



Scuola Superiore
Sant'Anna



SMAQua
SMart ICT tools per l'utilizzo
efficiente dell'AcQua



2nd International LIFE REWAT Summer School

Digital water management and water-related agroecosystem services: geostatistics, hydroinformatics and groundwater flow numerical modelling

September 9th—20th, 2019
Scuola Superiore Sant'Anna
Pisa, Italy



2nd FREEWAT International Workshop

WELCOME!

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ACRONYM

RE



RECHARGE

RESTORE

REUSE/REDUCE

WAT

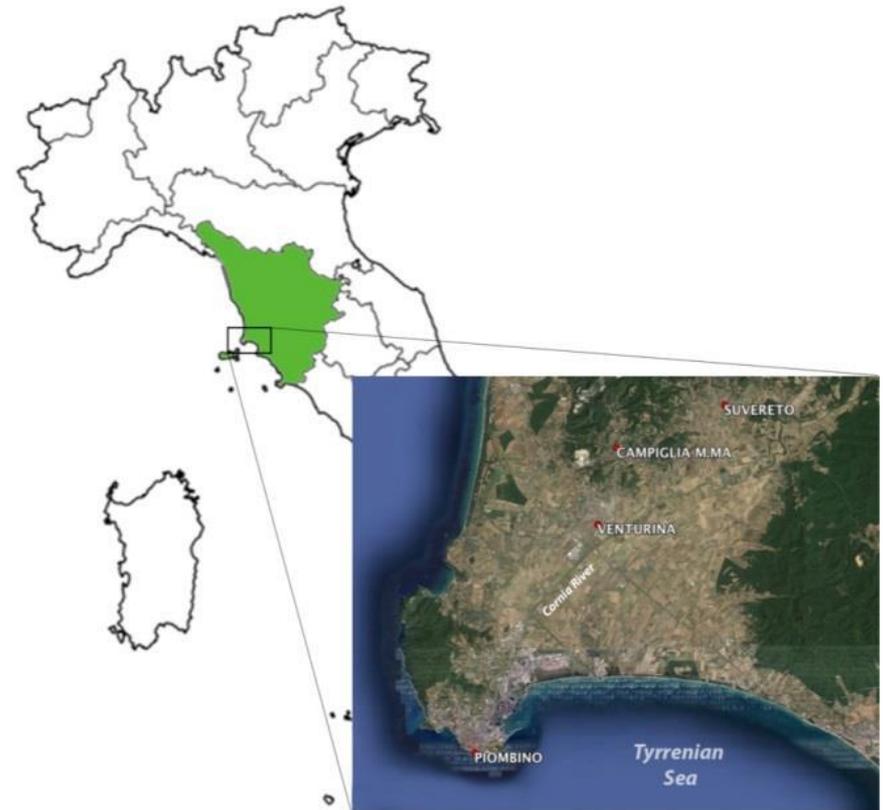


WATER

*To develop a participated strategy for integrated water resource management,
as a model of governance for sustainable socio-economic development
based on innovative demonstrators along with multistakes participatory
approaches*

VAL DI CORNIA (Tuscany – Italy)

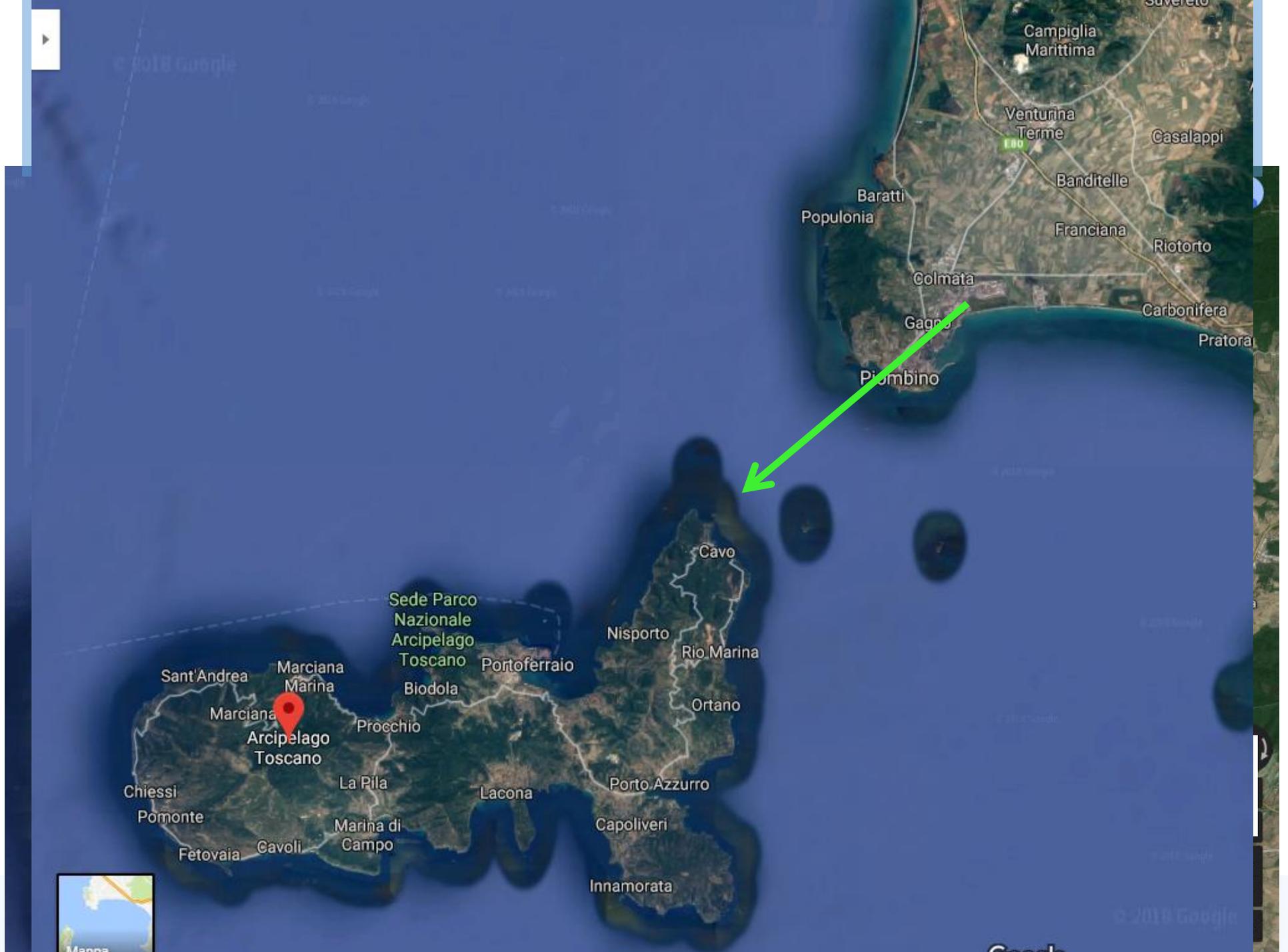
sustainable WATER management in the lower Cornia valley through demand REDuction, aquifer REcharge and river REstoration



BUDGET

Total amount: 2,278,609 Euro

Start date: 01/10/2015



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Google



Mappa

WHY REWAT?

WATER DEFICIT

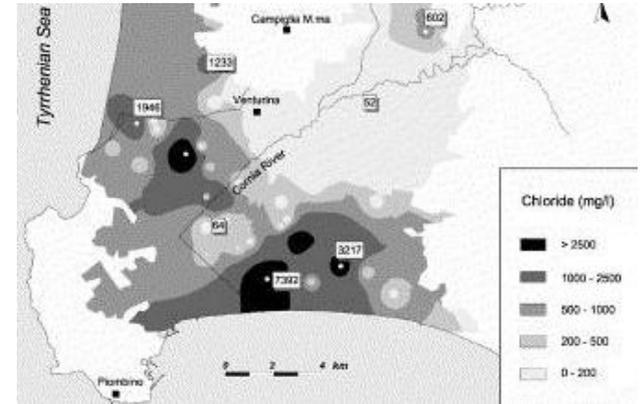
(1970-2000)

8.000.000 m³

GROUND WATER LEVEL DECREASE



SUBSIDENCE



SALTWATER INTRUSION

**Highly inefficient
agricultural
water use**





PARTNERS



Reclamation Authority,
project coordinator.



Sant'Anna
Scuola Universitaria Superiore Pisa

University, scientific and
technical coordination.
Dissemination and
awareness raising



Regione Toscana

Regional Authority,
Bringing decision
making



Water utility

Design of demonstrators.
Dissemination

CO-FINANCERS



Comune di Piombino



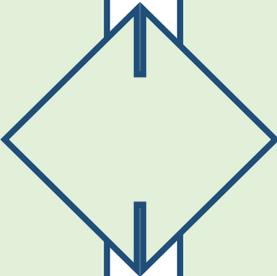
Comune di Suvereto



COMUNEDI
CAMPGLIAMARITIMA

1st pillar: PILOT ACTIONS

-  Precision irrigation
-  River Restoration
-  Treated Wastewater Reuse
-  Managed Aquifer Recharge
-  Leakage Reduction in Water Distribution systems



2nd pillar: GOVERNANCE

Capacity building

CONTRATTO DI FIUME CORNIA

Participation

Policy





MANAGED AQUIFER RECHARGE

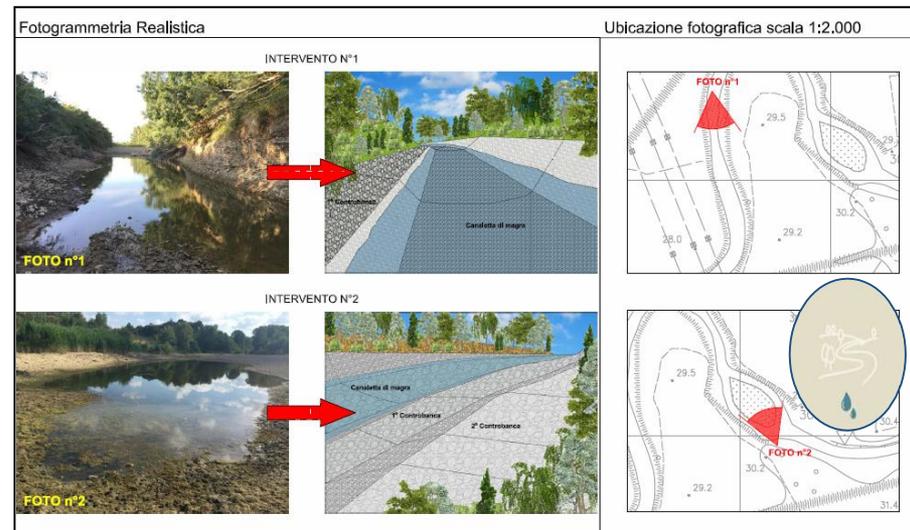


RENDERING VASCA DI SEDIMENTAZIONE E INFILTRAZIONE

Expected results

- Increase storage of max 2 Mm³/y
- Combat saline intrusion
- Testing new Italian regulation on MAR

RIVER RESTORATION



Expected results

- Increase 20% active riverbed
- Longitudinal continuity
- Flood risk reduction

Modeling in REWAT

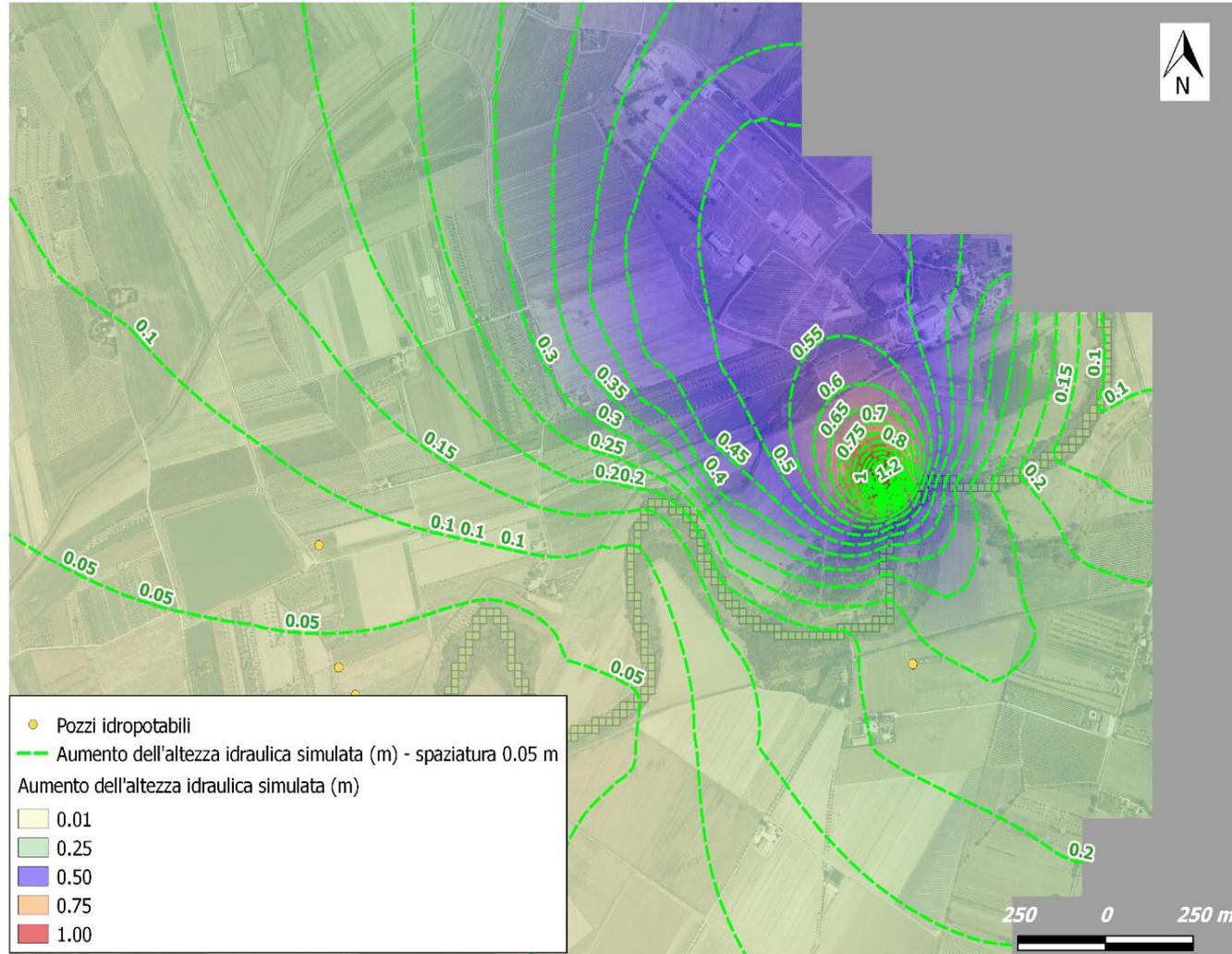
Expected head increase



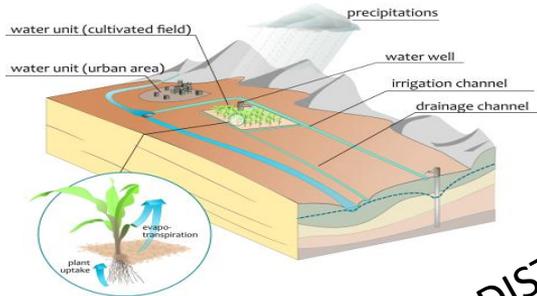
www.freewat.eu

After 200 days simulation

0.05 m³/s recharge
(≈ 900k m³)



FREEWAT architecture



USGS
science for a changing world
MODFLOW and Related Programs (MT3DMS, SEWAT, UCODE, etc.)

SPACE AND TIME DISTRIBUTED DATA

UPSCALING from cell results
WATER MANAGEMENT AND PLANNING MODULE

Observation Analysis Tool

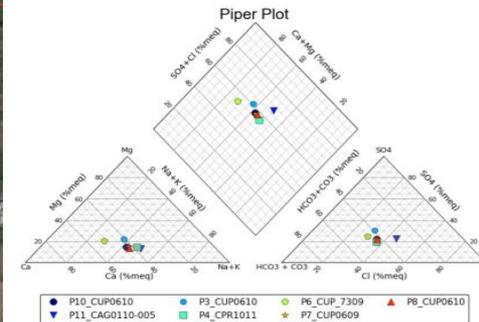
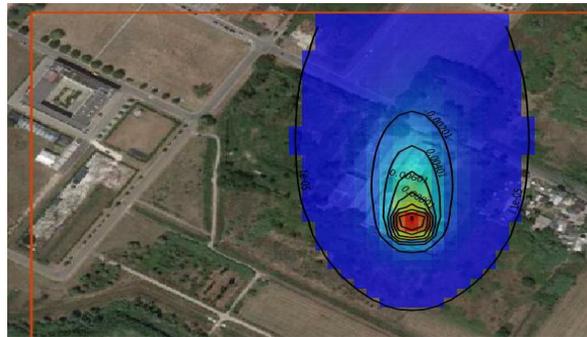
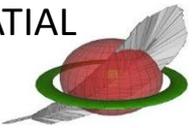
Surface and Groundwater Flow Simulation tools
Water quality simulation and analysis

Rural water management module

Calibration
Sensitivity Analysis
Parameter estimation



GIS AND SPATIAL DATABASE



Why this workshop?

Find input for sustainable water resource management of the Val di Cornia

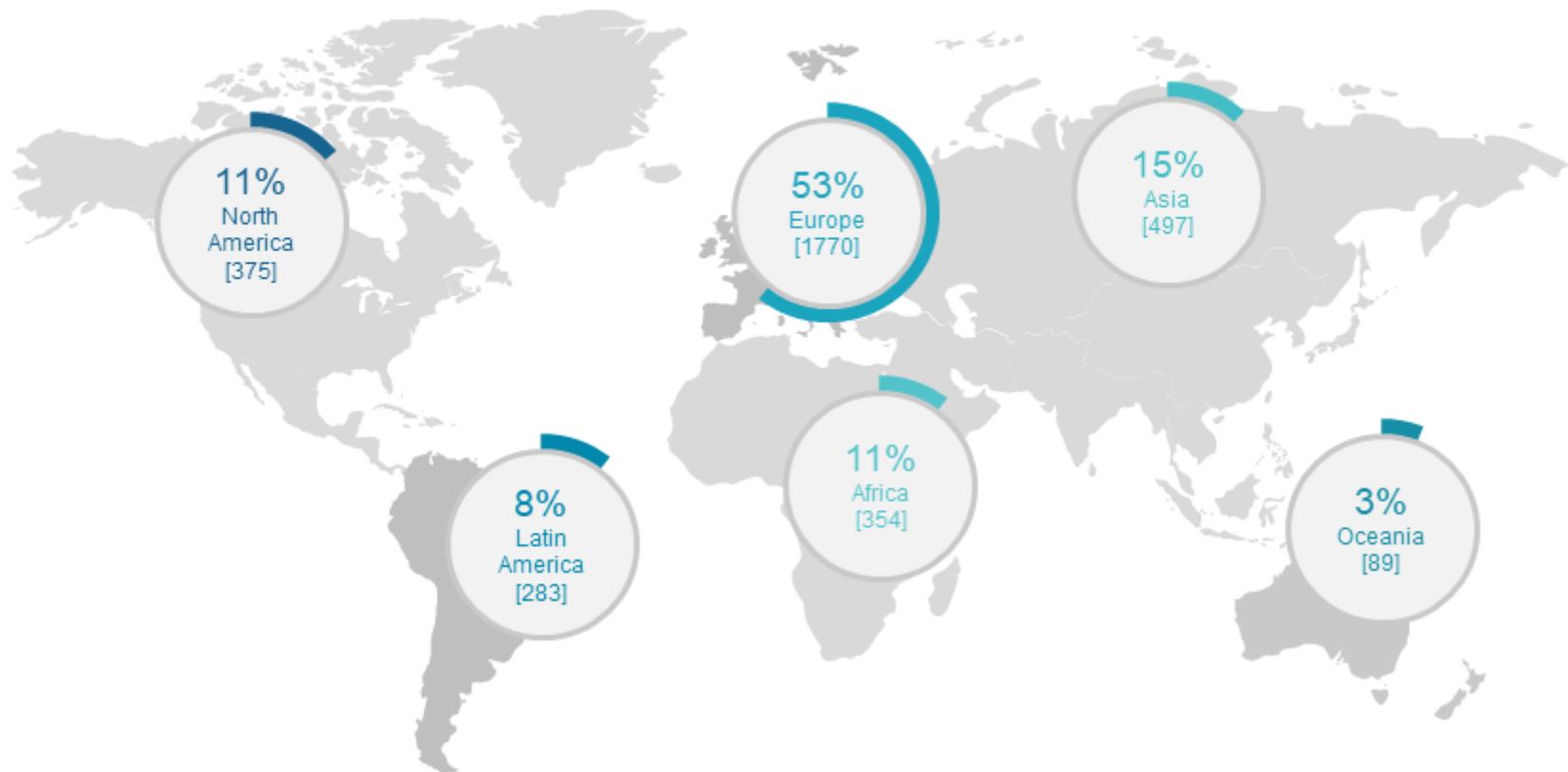
State the importance of ICT tools for water resource management

Check how FREEWAT developed in the last two years

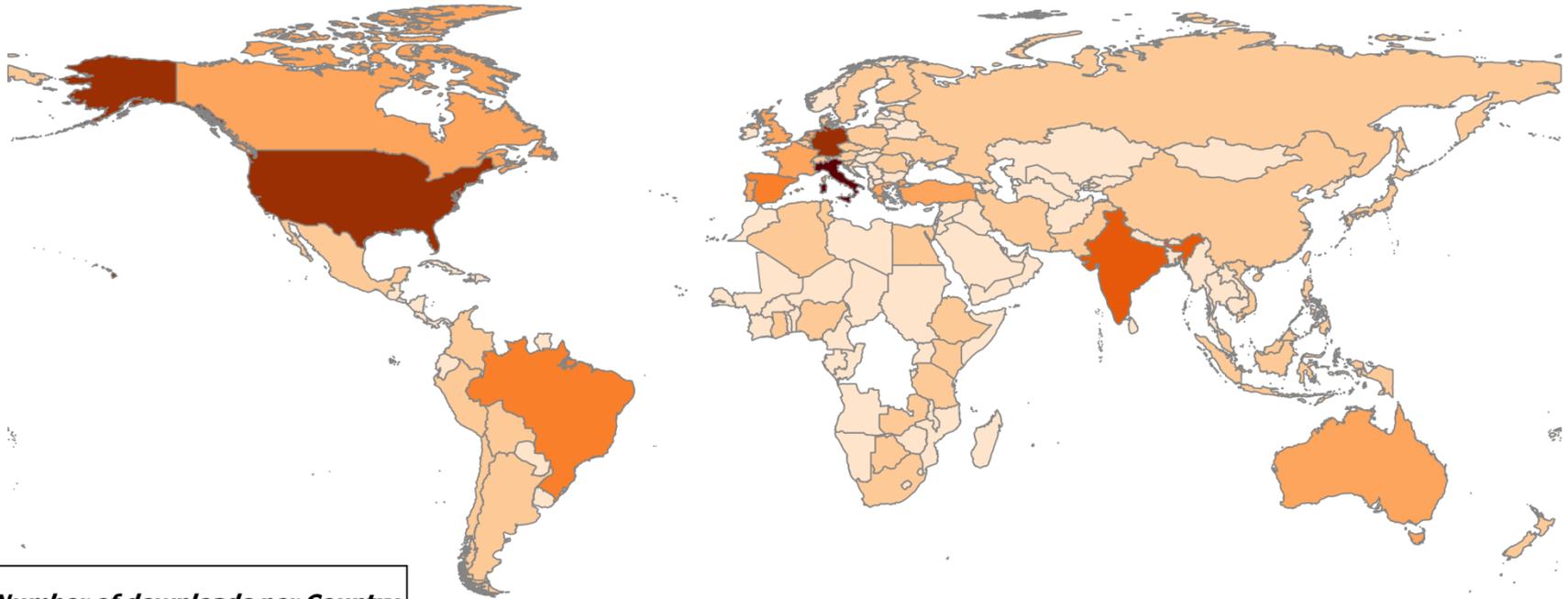
How is it FREEWAT maintenance and development going on

The state of the play/1

Downloads per continent



The state of the play/2



Number of downloads per Country

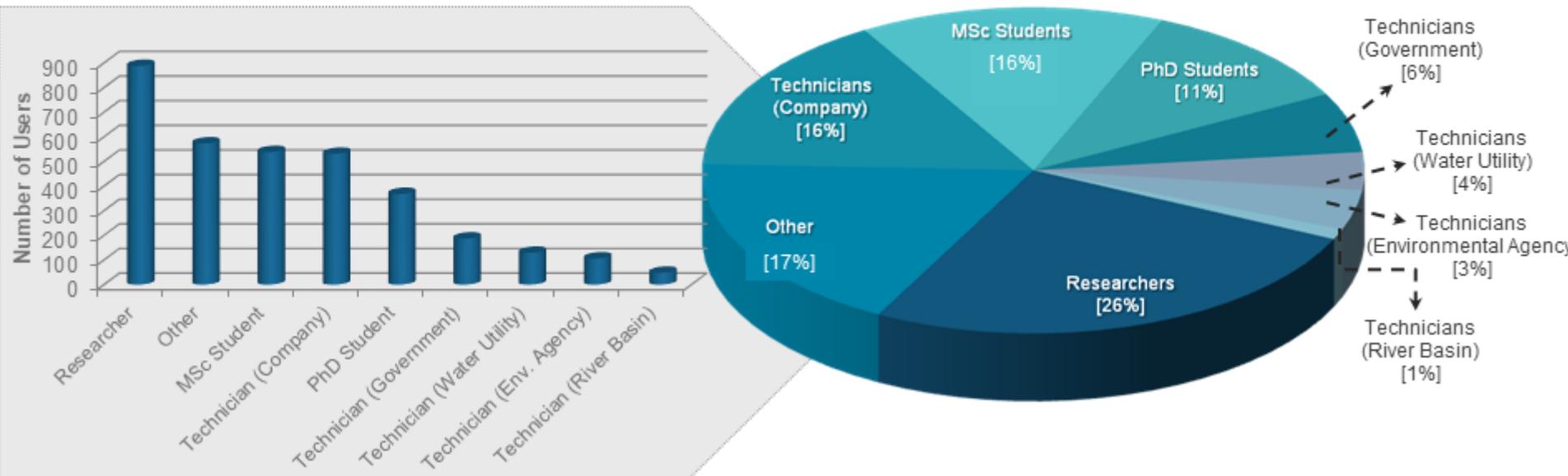
-  no downloads
-  1 - 10
-  10 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  200 - 250
-  250 - 500
-  >500

The state of the play/3

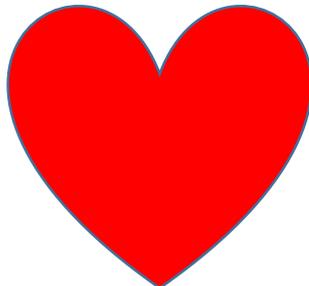
Download purposes



Role of FREEWAT Users



FREEWAT
LOVERS!



WE WANT YOU!

LIFE REWAT project partners



LIFE REWAT project co-financers



Supported by



SMAQua

Smart ICT tools per l'utilizzo efficiente dell'AcQua

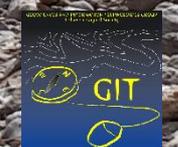


University of Applied Sciences and Arts of Southern Switzerland

SUPSI



Patronage



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