The SEED-FD Project's Objectives

SEED-FD

Vanessa Pedinotti, Magellium

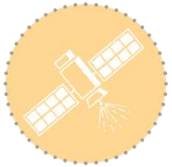
Specific Objectives (SO)

Global Objective: Enhance the quality and portfolio of the CEMS EWS for floods and droughts

Enhance the CEMS hydrological model for better representing the range of hydro-climatic processes worldwide

SO1

SO2



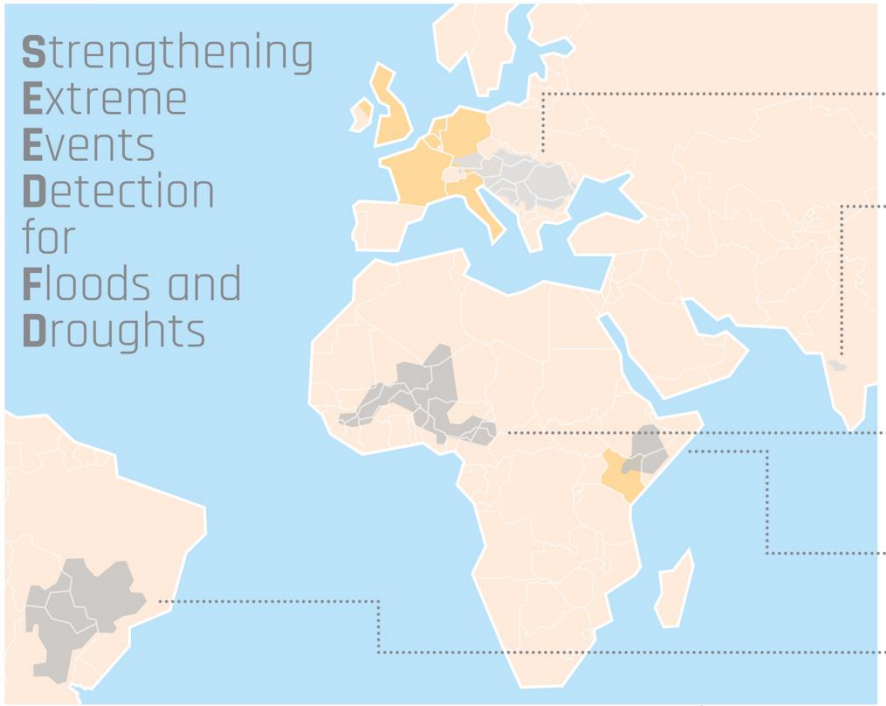
Demonstrate the added-value of using information from satellite data and innovative in-situ micro-sensors for higher quality CEMS hydrological simulations and forecasts globally

Expand the CEMS EWS forecast product portfolio for floods and droughts by developing/ prototyping new extreme hydrometeorological event detection algorithms applicable worldwide

SO3

Study and validation basins

Strengthening
Extreme
Events
Detection
for
Floods and
Droughts



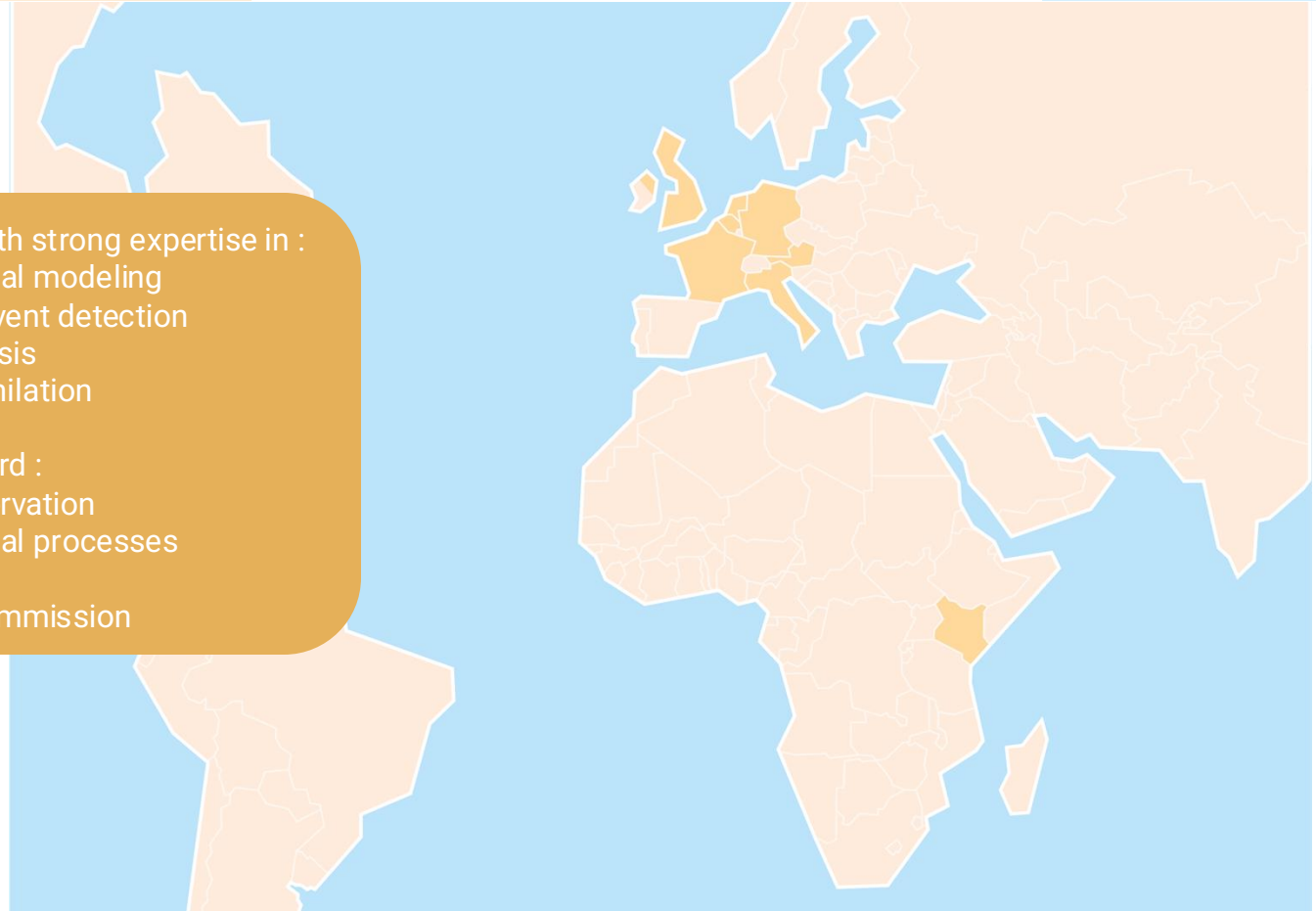
Partners
2 development basins
3 validation basins

	DEVELOPMENT	FLOODS	DROUGHTS
DANUBE	Major transboundary heavily regulated basin - temperate climate	Flood caused by heavy rainfall, melting snow, or a combination of both	Intensification of droughts with climate change
BHIMA	Heavily managed surface and groundwater system - tropical climate	Monsoon flooding, high inter- and intrannual variability	Multi-years droughts due to limited interannual storage

	VALIDATION	FLOODS	DROUGHTS
NIGER	Data scarce semi-arid area with monsoon season and large wetlands	Multiple flash floods in urban areas each year	Consecutive failed rainy seasons and decades of increasing desertification of the Sahel
JUBA-SHEBELLE	Data scarce semi-arid area, global hot spot for droughts	Occasional floods due to heavy rains in the headwaters	Currently facing worst drought in history
PARANÁ	Tropical transnational basin, axis for waterway movement	High population density, vulnerable to flash floods	Multi-year droughts, lowest water levels in 80 years
WORLD	Extreme hydrological events across the globe	Flash flood events that devastate populated areas and infrastructure	Long-term impact on population, food and energy security worldwide

The SEED-FD project on a map

The SEED-FD project on a map



9 partners with strong expertise in :
- Hydrological modeling
- Extreme event detection
- Data analysis
- Data assimilation

Advisory Board :
- Earth observation
- Hydrological processes

European Commission

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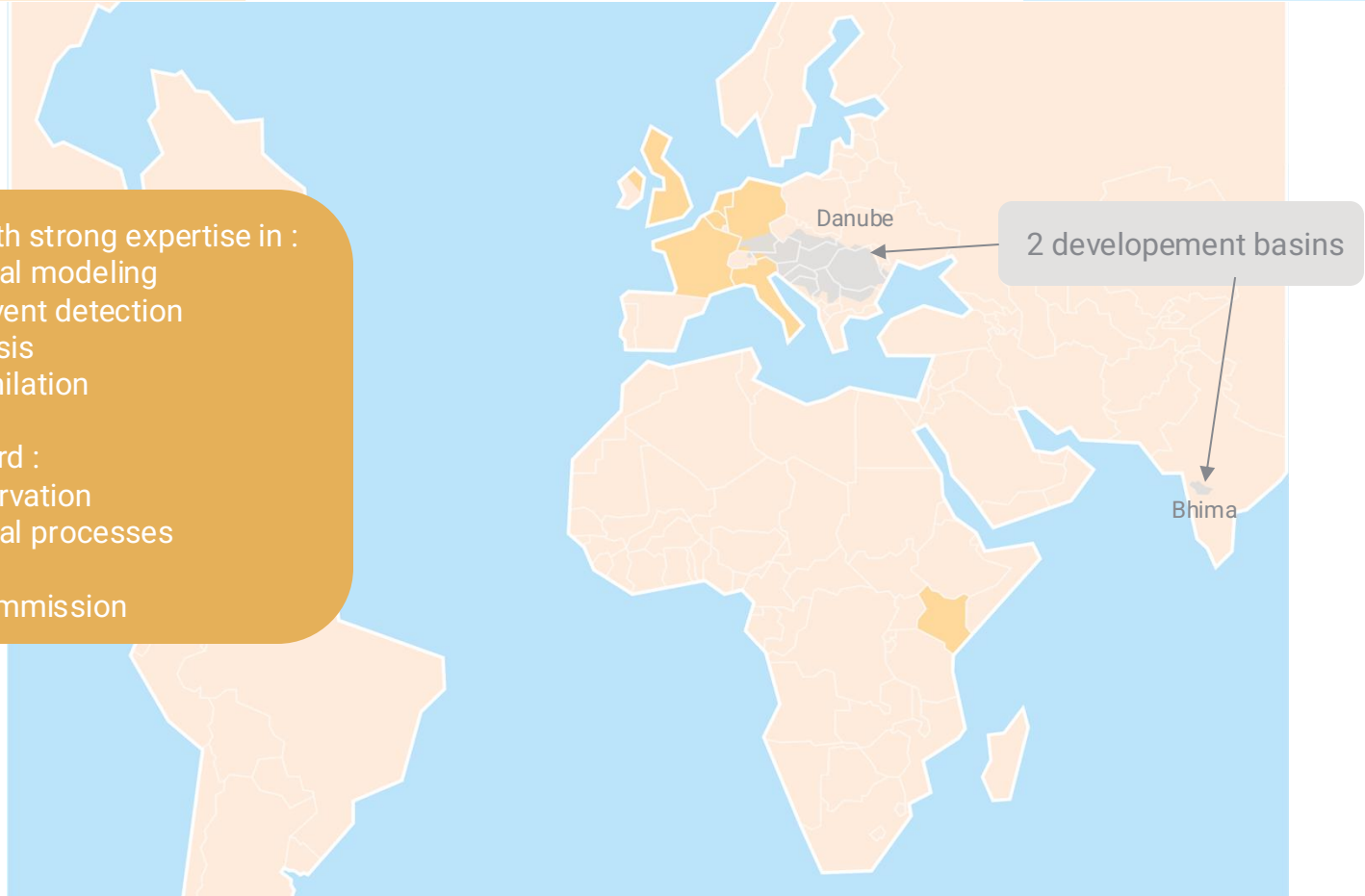

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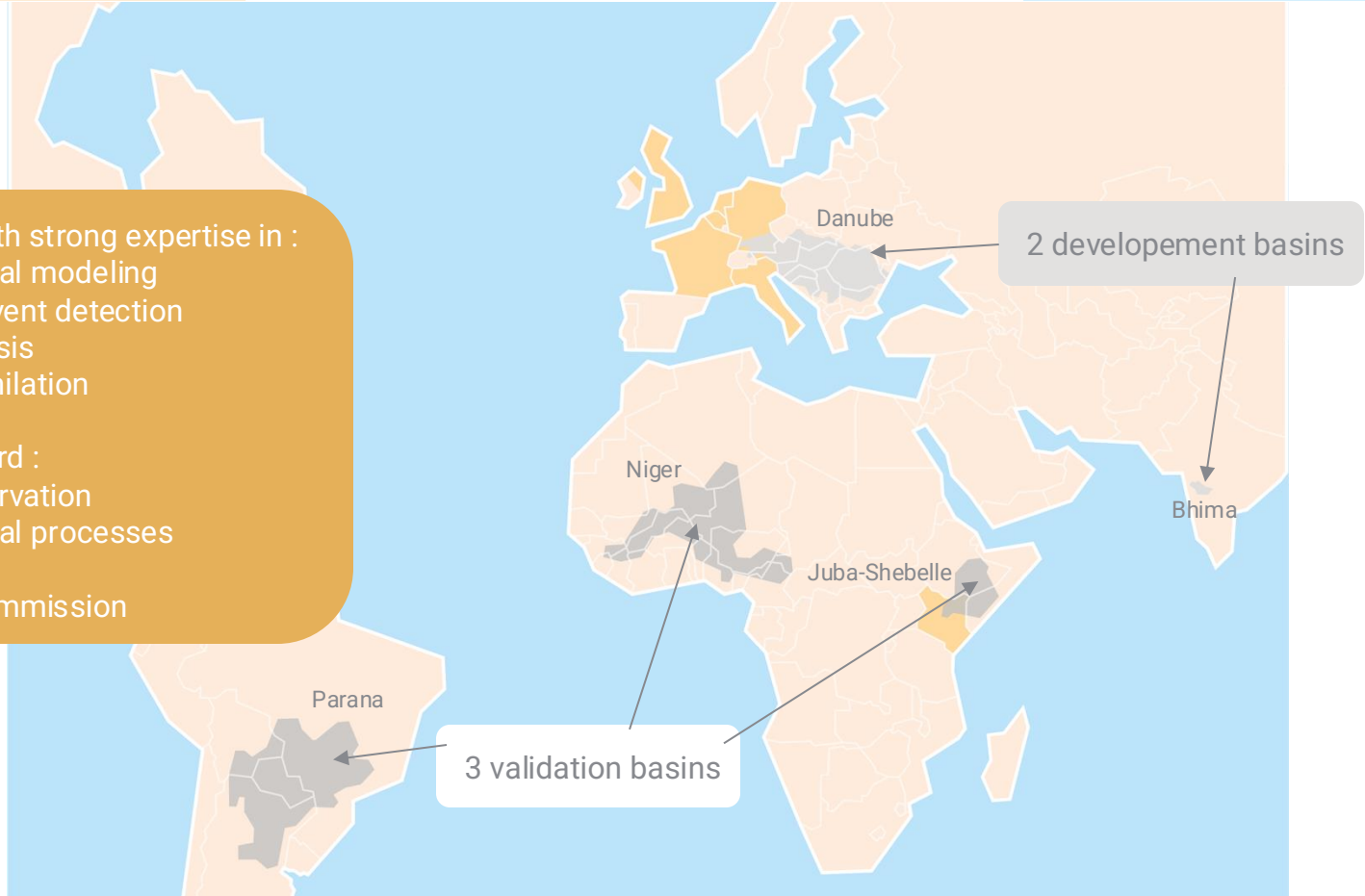

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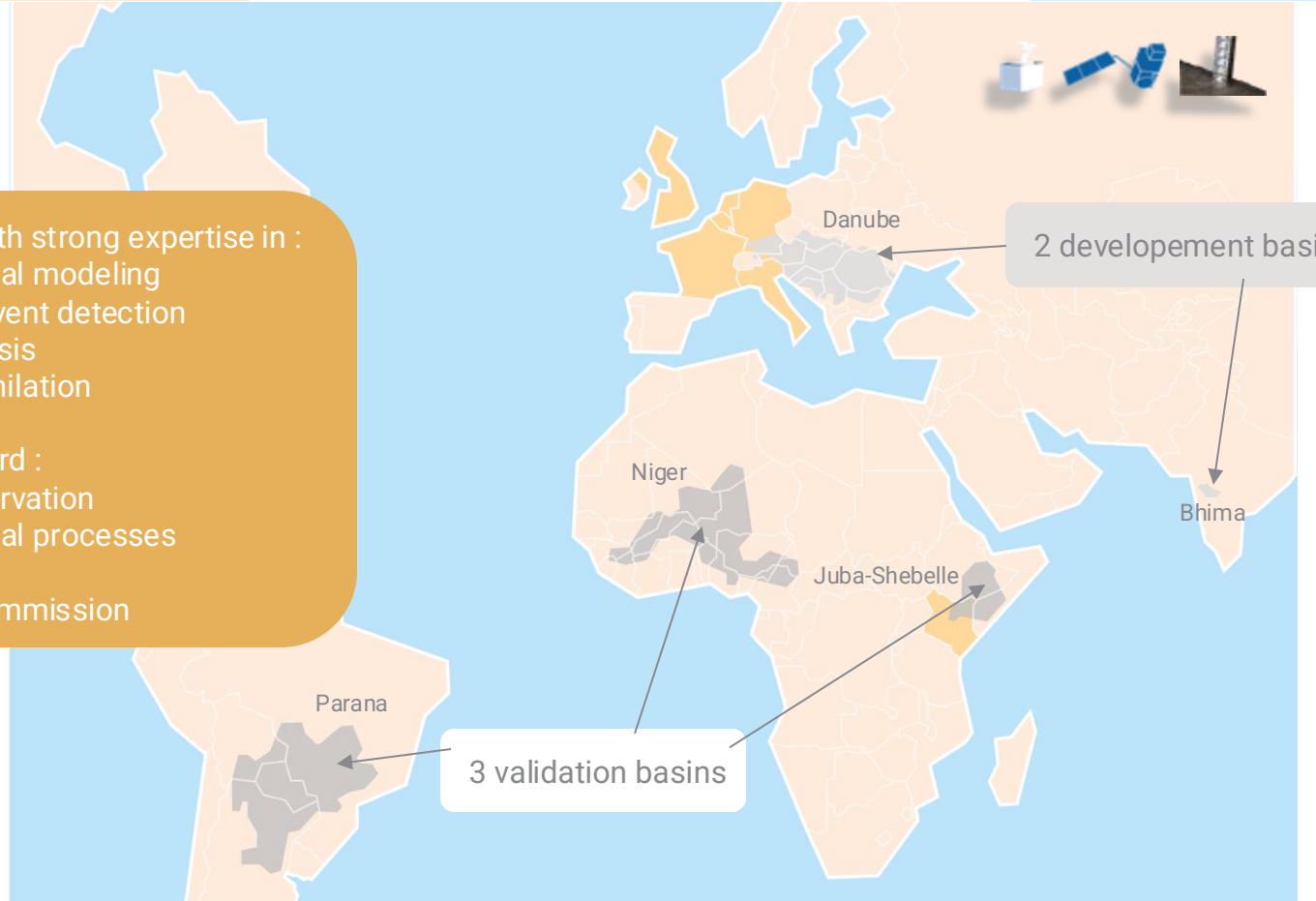

Multiple sources of data (Eo and non-EO)

SEED-FD Outcomes

‘Everyone, everywhere in the world protected by an EWS’

Local authorities, water security and humanitarian agencies will benefit from real-time and quantitative global forecasts of floods, droughts and new extreme events.

Scientists will have access to new or improved tools for hydrological modeling, data assimilation, data processing and forecasting of floods and droughts.

Better synergy between Copernicus services - integrating Copernicus satellite data into the CEMS EWS and adding new and innovative in-situ observations.

Use real case studies to raise awareness of flood and drought prevention with a wider audience.

SEED-FD

Consortium:

- Magellium (France, prime)
- ECMWF (science leader)
- CNR-IRPI (Italy)
- ICPAC (Kenya,Intergovernmental Authority on Development (IGAD) Climate Prediction and Application Center
- IIASA (Austria, International Institute for Applied Systems Analysis)
- VORTEX.IO (France)
- POLIMI (Italy, POLITECNICO DI MILANO)
- DesignData (Germany)
- JRC (EU)