

EXAMPLE OF WIGOS-RELATED ACTIVITY IN REGION VI

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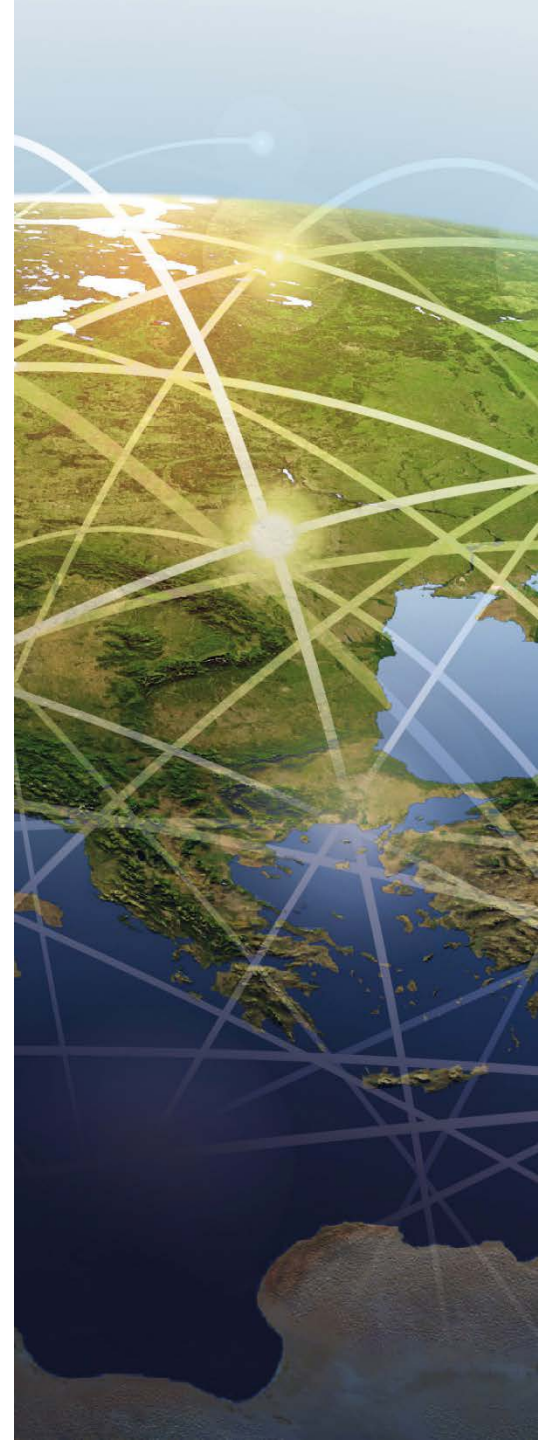
WORLD
METEOROLOGICAL
ORGANIZATION

**South East European Multi-Hazard
Early Warning Advisory System
(SEE-MHEWS-A)**

**Phase I
Implementation Plan**

PROJECT HIGHLIGHTS

- **Overall Objective:** Achieved better collaboration between the NMHS, which will contribute to improved protection of life and property in South-East Europe.
- **Main outputs:**
 - Detailed implementation plan for a regionally owned Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) prepared and adopted by NMHS directors.
 - Consensus of Directors of participating NMHS on the scope and technical content of the SEE-MHEWS-A;
- **Implementing organization:** WMO, project coordination by FMI
- **Funding:** USAID, 580 000 USD
- **Implementation period:** 12 months, September 2016 – August 2017



PROJECT ACTIVITIES

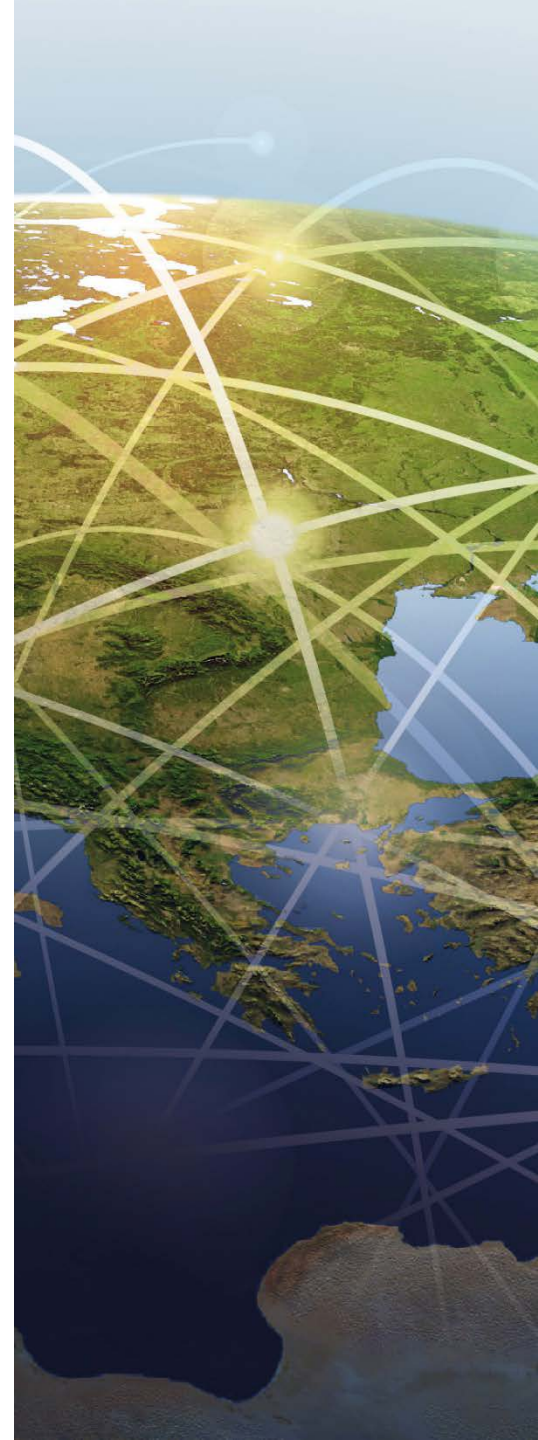
JANUARY-MAY 2017

Thematic workshops

Thematic workshops will be organized with the aim of identifying the needs and potential solutions relevant to the development of the SEE-MHEWS-A including topics on:

- Forecasting and warning provision;
- Numerical weather prediction and hydrological modelling;
- OBS + Telecommunications and IT infrastructure.

The last workshop will concentrate on the finalization of the implementation plan.

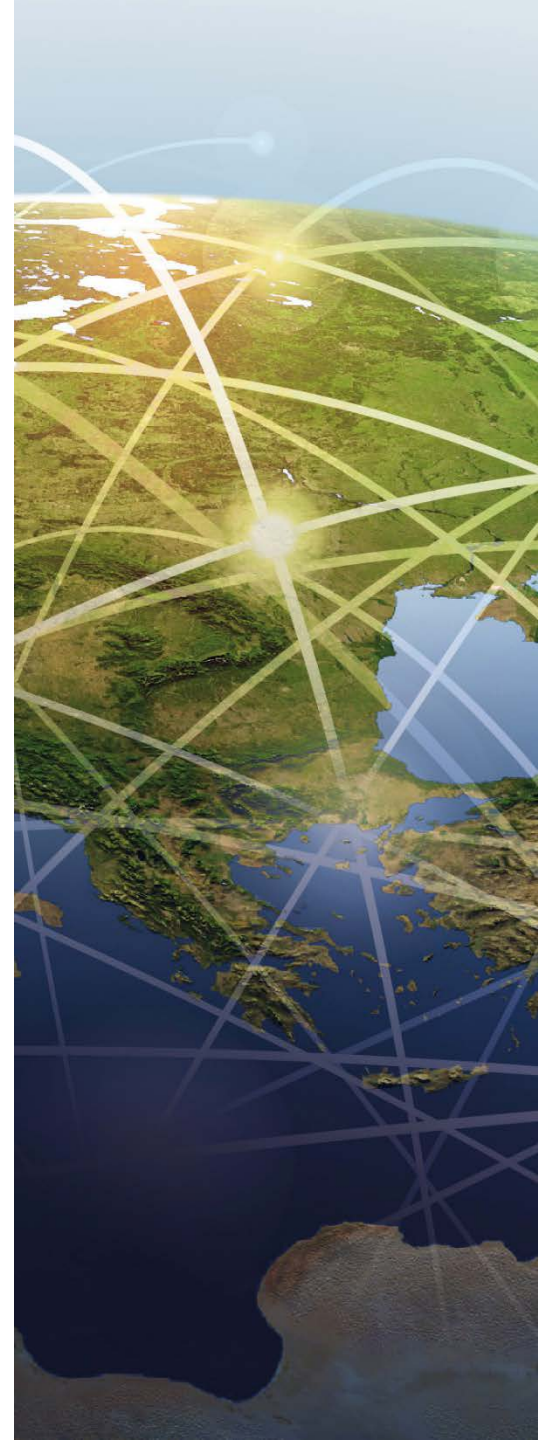


PROJECT ACTIVITIES

JUNE 2016

Final regional conference

- Acceptance of Implementation Plan and the technical specifications.
- Memorandum of Understanding on collaborative work towards the regionally owned MHEWS-A approved by Directors of the NMHS.
- Discussions with potential donors.
- Support to the organization of the ICSEED-17.



PROJECT CONTACTS

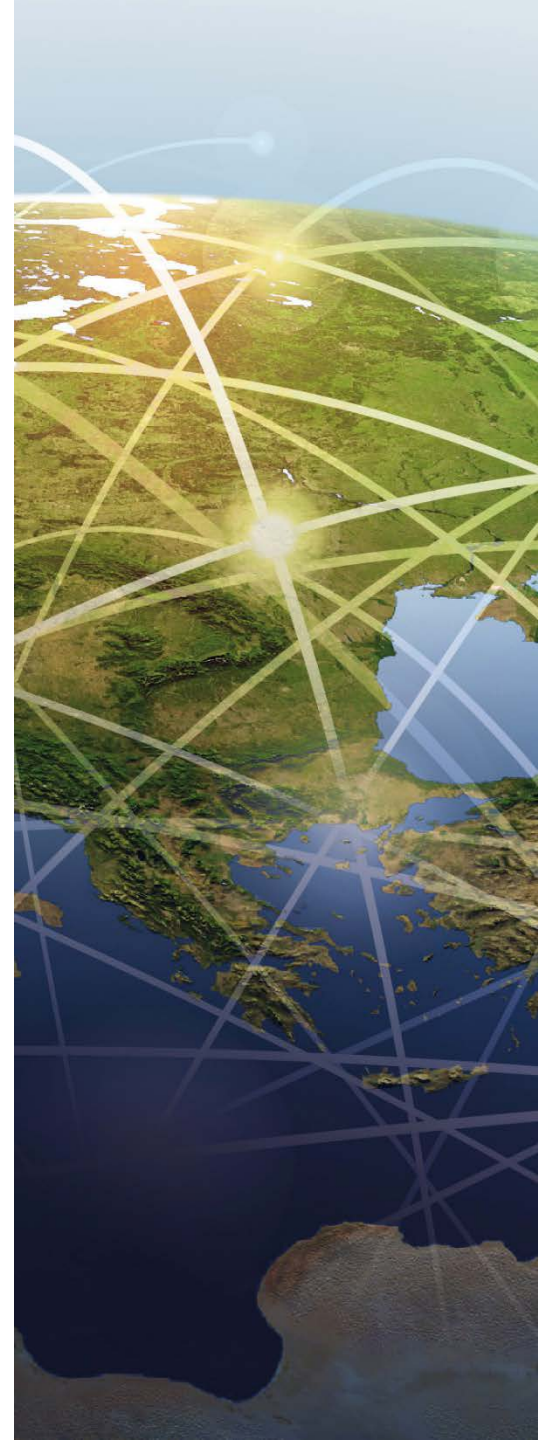
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Final Conference of the Phase I of SEE-MHEWS-A Project

SEE-MHEWS-A Implementation Plan

(Ljubljana, Slovenia, 14-15 June 2017)



WMO OMM

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Organisation météorologique mondiale

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PROJECT HIGHLIGHTS

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- **Main outputs:**

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PROJECT PARTNERS

Participating meteorological and hydrological services during the 1st Phase:

Albania, Bosnia and Herzegovina, Croatia, Montenegro, Kosovo (UNSCR 1244/99), the former Yugoslav Republic of Macedonia, Serbia, Turkey, Slovenia, Bulgaria, Greece, Cyprus, Hungary, Romania, Moldova, Ukraine, Israel, Jordan and Lebanon.

Collaborators:

ECMWF, EUMETNET, EUMETSAT, ESSL, JRC, Copernicus, ISRBC, DMCSEE, SEEVCCC, RIC, Euro-Mediterranean Center on Climate Change, NWP consortiums, European and global NMHSs etc.

BACKGROUND

- Develop SEE-MHEWS-A Implementation Plan (IP) based on recommendations made at the SEE-MHEWS-A technical workshops
- Three workshops held:
 - SEE-MHEWS-A Forecasters Workshop, 7-9 Feb. 2017
 - SEE-MHEWS-A NWP Modelling Workshop, 8-9 March 2017
 - SEE-MHEWS-A ICT & OBS Workshop, 4-6 April 2017
 - Final reports available at: <https://public.wmo.int/en/projects/see-mhews-a>
 - **127 participants and 28 international experts** participated in the workshops
 - Discussions and contributions by potential contributing stakeholders (not all) for the design of the System
- Implementation Plan
 - Version 0.3 (final draft **for consideration**)
 - Several degrees of freedom and quite a few scenarios are possible
 - Project management structure to advice on pathway leading to a best possible (cost-effective) system design
 - So far **22** potential project participants (meteorological, hydrometeorological and hydrological services)
 - So far **38** potential contributing stakeholders identified
 - **Living document**

IMPLEMENTATION PLAN

1. Purpose of this Document

2. Introduction

- Rationale for SEE-MHEWS-A
- Objectives
- Major Hazards
- Project Management Overview
- Description of Implementation

3. Key Activities for SEE-MHWES-A Implementation

- Management of SEE-MHEWS-A Implementation
- Sub-Regional and RA VI Collaboration
- Collaboration with other relevant WMO projects and activities
- Observations
- Forecasting and Modelling
- Information and Communication

4. Implementation

- Activities, Deliverables (Table 4.1), Milestones, Costs (Table 4.2) and Risks

5. Capacity Development and Implementation Requirements by Project Participants needed to fully benefit from the Advisory System

6. Resources

7. Risks and Mitigation

Appendix 1: Regional Requirements for Observational Data and Products

Appendix 2: Regional Forecasters' Requirements for Model Outputs

Appendix 3: Summary of Proposal and Comments by Potential Contributing Stakeholders

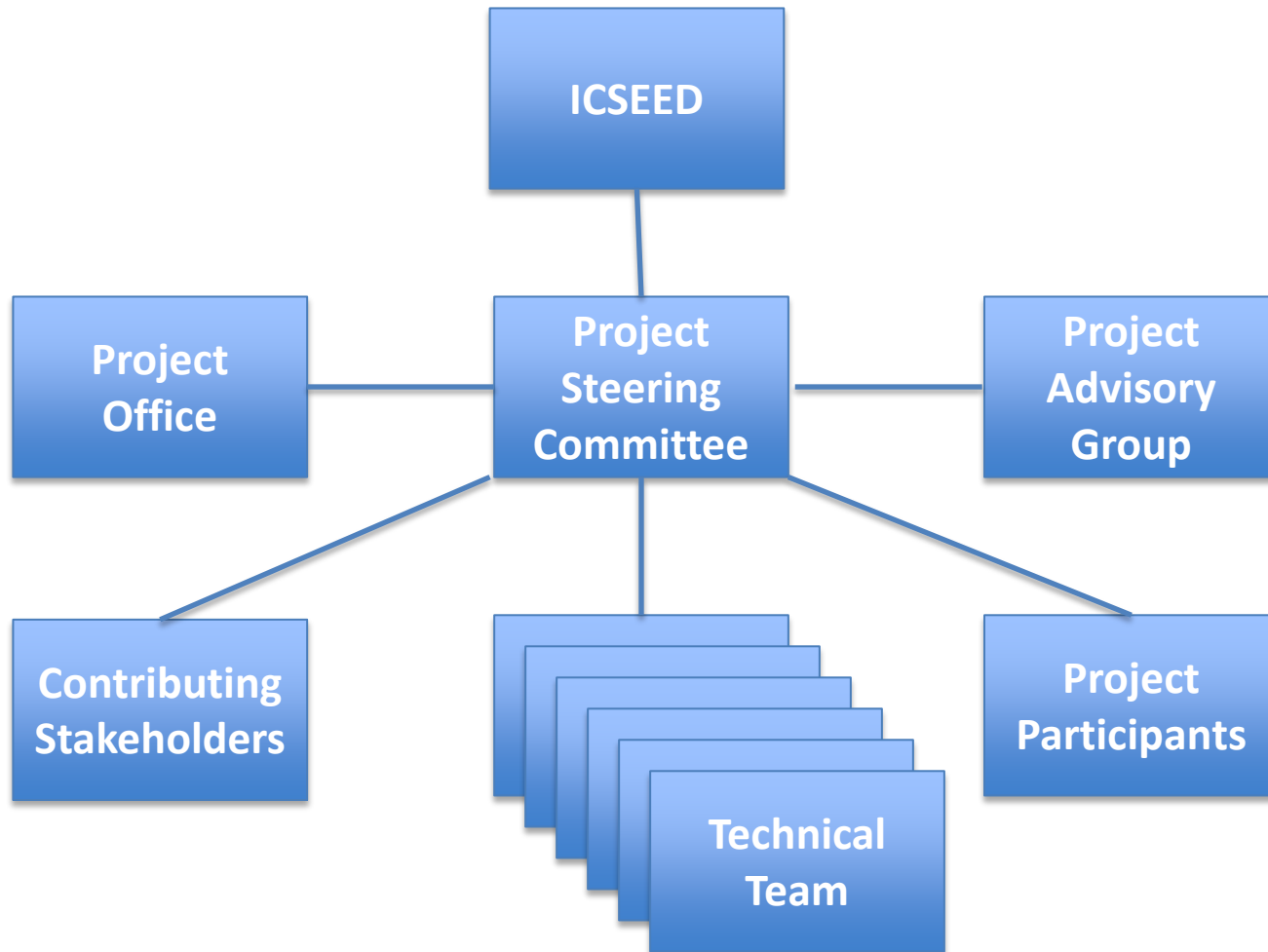
Appendix 4: Telecommunication Capabilities

Appendix 5: List of Acronyms

DESCRIPTION OF IMPLEMENTATION

- **Development** Phase (mid-2016 to mid-2017)
- **Resource** Mobilization Phase (mid-2017 to end-2017)
- **Implementation** Phase (2018 - 2022)
- **Testing** Phase (January - June 2023)
- **Operational** Phase (mid-2023 onwards)

PROJECT MANAGEMENT STRUCTURE



SYSTEM DESIGN

- Follows the **outcomes** of the three Project Workshops
- **Envisaged design** is to be implemented until 2023 when the SEE-MHEWS-A may become operational, and includes e.g.:
 - Use of cloud services
 - Sub-regional (joint operations) complementing national approach to operational activities
 - Reducing the differences in the sub-regional operational capacities
- Design is based on several **assumptions** that should be considered by the project management, such as:
 - Agreements with potential contributing stakeholders, e.g. NWP consortia or potential cloud services providers

Cloud provider

Centralized
Observational
Database (CODB)

Global Models
(ECMWF,GFS,NMMB,ICON)

Reg. Hydrological
Models
(EFAS,E-HYPE,HYPROM,
FFGS)

Nested A
(COSMO-EU/
ICON-EU)

Nested B
(ALADIN)

Nested C
(NMMB)

Reg. Marine Models
(CMCC models, Wave,
Tide, Storm surge
models)

SEE-MHEWS-A Common Information Platform (CIP)

MET
(Products)

HYDRO
(Products)

NOWCASTING
(Products)

Assimilation

Verification

WEB SERVICES
& TOOLS
(Dissemination,
Visualisation,
interactive tools,
software)

MARINE
(Products)

Data &
Products
(Catalogue)

WARNINGS
(Exchange)

F/COMMS
(Forecasters)

Project participants
(Met., Hydro., Hydro-Met. Services,
Water Authorities)

Products, Data & Comms

Ntl. users

Contributing stakeholders

NWP Consortia

WMO Regional Centers
& Programmes

COPERNICUS
(CMEMS, CAMS,
EFAS, EFFIS,
C3S)

ECMWF

EUMETNET

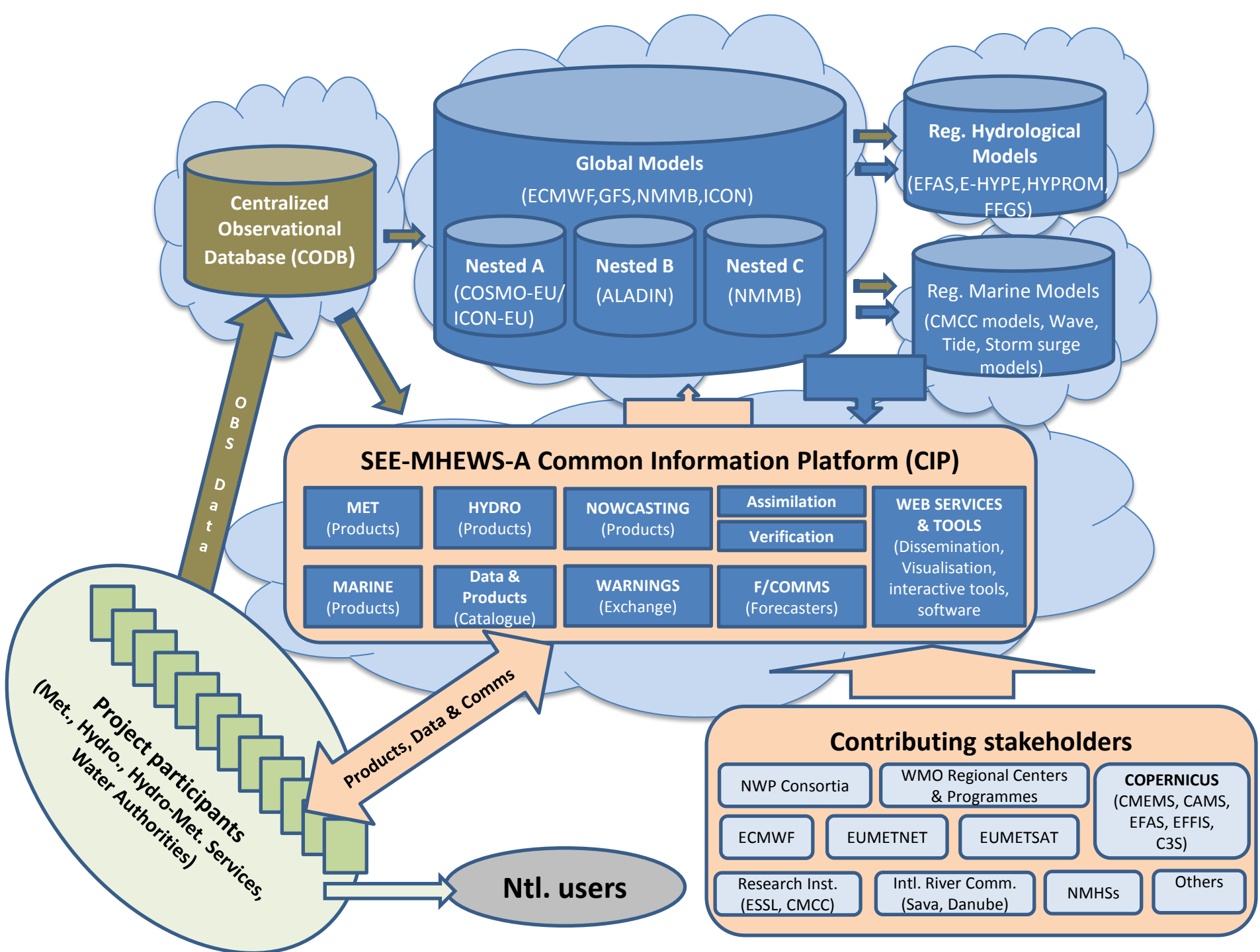
EUMETSAT

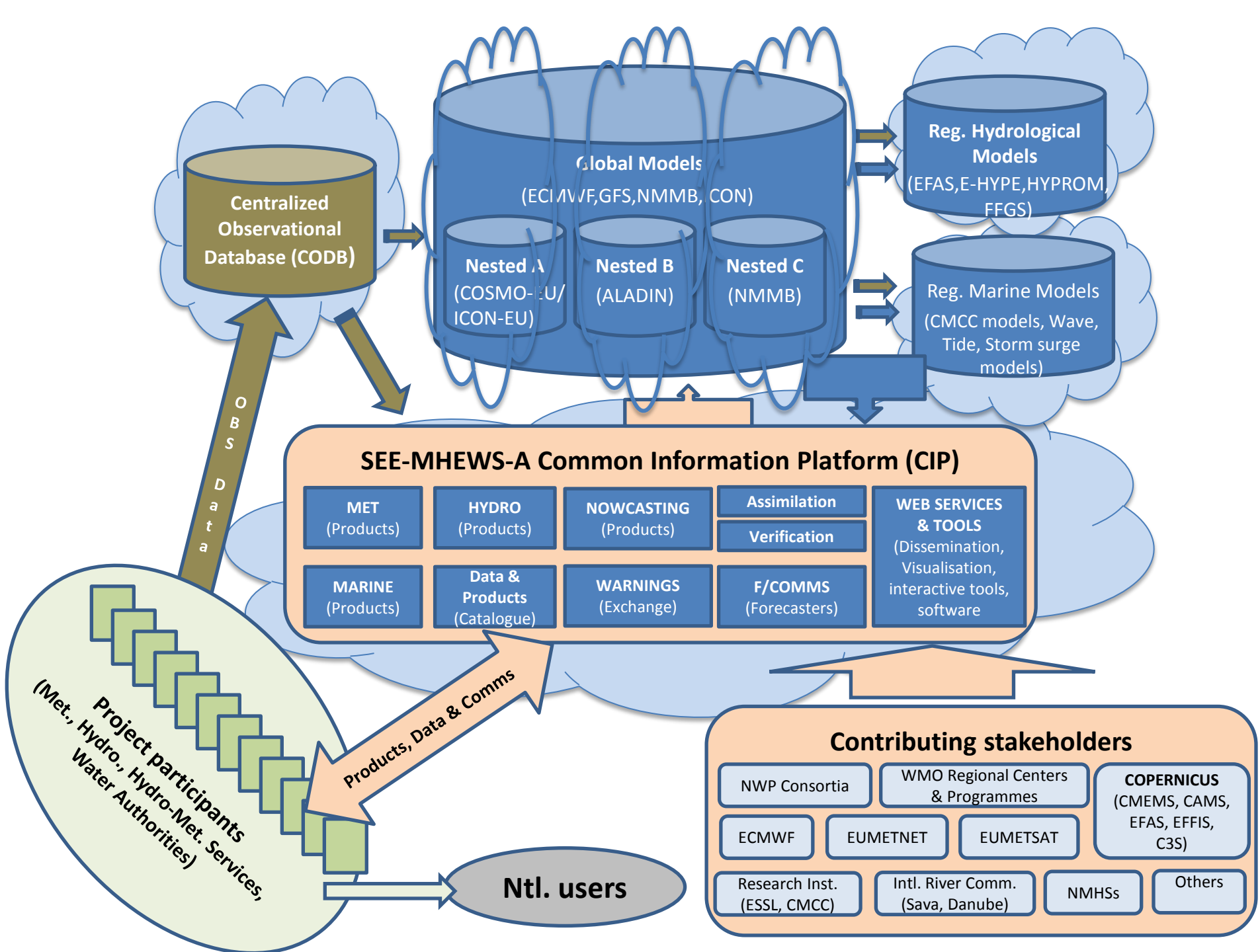
Research Inst.
(ESSL, CMCC)

Intl. River Comm.
(Sava, Danube)

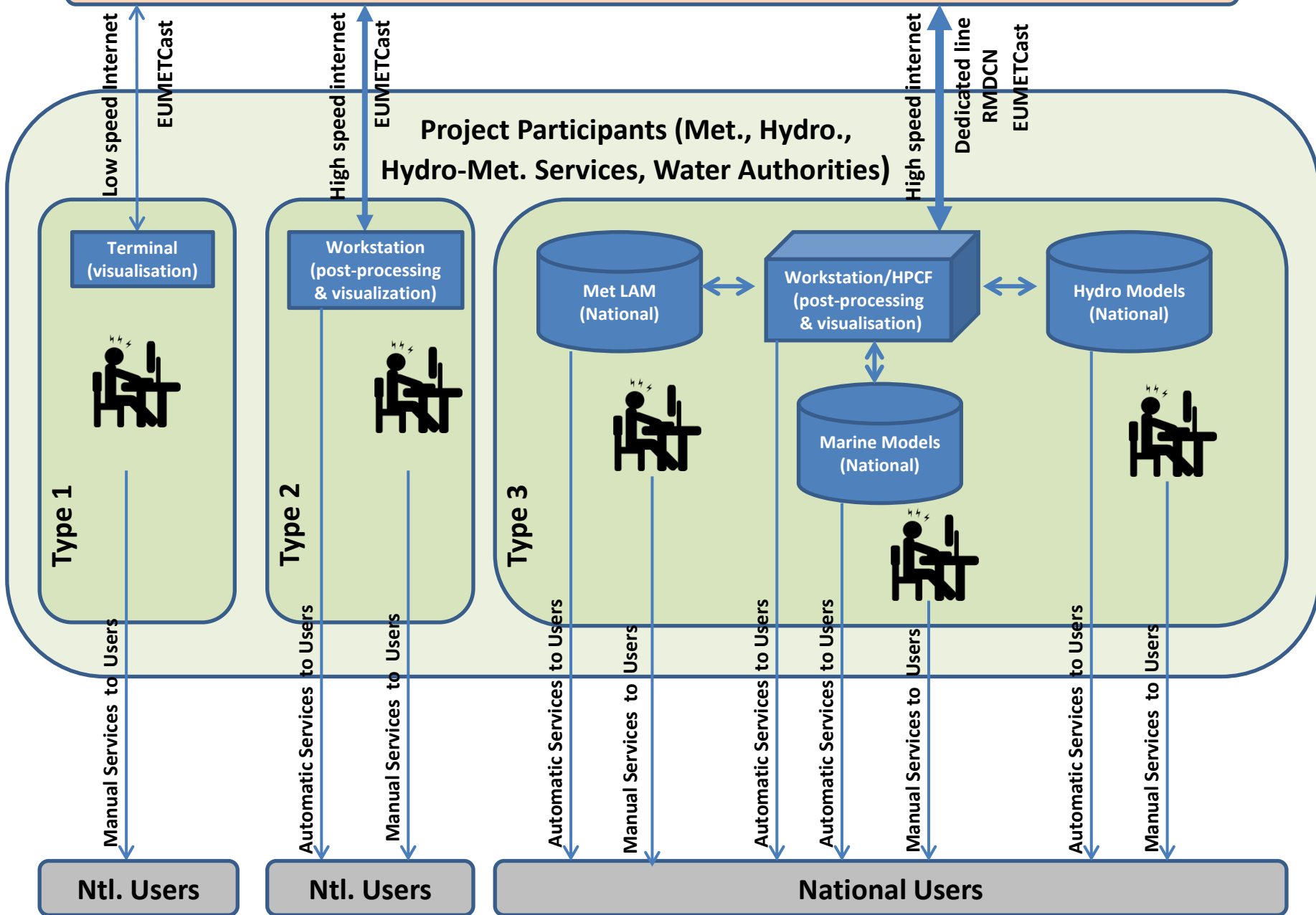
NMHSs

Others



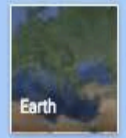
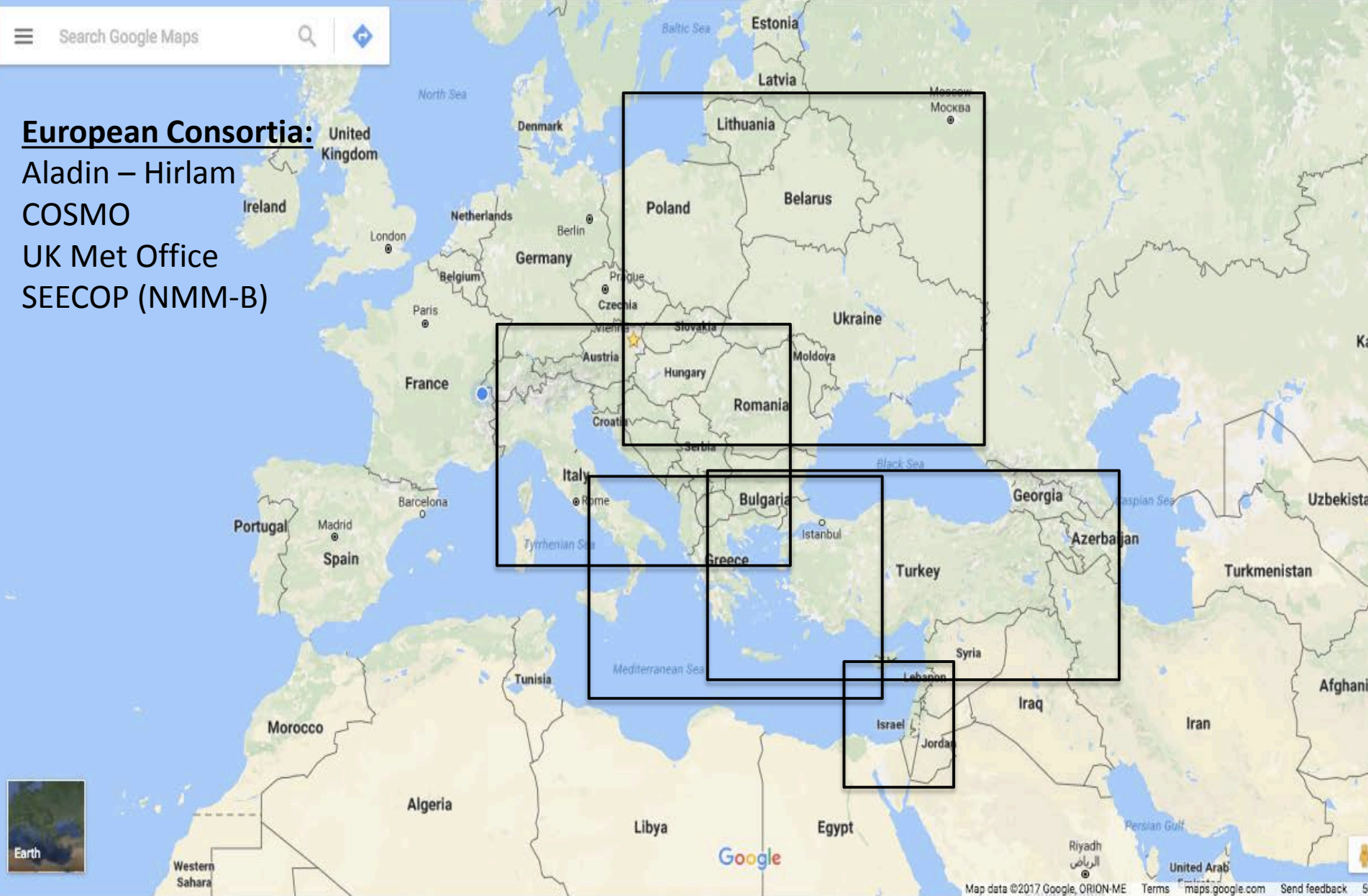


SEE-MHEWS-A Common Information Platform



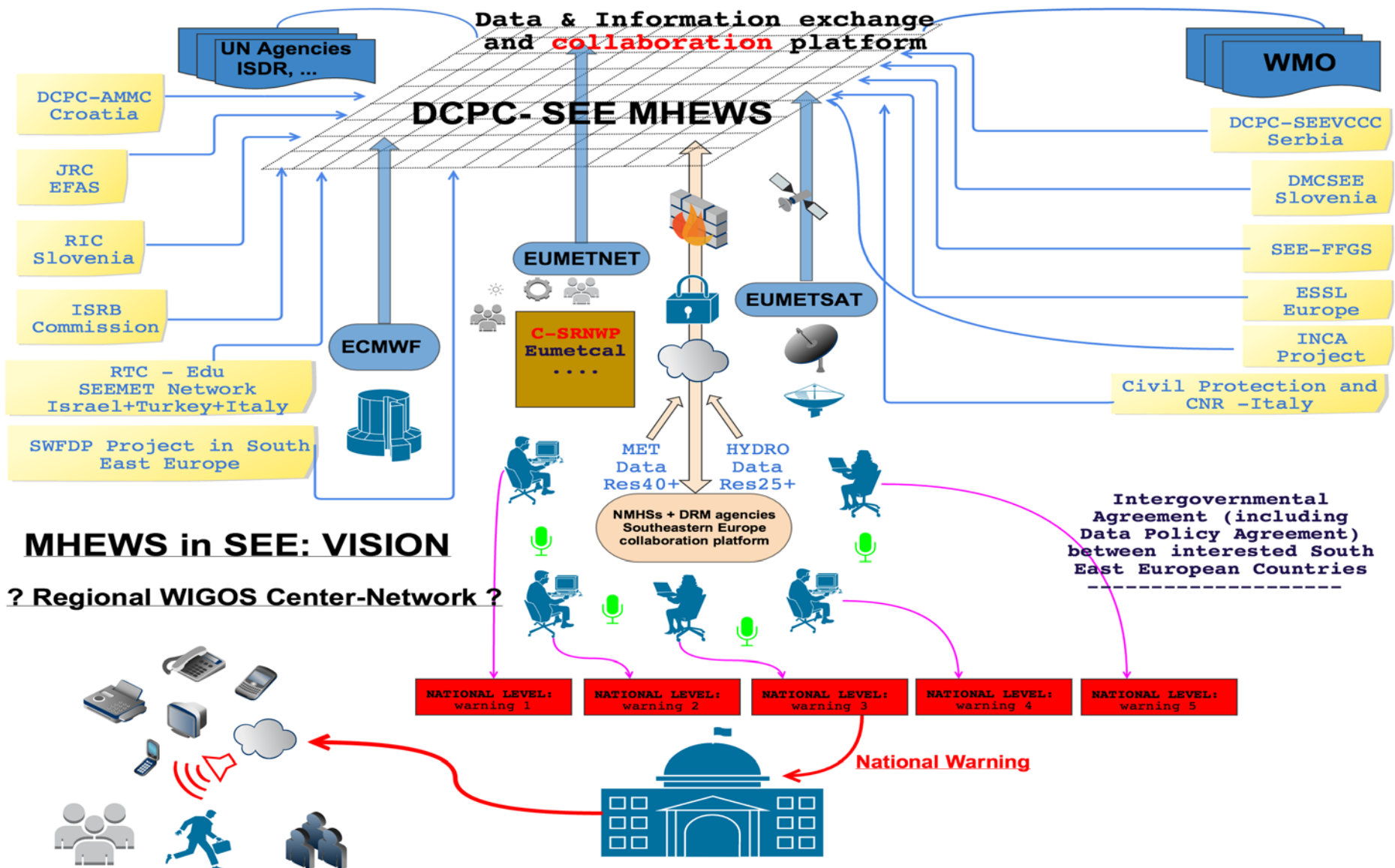
European Consortia:

- United Kingdom
- Aladin – Hirlam
- COSMO
- UK Met Office
- SEECOP (NMM-B)



Technical Platform

SWFDP - Part of MHEWS Distributed Network in SEE



Organizational Platform

MHEWS-A Consortium of Operations / SEE

3 Clusters of Operations

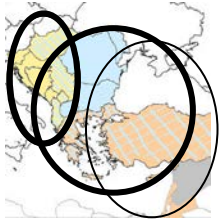
oriented from NW towards SE



Organizational Platform

MHEWS-A Consortium of Operations / SEE

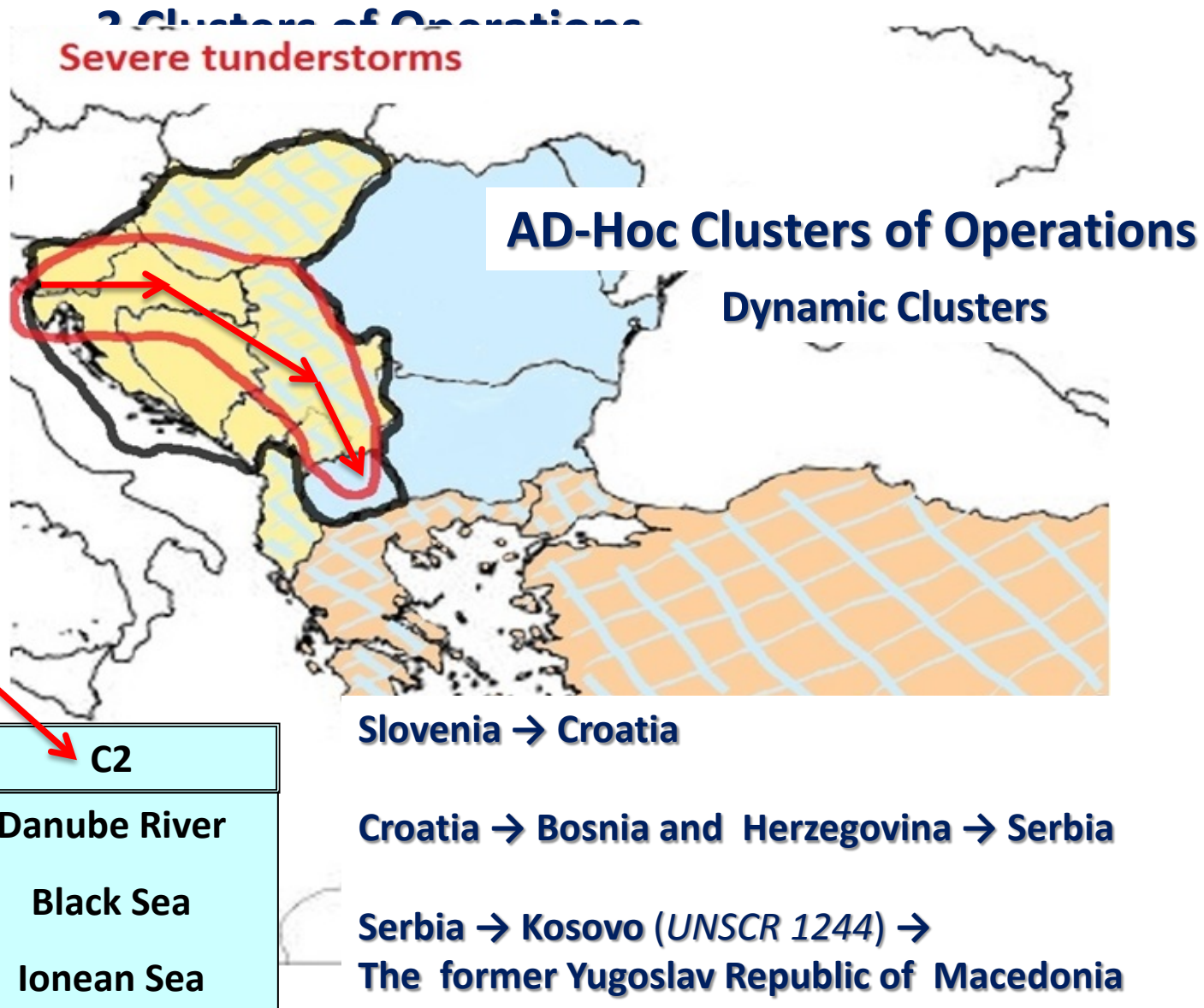
Fixed Clusters



Flash Flood Risk

C1
Sava River
Panonian Valley
Adriatic Sea

C2
Danube River
Black Sea
Ionean Sea



Slovenia → Croatia

Croatia → Bosnia and Herzegovina → Serbia

Serbia → Kosovo (UNSCR 1244) →
The former Yugoslav Republic of Macedonia

RECOMMENDATIONS

- **Confirm intention to continue collaboration** based on the draft Implementation Plan:
 - Project Participants – on 14 June, by those who participate in this meeting or by correspondence
 - Contributing stakeholders – on 15 June, by those who participate in this meeting
- **Establish Provisional Project Steering Committee** and invite the President of RA VI to chair the committee – on 14 June 2017
- Provisional Project Steering Committee to request **establishment of the Project Advisory Group and underlying Technical Teams**
- **Provide further comments** to the draft Implementation Plan and submit the consolidated Implementation Plan to Informal Conference of SEE NMHS Directors (ICSEED) for their consideration and final adoption – before 15 July 2017
- **Draft Conference Statement** to be considered at the meeting

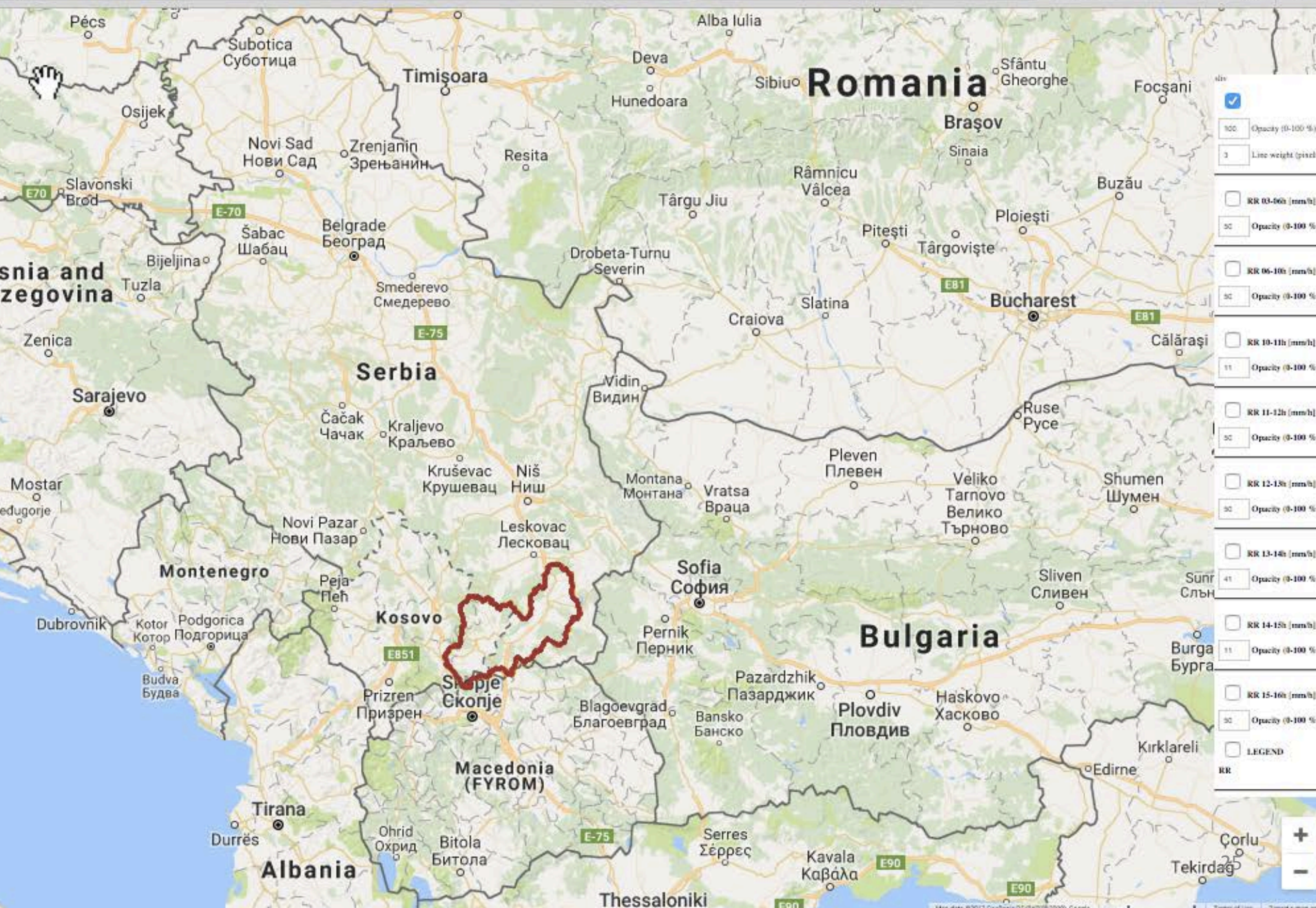
NEXT STEPS FOR SEE-MHEWS-A PROJECT

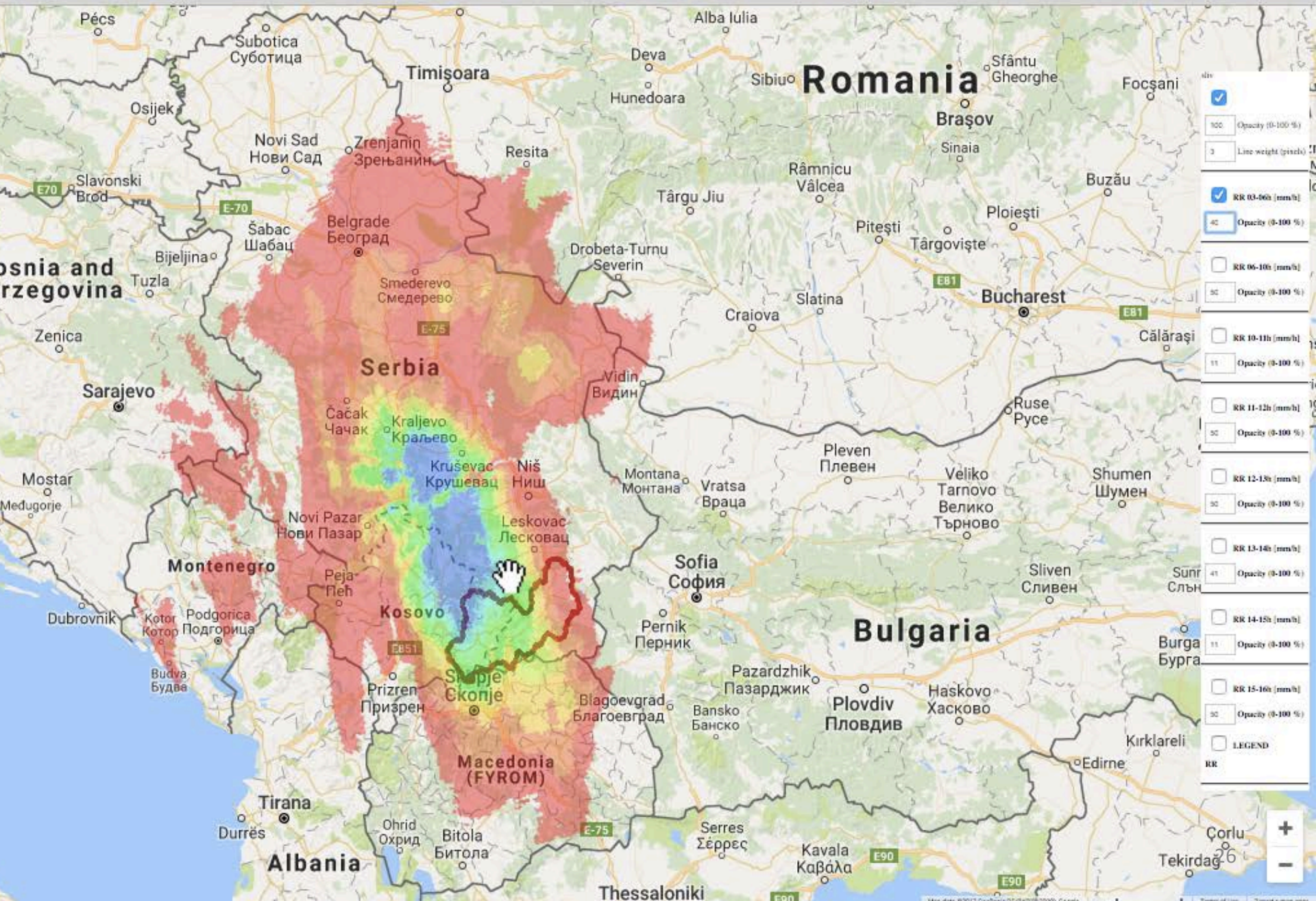
- Establishment of WMO Project Office in Croatia, hosted by the Meteorological and Hydrological Service of Croatia (DHMZ).
- Fundraising for further phases of the project (USAID, EU, World Bank, Green Climate Fund and others).
- Commencement of implementation of the next project phase already close to being agreed (World Bank).
- Cooperation with other relevant projects.

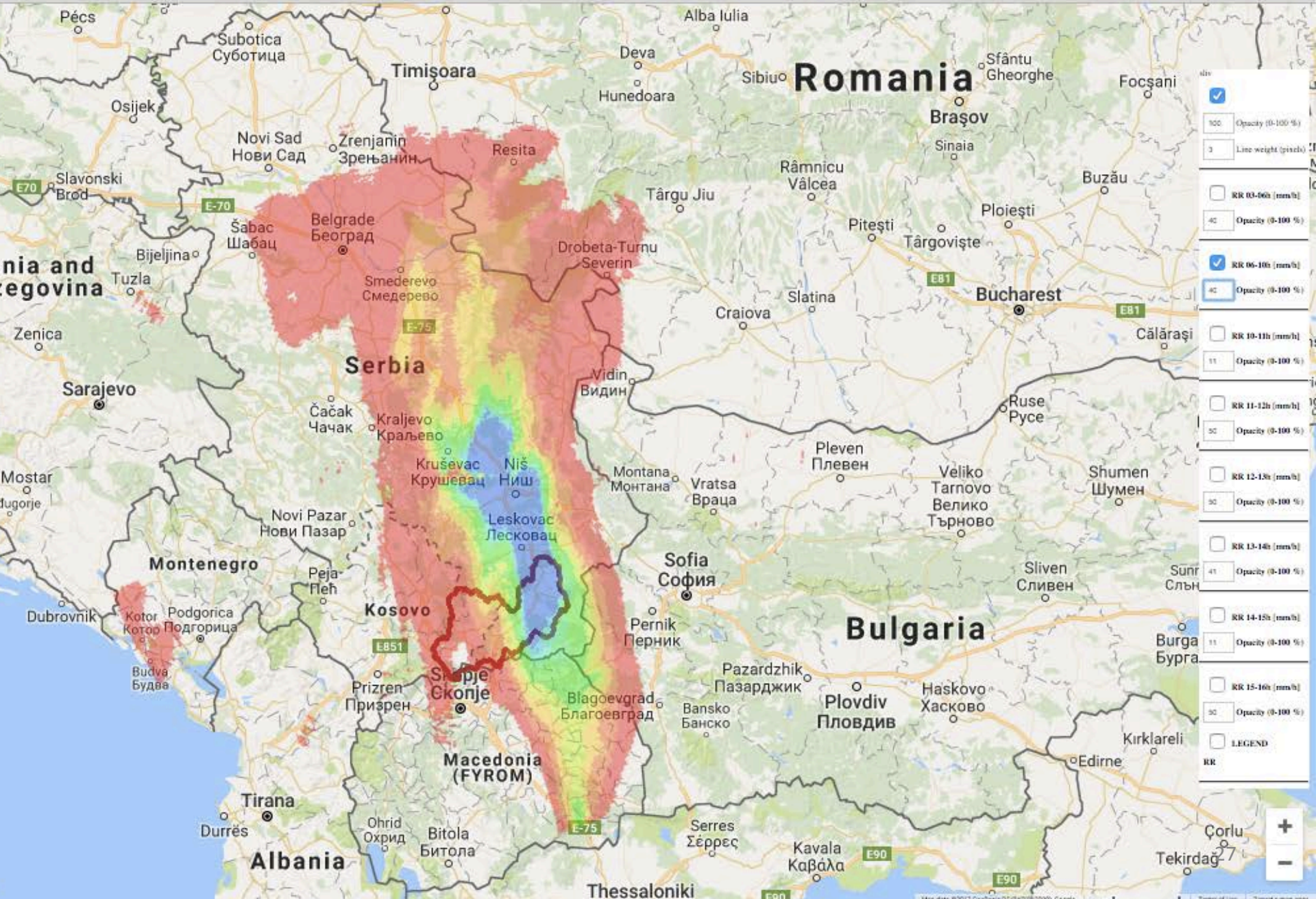
EXAMPLE from South East Europe

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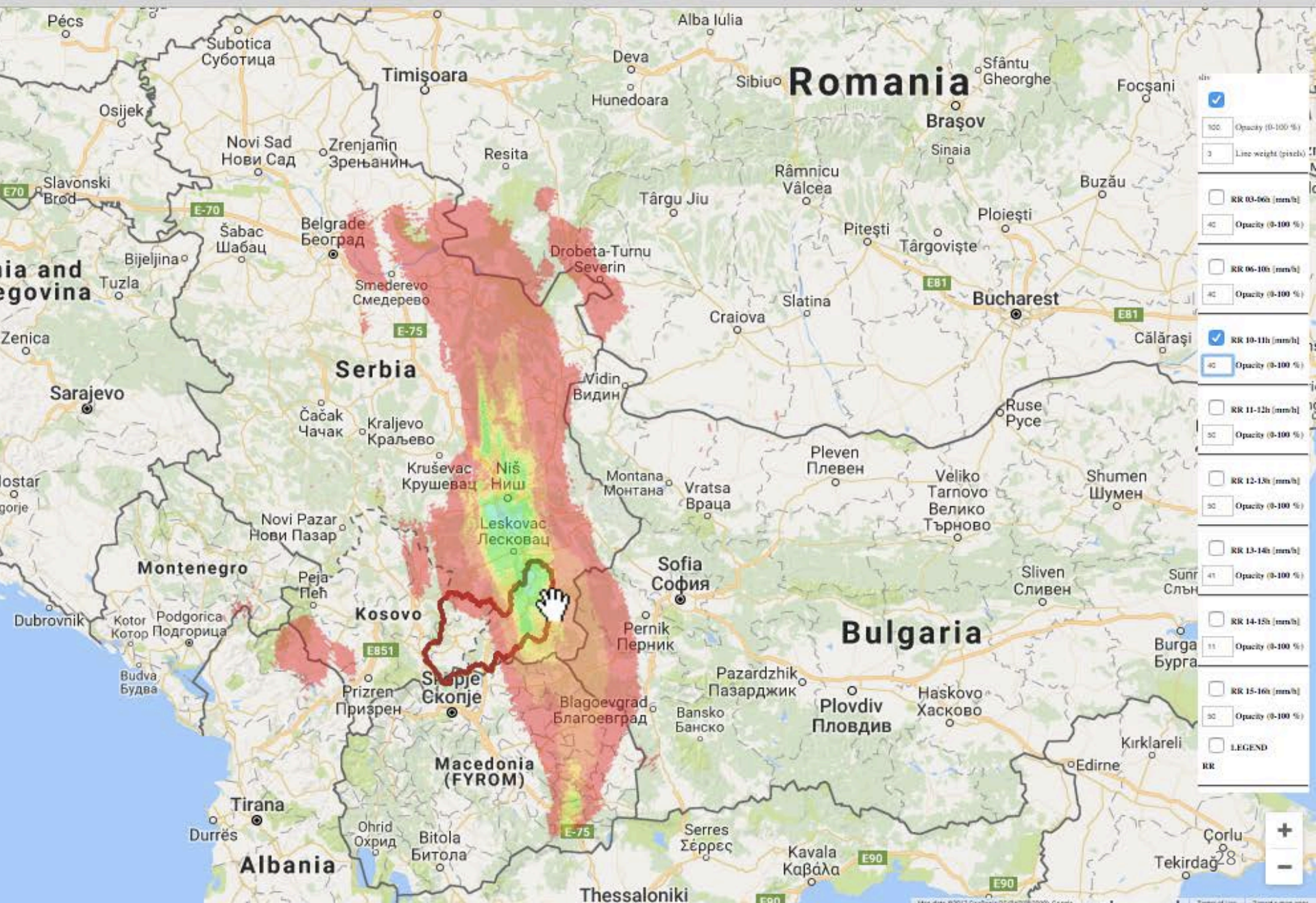




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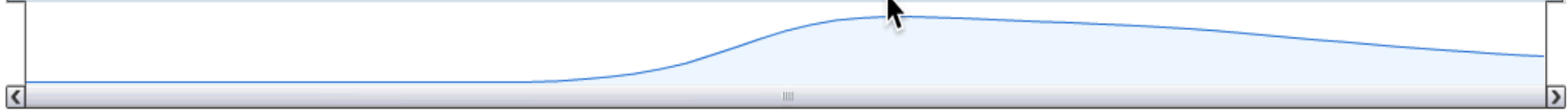
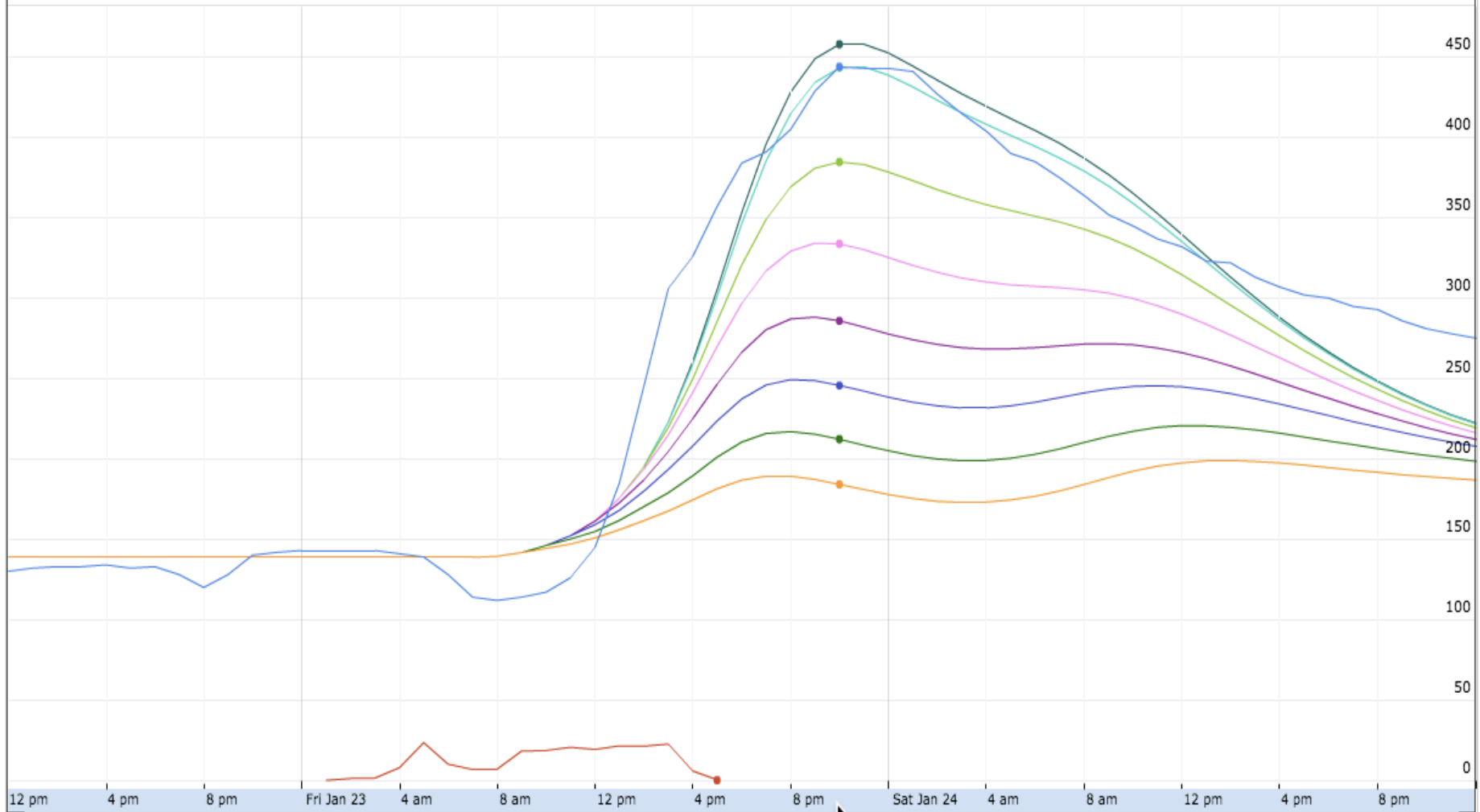
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- LEGEND



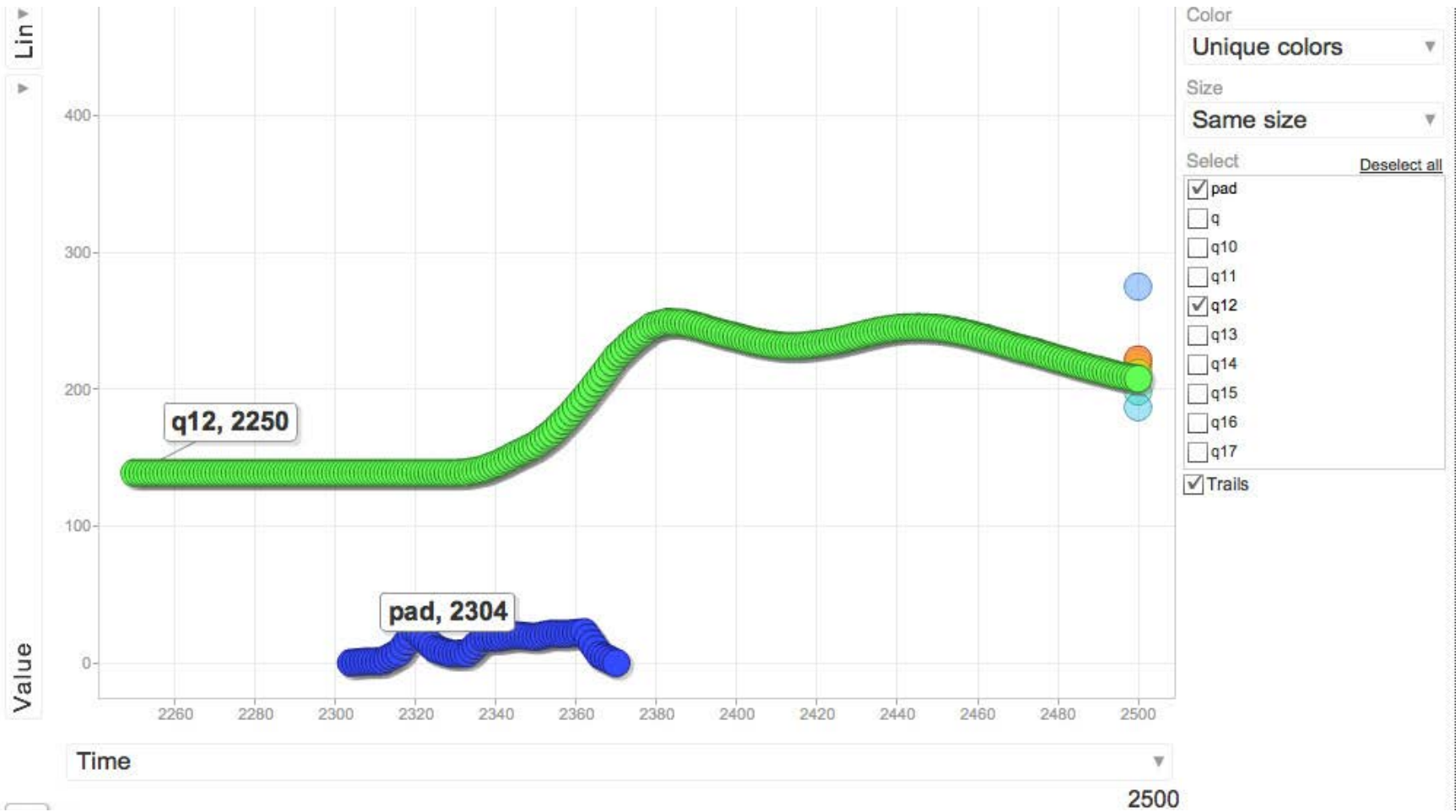


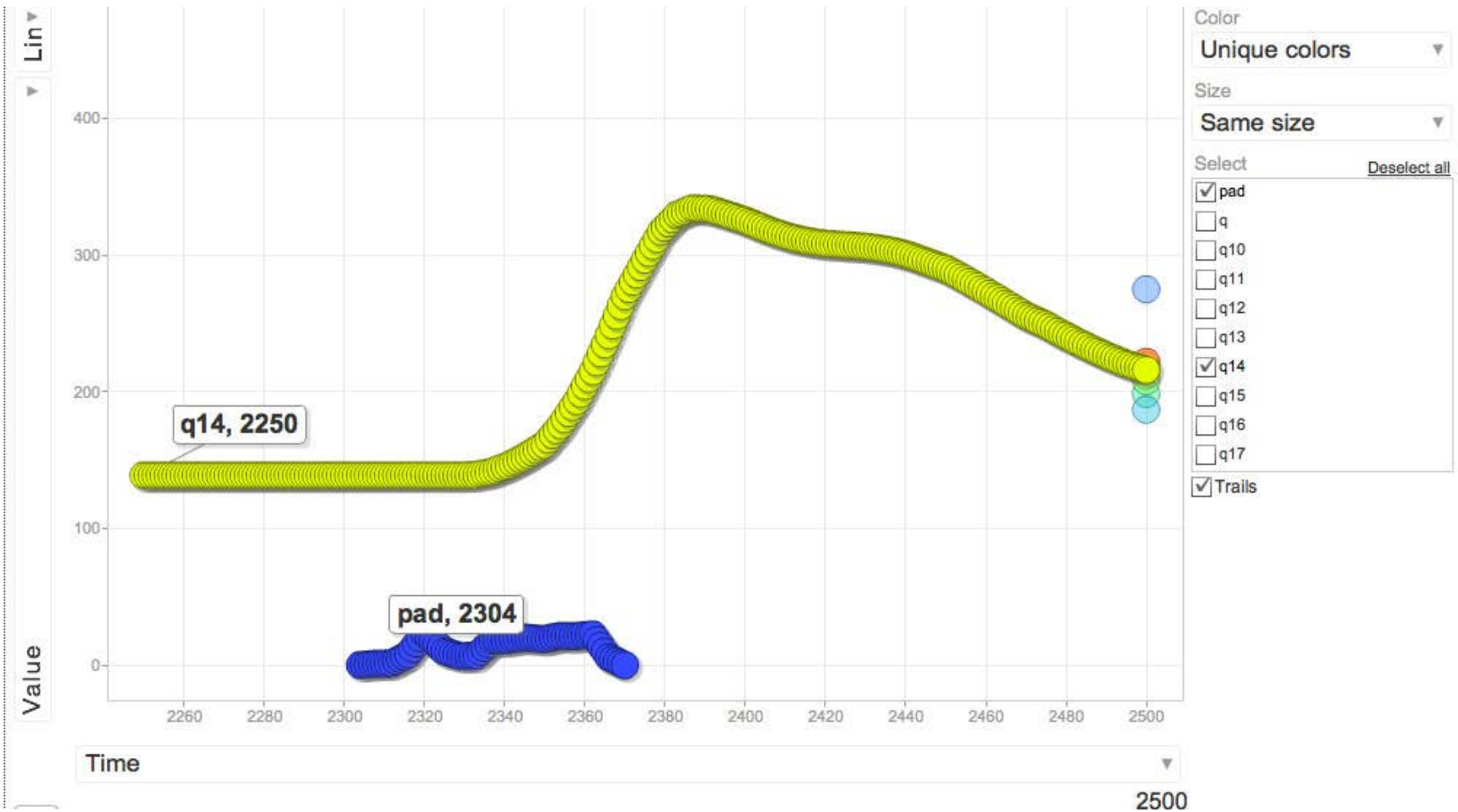
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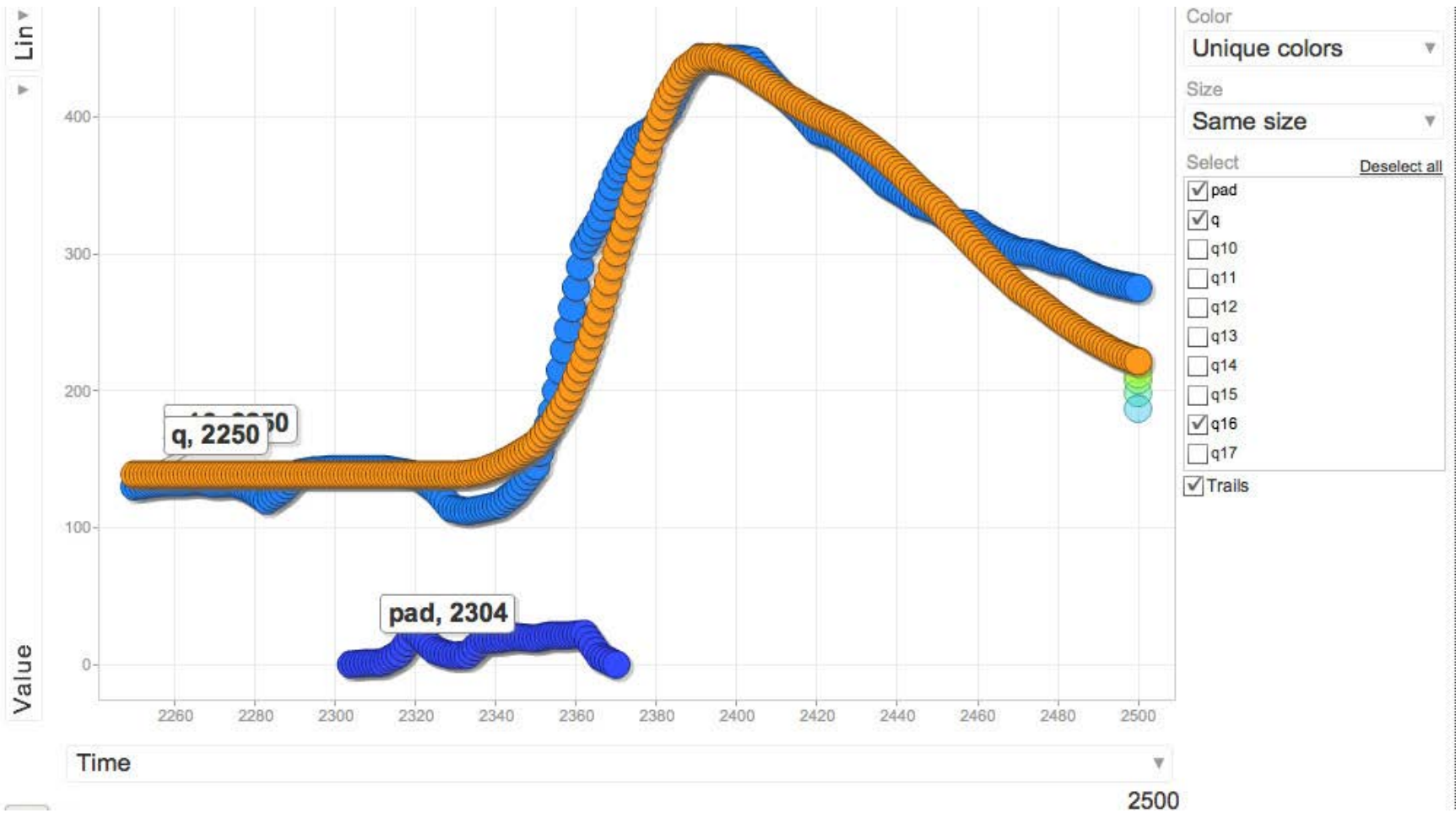
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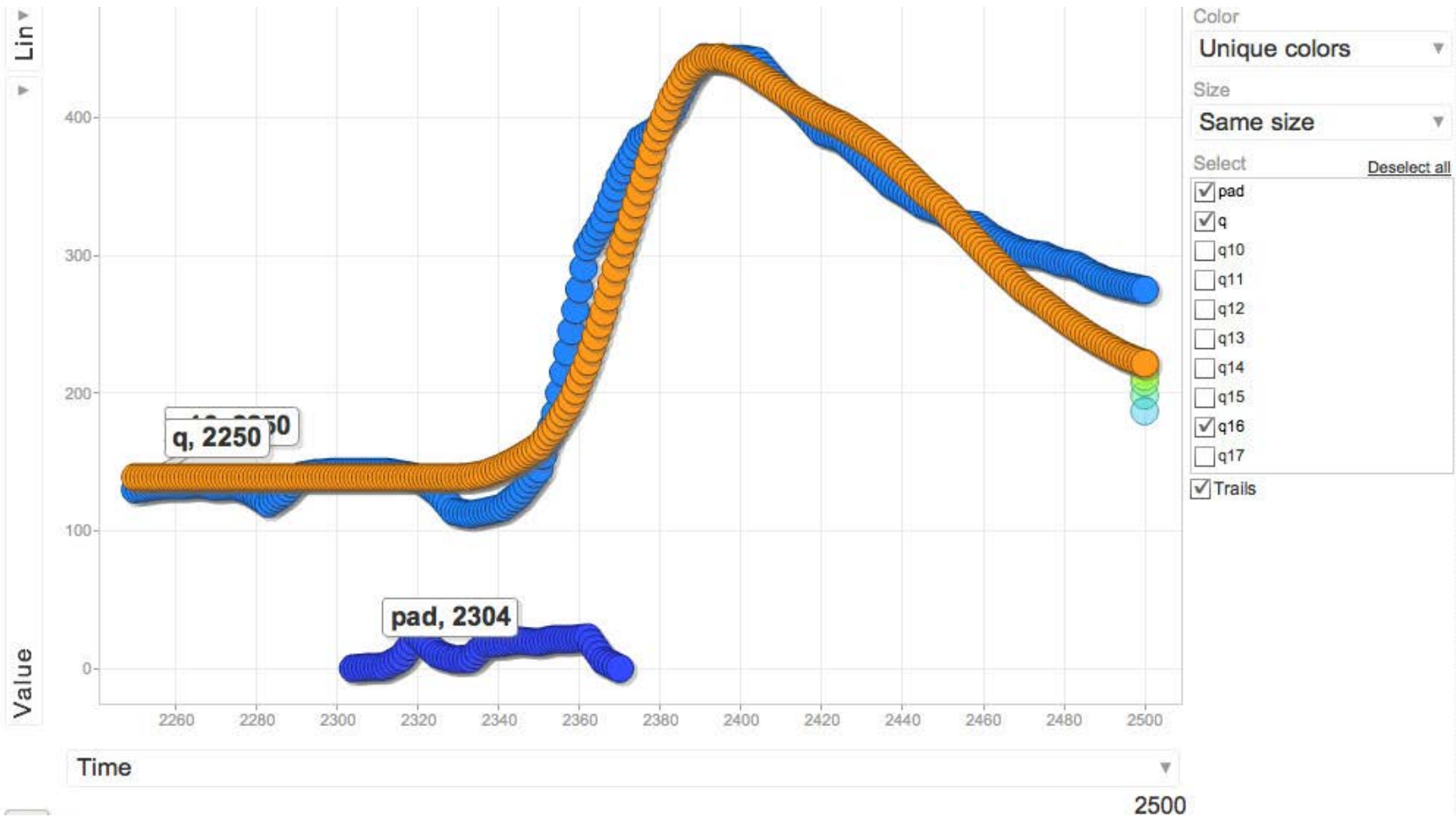


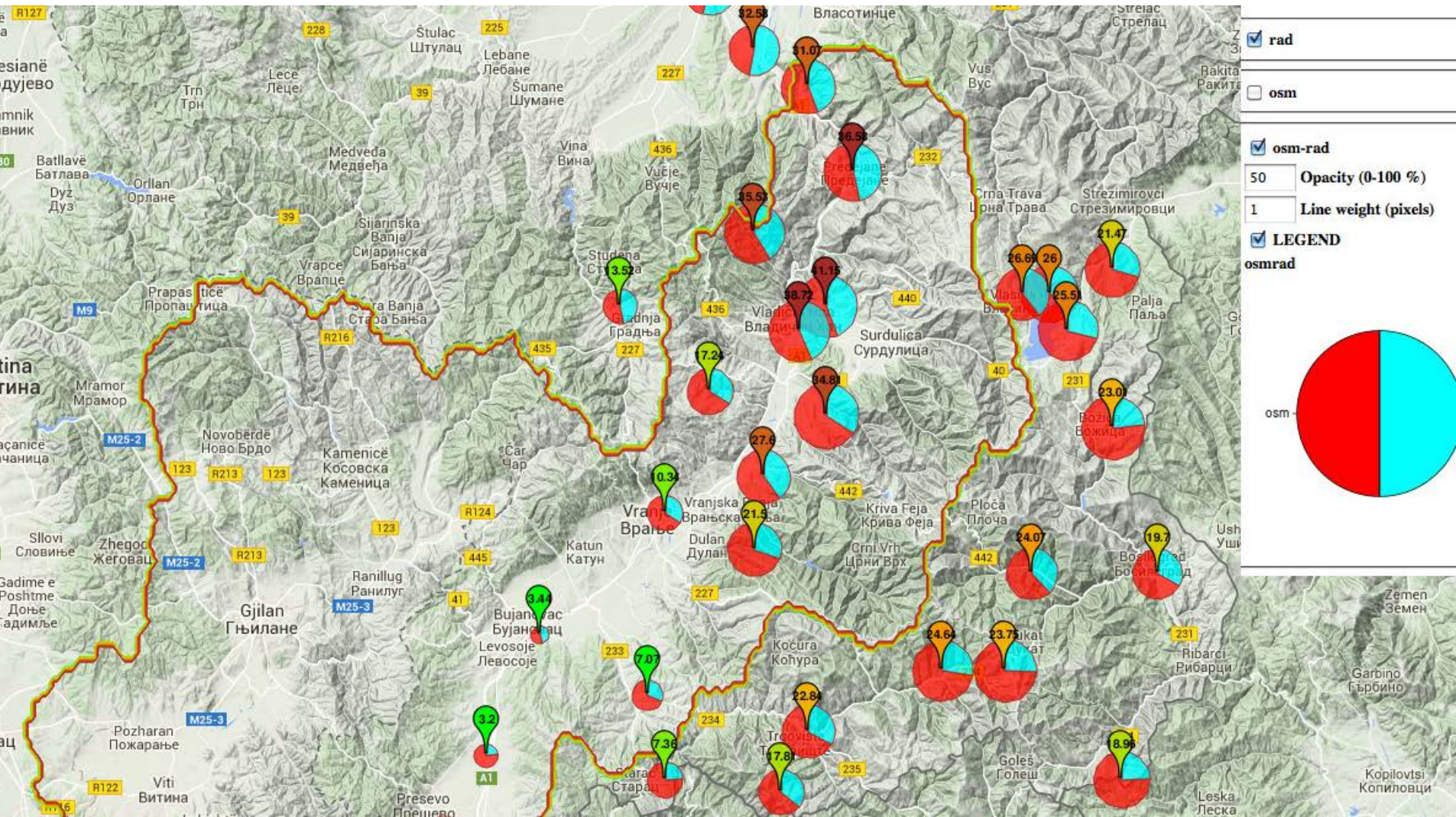
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Thank you



WMO OMM

World Meteorological Organization

Organisation météorologique mondiale <https://public.wmo.int/en/projects/see-mhews-a>