



Transnational projects in the field of forecasting and warning of floods within transboundary river basins in Africa

Delft 8th of November

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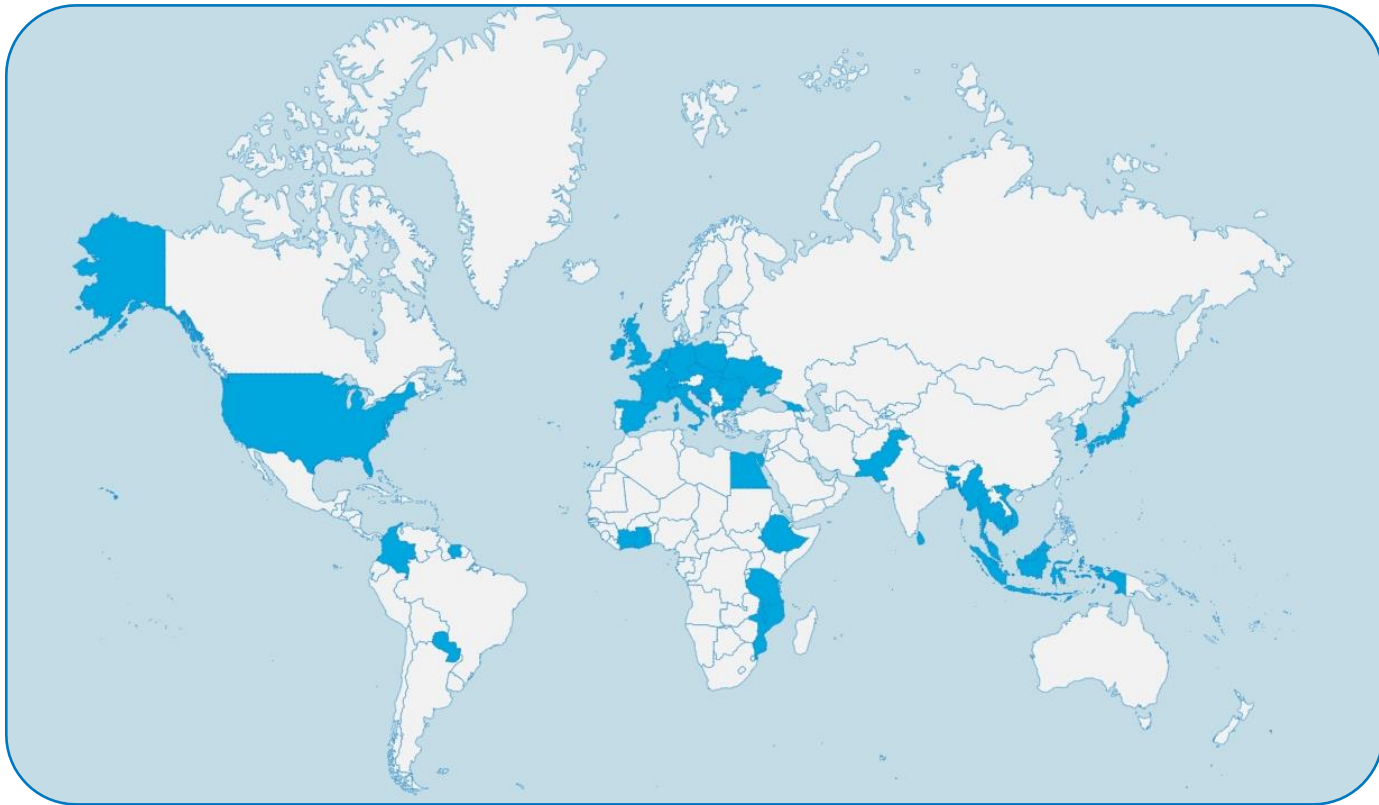
What we will talk about

- Who we are
- The ECOWAS early warning ambition
- Early warning platforms in the ECOWAS region
- The challenge of region-wide early warning
- Combining information into one platform

HKV, consultancy and research in water management and flood risk

- Independent consultancy firm, founded in 1995
- 70 employees
- Based in the Netherlands, offices in Delft and Lelystad
- Specialized in:
 - Risk and Disaster Management
 - Rivers, Coasts and Deltas
 - Water and Climate
 - Products and Services
- 10% of budget spent on research & development, PhD's, internships and graduation projects
- Clients: Governments, International Finance Institutions, European Commission, Private companies
- We support the ten principles of the United Nations Global Compact

Countries active (in the past)



The project

Disaster Risk Reduction Practice Research and Capacity Building Support to ECOWAS



Result 2: Strengthening DRR coordination, planning and policy advisory capacities of African Regional Economic Communities;

Implementing consortium



WASCAL: leaders



CSIR, WRI



HKV consultants

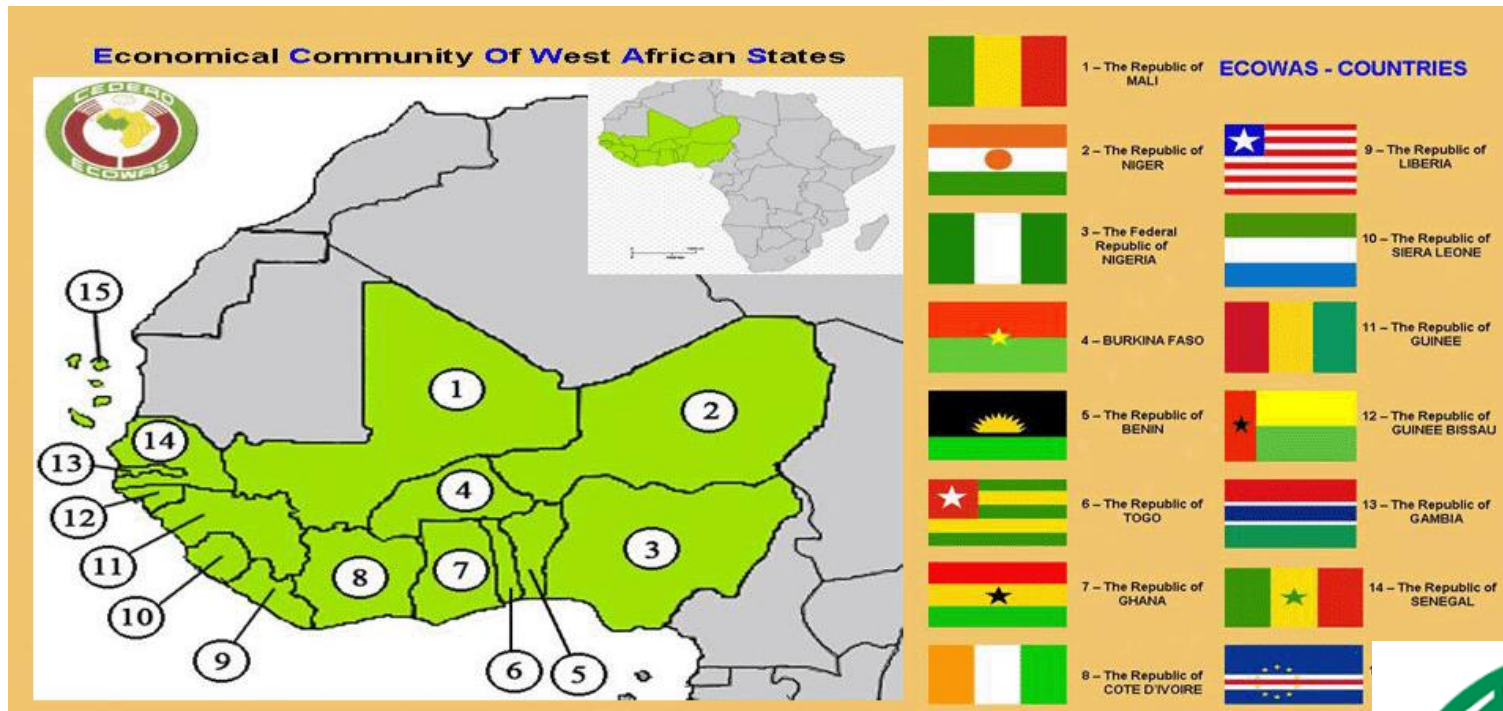


FUTA, Nigeria



**UNOSAT/
UNITAR**

ECOWAS



The ECOWAS Early Warning ambition

DISASTER RISK REDUCTION PLAN OF ACTION

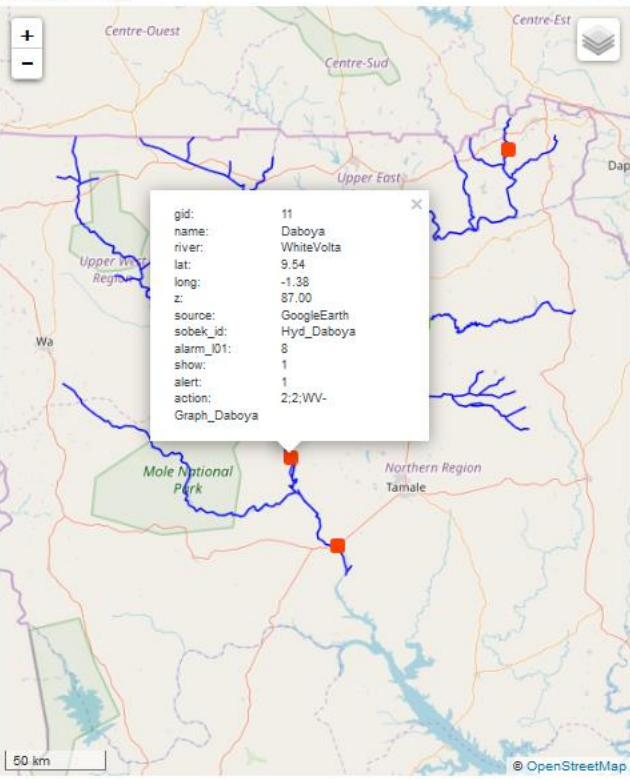
Regional early warning systems and observations

To better coordinate hazard and early warning information in the region and address warnings of a regional dimension ECOWAS plans to establish a regional Observation and Monitoring Centre, where information from national governments, river basin organizations and regional technical centers can be aggregated and early warning can be disseminated to member states, the ECOWAS Commission and regional stakeholders.

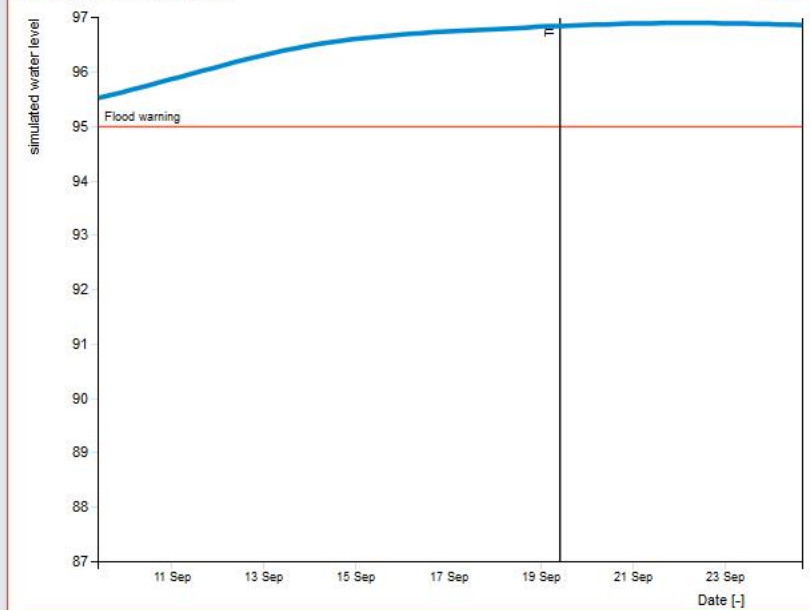
Early Warning Systems in the ECOWAS region

- Several systems are already existing in the region
- Different aggregations levels (basin, sub basin, region, district)
- Different (financial) backgrounds:
 - World Bank
 - UNDP
 - Red Cross
 - H2020 initiatives
 - African Development Bank
 - ???

Flood Alarm Map



Water level forecast Daboya



UPDATED:
19-9-2018 8:00 UTC, HKV Consultants

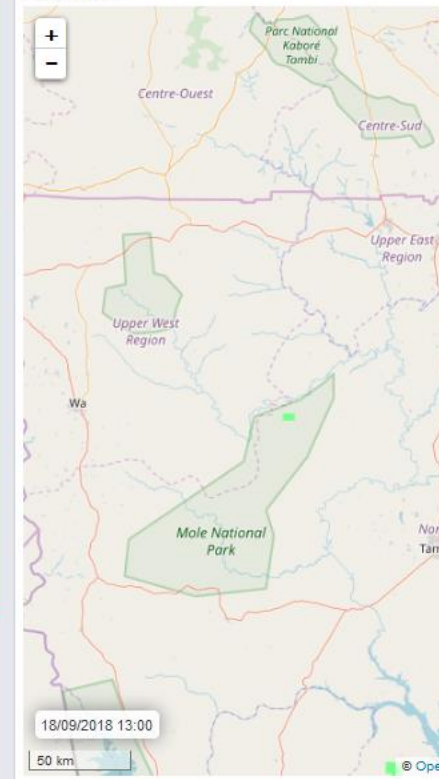
Legend

 Daboya

Thresholds

 Flood warning (95)

Precipitation



SAP Togo

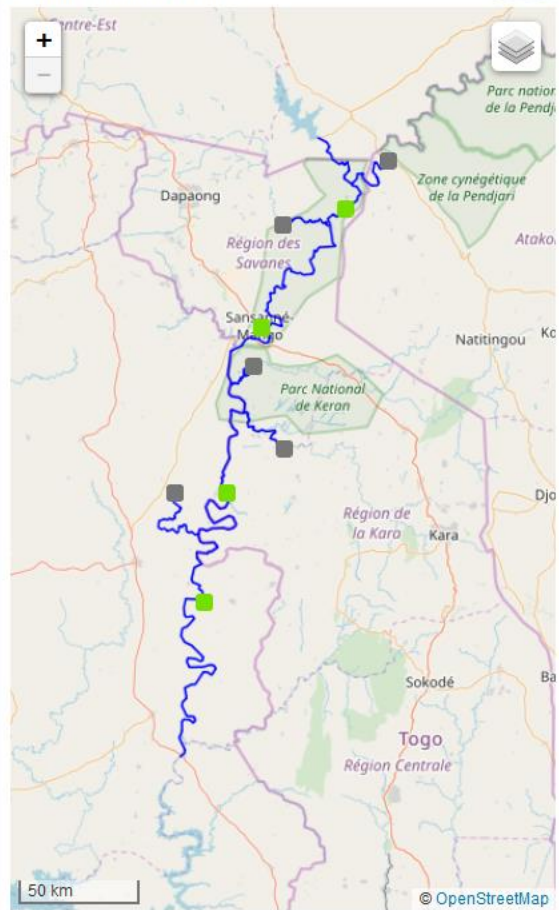
AVERTISSEMENT

BASSINS

Oti

Carte d'alarme d'inondation

Info



Niveau d'eau (simulé) Mango_new

Info

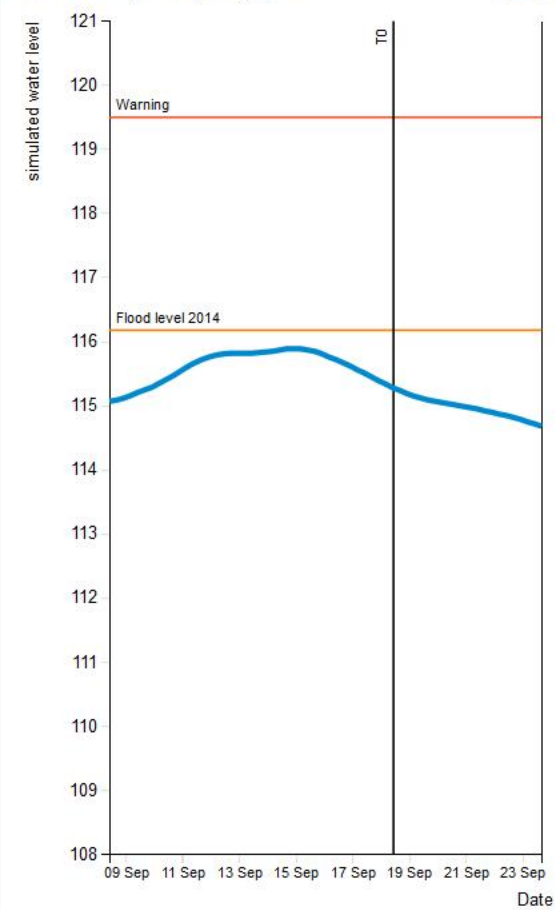
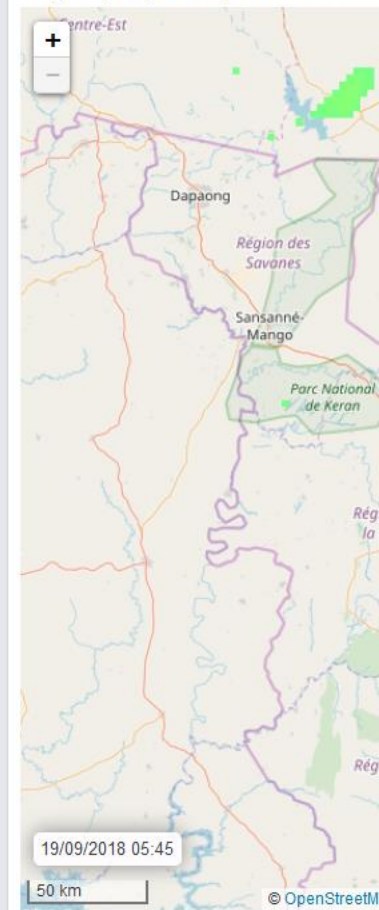


Image de précipitations par satellite





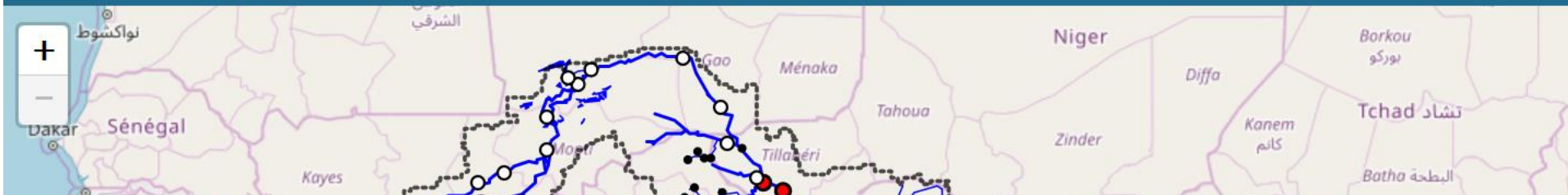
www.sath.abn.ne/Hydrology_EN.html#

SATH-NBA

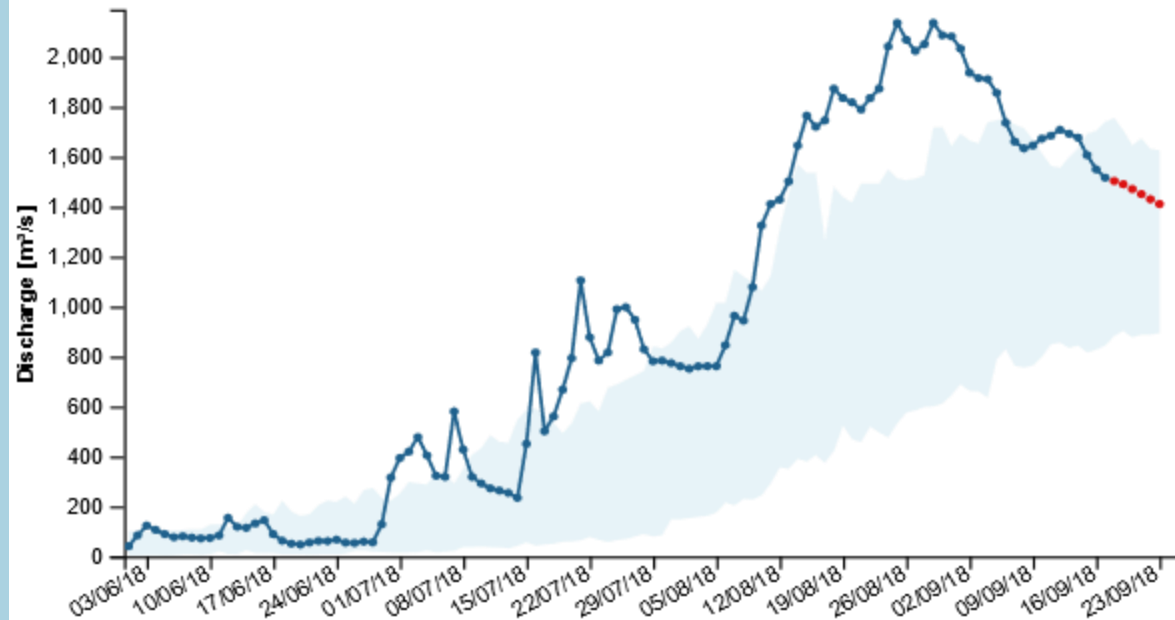
Satellite based water monitoring and flow forecasting for the Niger River Basin



[Home](#) [Agrometeorological data](#) [Hydrological data/forecasts](#) [System overview](#) [Partners](#) [Downloads](#)



Station: Niamey

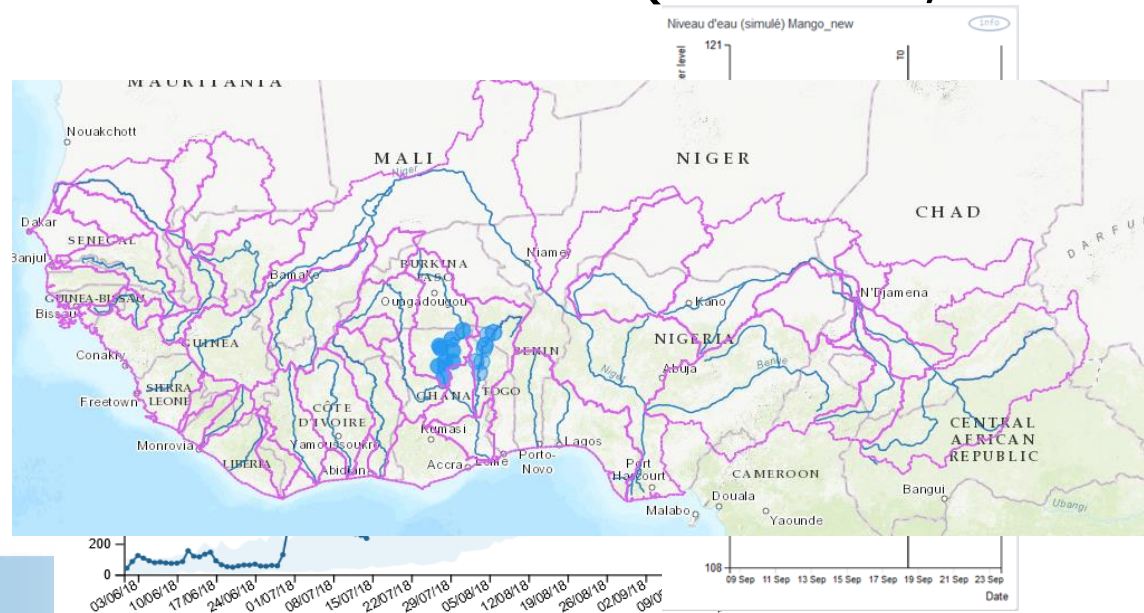


Legend

- Observed discharge
- Discharge forecast
- Historic 10 to 90 percentile flow

The challenge of region-wide early warning

- Production of redundant information
- Inconsistency / contradiction
- Use of existing information
- Uniformity of warning levels
- Accessibility of (satellite) data (internet!?)
- Aggregation to administrative levels (national, region, etc.)



How to solve this
challenge?

EWS-ECOWAS



timeSeriesImportRun



**A possible
technical solutions**



timeSeriesExportRun



EWS-Oti



EWS-Volta



SATH-NBA



..



..

EWS-ECOWAS



FEWS PI GET timeseries
(SOAP / REST)



timeSeriesImportRun

Or another?



EWS-Oti



EWS-Volta



SATH-NBA

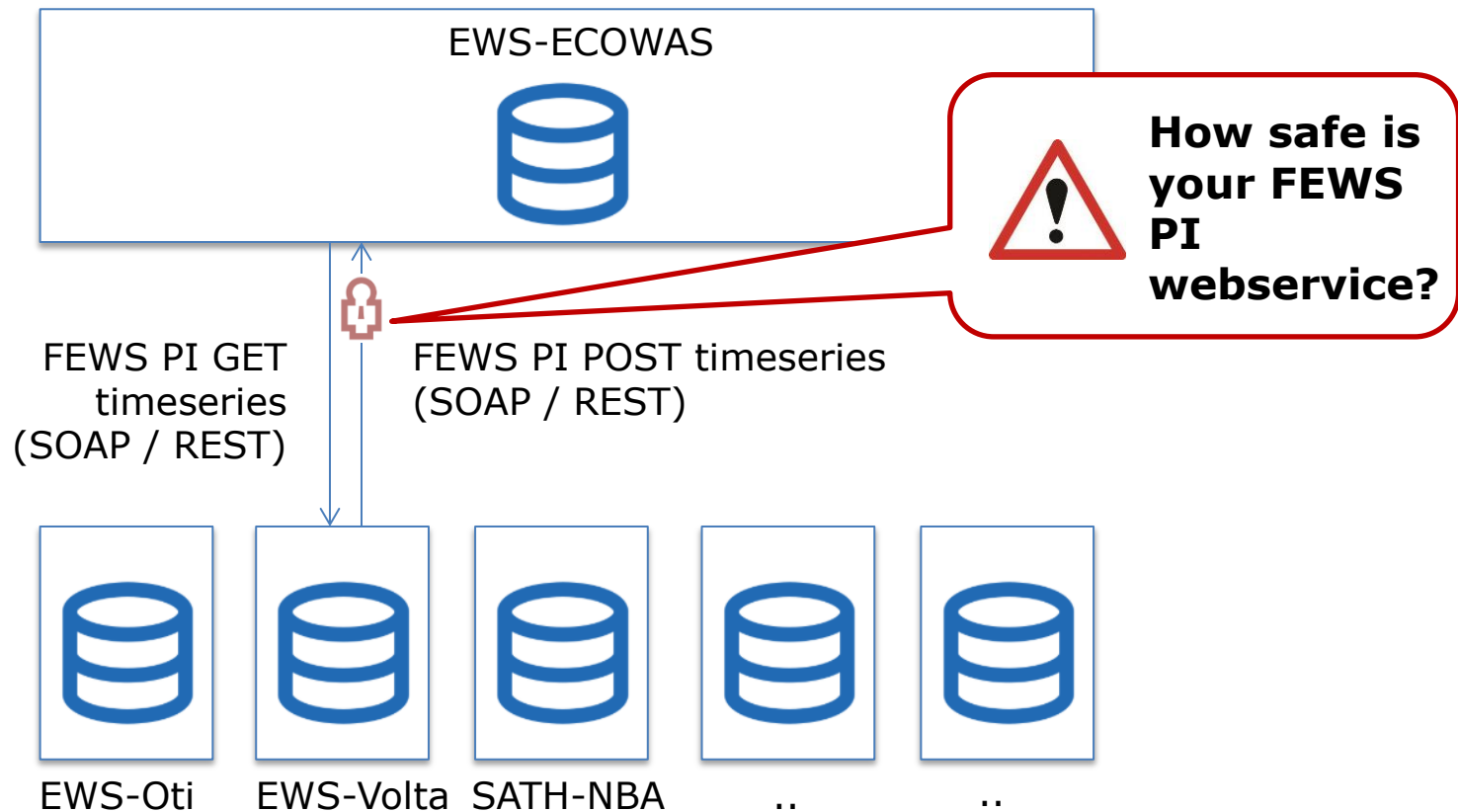


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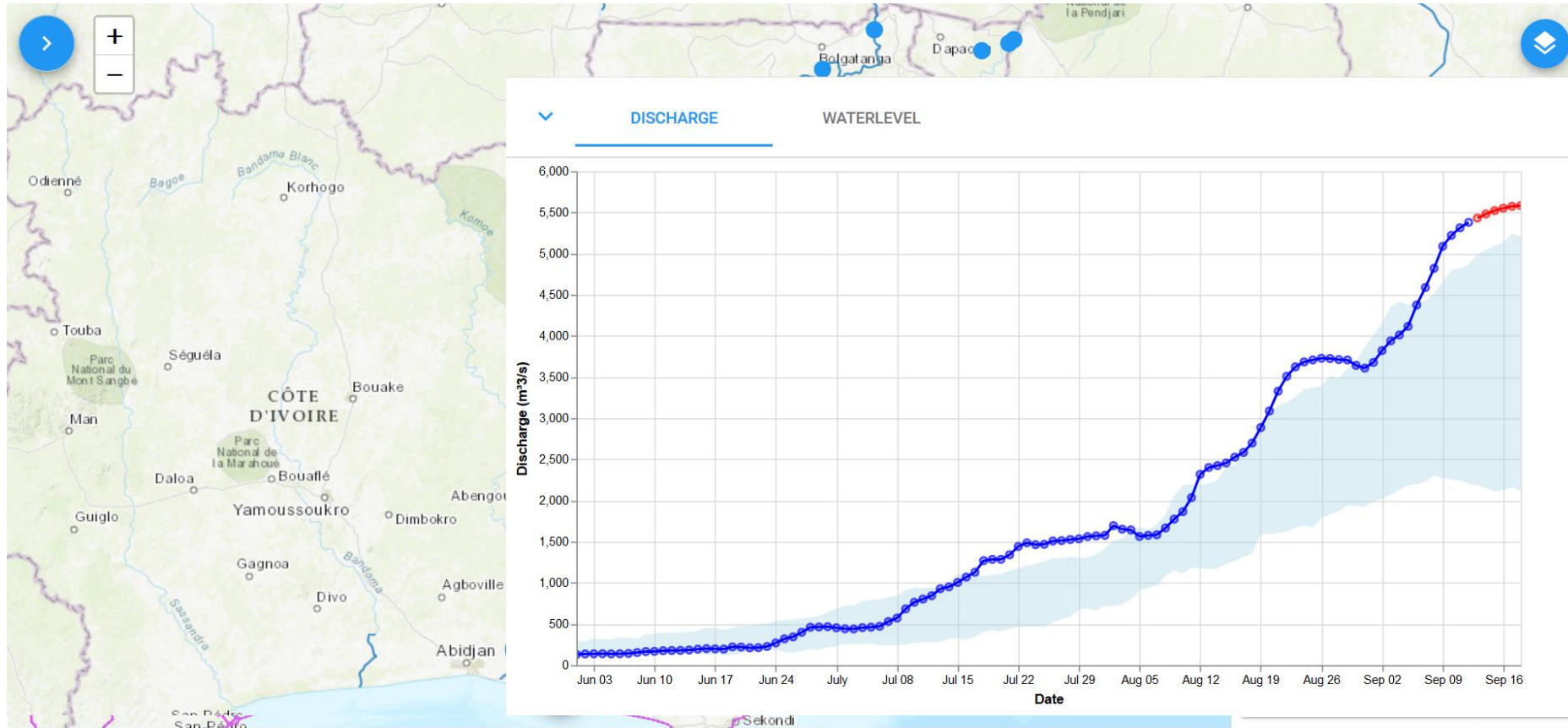


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Yet, another option...



Example of the web platform



Open source packages published by HKV Consultants

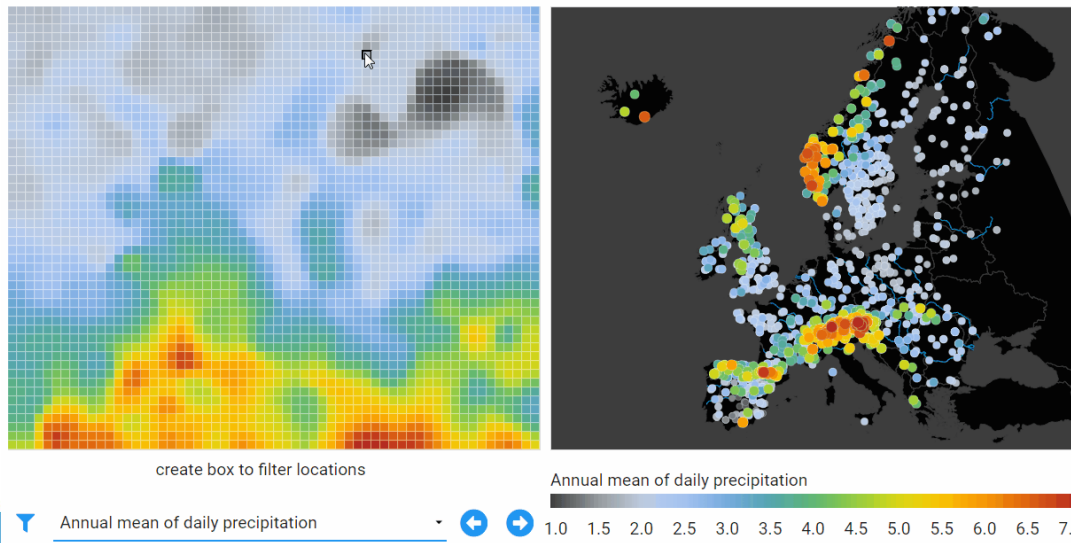
<https://hkv-products-services.github.io/>

- HKV**SOBEK**Py
- HKV**FEWS**Py
- HKV**WAPOR**Py
- FEWS Snow Modules
- FEWS SPEI Modules
- FEWS Muskingum Module

Artificial Intelligence in the Water Sector

<https://ai.hkvservices.nl/european-catchments/>

A self-organizing map of European rivers using variables representing the geographical characteristics of their catchments



Thank you for your
attention.

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