
THE GOVERNANCE AND THE ARCHITECTURE OF THE NEAMTWS

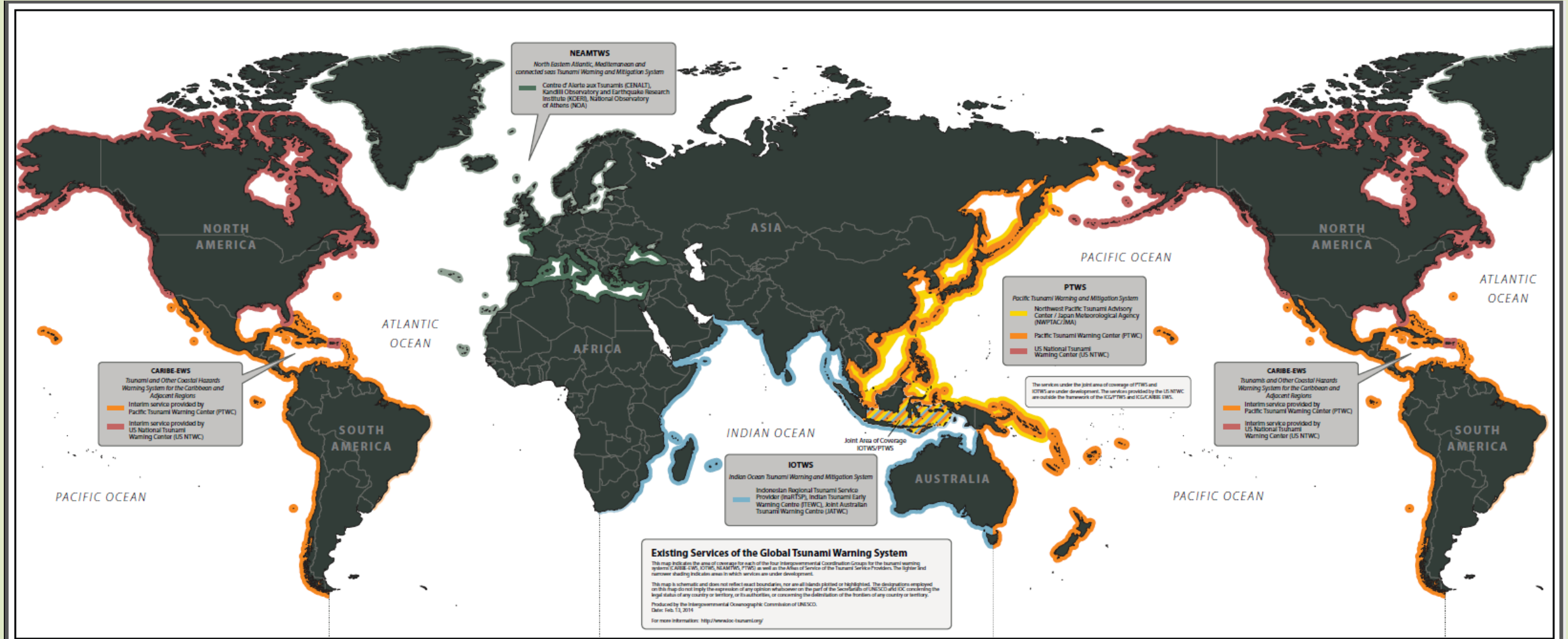
Prof. Dr. Ahmet Cevdet YALCINER

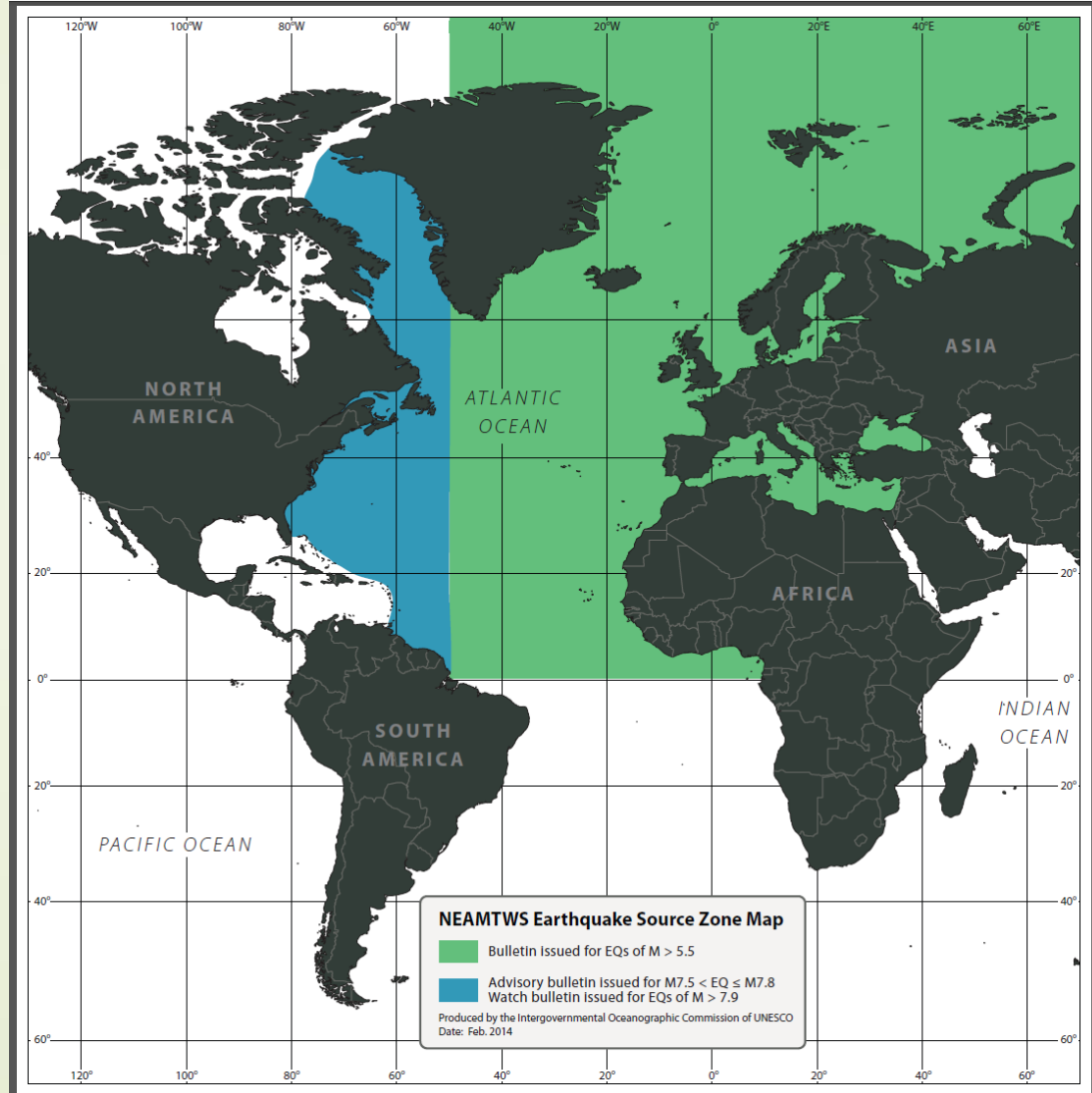
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Sept 22, 2014

Regional Workshop on Tsunami Warning and Emergency Response for the North-Eastern Atlantic, Mediterranean and connected seas
(NEAMTWS), 23-24 September 2014, Rabat, Morocco





Existing services of the global tsunami warning system



CARIBE-EWS Tsunami Service Provider (CARIBE-EWS-TSP)

IOTWS Tsunami Service Provider (IOTWS-TSP)

NEAMTWS Tsunami Service Provider (NEAMTWS-TSP)

PTWS Tsunami Service Provider (PTWS-TSP)

Governance of the Tsunami warning system ICG/NEAMTWS established by IOC in 2005



The screenshot shows the UNESCO Tsunami Programme website. The header includes the UNESCO logo and the text 'Intergovernmental Oceanographic Commission Tsunami Programme'. The navigation bar lists categories: UNESCO.org, Education, Natural Sciences, Social & Human Sciences, Culture, and Communication & Information. The main content area is titled 'NEAMTWS Home' and contains a detailed paragraph about the system's formation in 2004. It lists officers: Ahmet Cevdet Yalciner (Turkey, METU) for 2014-2015, and vice-chairpersons Pierluigi Soddu (Italy, DPC) and Trevor Guymer (UK) for 2014-2015. It also mentions working groups and task teams. A sidebar on the left provides navigation links for Home, Quiénes somos, News, Regiones, Caribbean, Océano Indico, Noreste del Océano Atlántico & Mar Mediterráneo, Océano Pacífico, Nuestro equipo, TWFPs & TNCs, Documentos, Boletín, Calendario, and Contacto. A 'Sea Level Monitoring' section with a world map is also visible.

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Intergovernmental Oceanographic Commission
Tsunami Programme

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Home
Quiénes somos
News
Regiones
Caribbean
Océano Indico
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Nuestro equipo
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Sea Level Monitoring

NEAMTWS Home

The Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS) was formed in response to the tragic tsunami on 26 December 2004, in which over 250,000 lives were lost around the Indian Ocean region. The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) received a mandate from the international community to coordinate the establishment of the System during the course of several international and regional meetings, including the [World Conference on Disaster Reduction](#) (Kobe, Japan, 18 – 22 January 2005), and the [Phuket Ministerial Meeting on Regional Cooperation on Tsunami Early Warning Arrangements](#) (Phuket, Thailand, 28 and 29 January 2005). The IOC Assembly, during its [twenty-third Session](#) (21-30 June 2005), formally established the ICG/NEAMTWS through [Resolution IOC-XXIII-14](#). The guidelines for the NEAMTWS activities are compiled in the NEAMTWS Implementation Plan

Officers

Chairperson

Ahmet Cevdet Yalciner (Turkey, Middle East Technical University - METU): 2014-2015

Vice-chairpersons

Pierluigi Soddu (Italian Department for Civil Protection - DPC): 2014 - 2015
Trevor Guymer (National Oceanography Centre, Southampton, UK): 2014-2015

Working Groups and Task Teams

The Intergovernmental Coordination Group meets regularly to establish and implement working plans in the NEAM region. To address specific technical issues ([terms of reference](#)) it has formed four working groups and two task teams:

NE Atlantic and Mediterranean Menu

- Tsunami Catalogue
- Structural elements of the TWS
 - TWFPs
 - TNCs
 - Membership
- Guiding Documents
- Research Projects
- Assessment of capacities
- NEAMTIC

Mandate ICG/NEAMTWS (1/2)

1. To coordinate the activities of the ICG/NEAMTWS
2. To organize and facilitate, as appropriate, the exchange of seismic, geodetic, sea-level and other data in or near real-time and information required for interoperability of the ICG/NEAMTWS
3. To promote the sharing of experience and expertise related to tsunami warning and mitigation for the north-eastern Atlantic, the Mediterranean and connected seas
4. To promote tsunami research
5. To promote the establishment and further development of national tsunami warning and mitigation capacities in accordance with standard protocols and methods
6. To develop, adopt and monitor implementation of work plans of the ICG/NEAMTWS, and to identify required resources

Mandate ICG/NEAMTWS (2/2)

7. To promote implementation of relevant capacity-building;
8. To liaise and coordinate with other tsunami warning systems;
9. To liaise with other relevant organizations, programmes and projects;
10. To promote the implementation of the ICG/NEAMTWS within a multi-hazard framework;
11. To develop a comprehensive programme of capacity-building on tsunami protection for the north-eastern Atlantic, the Mediterranean and connected seas, including the Black Sea;
12. To keep under constant scrutiny the status of the system and how it satisfies the needs.

10 sessions ICG/NEAMTWS

- ❖ ICG/NEAMTWS Established in June 2005 during the IOC Assembly
 - ✓ ICG/NEAMTWS I - Italy/2005
 - ✓ ICG/NEAMTWS II - France/2006
 - ✓ ICG/NEAMTWS III - Germany/2007
 - ✓ ICG/NEAMTWS IV - Portugal/2007
 - ✓ ICG/NEAMTWS V - Greece/2008
 - ✓ ICG/NEAMTWS VI - Turkey/2009
 - ✓ ICG/NEAMTWS VII - UNESCO Paris/2010
 - ✓ ICG/NEAMTWS VIII -Spain/2011
 - ✓ ICG/NEAMTWS IX - United Kingdom/2012
 - ✓ ICG/NEAMTWS X - Italy/2013
 - ✓ **ICG/NEAMTWS XI -Cyprus/2014**

Tenth Session of ICG/NEAMTWS X



- ❖ Rome / 19-21 November 2013 hosted by the Italian Civil Protection Department
- ❖ Having reviewed the progress made in the implementation of the NEAMTWS
- ❖ Noting furthermore the positive results of the extended communication tests since the ninth session and of the first tsunami exercise for the region

AGENDA	
10TH SESSION OF THE INTERGOVERNMENTAL COORDINATION GROUP FOR THE TSUNAMI EARLY WARNING AND MITIGATION SYSTEM IN THE NORTH-EASTERN ATLANTIC, THE MEDITERRANEAN AND CONNECTED SEAS 19 – 21 NOVEMBER 2013, ROME, ITALY AGENDA	
1	OPENING
2	ORGANIZATION OF THE SESSION
2.1	ADOPTION OF THE AGENDA
2.2	DESIGNATION OF THE RAPPORTEUR
2.3	CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION
2.4	ESTABLISHMENT OF SESSIONAL COMMITTEES AND WORKING GROUPS
3	REPORTS ON ICG/NEAMTWS INTERSESSIONAL ACTIVITIES
3.1	REPORT BY THE CHAIRPERSON
3.2	REPORT BY IOC SECRETARIAT
3.3	REPORT BY TOWS-WG
3.4	REPORT BY THE WORKING GROUPS AND TASK TEAMS
3.5	REPORT BY OTHER ICGS
3.6	REPORTS BY OTHER INTERGOVERNMENTAL ORGANIZATIONS
4	IMPLEMENTATION
4.1	STATUS FOR ESTABLISHMENT OF NATIONAL TSUNAMI WARNING CENTERS AND TSUNAMI WATCH PROVIDERS
4.2	TSUNAMI INFORMATION CENTER (NEAMTIC)
4.3	EVALUATION OF NEAMWAVE12 AND DISCUSSION ON NEAMWAVE14
5	ELECTIONS OF THE ICG/NEAMTWS OFFICERS FOR 2014-2015
6	PROGRAMME FOR 2014
6.1	ACTIVITIES SCHEDULED FOR 2014, INCLUDING NEAMWAVE14
6.2	ESTABLISHMENT OF INTERSESSIONAL WORKING GROUPS AND TASK TEAMS
7	DATE AND PLACE FOR ICG/NEAMTWS-XI
8	ANY OTHER BUSINESS
9	ADOPTION OF DECISIONS AND RECOMMENDATIONS
10	CLOSING

- ❖ Welcoming the continuation of the interim operational phase of NEAMTWS

- ❖ Welcoming the commitments by **Italy and Portugal** to announce the establishment of their national tsunami warning centres and to provide CTWP services in 2014

OFFICERS

❖ Chairperson

- ✓ **Ahmet Cevdet YALCINER (Turkey, Middle East Technical University - METU)**
 - 2013-...

❖ Vice chairpersons

- ✓ **Trevor GUYMER (National Oceanography Centre, Southampton, UK)**
 - 2012-...
- ✓ **Pierluigi SODDU (Italian Department for Civil Protection, Civil Protection)**
 - 2013-...

ICG/NEAMTWS

Steering Committee, 4 Working Groups and 2 Task Teams

Working Groups and Task Teams

The Intergovernmental Coordination Group meets regularly to establish and implement working plans in the NEAM region. To address specific technical issues (terms of reference) it has formed four working groups and two task teams:

Working Group 1 - Hazard Assessment and Modelling - Co-chairs: Mauricio González (Universidad de Cantabria, Spain) and Jörn Behrens (University of Hamburg, Germany)

Working Group 2 - Seismic and Geophysical Measurements - Co-chairs: Stefano Lorito (INGV, Italy) and Gerasimos Chouliaras (National Observatory of Athens, Greece)

Working Group 3 - Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments - Co-chairs: Begoña Pérez Gómez (Puertos del Estado, Spain) and Dov S. Rosen (Israel Oceanographic & Limnological Research, Israel)

Working Group 4 - Public Awareness, Preparedness and Mitigation - Co-chairs: Emilie Crochet (Ministry of Interior, France) and Stefano Tinti (University of Bologna, Italy)

Task Team on Communication Test - Co-chairs: Nikolaos Melis (National Observatory of Athens, Greece) and Fernando Carrilho (Instituto Português do Mar e da Atmosfera, Portugal)

Task Team on Tsunami Exercise - Co-chairs: Emilie Crochet (Ministry of Interior, France) and Marzia Santini (Italian Department for Civil Protection)

Secretariat

Technical Secretary: Francesca Santoro

IOC/UNESCO
1 rue Miollis
75732 Paris cedex 15
France



Working Group 1

Hazard Assessment and Modelling

Co-chairs:

Mauricio González (Universidad de Cantabria, Spain)

Jörn Behrens (University of Hamburg, Germany)



Working Group 2

Seismic and Geophysical Measurements

Co-chairs: Stefano Lorito (INGV, Italy)

Gerasimos Chouliaras (National Observatory of Athens, Greece)



Working Group 3

Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments

Co-chairs:

[Begoña Pérez Gómez](#) (Puertos del Estado, Spain)

[Dov S. Rosen](#) (Israel Oceanographic & Limnological Research,
Israel)



Working Group 4

Public Awareness, Preparedness and Mitigation

Co-chairs:

[Emilie Crochet](#) (Ministry of Interior, France)

[Stefano Tinti](#) (University of Bologna, Italy)



ICG/NEAMTWS Task Team on the Communication Test Exercises

Co-chairs: [Nikolaos Melis](#) (National Observatory of Athens, Greece)

[Fernando Carrilho](#) (Instituto Português do Mar e da Atmosfera, Portugal)

Mandate

The Task Team will:

1. Refine procedures for testing the communication of tsunami alert messages between CTWPs and TWFPs, including a review of latency and availability.
2. Contribute to reviewing and proposing amendments to the relevant parts of the Interim Operational Users Guide in the light of experience with the tests.
3. Plan, conduct, evaluate and validate quarterly CTEs organized by CTWPs on rotational basis
4. Report progress to ICG/NEAMTWS-XI



ICG/NEAMTWS Task Team on the Communication Test Exercises

Modus operandi

The Task Team will mainly work by correspondence, but hold a meeting in March 2014, and if required, another one in preparation for the next ICG meeting.

Membership

The ICG officers

- Chairs or co-chairs of existing NEAMTWS Task Teams and Working Groups
- Representatives of candidate TWPs
- Experts designated by Member States having interest in participating in the system (NTWCs, TWFPs, TNCs, Civil Protection authorities)
- Representatives of relevant organizations working in the NEAMTWS region



ICG/NEAMTWS Task Team on Tsunami Exercises

Co-chairs: [Emilie Crochet](#) (Ministry of Interior, France)

[Marzia Santini](#) (Italian Department for Civil Protection)

Mandate

The Task Team will:

1. Plan, Conduct and evaluate NEAMWave14, together with the Exercise Team*
2. Report progress to ICG/NEAMTWS-XI

Modus operandi

The Task Team will mainly work by correspondence, but hold a meeting in March 2014, and if required, another one in preparation for the next ICG meeting.



ICG/NEAMTWS Task Team on Tsunami Exercises

Membership

The ICG officers

- Chairs or co-chairs of existing NEAMTWS Task Teams and Working Groups
- Representatives of candidate TWPs
- Experts designated by Member States having interest in participating in the system (NTWCs, TWFPs, TNCs, Civil Protection authorities)
- Representatives of relevant organizations working in the NEAMTWS region
- Representative of ICG CARIBE-EWS

***Exercise Team:** Current and previous co-chairs of TT-CTE, WG1 (Hazard Assessment and Modelling), WG4 (Public Awareness, Preparedness and Mitigation), Chairperson of NEAMTWS, members of the IOC Secretariat.



ICG/NEAMTWS Steering Committee

The Steering Committee shall coordinate and integrate the work of ICG/NEAMTWS in the intersessional periods, as implemented through the various working groups and task teams, including but not limited to:

Monitor performance and interoperability of the NEAMTWS and report to ICG/NEAMTWS.

Implement decisions and recommendations of the ICG and provide strategic advice on the implementation of the NEAMTWS.



ICG/NEAMTWS Steering Committee

Identify relevant funding sources taking account of the resource implications of approved activities.

Facilitate implementation at the level of the ICG of relevant resolutions, decisions and recommendations of the IOC Governing Bodies.

Evaluate the feasibility of implementation of the recommendations of the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) in NEAMTWS.



ICG/NEAMTWS Steering Committee

Develop and maintain the NEAMTWS Implementation Plan, Interim Operations Users Guide, and Development Plan.

Examine continuing compliance of Tsunami Watch Providers (TWPs) with the adopted operational and organizational function and requirements.

Implement the procedures as adopted and the ToRs for the accreditation of Candidate Tsunami Watch Providers (CTWPs).



ICG/NEAMTWS Steering Committee

Modus operandi

The Steering Committee will mainly work by correspondence, but hold a coordination meeting prior to each ICG session. Other meetings will be held as needed.

Membership

The ICG/NEAMTWS Officers (Chair and two Vice-Chairs)

The Co-chairs of ICG/NEAMTWS Working Groups and Task Teams

Representatives of all TWPs/CTWPs



Basic structural elements of the TWS in the NEAM region

Candidate Tsunami Watch Providers (CTWPs)

Tsunami National Contacts (TNCs)

Tsunami Warning Focal Points (TWFPs)

National Tsunami Warning Centres (NTWCs).

The functions of such components of the NEAMTWS have been adopted by the ICG at the second session of the NEAMTWS held in Nice, 22-24 May 2006.



TNC

➤ **Tsunami National Contact**

- The person designated by an ICG Member State government to represent his/her country in the coordination of international tsunami warning and mitigation activities. The person is part of the main stakeholders of the national tsunami warning and mitigation system program. The
- person may be the Tsunami Warning Focal Point, from the national disaster management
- organization, from a technical or scientific institution, or from another agency with tsunami
- warning and mitigation responsibilities.



NEAMTWS – TNCs

Belgium

Jaak Raes, Centre gouvernemental de coordination et de crise (CGCCR)

Bulgaria

Atanas Vasilev Palazov, Bulgarian Institute of Oceanology (BAS)

Cape Verde

Bruno Faria, Instituto Nacional de Meteorologia e Geophísica (INMG)

Croatia

Ivica Vilibic, Institute of Oceanography and Fisheries (IOF)

Cyprus

George Zodiatis, Cyprus Oceanography Centre, University of Cyprus (OC)

Denmark

Erik Buch, Danish Meteorological Institute (DMI)

Egypt

Mahmoud Ismail and Maged Huassain, National Institute of Oceanography and Fisheries (NIOF)

Estonia

Ulo Suursaar, Estonian Marine Institute, University of Tartu (EMI)



NEAMTWS – TNCs

Finland

Finnish Meteorological Institute (FMI)

France

Charles Giusti, SATANEM, Ministère de l'Intérieur

Germany

Anna von Gyldenfeldt, Federal Maritime and Hydrographic Agency (BSH)

Greece

Maria Sachpazi and Nikolas Melis, National Observatory of Athens (NOA)

Ireland

Brian McConnell, Geological Survey of Ireland (GSI)

Israel

Dov S. Rosen, Israel Oceanographic and Limnological Research (IOLR)

Italy

Pierluigi Soddu, Dipartimento della Protezione Civile

Lebanon

Alexandre Sursock, National Center for Geophysical Research, National Council for Scientific Research



NEAMTWS – TNCs

Malta

Michel Galea, Civil Protection Department (MJHA-CPD)

Monaco

Michel Boisson, Centre Scientifique de Monaco (CSM)

Netherlands

Stein van Oosteren, Permanent Delegation of the Kingdom of the Netherlands to UNESCO

Portugal

Fernando Carrilho, Instituto de Meteorologia (IM)

Patricia Pires, Autoridade Nacional de Protecção Civil (ANPC)

Romania

Constantin Ionescu, National Institute for Earth Physics (NIEP)

Russian Federation

Viacheslav M. Shershakov, State Institution Research and Production Association "Typhoon"

Slovenia

Igor Strojjan , Environmental Agency of the Republic of Slovenia (EARS)



NEAMTWS – TNCs

Spain

Elena Tel, Instituto Español de Oceanografía (IEO)

Sweden

Kenneth Lundmark, Swedish Civil Contingencies Agency (MSB)

Syria

Erfan Ali, Syrian Wireless Organization (SWO), Ministry of Telecommunication and Technology

Turkey

Nurcan Meral Özel and Öcal Necmioglu, Kandilli Observatory and Earthquake Research Institute (KOERI)

Ukraine

Sergey Dotsenko, Marine Hydrophysical Institute, National Academy of Sciences of Ukraine (MHI)

United Kingdom

Stephen Hall, National Oceanography Centre, Southampton (NOC)



TWFP

- **Tsunami Warning Focal Point**

- A 24 x 7 point of contact (office, operational unit or position, not a person) officially designated by the NTWC or the government to receive and disseminate tsunami information from an ICG Tsunami Service Provider according to established National Standard Operation Procedures. The TWFP may or not be the NTWC.



TWFP

➤ Tsunami Warning Focal Point

- Reception of the messages transmitted by the Regional Tsunami Watch Centres
- Evaluate and issue national warnings in accordance with the National Emergency Plan
- Transmission of warning messages to the National Emergency Authorities
- Operating 24/7



NEAMTWS – TWFPs

Established national Tsunami Warning Focal Points (TWFPs) for the NEAMTWS:

Belgium

Centre gouvernemental de coordination et de crise (CGCCR)

Bulgaria

Bulgarian Institute of Oceanology (BAS)

Cape Verde

Instituto Nacional de Meteorologia e Geophísica (INMG)

Croatia

National Protection and Rescue Centre

Cyprus

Cyprus Oceanography Centre, University of Cyprus (OC)

Denmark

Danish Meteorological Institute (DMI)

Egypt

National Research Institute of Astronomy and Geophysics (NRIAG)

Estonia

Estonian Marine Institute, University of Tartu (EMI)



NEAMTWS – TWFPs

Finland

Monitoring Center for Natural Disasters, Finnish Meteorological Institute (FMI) and Government Situation Center Finland, Prime minister's office

France

Centre National d'Alerte aux Tsunamis (CENALT)

Germany

Federal Maritime and Hydrographic Agency (BSH)
Deutscher Wetterdienst (DWD)

Greece

Institute of Geodynamics, National Observatory of Athens (NOA)

Israel

Geophysical Institute of Israel (GII)

Italy

Istituto Nazionale di Geofisica e Vulcanologia

Lebanon

National Center for Geophysical Research, National Council for Scientific Research (NCGR)

Malta

Civil Protection Department (MJHA-CPD)



NEAMTWS – TWFPs

Monaco

Compagnie des Sapeurs-Pompiers de Monaco (SPMC)

Netherlands

Royal Netherlands Meteorological Institute (KNMI)

Norway

Directorate for Civil Protection and Emergency Planning (DSB)

Poland

National Centre for Coordination of Rescue Operations and Protection of Population, National Headquarters of the State Fire Service (KG PSP)

Portugal

Instituto Português do Mar e Atmosfera (IPMA)

Romania

National Institute for Earth Physics (NIEP)

Russian Federation

State Institution Research and Production Association "Typhoon"



NEAMTWS – TWFPs

Spain

Dirección General de Protección Civil y Emergencias (DGPCE)

Sweden

Swedish Meteorological and Hydrological Institute (SMHI)

Syria

Syrian Wireless Organization (SWO), Ministry of Telecommunication and Technology

Turkey

Kandilli Observatory and Earthquake Research Institute (KOERI)

Earthquake Department, Office of Prime Ministry, Disaster and Emergency Management Presidency (DEMP)


United Kingdom

Humanitarian Operations, Department for International Development (DFID)



NTWC

- National Tsunami Warning Center
- A center officially designated by the government to monitor and issue tsunami warnings and other related statements within their country according to established National Standard Operation Procedures.

- 
- Warning Centres strive to be:
 - Rapid, by providing warnings as soon as possible after a potential tsunami generation
 - Accurate, by issuing warnings for all destructive tsunamis while minimizing false warnings
 - Reliable, by making sure they operate continuously, and that their messages are sent and received promptly and understood by the users of the system.



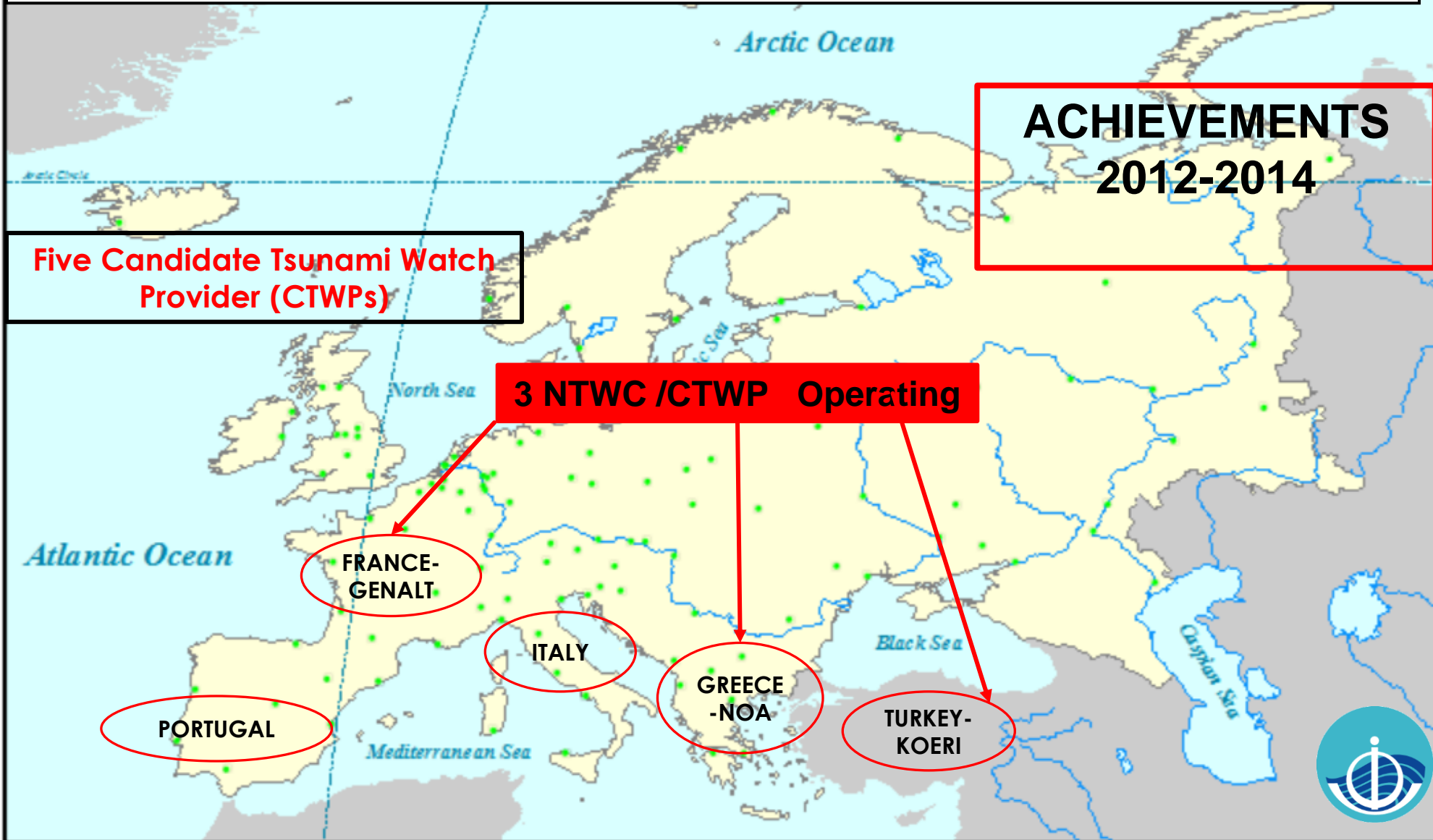
CTWPs

➤ Candidate of Tsunami Watch Providers

Candidate Tsunami Watch Providers (CTWPs)

- Collection, record, processing and analysis of earthquake data for the rapid initial assessment (locate the earthquake, the depth, the magnitude, the origin time) as a basis for the alert system
- Computing the arrival time of the tsunami in the forecasting points listed in the Communication Plan
- Collection, record, processing and analysis of sea level data for confirming and monitoring the tsunami or for cancelling elements of the alert system
- A decision making process in accordance with the Communication Plan to elaborate messages
- Dissemination to the Member States focal points (and national warning centres) of the messages in accordance with the Communication Plan, included the tsunami travel time, the

Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and connected Seas (ICG/NEAMTWS)





ACREDIATION PROCEDURE

- **ICG/NEAMTWS Accreditation Team list**
- For the accreditation, experts will be drawn from countries with significant experience in tsunami monitoring. In particular but not exclusively:
 - - one expert of NEAM Member States with a Candidate TWP or TWP
 - - one expert of another NEAM Member state
 - - plus one expert
- Each Candidate TWP will be visited by a team of at least 3 experts (which cannot include representatives from the TNC or TWFP of the visited Candidate TWP). The ICG/NEAMTWS Steering Committee will nominate the team.
- The duration of the accreditation visit should be at least two full working days in order to check all relevant functions and requirements of the Candidate TWP.



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 -



ACREDITATION PROCEDURE

- Each Candidate TWP will be visited by a team of at least 3 experts (which cannot include representatives from the TNC or TWFP of the visited Candidate TWP). The ICG/NEAMTWS Steering Committee will nominate the team.
- The duration of the accreditation visit should be at least two full working days in order to check all relevant functions and requirements of the Candidate TWP.
-



ACREDITATION PROCEDURE

- **Candidate TWP team**
- The team of the visited country should consist of representatives from at least 3 of the following institutions:
- Tsunami National Contact (TNC)
- Tsunami Warning Focal Point (TWFP)
- Head of NTWC
- Governmental representative
- Candidate TWP can bring as many participants as deemed necessary to answer the questions of the accreditation team.

IMPLEMENTATION PLAN

Intergovernmental Oceanographic Commission
Technical Series

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**Tsunami Early Warning and
Mitigation System
in the North Eastern Atlantic,
the Mediterranean and
Connected Seas, NEAMTWS**

Implementation Plan

Version 3.4
October 2009

UNESCO



IMPLEMENTATION PLAN

- The Implementation Plan is structured to reflect the ICG and its Working Groups,
- WG 1 (Hazard Assessment, Risk and Modelling),
- WG 2 (Seismic and Geophysical Measurements),
- WG 3 (Sea Level Data Collection and Exchange, including Offshore Tsunami Detection and Instruments),
- WG 4 (Advisory, Mitigation and Public Awareness).

IMPLEMENTATION PLAN

IOC Technical Series No. 73

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Intergovernmental Oceanographic Commission Tsunami Programme



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NEAMTWS - TNCs

Established Tsunami National Contacts (TNCs) for the NEAMTWS:

Belgium

Jaak Raes, Centre gouvernemental de coordination et de crise (CGCCR)

Bulgaria

Atanas Vasilev Palazov, Bulgarian Institute of Oceanology (BAS)

Cape Verde

Bruno Faria, Instituto Nacional de Meteorologia e Geophísica (INMG)

Croatia

Ivica Vilibic, Institute of Oceanography and Fisheries (IOF)

Cyprus

George Zodiatis, Cyprus Oceanography Centre, University of Cyprus (OC)

Denmark

Erik Buch, Danish Meteorological Institute (DMI)

Egypt

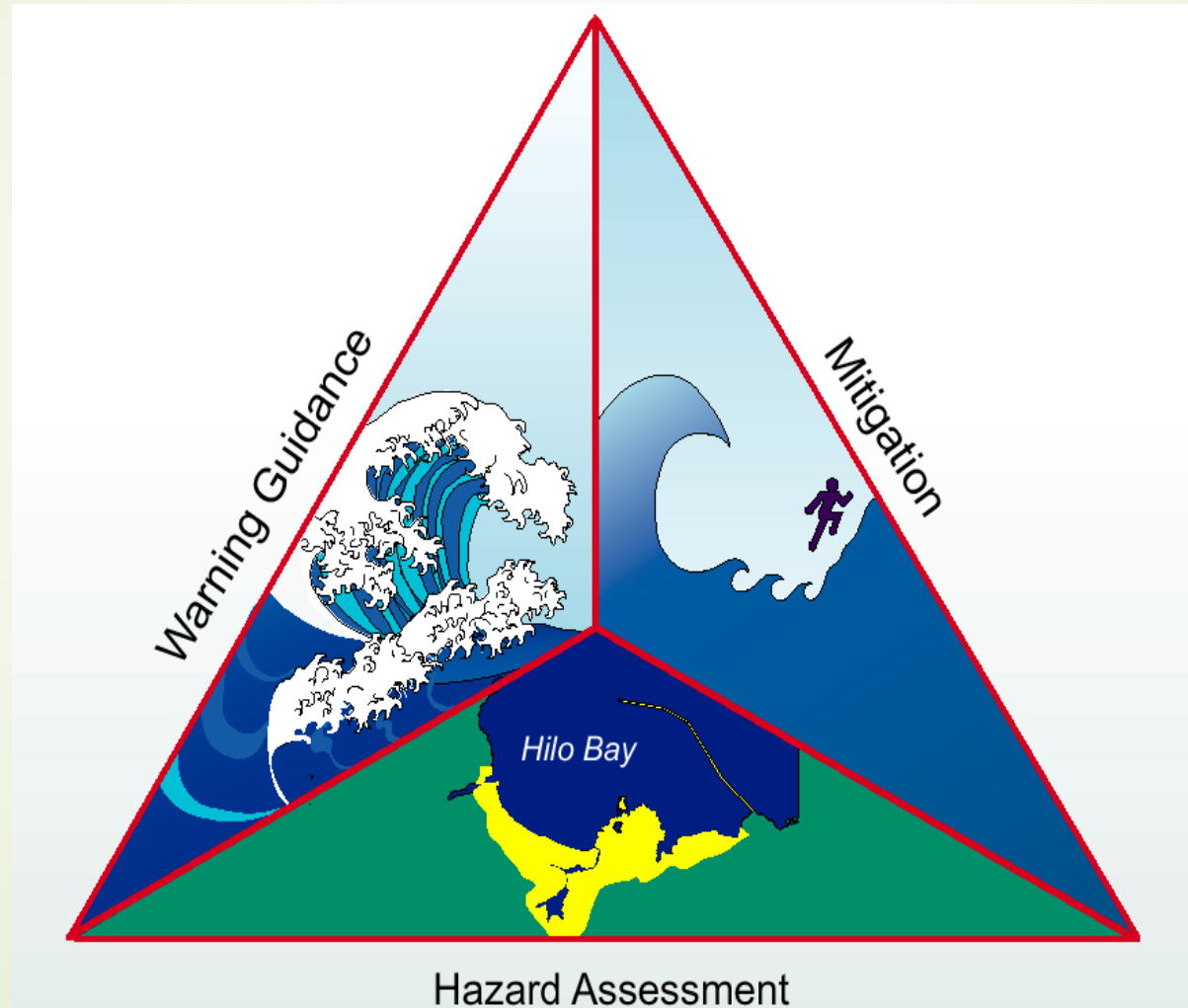
Mahmoud Ismail and Maged Huassain, National Institute of Oceanography and Fisheries (NIOF)

NE Atlantic and Mediterranean Menu

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- Assessment of capacities
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GUIDING DOCUMENTS

Tsunami Warning Strategy Assessment, Preparedness and Warning







Special Thanks

Islamic Educational, Scientific and Cultural
Organization (ISESCO)

“Centre national de la Recherche scientifique
et technologique” (CNRST) of Morocco

the UNESCO Rabat Office



**THANKS ARE EXTENDED TO
YOU FOR YOUR KIND AND SUSTAINED ATTENTION**

