European Commission

EReS
EARTHQUAKE RESILIENT SCHOOLS

Funded by
the European Union

Earthquake Resilient Schools

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WP5 Coordinator

WORKSHOP

« Earthquake Resilient Schools in the Greece-Turkiye Cross-Border Area:
The pilot site Alexandroupolis »

Nomarchio Alexandroupolis, January 23, 2025

Contents

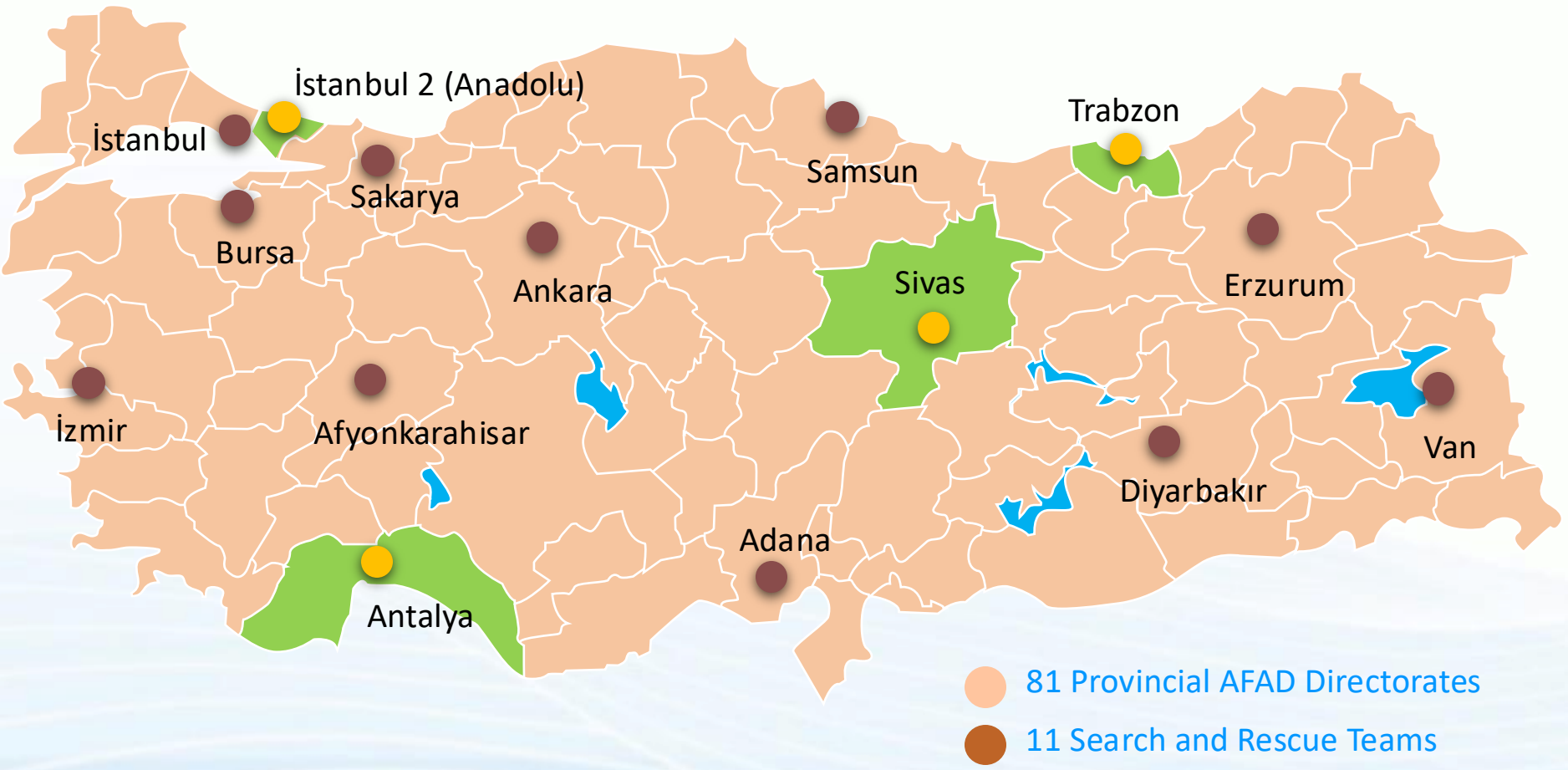
1) AFAD and its role in National Disaster Management Frame of the Republic of Türkiye,
2) Earthquake Risk Reduction Studies of AFAD,
3) 06 February 2023 Kahramanmaraş Earthquakes
4) Activities performed by Turkish Participants within EReS

The Role of AFAD within National Disaster Management Framework

Planning and Risk Reduction	Preparedness	Response	Recovery	Planning and Risk Reduction
Hazard maps	Logistics	Coordination	Temporary shelter	
Risk maps	Assemble Area	Search	Physico-social Support	
Awareness trainings	Exercise	Rescue	Damage Assessment	
Urban plans	Voluntary Groups	First aid	Site selection	
Legislation	Warnings & Alarms	Brigade	Permanent Housing	
Catastrophe Insurance	Vulnerable Groups		Finance	
Urban regeneration				
Resistance of structures				

AFAD is the sole governmental authority responsible from disaster and emergency management topics established under Ministry of Interior. AFAD has responsibilities at every stage of disaster management cycle (including planning, risk reduction, preparedness, response and recovery) and administrative scheme has been designed accordingly.

Central and Local Level Adminitrative Structure of AFAD



In addition to central organisation, AFAD has 81 provincial units and 11 SAR units. Total number of staff is approximately 7.000.

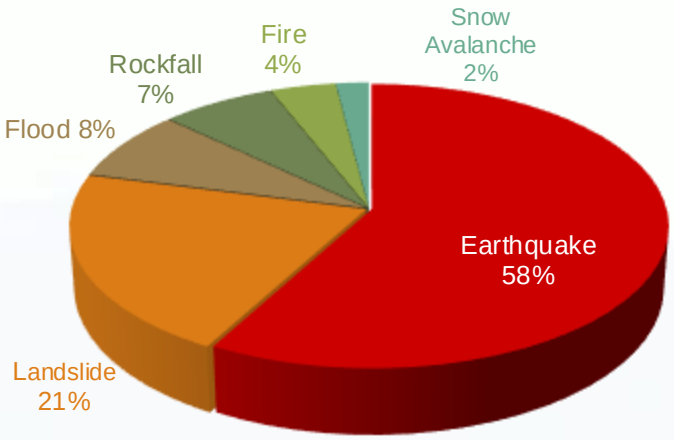
Structure

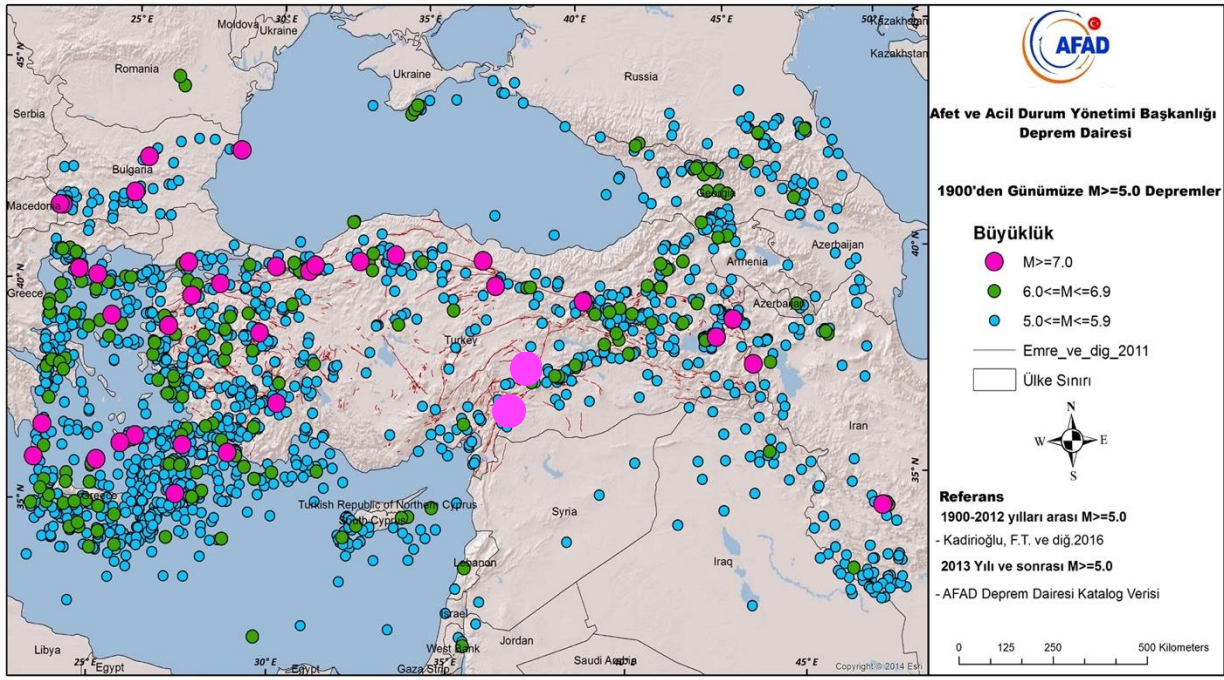
ORGANIZATIONAL STRUCTURE

REPUBLIC OF TÜRKİYE
MINISTRY OF INTERIOR
DISASTER AND EMERGENCY MANAGEMENT PRESIDENCY

AFAD

Natural Hazards in Türkiye; A General Perspective

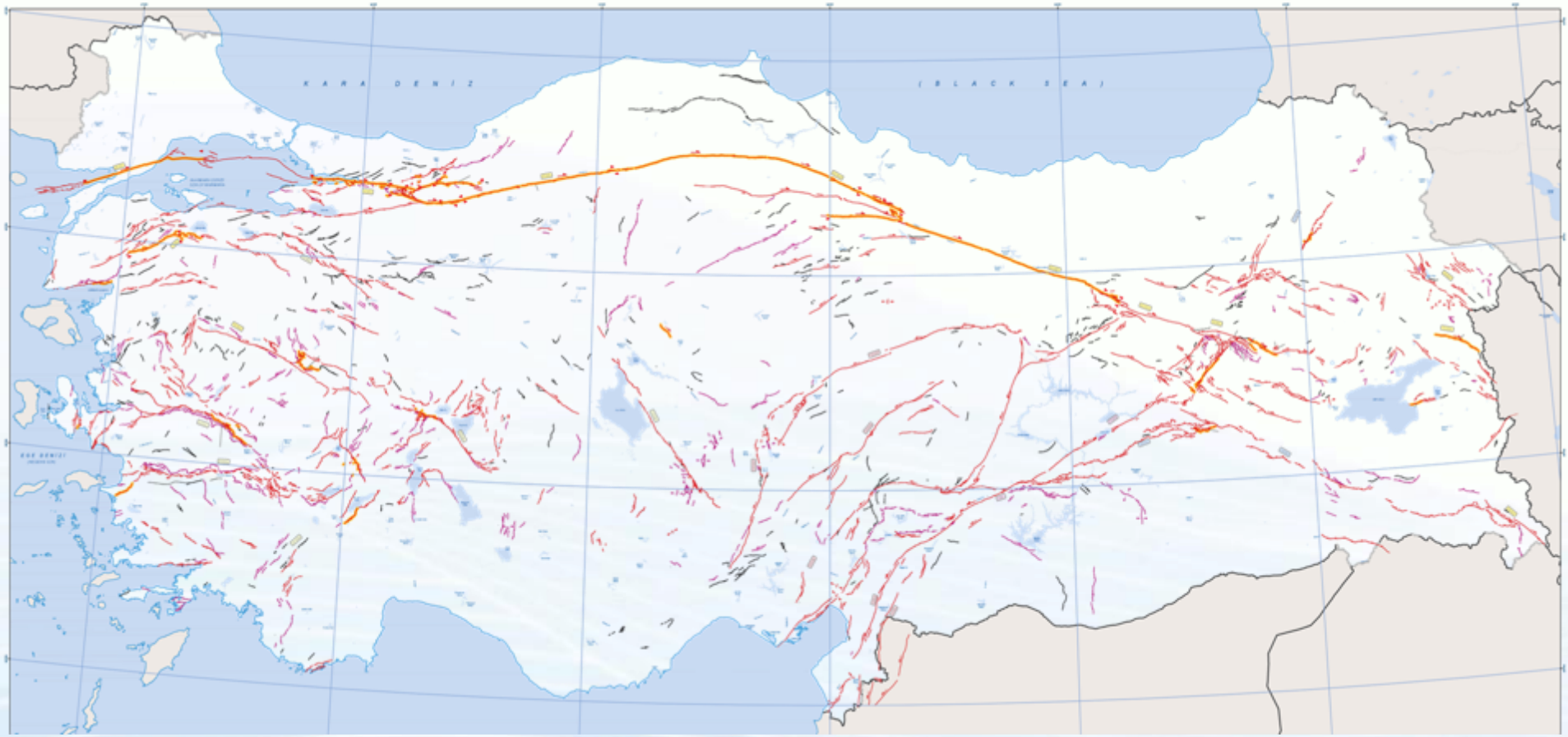




Earthquakes are the most destructive hazard type in Türkiye. 25.000 annual earthquake calculated in Türkiye. Between 6 February – 01 May 2023 approximately 32.000 aftershocks calculated following the earthquake doublet (Kahramanmaras Earthquakes, 06 February 2023). From 1900, 254 destructive earthquakes occured in Türkiye with 158.000 loss of lives and almost 1.000.000 destruction to property.

Earthquake Hazards

ACTIVE FAULT MAP OF TURKİYE (MTA 2013)



487

Fault Segment

Each fault has the potential to produce more than **5.5 magnitude** earthquakes.

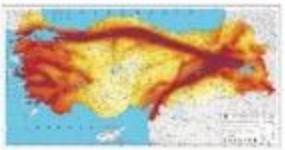
14.000 km

Total Fault Length

EARTHQUAKE STATISTICS BETWEEN 1900-2024

13887

The number of earthquakes of magnitude between 4.0 and 7.9



158000

The death toll

2 per year

The earthquakes that cause damage or fatality

1 per 4 days

The earthquakes of magnitude between 4.0 and 4.9

1900

2024

254

The number of earthquakes that cause fatality and/or heavy damage or very heavy (Destruction) damage

1000000

The number of heavy or very heavy (Destruction) damaged structures

1 per 6 years

The earthquakes of magnitude between 7.0 and 7.9

2 per 1 month

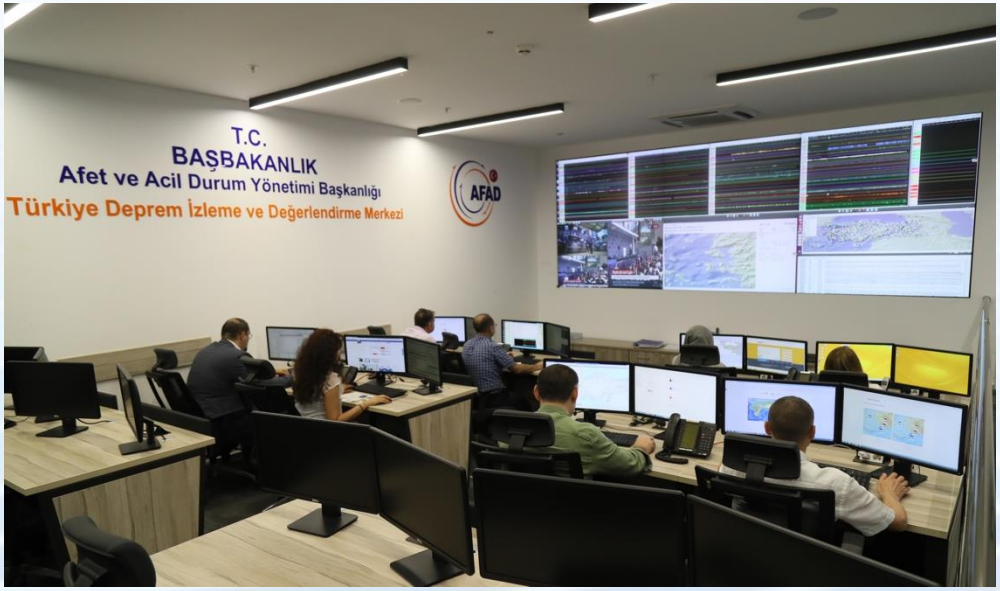
The earthquakes of magnitude between 5.0 and 5.9

2 per year

The earthquakes of magnitude between 6.0 and 6.9

The statistical analyses are conducted by using the AFAD Earthquake Department and limited to the earthquakes of magnitude equal to 4.0 or greater.

Earthquake Department of AFAD



AFAD Earthquake Department is the sole national authority to operate national level earthquake observation network in Türkiye. In addition national level earthquake hazard maps and building codes are prepared by AFAD Earthquake Department. The Department conducts several nationally and internationally owned projects in the field of earthquake risk management like risk reduction, awareness and preparation.

AFAD operates the first biggest seismic network in Europe including seismometers, GNSS, etc.

National Level Earthquake Risk Reduction Strategy

National Earthquake Strategy and Action Plan

Disaster And Emergency Management Presidency	Ministry of Energy and Natural Resources	General Directorate of Mapping
Ministry Of Culture And Tourism	Ministry of National Education	Ministry of Development
Ministry of Environment and Urbanisation	Ministry of Treasury and Finance	Ministry of Interior
Ministry of Health	Council of Higher Education	Ministry of Transport and Infrastructure
Kandilli Observatory and Earthquake Research Institute		

The main objective of the National Earthquake Strategy and Action Plan is to prevent or mitigate the physical, economic, social, environmental and political harms and losses that may be caused by earthquakes and to create a safe, prepared and sustainable environment to protect from earthquakes.

MITIGATION
- Earthquake Hazard Map
- Earthquake- Resilient Buildings
- Damage Estimations and Earthquake Scenarios
- Earthquake Data Bank
- Strengthening of the Hospitals and Schools

PREPAREDNESS
- Disaster-Ready Turkey Project
- Establishment of the Disaster Logistic Centers
- R & D Support with the UDAP Projects
- Improvement of the Mobile Emergency Response Vehicles
- Preparation of the Provincial Health Disaster Plans and Hospital Disaster Plans

RECOVERY
- Standardization of the Damage Assesment Systems
- Standardization of the Temporary and Permanent Shelters
- Preparation for The National Turkey Recovery Plan

RESPONSE
- The implementation of the Turkey Disaster Response Plan
- Increasing the Capacity of National Medical Teams
- Establishmentof the Damage Estimation Systems

National Level Earthquake Monitoring in Türkiye

329
Broadband

856
Accelerometer

1.185
Earthquake monitoring stations

Europe's **1.** Biggest Seismic Observation Network

Regional Analysis of earthquake events in the region

Real Time Eq. Data is shared with 7 countries.

58,630 Earthquake Parameter Calculations by 2023,

25,000 Earthquake per year on average

National Earthquake Monitoring and Assessment Center

- 50,000 aftershocks after February 6.
- Earthquake relocation analysis (Hypo DD).
- Moment tensor calculations of earthquakes of 4 and above.
- Colomb Stress analysis of the earthquakes.
- TADAS analysis of earthquakes larger than 3.5.
- Site Ground Classifications for whole stations.

Important Projects Completed and/or in Progress

Türkiye Earthquake Observation Network

Türkiye Acceleration Database and Analysis System

Journal of Turkish Earthquake Research

Türkiye Building Earthquake Regulation

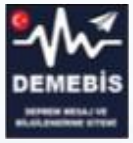
Deep Well Seismometer Network Project

Türkiye Earthquake Data Center System

Türkiye Earthquake Hazard Map

Smart Cities Project: Kocaeli

Fixed GNSS Observation Network



Earthquake Message and Information System

Automatic Earthquake Information

National Earthquake Strategy and Action Plan

Building Health Monitoring System

Earthquake Parameter Estimation and Analysis System

Earthquake Pre-damage and Lost Forecast System

National Earthquake Research Program

MEDRAP ve GONAF Projects

National and RegionalTsunami Monitoring Center

Türkiye Paleoseismology Project

ERES - EarthquakeResilient Schools Project

International Collaborations of AFAD Earthquake Department

International Seismological Center

Centre-Sismogique Euro-Méditerranéen (CSEM)
European-Mediterranean Seismological Centre (EMSC)

Observatories & Research Facilities for European Seismology

European Integrated Data Archieve

European Plate Observing System

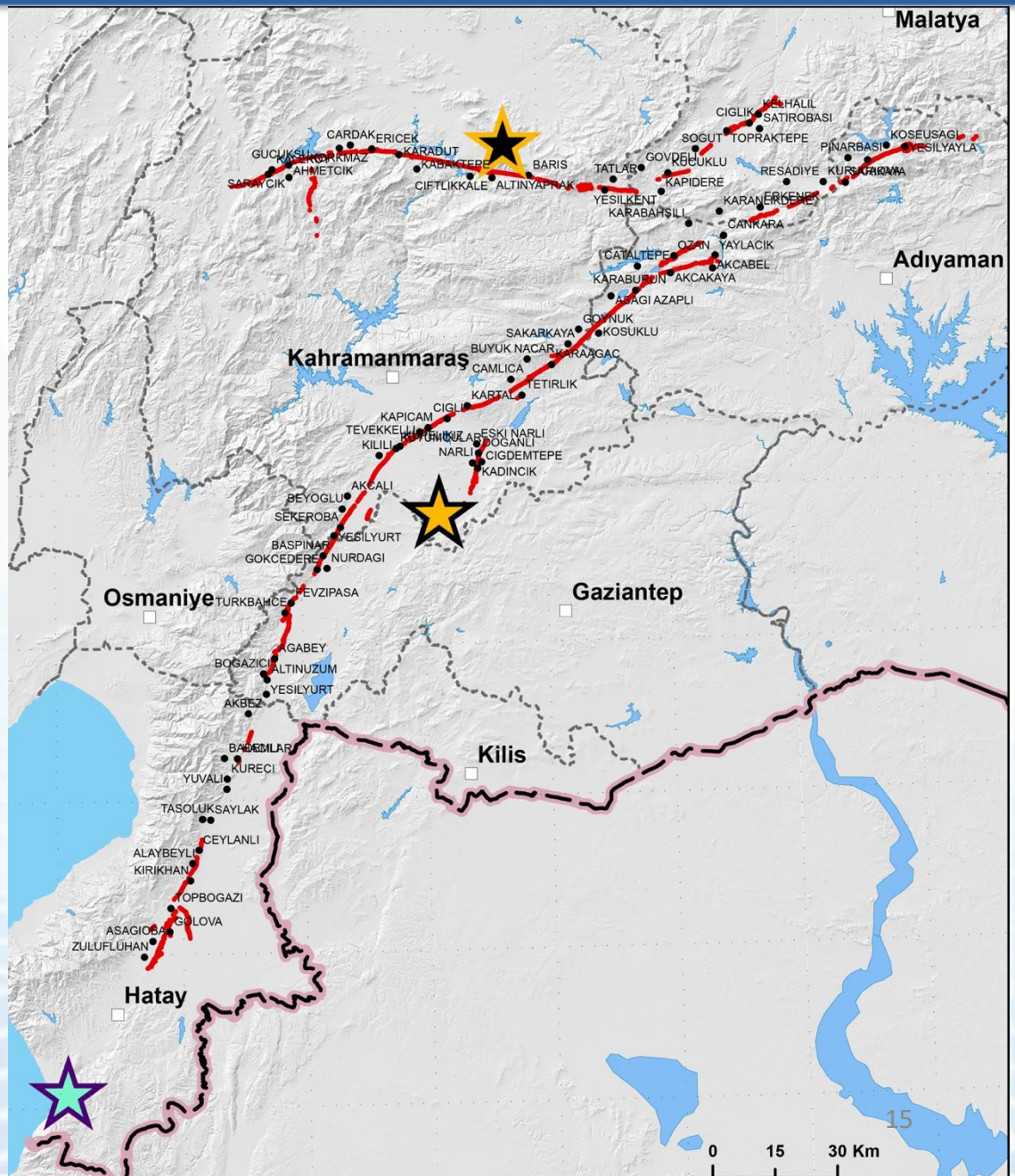
Black Sea Economic Cooperation (BSEC)

Economic Cooperation Organization (ECO)

6 February 2023 Kahramanmaras Earthquake Doublets

06 FEBRUARY 2023 KAHRAMANMARAŞ PAZARCIK (Mw: 7.7) and ELBİSTAN (Mw: 7.6) EARTHQUAKES

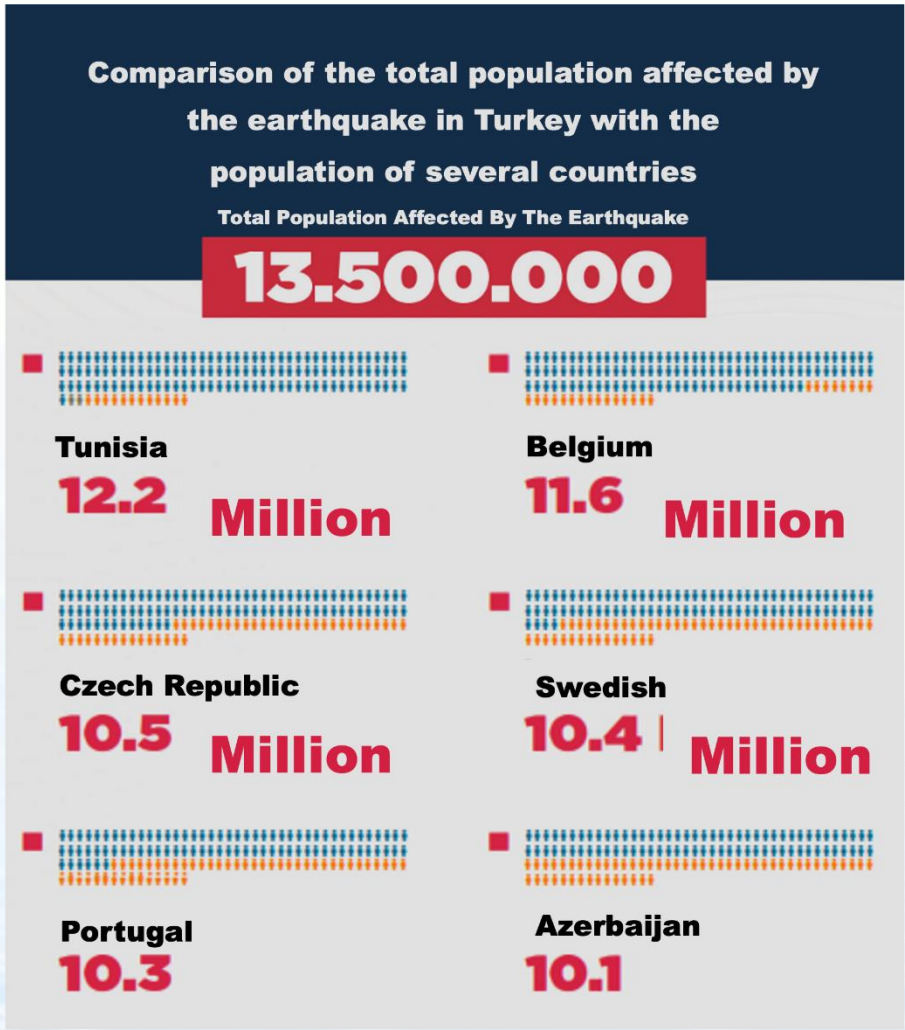
Approximately 450 km surface rupture,
Displacements; up to 8.0 meters in the earth's crust



FAULT RUPTURE LENGTHS of MAJOR EARTHQUAKES IN THE WORLD

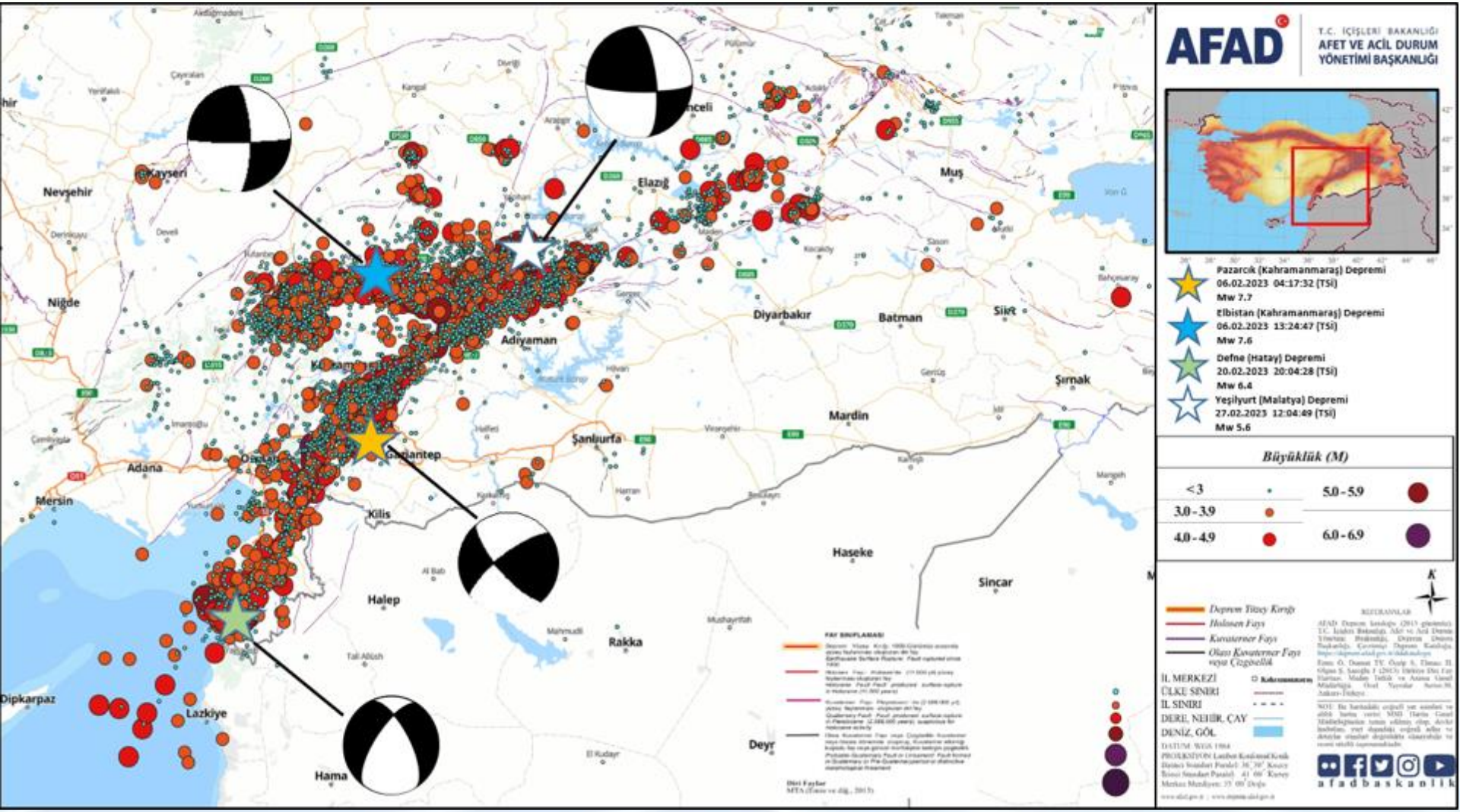
COMPARISON OF FAULT RUPTURE LENGTHS of BIG EARTHQUAKES IN OTHER COUNTRIES

6 February 2023 Kahramanmaras Earthquakes



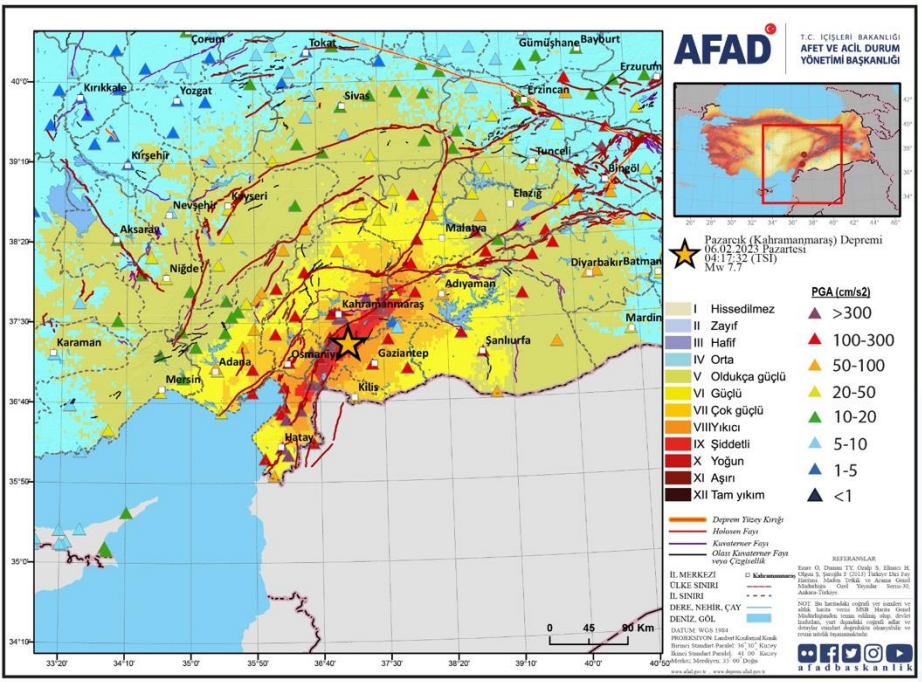
6 February 2023 Kahramanmaras Earthquakes

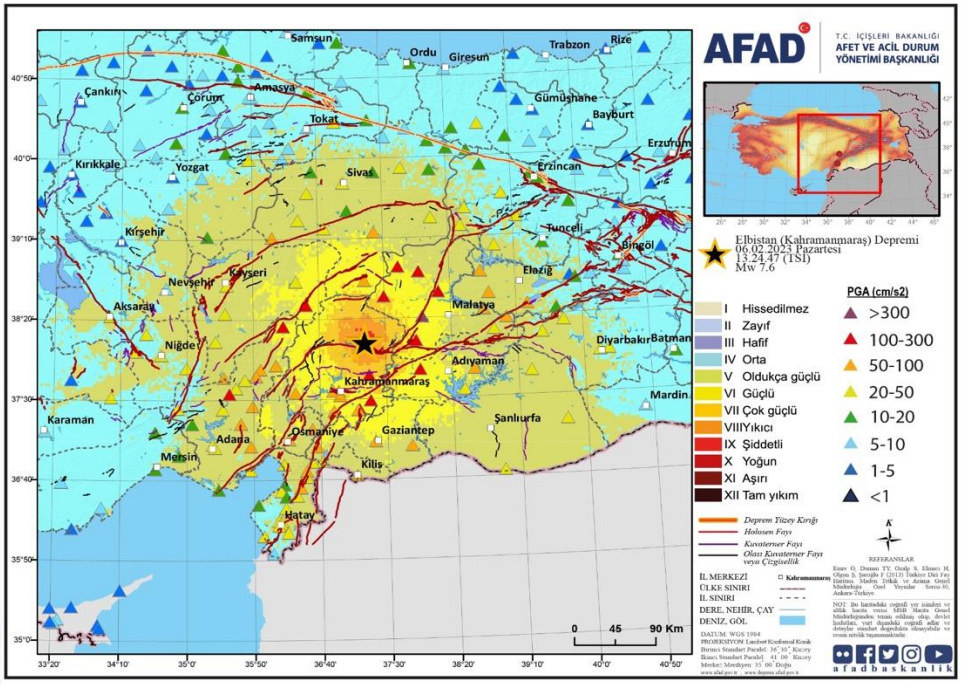
SEISMIC ACTIVITY IN THE REGION AFTER THE 06 FEBRUARY EARTHQUAKES



3 main shocks	43 earthquake	482 earthquake
Mw ≥ 6	Mw: 5-6	Mw: 4-5

6 February 2023 Kahramanmaras Earthquakes





Effective duration 65 SECOND

ESTIMATED SEISMIC INTENSITY MAP (Mw=7.7)

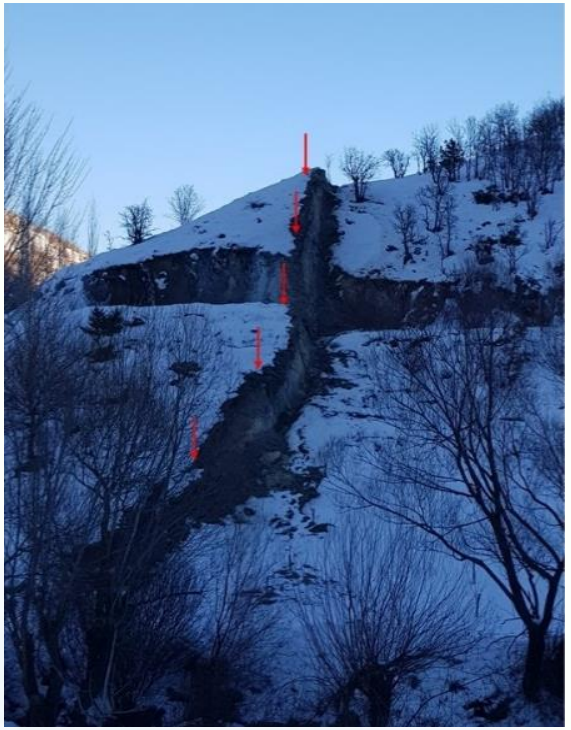
PAZARCIK - KAHRAMANMARAŞ

Effective duration 45 SECOND

ESTIMATED SEISMIC INTENSITY MAP (Mw=7.6)

ELBİSTAN - KAHRAMANMARAŞ

6 February 2023 Kahramanmaras Earthquakes



6 February 2023 Kahramanmaras Earthquakes

EReS WP5 (Communication & Dissemination) Activities

Project objectives:

- **Cross-border action plans for the management of cross-border risks identified in joint risk assessment.**
- **Update guidelines for effective preparedness and response during and after a strong earthquake, for raising awareness among school communities.**
- **Establishment of communication between schools and civil protection authorities nationwide as well as between civil protection authorities of Greece and Türkiye (common procedure and effective protocols of reaction in the CBA).**
- **Establishing School Seismology application at selected schools in order to increase the awareness of pupils on earthquake science and earthquake risk management.**

TASKS	DELIVERABLES
T5.1. Dissemination activities	D.5.1. Dissemination activities
T5.2. Dissemination of project's results to end users & critical stakeholders	D.5.2. Workshop for stakeholders and school communities in Greece
T5.3. Training of school community aiming at earthquake resilient schools	D.5.3. Workshop for stakeholders and school communities in Türkiye
T5.4. Scientific Publications/Presentations	D.5.4. Scientific Publications/Presentations

EReS WP5 (Communication & Dissemination) Activities

- Dissemination of project results among technical staff and decision makers and make us them pratictical,
- Increase the awareness of school community at pilot sites to disaster risk reduction related topics
- By using school seismology practices at pilot schools, increase the awareness of children on earthquake science,
- Secure coordination with other EU projects with similar targets,
- Discuss the outputs of the project with international community,
- Contribute to cross border information exchange.

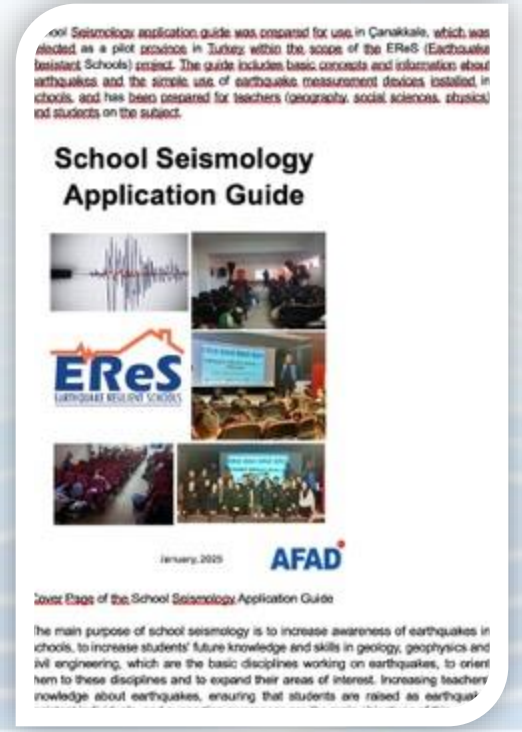
EReS WP5 (Communication & Dissemination) Activities

Studies Carried Out Within the Scope of WP5

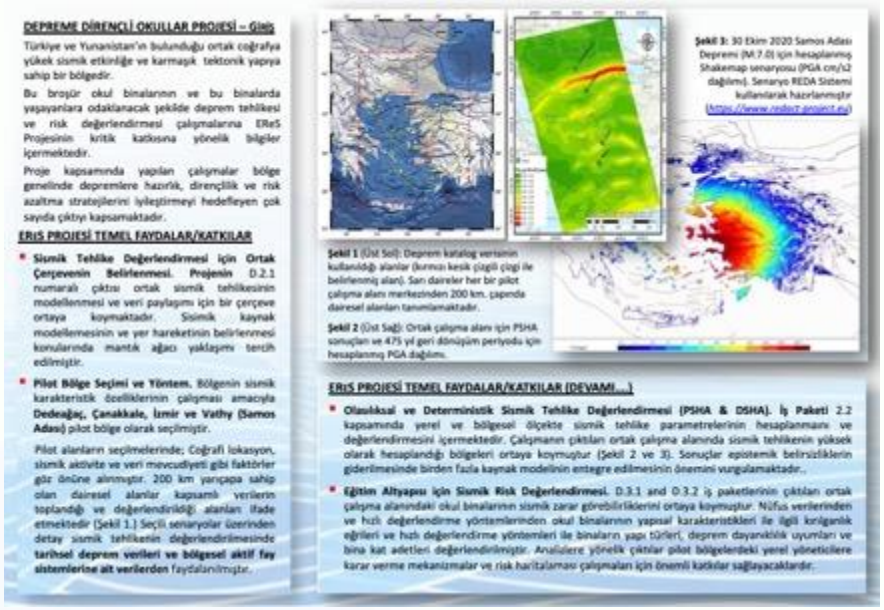
a. Materials

School Seismology Application Guide: A total of thirty two pages were prepared in Turkish to be distributed and six pages in English to be included in the final report.

Project Leaflets: Three leaflet regarding the project information and school seismolgy was prepared in Turkish and English.



EReS WP5 (Communication & Dissemination) Activities



EReS WP5 (Communication & Dissemination) Activities

b. Trainings at Schools

Disaster awareness trainings were given at **twelve schools** selected by the Provincial AFAD Directorates both in İzmir and Çanakkale.

EReS WP5 (Communication & Dissemination) Activities

At some pilot schools in Çanakkale low-cost seismometer device was introduced to the relevant teachers for the use of School Seismology practices.

Provincial directorate of National Education were informed about future School Seismology studies.

EReS WP5 (Communication & Dissemination) Activities

Planned Activities

a. Scientific publications & presentations

It is planned to provide information about the project and school seismology by attending two national workshops/ congresses.

- "*27th round table meeting on disaster risk management organised by Middle East Technical University*",
- 77th Türkiye Geology Congress, which will be held on 14-18 April 2025, **"Session on Education on Geosciences" .**

b. Training

It is planned to provide detailed training to teachers and students on **School Seismology** in the selected pilot school in February.

Disaster awareness trainings will be repeated in selected schools by the provincial AFAD Directorates in the first week of March (Naional Earthquake Awareness Week).

c. Workshops

- Two days workshop was planned in Çanakkale on 27-28th of February in order to discuss the project and its results,
- One-day workshop was planned in İzmir on April in order to discuss the project and its results,

European Commission

Funded by the European Union

Programme	Work programme part
Union Civil Protection Mechanism (UCPM)	UCPM-2022

Call	Work programme year
Prevention and Preparedness Projects on Civil Protection and Marine Pollution (UCPM-2022-PP)	UCPM-2022

Type of action	Type of MGA
UCPM-PJG UCPM Project Grants	UCPM Action Grant Budget-Based [UCPM-AG]

ERES
EARTHQUAKE RESILIENT SCHOOLS

Σας ευχαριστώ

INTERNATIONAL HELLENIC UNIVERSITY

GEBZE TEKNİK ÜNİVERSİTESİ

AFAD
T.C. İÇİŞLERİ BAKANLIĞI
AFET VE ACİL DURUM YÖNETİMİ BAŞKANLIĞI

ITΣAK