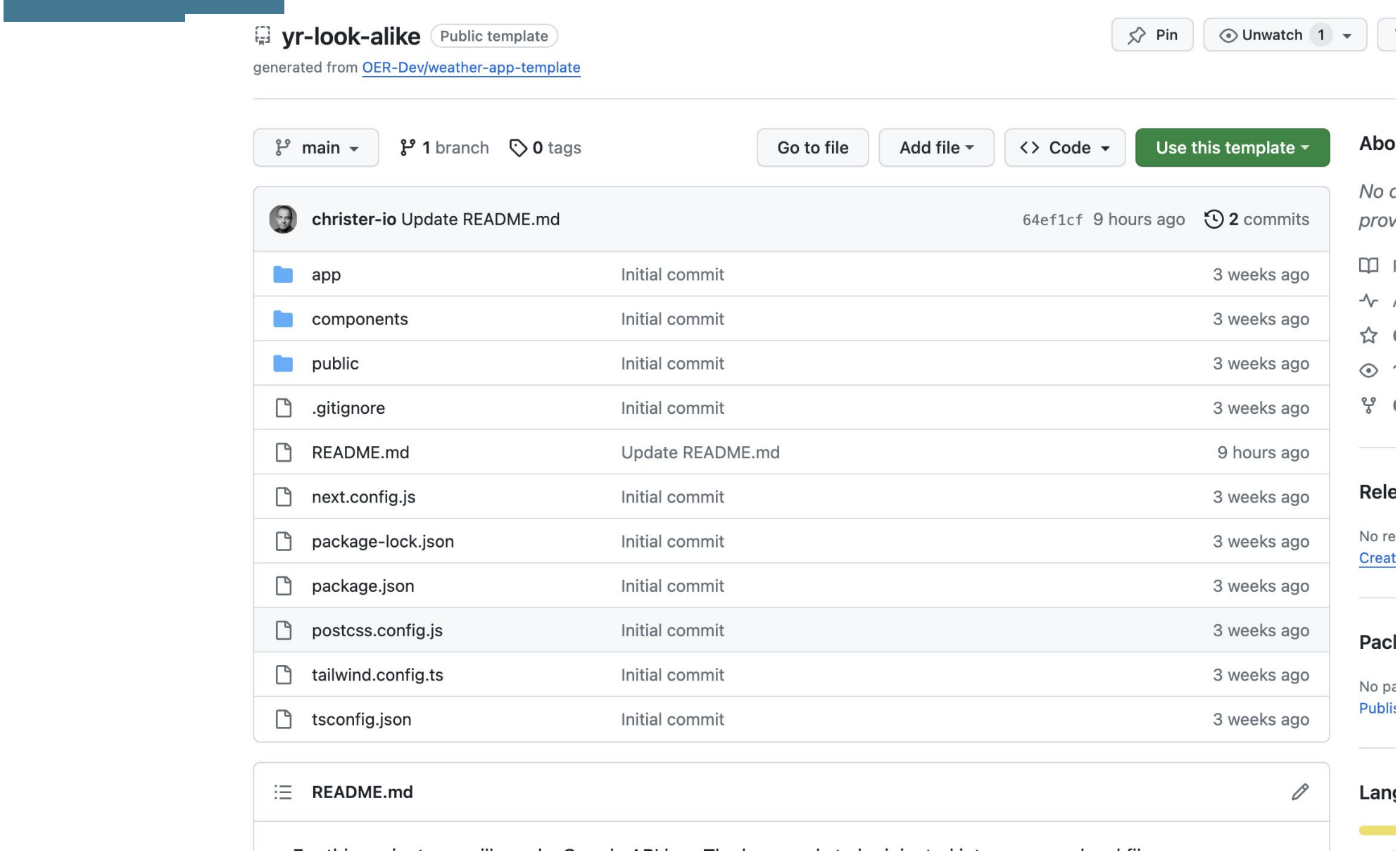

Check the weather
Find your spot...
Accra, Ghana
Lat: -0.187 Lon: 5.6037
21.09.2023 13:00
28.3 ℃
Wind from: 188.7 degrees
Wind Speed: 5.6 m/s
Humidity: 74.2%
0 mm next 6 Hours.
21.09.2023 14:00
27.9 ℃
Wind from: 192.5 degrees
Wind Speed: 5.9 m/s
Humidity: 77.3%
0 mm next 6 Hours.
21.09.2023 15:00
27.5 ℃
Wind from: 198.7 degrees
Wind Speed: 6.3 m/s
Humidity: 78.6%
0 mm next 6 Hours.


My locations
Thursday
Friday
Oslo ☆
18°
16°
Hamar ☆
17°
14°
Accra ☆
28°
28°
Paris ☆
17°
17°
English ☆
28°
30°
Map
Weather warnings
Water temperatures
Other services from The Norwegian Meteorological Institute
Subjective forecast chart
Text forecast for Norway
Satellite images


Check the weather
Find your spot...
Accra, Ghana
Lat: -0.187 Lon: 5.6037
21.09.2023 13:00
28.3 °C
Wind from: 188.7 degrees
Wind Speed: 5.6 m/s
Humidity: 74.2%
0 mm next 6 Hours.
21.09.2023 14:00
27.9 °C
Wind from: 192.5 degrees
Wind Speed: 5.9 m/s
Humidity: 77.3%
0 mm next 6 Hours.
21.09.2023 15:00
27.5 °C
Wind from: 198.7 degrees
Wind Speed: 6.3 m/s
Humidity: 78.6%
0 mm next 6 Hours.


Weather APP
Yr.no
API
Weather model
Weather model
Supercomputers
Copernicus data


Weather APP
Reference implementation
Yr.no
API
Weather model
Weather model
Supercomputers
Copernicus data



https://github.com/christer-io/yr-look-alike

Runway?
- 2-5 minutes

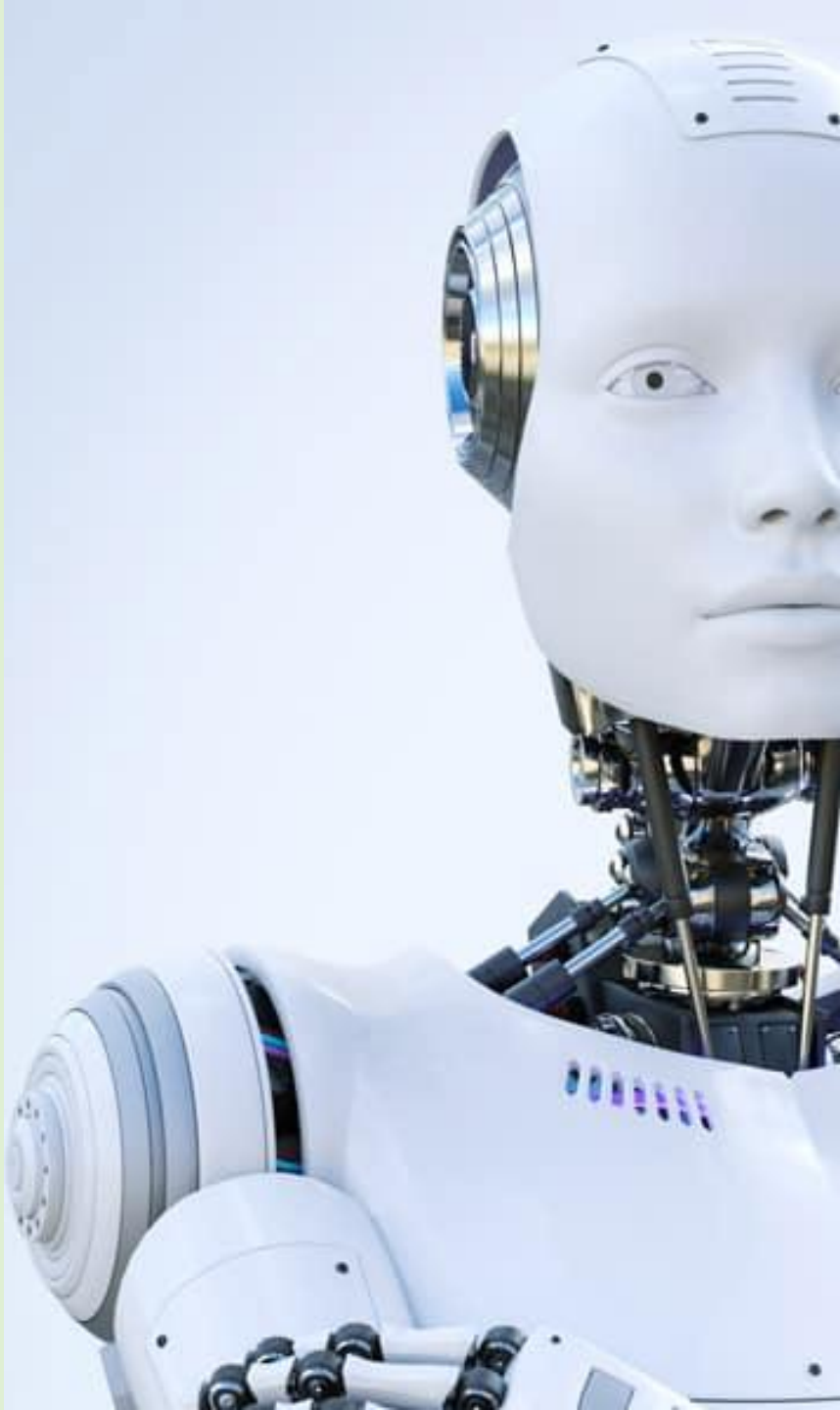
Open Policy

Re-use of data many possible use cases

Sector agnostic

Norad

March 2024

Thank you for your attention!

Christer Solheim Gundersen