

Eighteenth Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS-XVIII), 6–8 February 2024, UNESCO Headquarters, Paris, France

## IOC/DG ECHO COASTWAVE PROJECT PROGRESS SUMMARY



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# CoastWAVE : Strengthening the Resilience of Coastal Communities in the North-Eastern Atlantic, Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazards

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Funded by the European Union (EU) Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)

*A UN Ocean Decade project under the theme of "resilient ocean"*



# Our 4 Major Goals

**Improved understanding of sea-level related risks**

**Improved framework for the sustainability of the Inexpensive Device for Sea Level Measurement Network**

**Alert technology to provide early alert/warning**

**Seven recognized Tsunami Ready communities by 2023**

**UNESCO  
PARTNERS**

  
**NATIONAL  
OBSERVATORY OF ATHENS**

  
**IHCANTABRIA**

  
**MIDDLE EAST TECHNICAL UNIVERSITY  
KANDILLI OBSERVATORY AND  
EARTHQUAKE RESEARCH INSTITUTE**

  
**GEOLOGICAL SURVEY DEPARTMENT**

  
**CHOUAIB DUKKAILI UNIVERSITY**

  
**NATIONAL INSTITUTE OF  
OCEANOGRAPHY AND FISHERIS**

  
**UNIVERSITY OF MALTA**

## **OTHER PARTNERS**

### **LOCAL IMPLEMENTATION PARTNERS**

- TSPs and NTWCs
- Local/National Emergency responders
- Ministries of Education, Ministries of Tourism
- Local government
- Community leaders, community members and tourists/visitors

### **OTHER INSTITUTIONS AND STAKEHOLDERS**

- EC- Joint Research Center (JRC)
- Scientific/research organisations/institutions e.g. universities
- Professional associations, NGOs and media Communication group
- Consultants
- UNDRR
- UNESCO field offices (Egypt and Morocco) and National Commissions

**COASTAL  
COMMUNITIES  
OF THE PROJECT**




**SAMOS**



**CHIPIONA**



**BUYUKCEKMECE**



**EL JADIDA**



**LARNACA**



**ALEXANDRIA**



**MARSAXLOCK**



# Project Components

1

**Component 1:** Adapt Global Tsunami Ready Standards and Guidelines and pilot Tsunami Ready within the framework of the NEAMTWS.

2

**Component 2:** Supply and install tsunami detection and alerting equipment in selected NEAMTWS countries

3

**Component 3:** Evaluate the effectiveness, compatibility, performance and benefits of the "Inexpensive Device for Sea Level" (IDSL) network in NEAMTWS countries and secure its sustainability.

# OUTCOMES

1

**Component 1:** Adapt Global Tsunami Ready Standards and Guidelines and pilot Tsunami Ready within the framework of the NEAMTWS.

1

## COMMITMENT

of NEAMTWS Member States to Implement Tsunami Ready

2

## UNDERSTANDING AND COMMUNICATION

on sea-level related risks

3

## BETTER PREPARED

to respond to sea level related hazards

# OUTCOMES



**Component 2:** Supply and install tsunami detection and alerting equipment in selected NEAMTWS countries



## ACCESS

to near real time seismic and/or sea level detection and alert technology to provide early warning



# OUTCOMES



**Component 3:** Evaluate the effectiveness, compatibility, performance and benefits of the "Inexpensive Device for Sea Level" (IDSL) network in NEAMTWS countries and secure its sustainability.



## LONGER TERM SUSTAINABILITY

of the Inexpensive Device for Sea Level (IDSL) network to provide early warning



# Outcomes



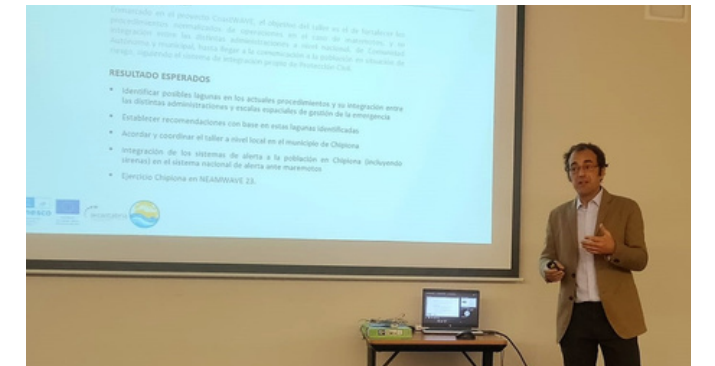
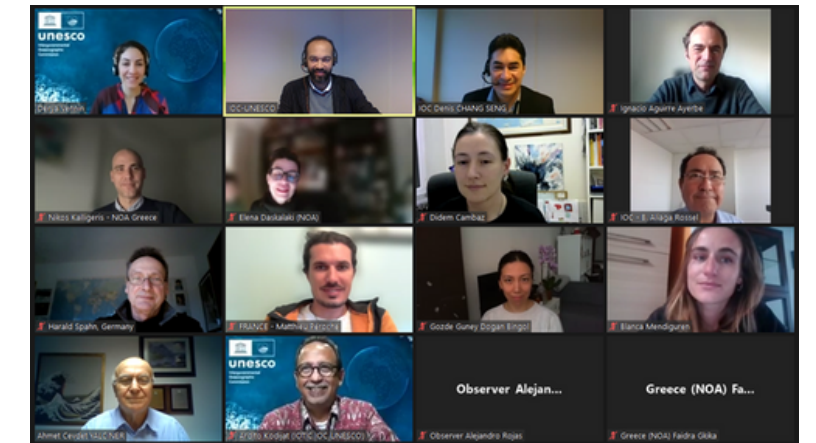
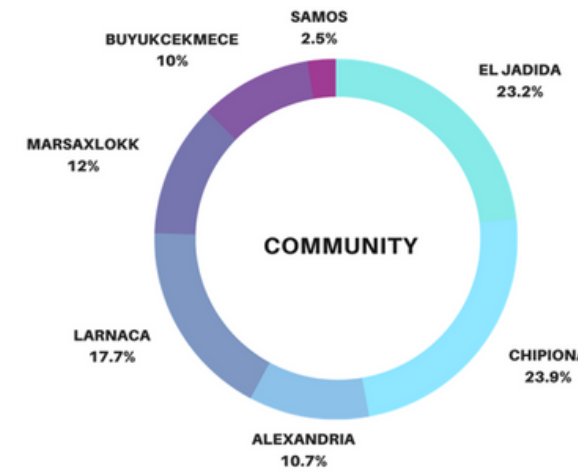
1	<b>COMMITMENT</b>	of NEAMTWS Member States to Implement Tsunami Ready
2	<b>UNDERSTANDING AND COMMUNICATION</b>	on sea-level related risks
3	<b>BETTER PREPARED</b>	to respond to sea level related hazards
4	<b>ACCESS</b>	to near real time seismic and/or sea level detection and alert technology to provide early warning
5	<b>LONGER TERM SUSTAINABILITY</b>	of the Inexpensive Device for Sea Level (IDSL) network to provide early warning

# COMPONENT 1: ADAPT GLOBAL TSUNAMI READY STANDARDS AND GUIDELINES AND PILOT TSUNAMI READY

Expected Outcomes: 1. Commitment 2. Understanding and communication 3. Better prepared

## ACTIVITIES COMPLETED

- Tsunami Ready Team within ICG/NEAMTWS Working Group 4
- Tsunami Ready information campaign on Tsunami Ready in project countries
- Develop concept note, identify target communities design survey protocol, socialize survey in target communities
- Conduct the survey, Focus Group Discussions and other data collection activities and analyze the results
- Prepare report, translate into Arabic and circulate to partner agencies, target communities and ICG/NEAMTWS WG4
- National to community level tsunami awareness and Standard Operating Procedures workshop



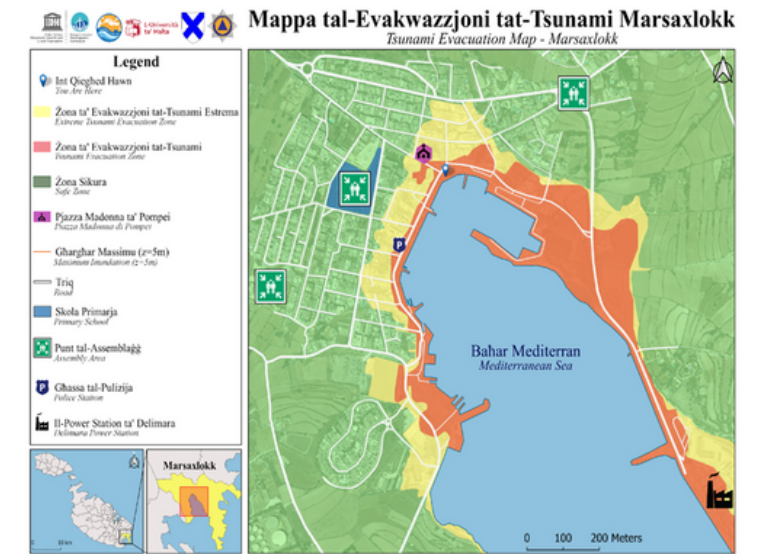
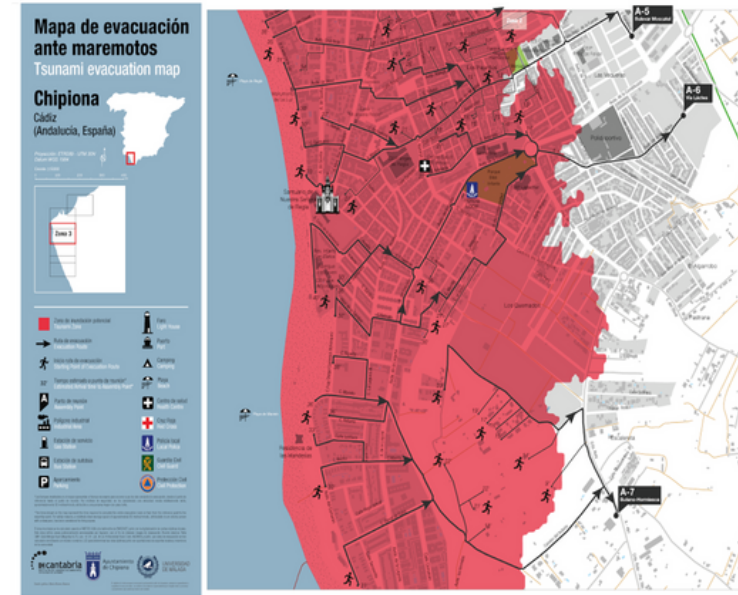
# COMPONENT 1: ADAPT GLOBAL TSUNAMI READY STANDARDS AND GUIDELINES AND PILOT TSUNAMI READY

Expected Outcomes: 1. Commitment 2. Understanding and communication 3. Better prepared

## ACTIVITIES COMPLETED



- Establish NTRB (except Malta and Spain)
- Coastal Inundation modelling and development and validation of tsunami hazard zone and evacuation maps
- Development and distribution of outreach and public education material
- Organisation of 3 outreach or educational activities annually
- Conduct a tsunami community exercise



# COMPONENT 2-SUPPLY AND INSTALL TSUNAMI DETECTION AND ALERTING EQUIPMENT IN SELECTED NEAMTWS COUNTRIES

Expected Outcome : Access to near real time seismic and/or sea level detection and alert technology

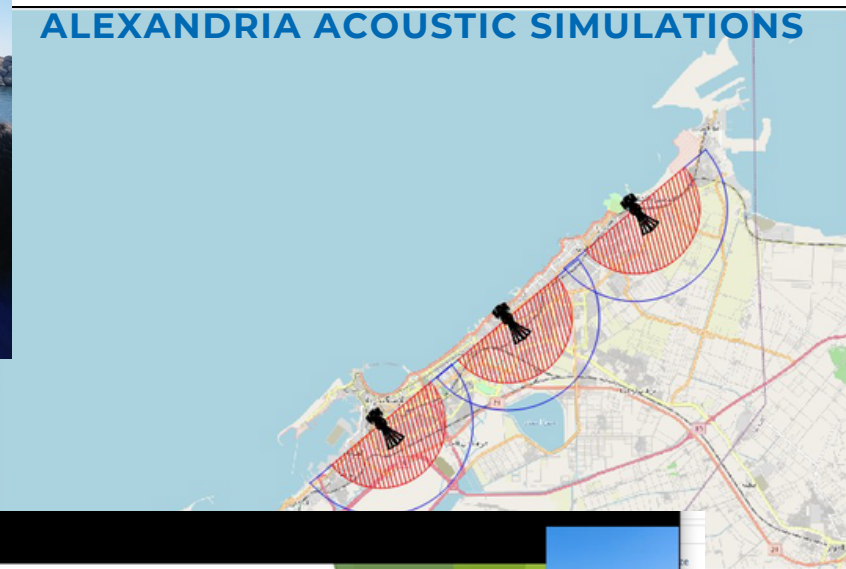
## ACTIVITIES COMPLETED



- Identify local partners to operate and maintain the systems
- Conduct site surveys to identify optimum locations for the detection and alerting systems
- Design, installation and commissioning of the tsunami detection and alerting systems
- Conduct training course for local operators on the operation and maintenance of the tsunami detection and alerting system



INSTALLATION OF ATG IN CYPRUS



EL JADIDA SITE SURVEY

### Tsunami Alerting Model

STF: Current point approx., using the Least Sq with the previous N points, i.e. 30

LTF: Current point approx., using the Least Sq with the previous N points, i.e. 300

$$A_s(t) = |STF_{N30}(t) - LTF_{N300}(t)|$$

$$V_s(t) = rms(A_s(t)) * f_{rms} + \tau_c$$

if  $A_s(t) > V_s(t)$  and  $A_s(t) > A_{min}$  then:  
 $AL(t) = AL(t) + 1$   
 else  
 $AL(t) = AL(t) - 1$

Tip: N300 and N30 means period of integration:  
 $N300 * interval = TimeLong$   
 $N30 * interval = TimeShort$

## ONLINE TRAINING OF IDSL





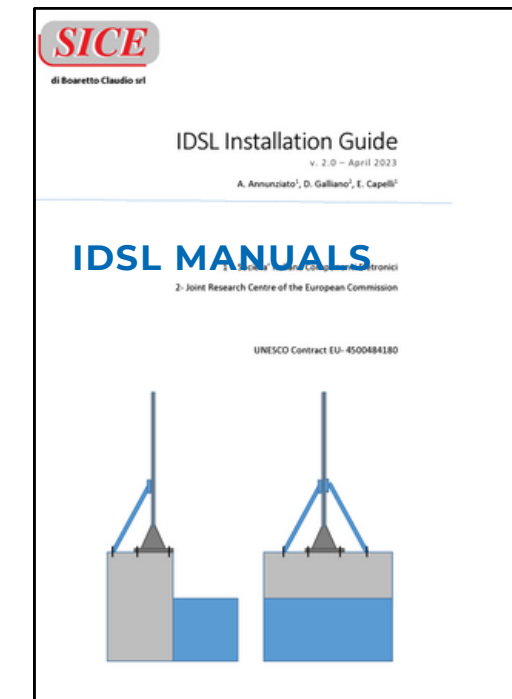
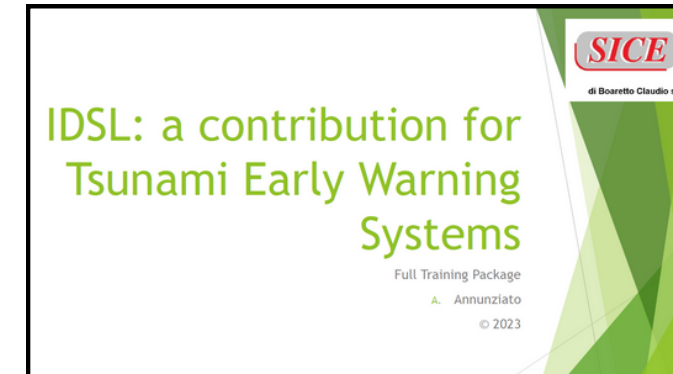
# COMPONENT 3: EVALUATE THE EFFECTIVENESS, COMPATIBILITY, PERFORMANCE AND BENEFITS OF THE “INEXPENSIVE DEVICE FOR SEA LEVEL” (IDSL) NETWORK IN NEAMTWS COUNTRIES AND SECURE ITS SUSTAINABILITY

Expected Outcome : Longer Term Sustainability of the Inexpensive Device for Sea Level (IDSL) to provide early warning of rapid onset sea level-related hazards

## ACTIVITIES COMPLETED



- Conduct assessment of maintenance requirements for IDSL systems in consultation with JRC
- Conduct preventative/corrective maintenance visits to selected
- Procure and deliver set of essential spare parts and maintenance tools to IDSL system operators in selected NEAMTWS countries
- Conduct an evaluation of the effectiveness and compatibility of IDSL stations
- Develop an IDSL maintenance programme and associated budget for IDSL stations
- Modify IDSL network to ensure compatibility with the IOC Sea Level Station Monitoring Facility

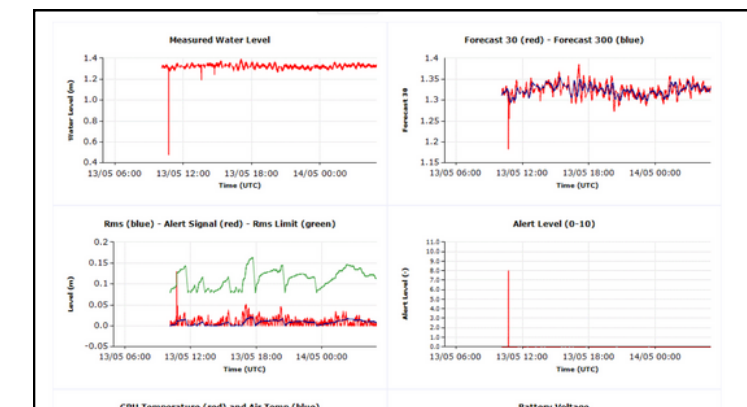


List of maintenance performed from installation date until today, what has been repaired/replaced?

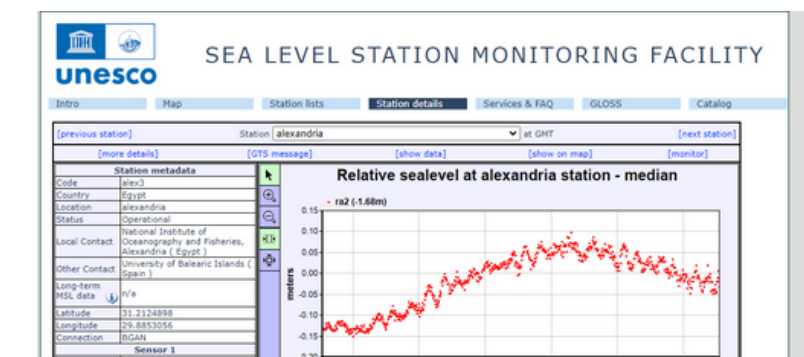
**On 31.03.2017**, the control box and sensor were replaced in B...

The sensor was uplifted 2m above the harbor level and 3m abo...

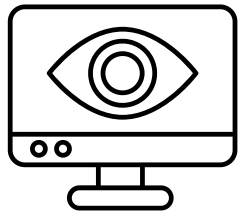
EXAMPLE FROM THE MAINTENANCE REPORT OF TURKIYE



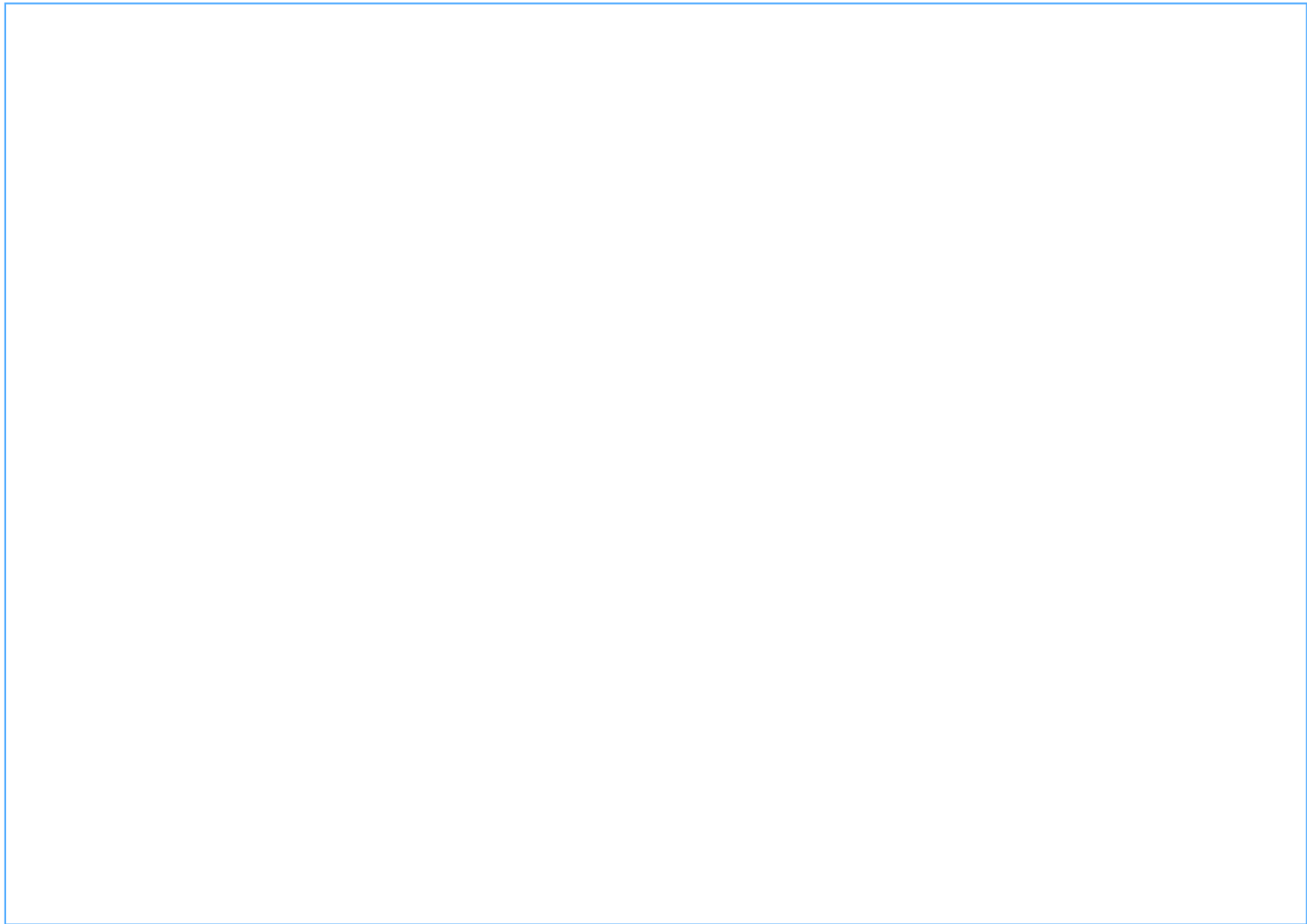
DATA FROM BOZCAADA STATION AFTER ONLINE SUPPORT



# COMMUNICATION AND VISIBILITY



ACTIVITIES COMPLETED

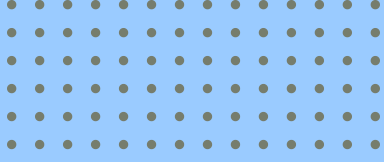


# CHALLENGES



- Country level approval for the establishment of National Tsunami Ready Board was delayed by internal political decision making and administrative procedures at different levels.
- Municipal resistance to piloting Tsunami Ready due to perceived adverse consequences such as deterring tourism
- Insufficient time to achieve Tsunami Ready recognition in some or all the target countries.
- Insufficient capacity at country and/or community level.

# WHAT IS NEXT?



○ Complete NTRB Establishments for Malta and Spain Plan

○ Finalize Tsunami Signages in Morocco, Egypt and Cyprus

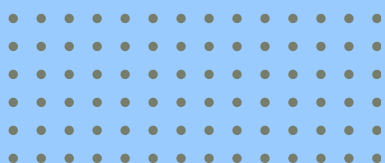
○ Install alerting systems to Spain, Morocco, Egypt and Cyprus

○ Organize TR ceremonies in Spain, Morocco, Egypt, Cyprus, Malta and Greece

**FEB. 2024**

○ Reporting and Evaluation

**JUN. 2024**



# Thank you



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