Festival dell'acqua 2022 un evento promosso e organizzato da UTILITALIA FEDERAZIONE UTILITIES acqua ambiente energia in collaborazione con smat gruppo

Industrial and applied research objectives

Edoardo Burzio

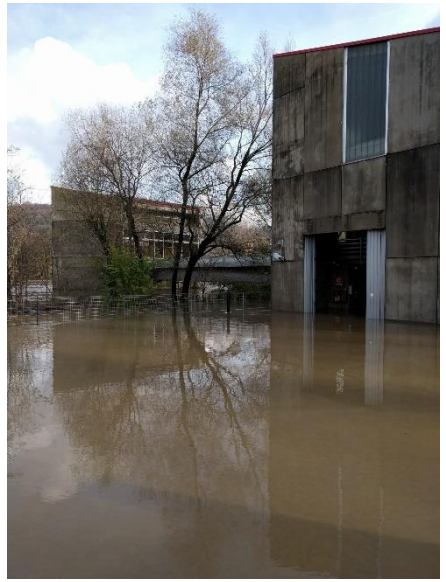
Centro Ricerche SMAT

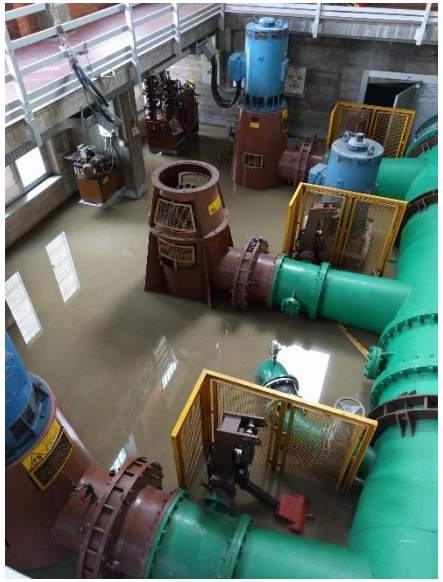
23/09/2022

Water in industrial applications

Rochemolles basin – Susa valley

Dora Riparia river in Turin - June 2022





Po river treatment plant – November 2016 flood

How much
water is there?

And **when** will it
became available?

Will it create any
issue with my plant?

Water in industrial applications

Challenges

- **Climate Change**
- Decarbonisation
- Digitalisisation
- Water Losses Reduction
- Energy Optimisation

Instruments

- Digital Modelling
- Machine Learning
- Forecasting
- Funding programmes (PNRR, EU, etc…)

Results

- Adaptation
- Mitigation
- Early Warning
- Actions

REACH

NEXT GENERATION DATA INCUBATOR

DATA PROVIDERS

smat gruppo

Arpa Piemonte Agenzia Regionale per la Protezione Ambientale

Città di Torino

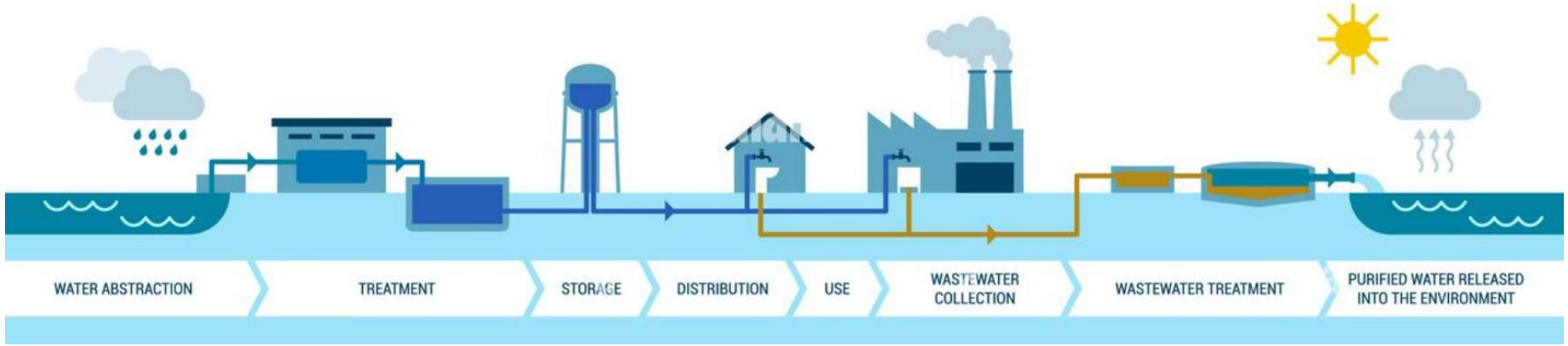
PARTNERS

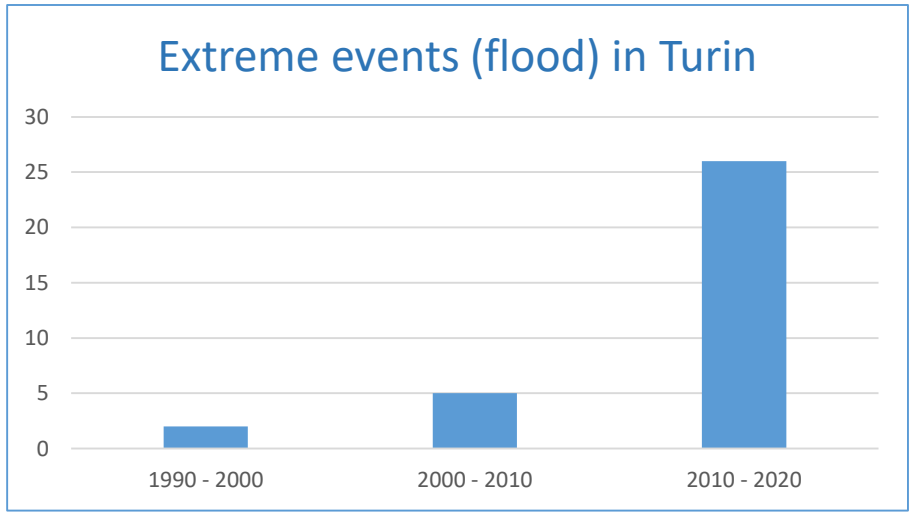
smat Centro Ricerche

WATERJADE value in every drop

CASE STUDY | Project River 4U - Flood Alert for Water Utilities: a Decision Supporting Tool

Urban Water Cycle

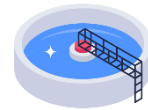




Source: ARPA Piemonte - https://www.arpa.piemonte.it/pubblicazioni-2/relazioni-tecniche/analisi-eventi/

1 Po river water treatment plant

100 + urban drainage outlet point



1 wastewater treatment plant

CURRENT APPROACH

Semi-automatic intervention

Poor spatial & temporal forecasting

PROBLEMS

Missing intervention

False Alert

Planning uncertainty

Time consuming / high costs

OPEN SOURCE TECHNOLOGY

In situ water level & meteo data

Local meteo-hydro forecast (ARPA)

Satellite data

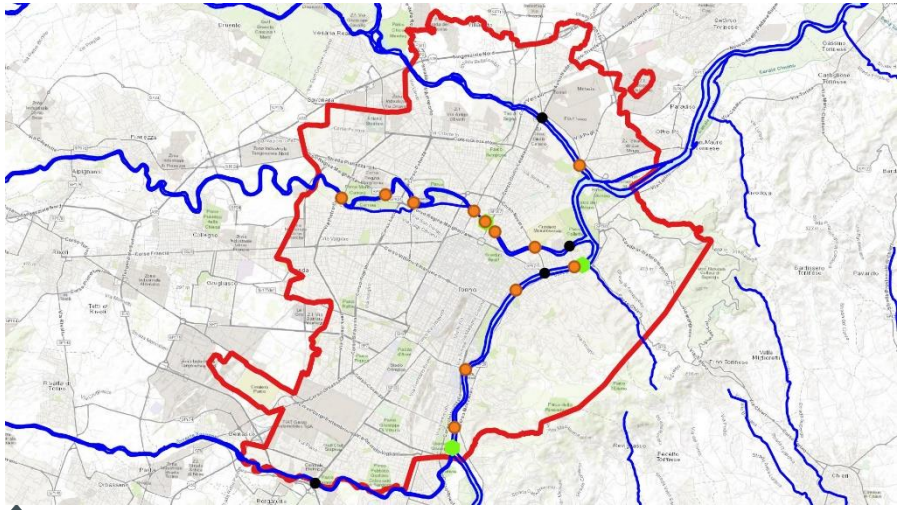
Basin Digital Twin

WATERJADE
value in every drop

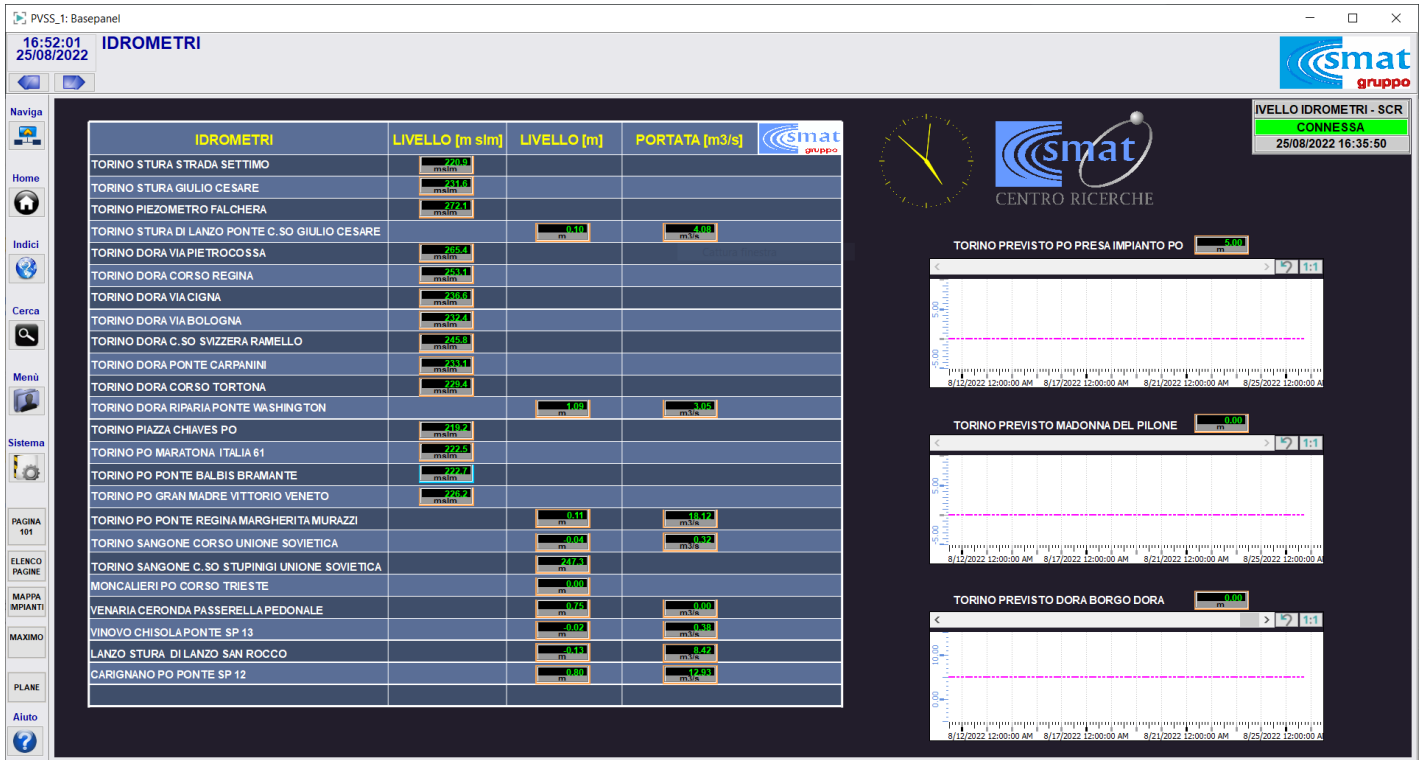
Machine Learning Algorithms

CASE STUDY | Project River 4U - Flood Alert for Water Utilities: a Decision Supporting Tool

RESULTS



SCADA integration



+6 h hourly forecasting (triggered)

Dedicated spatial forecasting

Flood Alert on selected hotspots

THANK YOU FOR YOUR ATTENTION

Edoardo Burzio
(SMAT)

Elisa Brussolo
(SMAT)

Ruggero Andreatta
(Waterjade)

Matteo Dall'Amico
(Waterjade)

… and a special thank to Raffaele Pugliese (SMAT) for SCADA integration