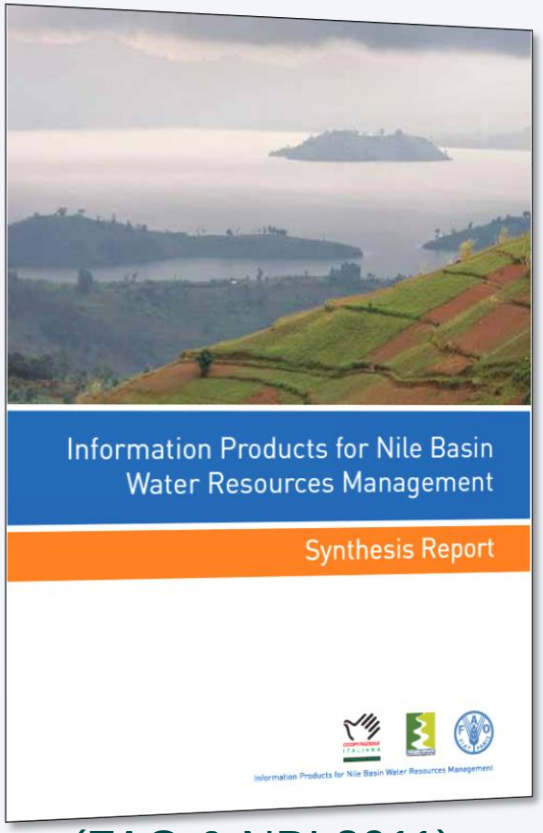
FAO‘s WaPOR open access tool for monitoring land and water productivity in agriculture

7th NBIF - 20/09/2023, Livia Peiser, FAO

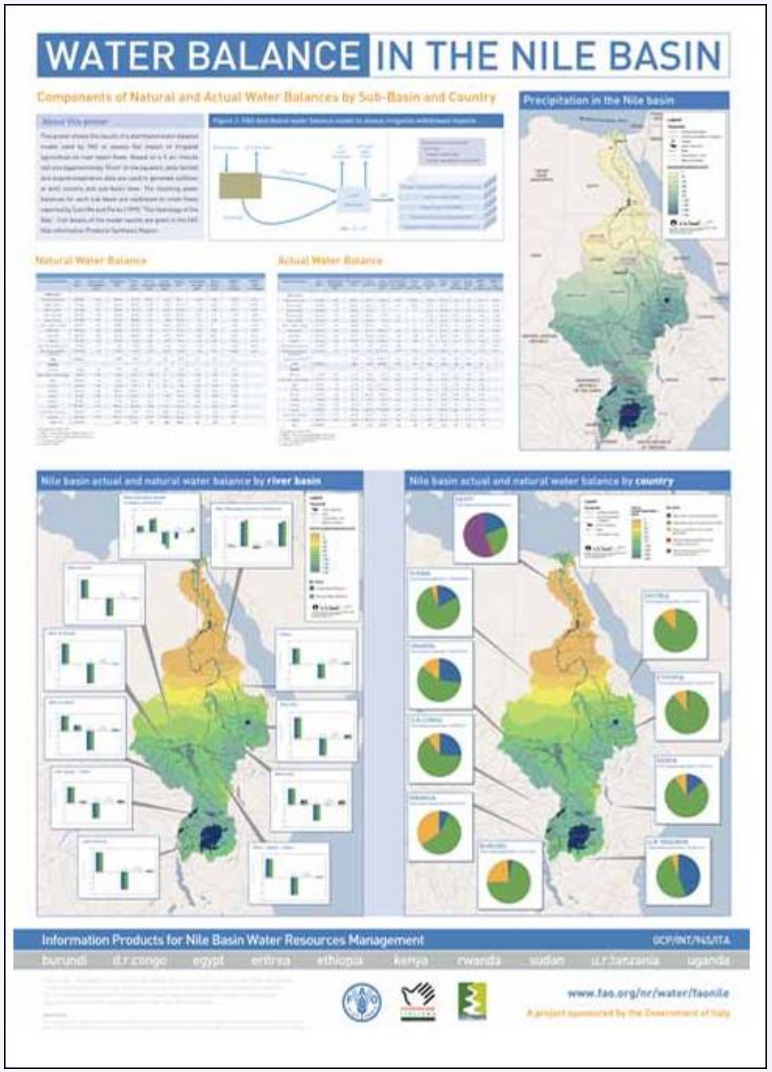
Outline

- Water and food in a changing climate
- FAO WaPOR open access data and information
- Selected examples of applications of WaPOR

FAO and NBI



(FAO & NBI 2011)



Context

Over 828 million people suffer from hunger (SOFI 2022)

Around 3.2 billion people live in agricultural areas with high to very high water shortages or scarcity
(SOFA 2020)

Agricultural production needs to grow globally by 50% by 2050 (SOLAW 2022)

Current patterns of intensification are not proving sustainable (SOLAW 2022)

From 2000 – 2019 total cropland increased with 63 M ha, almost 85% of this increase is irrigated
(SOLAW 2022)

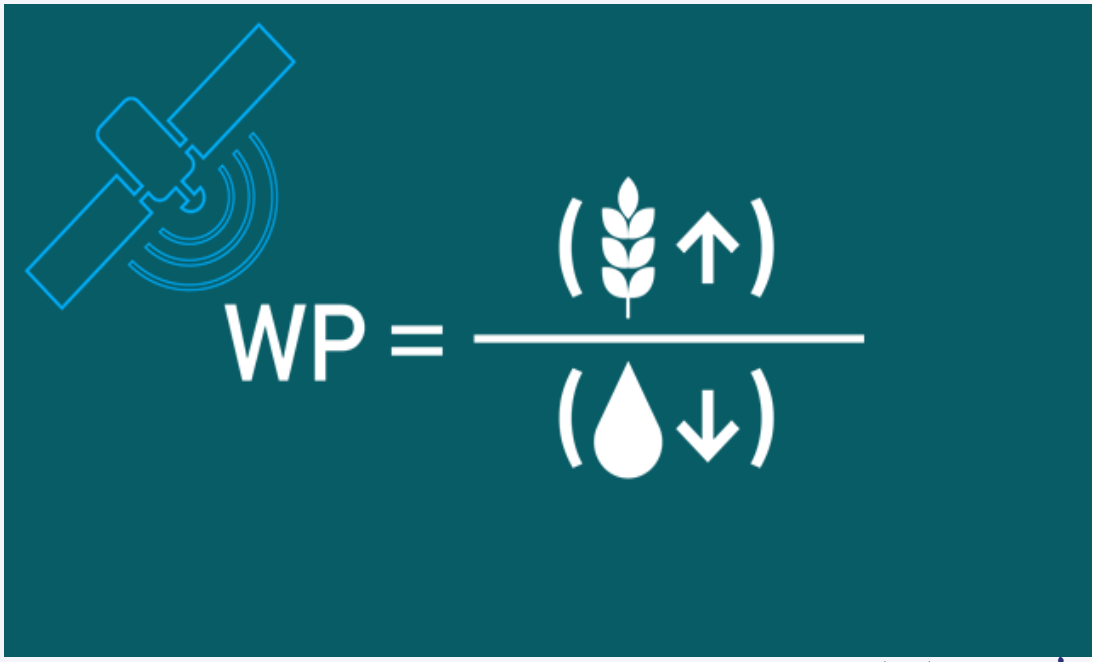
More food with less water

Water productivity in agriculture measures the output (kg/ha) per unit of water consumed (m^3/ha).

Measuring these two variables is not easy at appropriate scales for decision making

Satellites can help monitor water productivity in cost-effective ways.

Increasing water productivity is now a globally recognized target (SDG 6)



How WaPOR works

NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

Ministry of Foreign Affairs of the Netherlands

IHE DELFT

IWMI International Water Management Institute

eleaf FEED THE WORLD

german cooperation DEUTSCHE ZUSAMMENARBEIT

giz

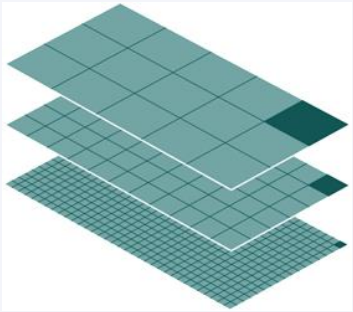
CIWA

2023 7th Nile Basin Development Forum - Uganda

FAO WaPOR

Near-real time (every 10 days) data on biomass development and water consumption (actual evapotranspiration), in addition to agro-climatic parameters on a daily time step (reference ET and precipitation).

Spatial resolution ranges between 300 m and 20 m

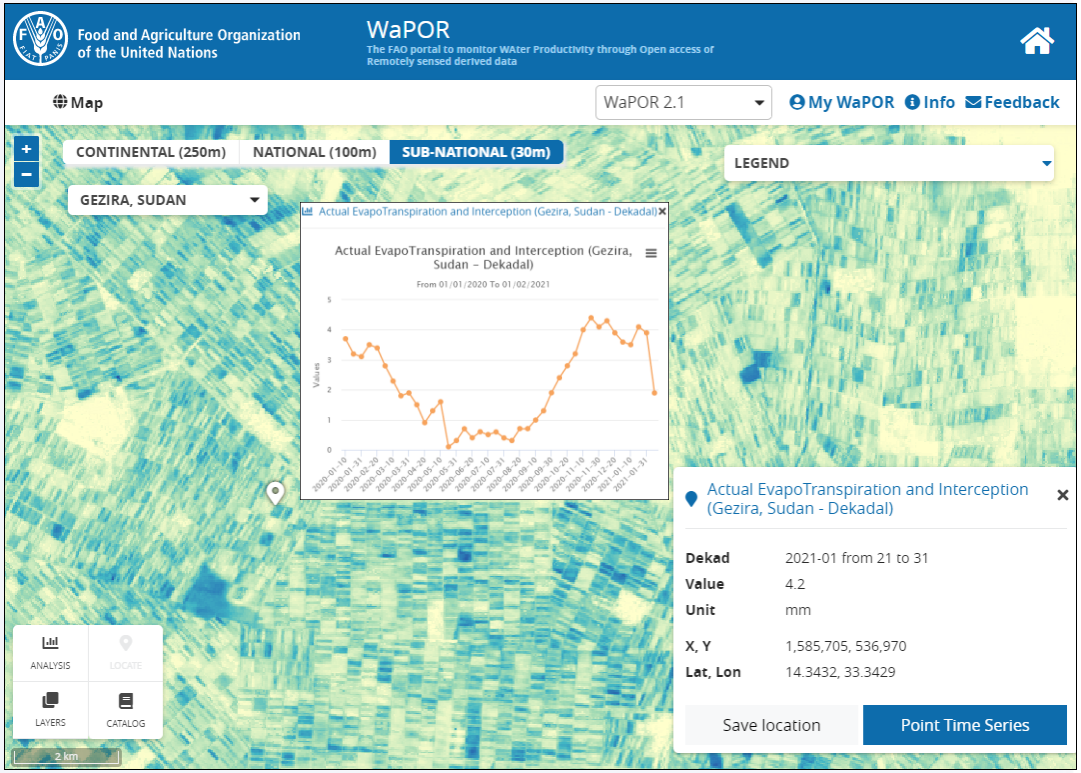


300 m (global)

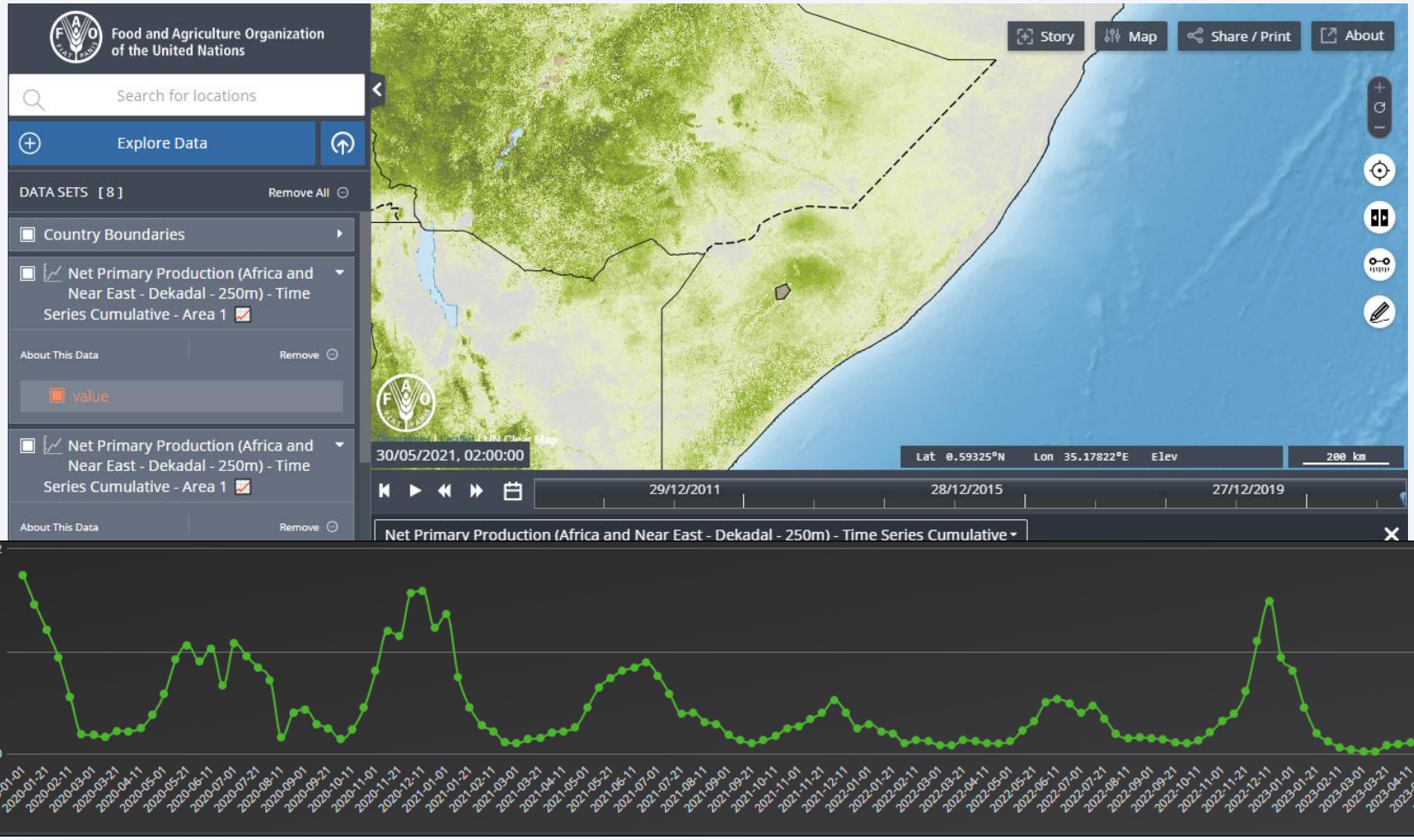
100 m (Africa)

20 m

(irrigation/watershed)



Examples of applications



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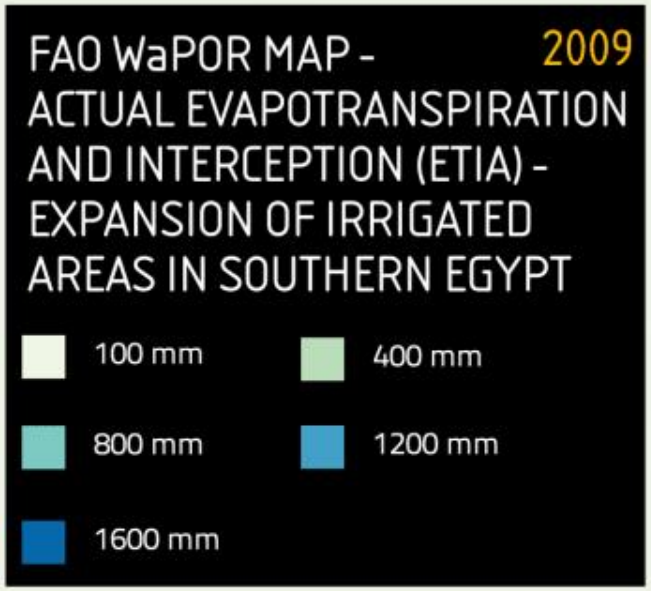
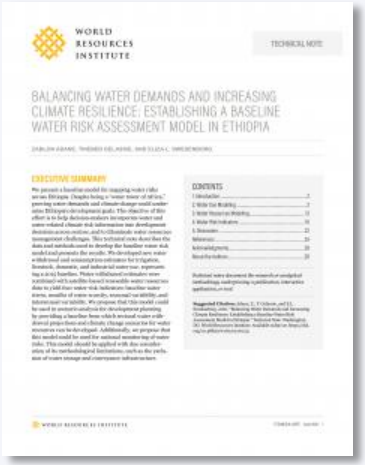
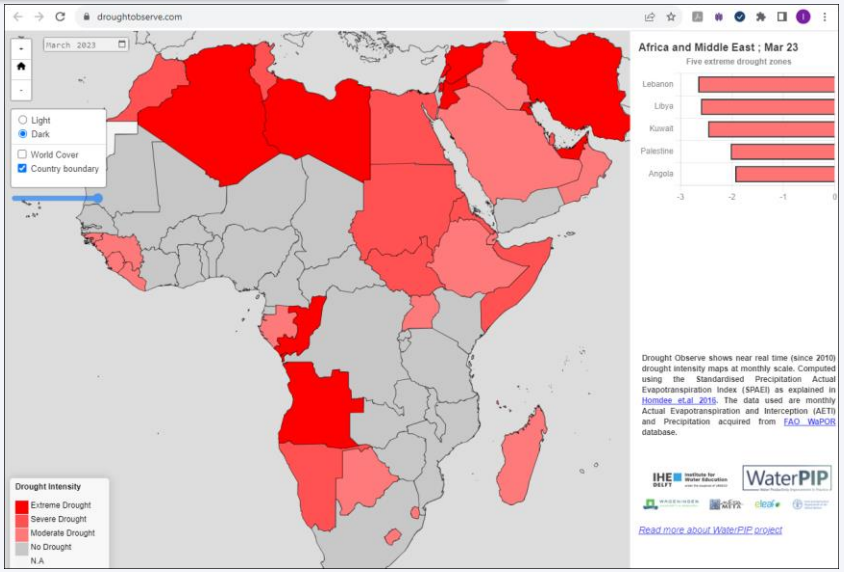


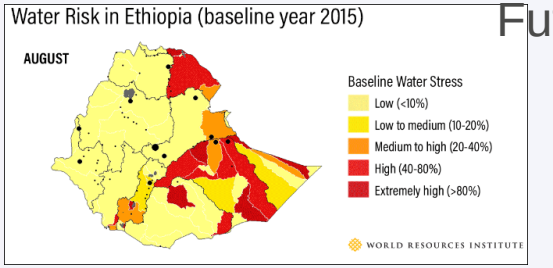
WAPOR.APPS.FAO.ORG

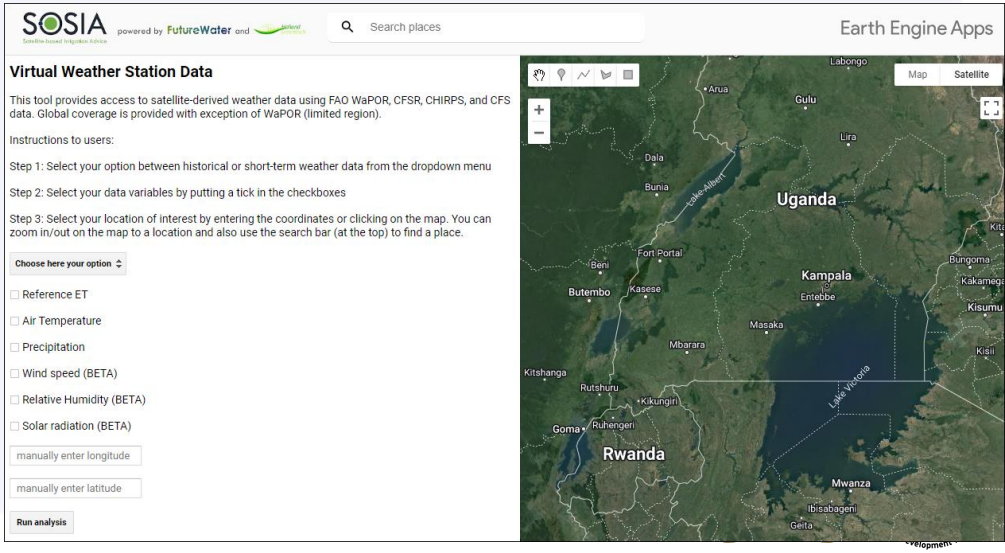
From our applications catalog



- Water Risk Maps (WRI)
- Drought Observe (IHE Delft – WaterPIP)
- Small-Scale Open Source Satellite-based Irrigation Advice (SOSIA, FutureWater)







Resources

- Data distributed through ReST API for easier integration in ICT applications
- Open geospatial standards (wms, wcs, CO GeoTiff)
- Open codes and algorithms:

Wiki page for methodology
https://bitbucket.org/cioapps/wapor-et-look/wiki/Home

PyWaPOR https://www.fao.org/aquastat/py-wapor/index.html

- Online courses, tutorials, hackatons

https://www.fao.org/in-action/remote-sensing-for-water-productivity/ **wapor@fao.org**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THANK
YOU!