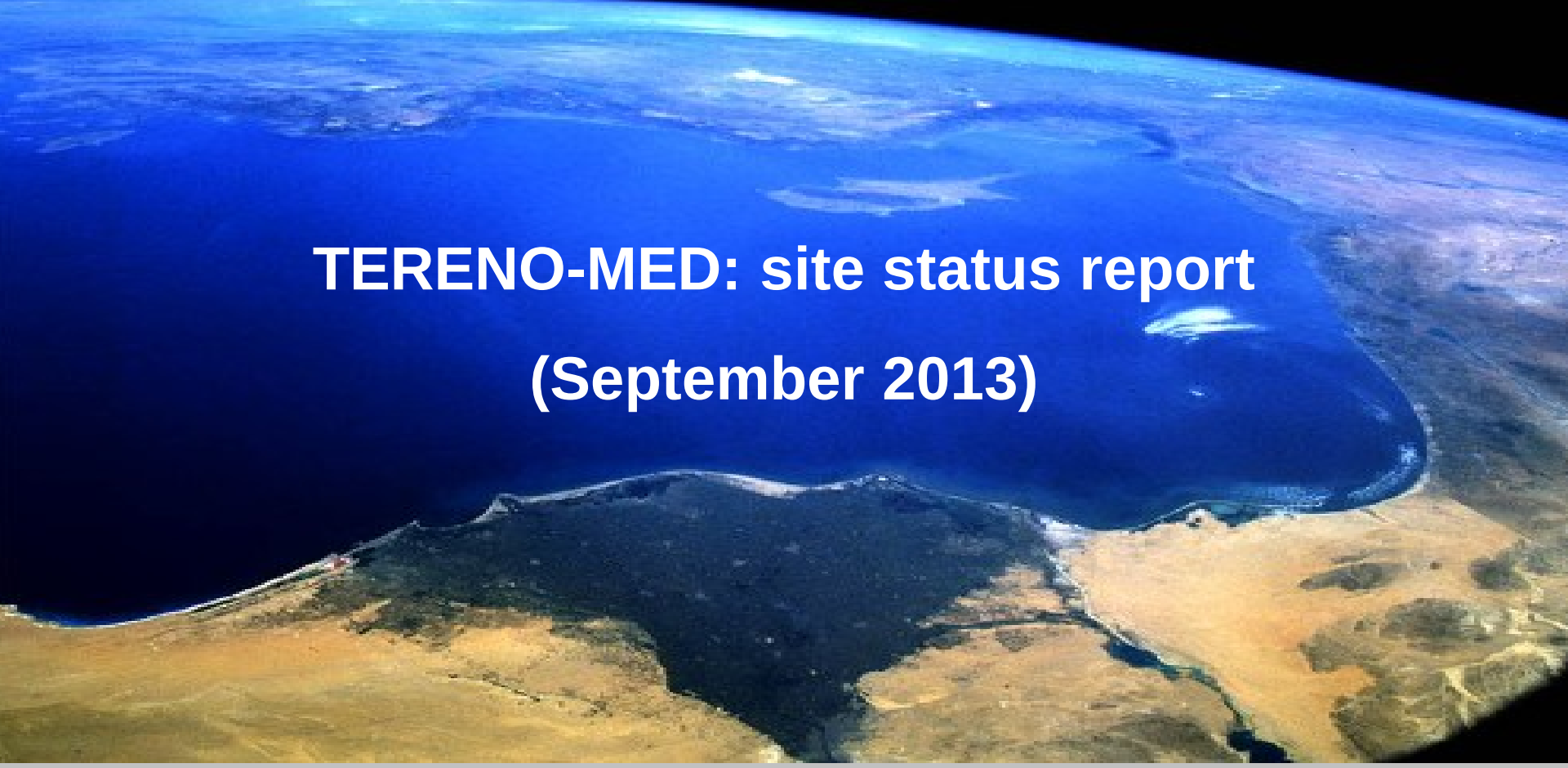

TERENO-MED: site status report (September 2013)

UFZ: **Jan Friesen**, Elisabeth Krüger, Georg Teutsch

FZJ: Heye Bogena, Anusuriya Devaraju, Harry Vereecken

NTUA/ UFZ: Andreas Kallioras

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TERRESTRIAL ENVIRONMENTAL OBSERVATORIES IN THE MEDITERRANEAN

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Objectives

- Build long-term **Mediterranean monitoring & research network**
- **Integrated observatories** in 6-8 **mesoscale** (>100 km²) river **catchments**
- Specific water-related problem of **high societal relevance**
- **Data made accessible through TERENO-TEODOOR**
- Investigate **impacts of global change on water** resources **quality and quantity**, ecosystems in **human-influenced** catchments under water scarcity
- Scientific concept **builds on local expertise and capacities** & **national TERENO concept**

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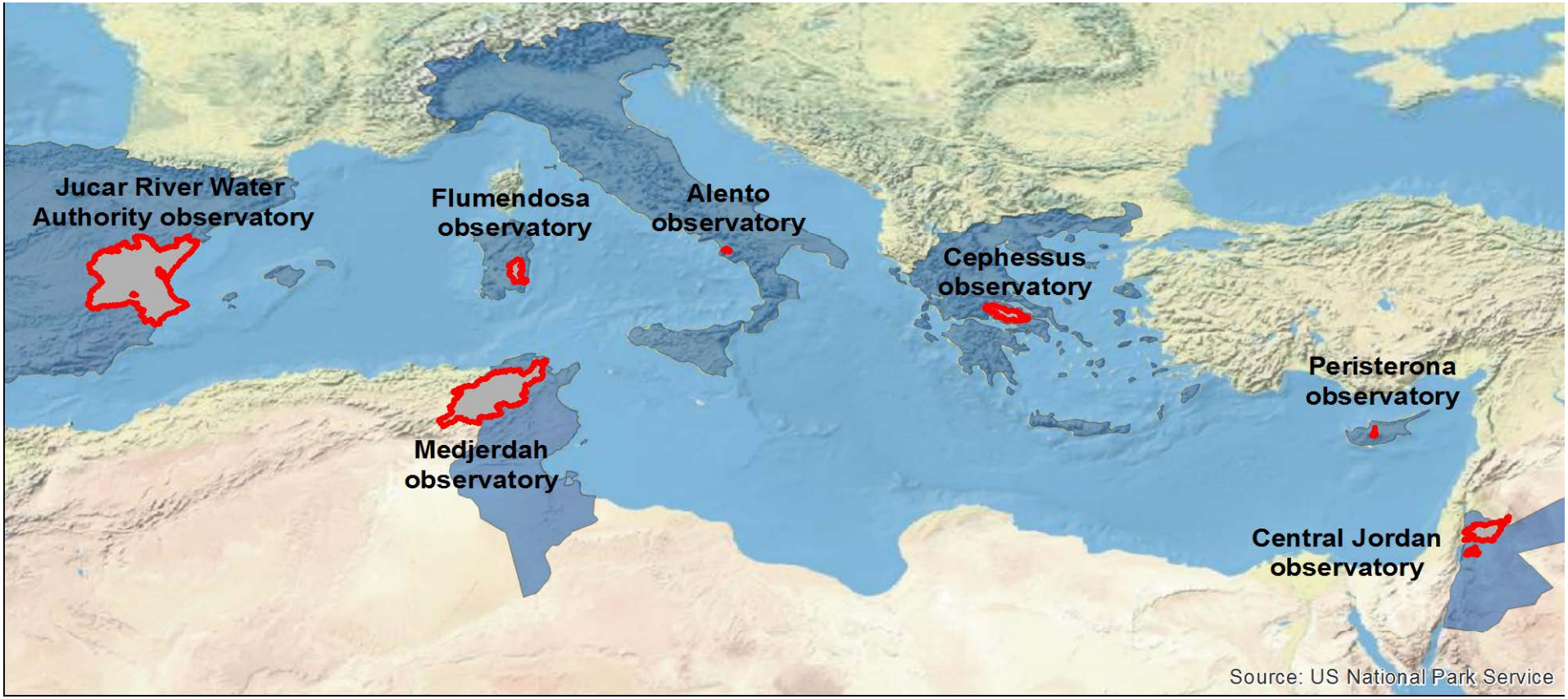
Potential observatories



Peristerona catchment, Cyprus
PI **Manfred Lange**, Cyprus Institute

Flumendosa catchment, Sardinia, Italy
PI **Roberto Deidda**, University of Cagliari

Jucar Water Authority Region, Valencia, Spain
PI **Felix Frances**, Technical University of Valencia

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Proposal overview

Site	Focal points	Status	Potential contra
1. Cyprus (Peristerona)	Water balance, Water quality, nitrate pollution/ modeling, Hydrochemistry	Step 6.) Contract negotiations	**Science**: Cyprus Institute **Agencies**: Ministry of Agriculture – Water Development Department (WDD), Geological Survey Department (GSD), Cyprus Meteorological Service, Forestry Department
2. Spain (Jucar)	Flash flood monitoring and prediction, droughts, forest fire,	4.) prepare final list of instrument and cost	**Science**: TU Valencia **Agencies**: Jucar Water Authority, Spanish National Weather Service
3. Italy (Flumendosa)	Monitoring and prediction of flood events, water management, salt water intrusion and nitrate pollution	4.) prepare final list of instrument and cost calculation	**Science**: Univ. Cagliari, Univ. Padua **Private enterprise**: CRS4 **Agencies:** Water Authority Sardinia (ENAS), Forest Authority Sardinia (EFDS), hydrological Service (ADIS), Environmental Authority Sardinia (ARPAS)
4. Italy (Alento)	Water management, improving hydrological process understanding, soil erosion	2.) Proposal	**Science**: University of Naples, **Agencies**: Italian National agency for new technologies, Energy and sustainable economic development (ENEA)
5. Jordan (Jordan Rift Valley)	Water resource balancing	2.) Proposal	**Science**: Al Balqa-Univ., Jordan Univ., **Agencies**: National Water Agency, National Ministry for Water
6. Tunesia (Medjerda)	Water management, Water resource balancing, water quality management	1.) Contacting potential groups and first site visit	**Science**: Water research and technology center (CERTE), National Agricultural Institute (INAT), National School of Engineering for Mechanic and Hydraulic (ESIER), **Agencies**: National Water Authority (DGRE), National Ministry for Science, National Ministry for Agriculture and Water Resources
7. Greece (Cephessus)	Water resource balancing	1.) Contacting potential groups	**Science**: National Technical University of Athens (NTUA) **Agencies**: National Water Authority (EDAP)

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Peristerona catchment, Cyprus

PI **Manfred Lange**, Cyprus Institute

Area: 112 [km²]

MAP: ~700 [mm]

Elevation: 440 – 1543 [m]

Main topics

- Water balance
- Groundwater monitoring
- Sea water intrusion
- 'Physically based model for rainfall-runoff processes in a Mediterranean mountainous watershed under changing environmental conditions'
- 'Understand changing biochemical processes in a semi-arid Mediterranean catchment (forest cover on shallow/ stony soils)'

Planned measurements

Climate stations

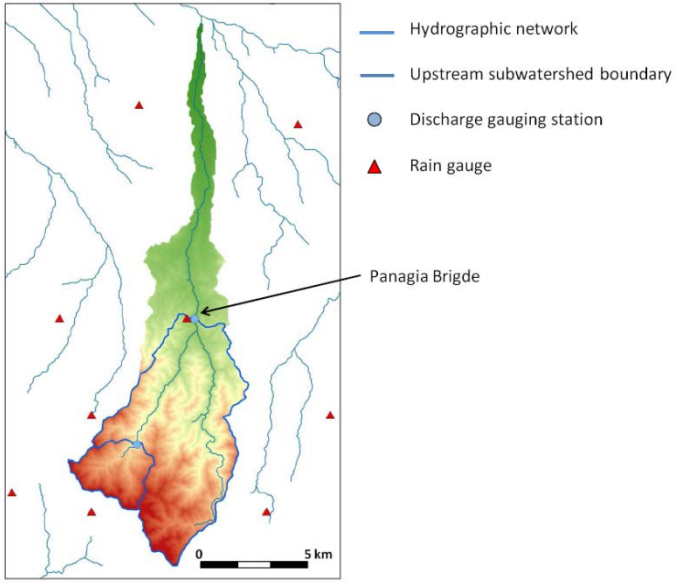
Runoff

Groundwater monitoring (incl. water quality)

Rain scanner

Existing models

PRECIS/ WRF (regional climate model)



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Jucar Water Authority Region, Valencia, Spain

PI **Felix Frances**, Technical University of Valencia

Area: 43.000 (20 & 128) [km²]

MAP: ~500 [mm]

Elevation: 135 – 900 [m]

Main topics

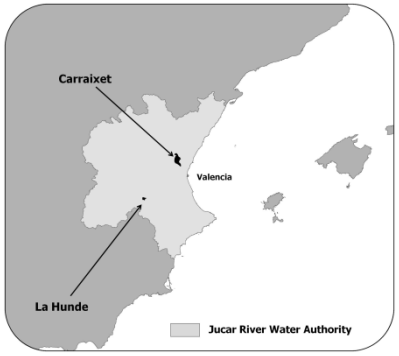
- Hydrological modeling (large scale, distributed)
- Water quality
- Rainfall-Runoff (flash floods, temporal rainfall downscaling)
- Forest hydrology (mainly in view of forest fires and forest health)
- Nitrate pollution (via abandoned irrigation wells)

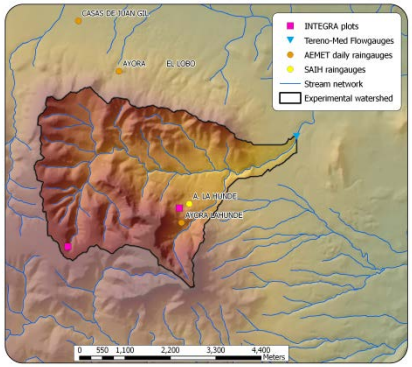
Planned measurements

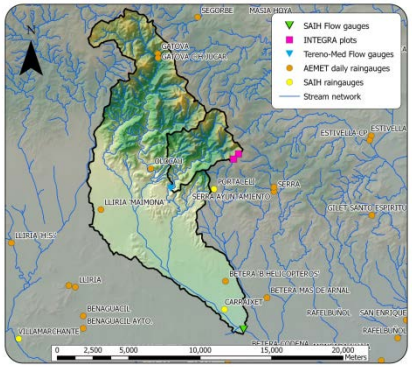
Climate stations
Runoff
Groundwater monitoring
Rain scanner
Forest water budget (Sap flow, throughfall)
Soil moisture (network)

Existing models

Hydrological model TETIS (F Frances)
Groundwater modeling (J Gomez-Fernandez)







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Flumendosa catchment, Sardinia, Italy

PI **Roberto Deidda**, University of Cagliari

Area: 1826 [km²]

MAP: ~800 [mm]

Elevation: 0 – 1834 [m]

Main topics

- Hydrologic similarity across different scales (spatial scales, vegetation, climate, land use)
- Forest hydrology (forest management monitoring)
- Flash flood monitoring (rainfall)
- Online reservoir management (water transfer between reservoirs / competitive water use)
- Sea water intrusion

Planned measurements

Climate stations

Runoff (flow, water quality)

Groundwater monitoring (multiparameter probes/ water quality)

Rain scanner

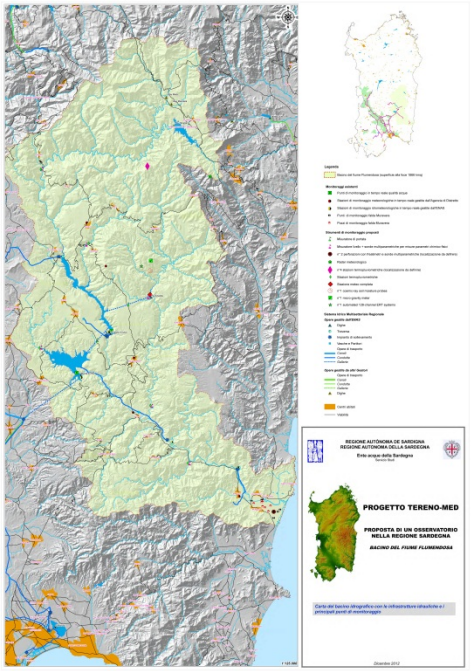
Geophysics (ERT, Emi, GPR, µG)

Cosmic ray probes (soil moisture)

Existing models

CATHY (hydrogeology)

CODESA (density driven flow)



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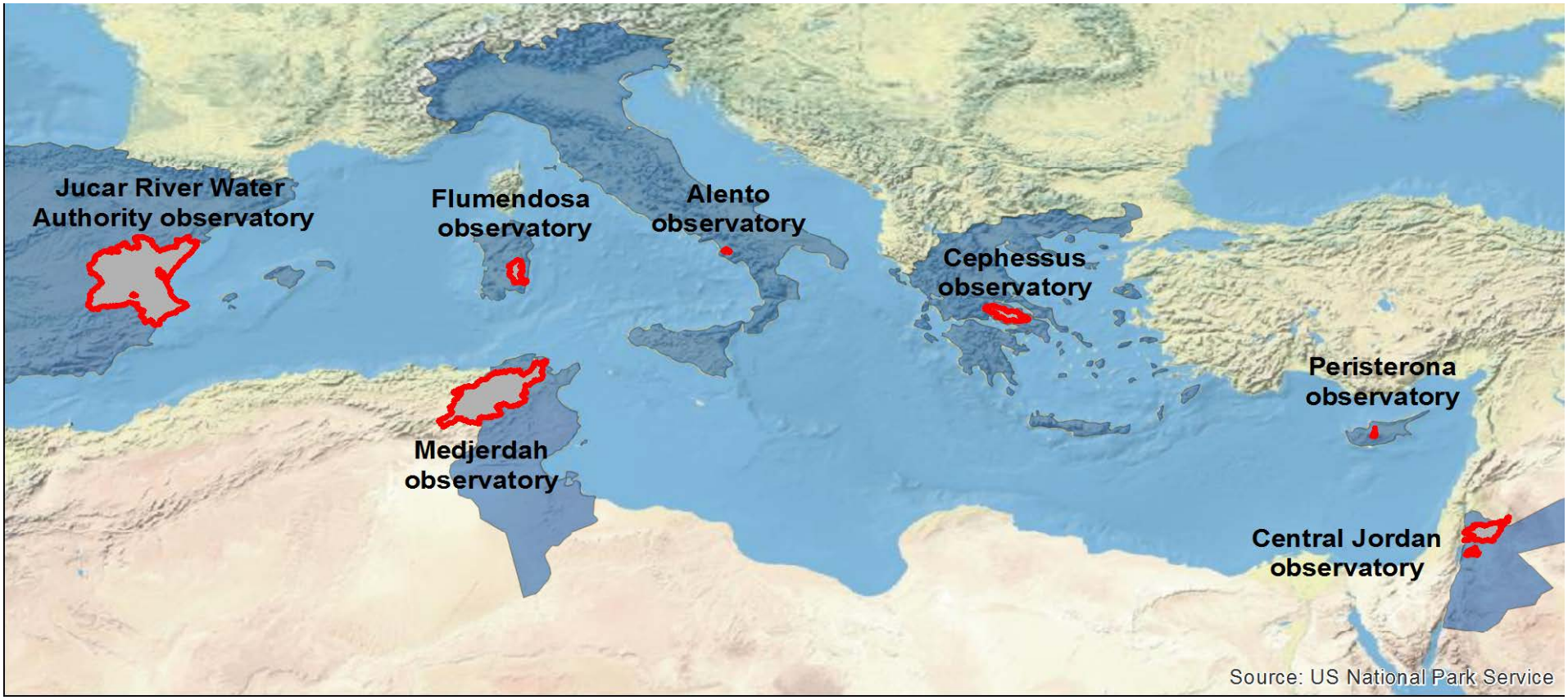

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