

# RA VI RECO 2022

WEATHER CLIMATE WATER  
TEMPS CLIMAT EAU

Hydrology in RA VI: Infrastructures, Research,  
Services and Collaboration with Private and  
Academic sectors

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Angela Corina

RAVI Regional Hydrological Adviser

WMO OMM

World Meteorological Organization

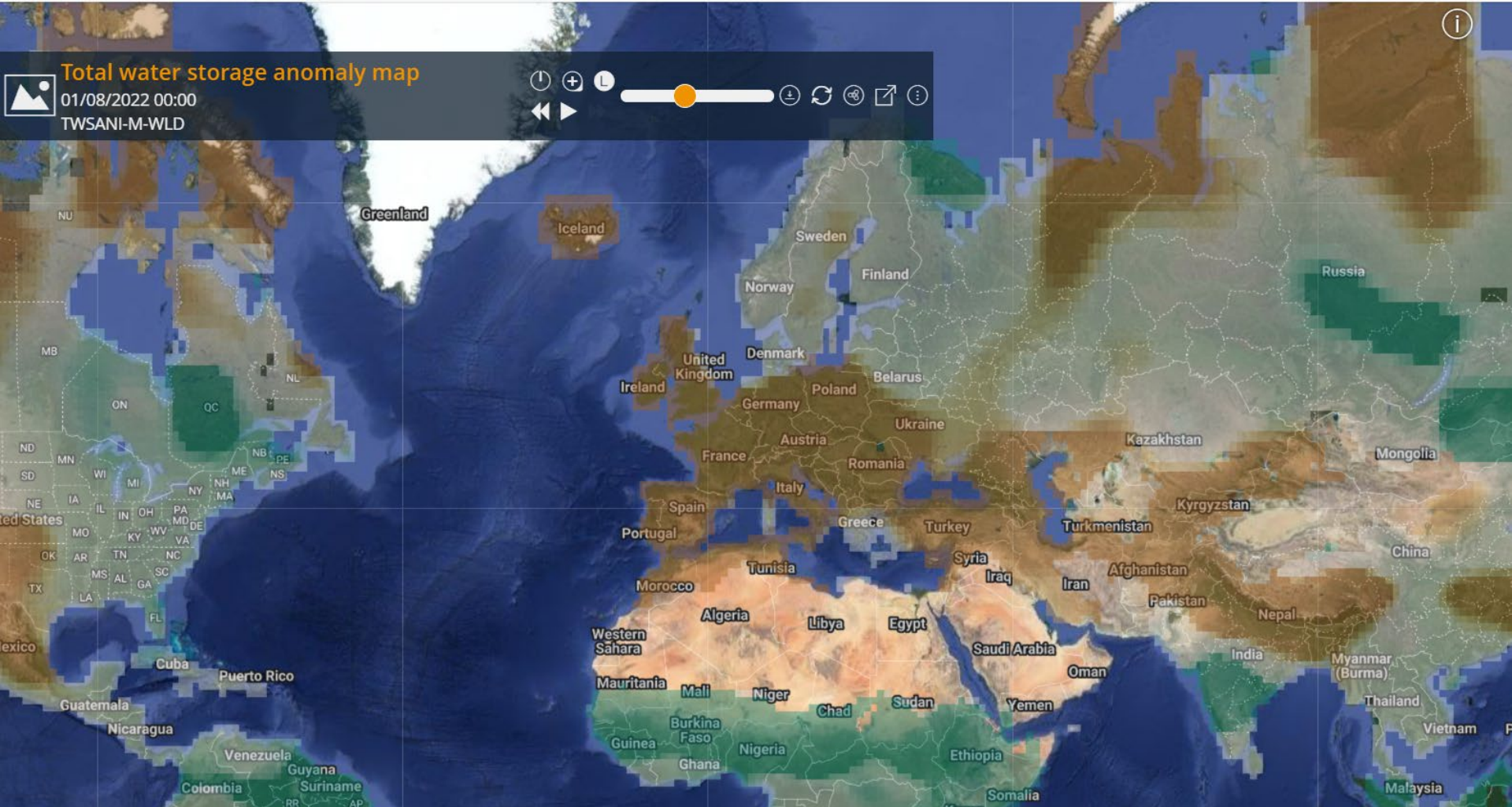
Organisation météorologique mondiale

# Are we on this trend?



Tiber river, Rome, Italy

source «Drought» It movie, 2022, with permission by the author



# Long-term hydrological drought indicators

the trend in EU shows a pronounced decline of TWS

Example: Total water storage anomaly map, 1 Aug 22,  
source : Copernicus Global Drought Observatory (GDO)





# Series of extreme events in Summer 2022, Italy

some examples and insights on infrastructures and services gaps and opportunities, relationship with research, policy and private sector

# Series of extreme events in Italy in Summer 2022: Drought



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Shift from reactive to Proactive approach

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development of indicators and outlook system

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Foster relationship and coordination among several institutions and decision makers

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Integration of short term and long-term measures at basin scale.



Po river, august 2022

Po river, northern Italy, August 2022,  
high severity drought conditions in 9 regions

Picture Source: web



# Series of extreme events in Italy in Summer 2022: wildfires



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Fragmented  
development in  
wildfire services

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Needs to adopt a  
more integrated  
approach

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Multi risk EWS

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Wildfire interventions with national fire-fighting  
aircrafts fleet, period 15 Jun-30 Sept: **1.102**  
Source: Italy National Civil Protection Department

# Series of extreme events in Italy in Summer 2022: : Marmolada glacier collapse 3 July 22



Marmolada Glacier collapse, Alps mountains, Italy, 3 July 22

300.000 m<sup>3</sup> material (ice, rocks and debris ) involved

Picture source: web

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Improve large scale monitoring to identify risk indicators/precursors

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Improve understanding of cold hydrology processes and develop shared criteria for Mediterranean high mountain areas

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Implement actions based on scientific evidence

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# Series of extreme events in Italy in Summer 2022: flash flood Marche region, 15 Sept 2022

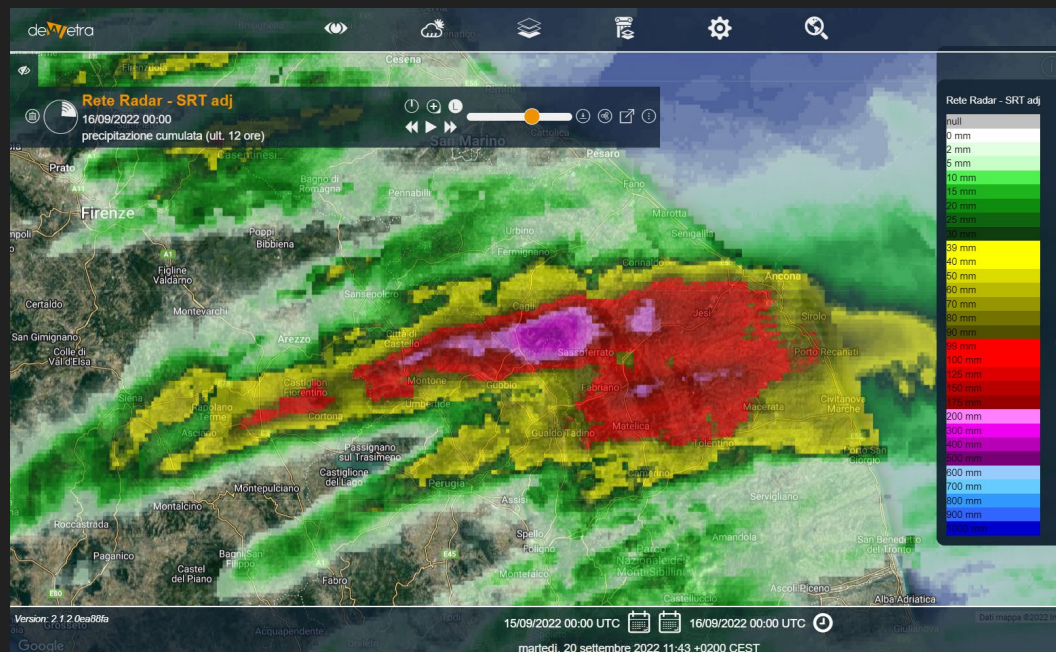


Limits in predictability of intense localised weather phenomena

Need of high resolution 24/7 monitoring to complement uncertainties of forecasting

Last mile: Timely warnings to population in affected area based on nowcasting - mobile phone coverage drives the solution?

Responsibility of operators: necessity of political support and understanding of the forecasts probabilistic nature affected by uncertainties



Surface Rainfall Total in 12 hours, 15 Sept 22. Estimation by radar, adjustment with surface observations source Dewetra platform, NCPD



**infrastructures and  
services: other  
insights from  
hydrological  
perspectives**



**Jan Daňhelka**  
chair, Hydrological Coordination Panel

# Private sector and research

with clearly understood and agreed roles and responsibilities of public and private sectors, the **coproduction** of some specific **services** is **essential** ( e.g. Real time flood control, public warning system using mobile technologies, new data sources and management, new technology ...)

promotion of user-driven Science (tailored on decision makers need, through **ad-hoc applied research**) for effective risk management for the full risk cycle: mutual benefits for operational services and scientific community

# Similar risks in EU request similar approach to bridge gaps

**2022**

flash flood Bulgaria  
flood Russian fed  
drought France, UK, Portugal  
convective storms in France,  
Austria, Russian fed

...

to manage the risks in the present and to look what's going to happen in the future.  
need of a vision

WMO has addressed this need with its strategic plan and the “**vision and strategy for hydrology**” encompassing a number of initiatives to intersect this common needs: GBON, SOFF, WIS2.0/WHOS, HydroSOS, HydroHub, FFI..... To be implemented at regional level.

One for all: the **unified data policy** represents the starting point of this vision



# Thank you Merci



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