



FACTSHEET
MAY 2015

Tsunami Warning and Mitigation Systems to protect Coastal Communities

**Tsunami Early Warning and Mitigation System
in the North-Eastern Atlantic, the Mediterranean
and Connected Seas (NEAMTWS)
2005–2015**

BACKGROUND

Following the disastrous 2004 tsunami, in which over 230,000 lives were lost around the Indian Ocean region, the Intergovernmental Oceanographic Commission (IOC) of UNESCO was mandated by its Member States to facilitate the expansion of global coverage of Tsunami Warning and Mitigation Systems (TWS), and to coordinate the establishment of the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS).

During the Twenty-third Session of the IOC Assembly (IOC-XXIII/3) held from 21 to 30 June 2005, the ICG/NEAMTWS was formally established through Resolution XXIII-14.

The need to develop NEAMTWS was recognized early in the European Council Conclusions of December 2007 (15479/07) on the development and establishment of Early Warning Systems in the EU, on the establishment of an Early Warning System for tsunamis in the North-East Atlantic and the Mediterranean region, and in the Council Conclusions on Reinforcing the Union's Disaster Response Capacity – towards an integrated approach to managing disasters of June 2008 (7562/08).

● Governing Bodies of the IOC

Assembly: 147 Member States

Executive Council: 40 Member States

● Title of IOC Subsidiary Body

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

● Date and resolution of establishment

June 2005 through Resolution XXIII-14

● Terms of Reference

Annex to Resolution XXIII-14:

- To coordinate the activities of the ICG/NEAMTWS;
- 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;
- To promote the sharing of experience and expertise related to tsunami warning and mitigation for the north-eastern Atlantic, the Mediterranean and connected seas;

- To promote tsunami research;
- To promote the establishment and further development of national tsunami warning and mitigation capacities in accordance with standard protocols and methods;
- To develop, adopt and monitor implementation of work plans of the ICG/NEAMTWS, and to identify required resources;
- To promote implementation of relevant capacity-building;
- To liaise and coordinate with other tsunami warning systems;
- To liaise with other relevant organizations, programmes and projects;
- To promote the implementation of the ICG/NEAMTWS within a multi-hazard framework;
- 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;
- To keep under constant scrutiny the status of the system and how it satisfies the needs.

● Membership

Thirty-nine (39) Member States of the IOC bordering the North-Eastern Atlantic and those bordering and within the Mediterranean Sea and connected seas:

Albania	Finland	Libya	Russian Federation
Algeria	France	Malta	Slovenia
Belgium	Georgia	Mauritania	Spain
Bulgaria	Germany	Monaco	Sweden
Cabo Verde	Greece	Morocco	Syria
Croatia	Iceland	Netherlands	Tunisia
Cyprus	Ireland	Norway	Turkey
Denmark	Israel	Poland	Ukraine
Egypt	Italy	Portugal	United Kingdom
Estonia	Lebanon	Romania	

Observers from other IOC Member States.

Invited observers from other organizations (including NGOs), programmes and projects, in accordance with the IOC rules and procedures.

● Governance

Officers composed of Chairperson and two Vice-Chairpersons. The Officers meet on the occasion of sessions of the ICG/NEAMTWS and also at meetings of the Steering Committee.

The Steering Committee is composed of the Officers, the Co-Chairs of the Working Groups and Task Teams, and of one representative per Candidate Tsunami Service Provider (CTSP).

By IOC Rule of Procedure 48.3, the ICG/NEAMTWS reports to each ordinary session of the Assembly.

● Elected Officers

- Chairperson:** Mr Ahmet Cevdet Yalciner
Middle East Technical University – METU, Turkey: 2014–2015
- Vice-Chairperson:** Mr Pierluigi Soddu
Italian Department for Civil Protection – DPC, Italy: 2014–2015
- Vice-Chairperson:** Mr Trevor Guymmer
National Oceanography Centre, Southampton, UK: 2014–2015
- Past Chairpersons:** Mr Stefano Tinti (Italy), Mr François Schindel  (France)

Working Groups

- **Working Group 1 on Hazard Assessment and Modelling:** Co-Chairs: Mr J rn Behrens (University of Hamburg, Germany) and Mr Mauricio Gonz lez (Universidad de Cantabria, Spain)
- **Working Group 2 on Seismic and Geophysical Measurements:** Co-Chairs: Mr Stefano Lorito (INGV, Italy) and Mr Gerasimos Chouliaras (National Observatory of Athens, Greece)
- **Working Group 3 on Sea Level Data Collection and Exchange, Including Offshore Tsunami Detection and Instruments:** Co-Chairs: Ms Bego a P rez G mez (Puertos del Estado, Spain) and Mr Sergiu Dov Rosen (Sea Shore Rosen Engineering Consultants and advisor to the National Management Authority, Israel)
- **Working Group 4 on Public Awareness, Preparedness and Mitigation:** Co-Chairs: Ms Emilie Crochet (Ministry of Interior, France) and Mr Stefano Tinti (University of Bologna, Italy)

Task Teams

- **Task Team on Communication Test:** Co-Chairs: Mr Nikolaos Melis (National Observatory of Athens, Greece) and Mr Fernando Carrilho (Instituto Portugu s do Mar e da Atmosfera, Portugal)
- **Task Team on Tsunami Exercise:** Co-Chairs: Ms Emilie Crochet (Ministry of Interior, France) and Ms Marzia Santini (Italian Department for Civil Protection)
- **Task Team on Operation:** Co-Chairs: Mr Alberto Michelini (National Institute for Geophysics and Volcanology) and Mr Fran ois Schindel  (CENTre d’Alerte aux Tsunamis).

● ICG/NEAMTWS Sessions held

- ICG/NEAMTWS-I Rome, Italy, 21–22 November 2005
- ICG/NEAMTWS-II Nice, France, 22–24 May 2006
- ICG/NEAMTWS-III Bonn, Germany, 7–9 February 2007
- ICG/NEAMTWS-IV Lisbon, Portugal, 21–23 November 2007
- ICG/NEAMTWS-V Athens, Greece, 3–5 November 2008
- ICG/NEAMTWS-VI Istanbul, Turkey, 11–13 November 2009
- ICG/NEAMTWS-VII Paris, France, 23–25 November 2010
- ICG/NEAMTWS-VIII Santander, Spain, 22–24 November 2011
- ICG/NEAMTWS-IX Southampton, United Kingdom, 10–13 September 2012
- ICG/NEAMTWS-X Rome, Italy, 19–21 November 2013
- ICG/NEAMTWS-XI Nicosia, Cyprus, 11–14 November 2014

● Secretariat focal point

Ms Francesca Santoro
Technical Secretary for the ICG/NEAMTWS

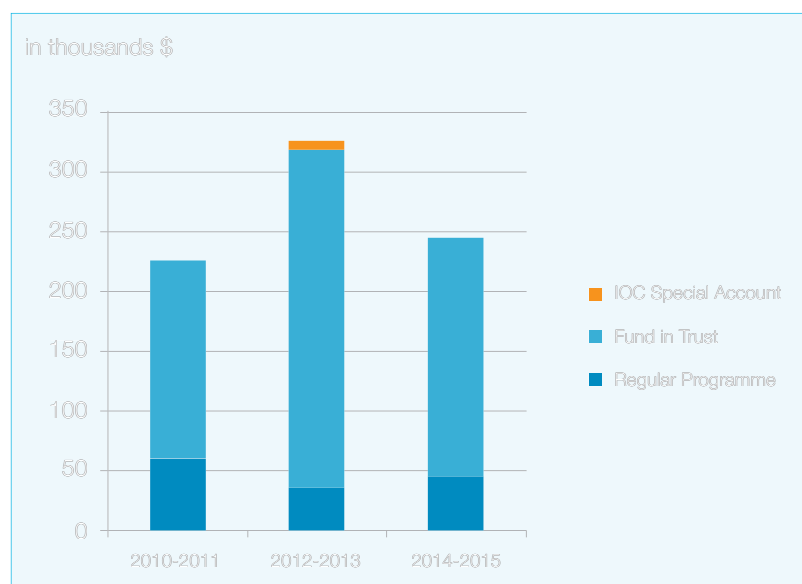
7 Place de Fontenoy
75352 Paris 07 SP, France
Tel: +33 (0) 145 68 39 52
Email: f.santoro@unesco.org

● Funding

Regular Budget, Emergency Fund and In-kind contributions from Member States through national and international projects.

● Biennium

	2010–2011	2012–2013	2014–2015
Regular Programme	60,000 \$	35,000 \$	45,000 \$
Fund in Trust	165,000 \$	283,746 \$	198,247 \$
IOC Special Account	–	6,000 \$	–
Total	225,000 \$	324,746 \$	243,247 \$



This table only reflects the funding provided directly to the IOC Tsunami Unit. There have been many other indirect contributions to the programme: Disaster managers and staff of national agencies in affected countries have participated in Tsunami Unit related activities; scientists have shared their expertise during workshops and training courses; and many countries have hosted Intergovernmental Coordination Group (ICG) meetings and workshops.

● Candidate Tsunami Service Providers (CTSP)

FRANCE: Centre d'Alerte aux Tsunamis (CENALT)

GREECE: Institute of Geodynamics – National Observatory of Athens (NOA)

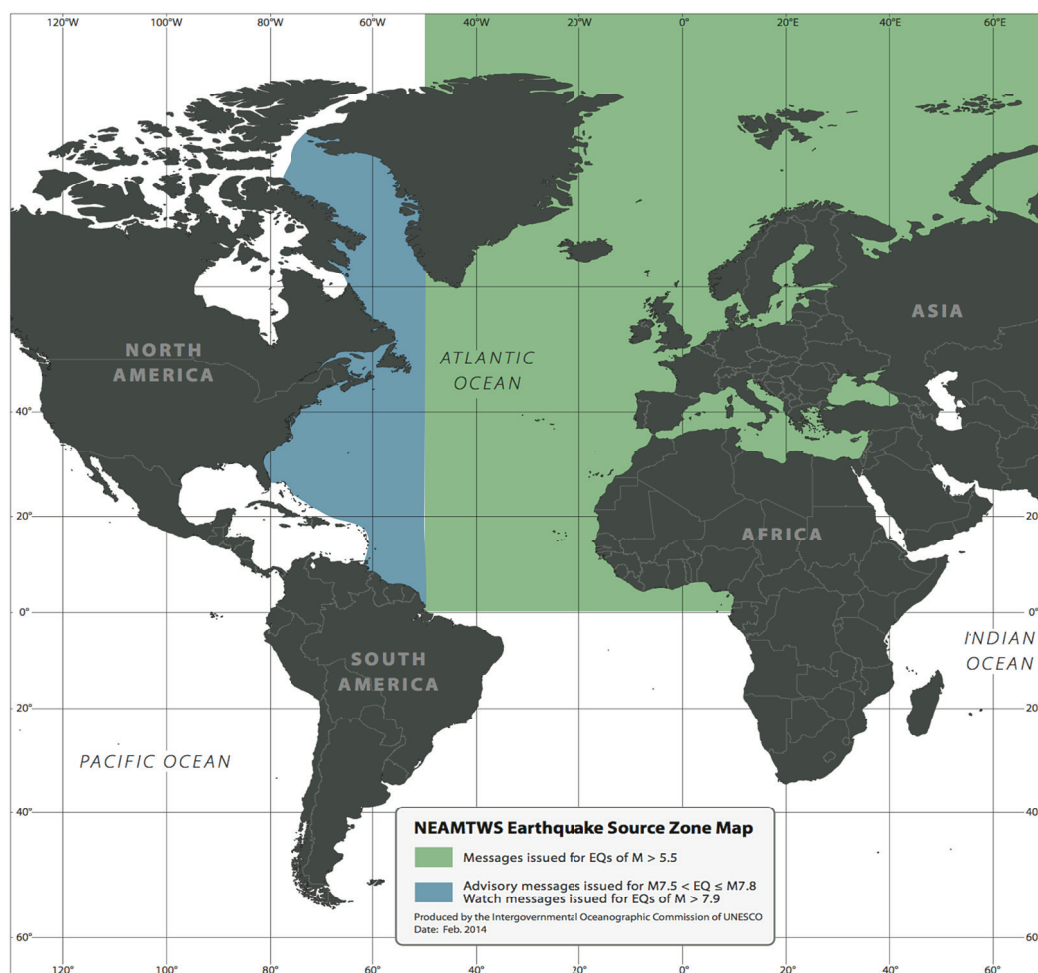
ITALY: Istituto Nazionale di Geofisica e Vulcanologia (INGV)

TURKEY: Kandilli Observatory and Earthquake Research Institute (KOERI)

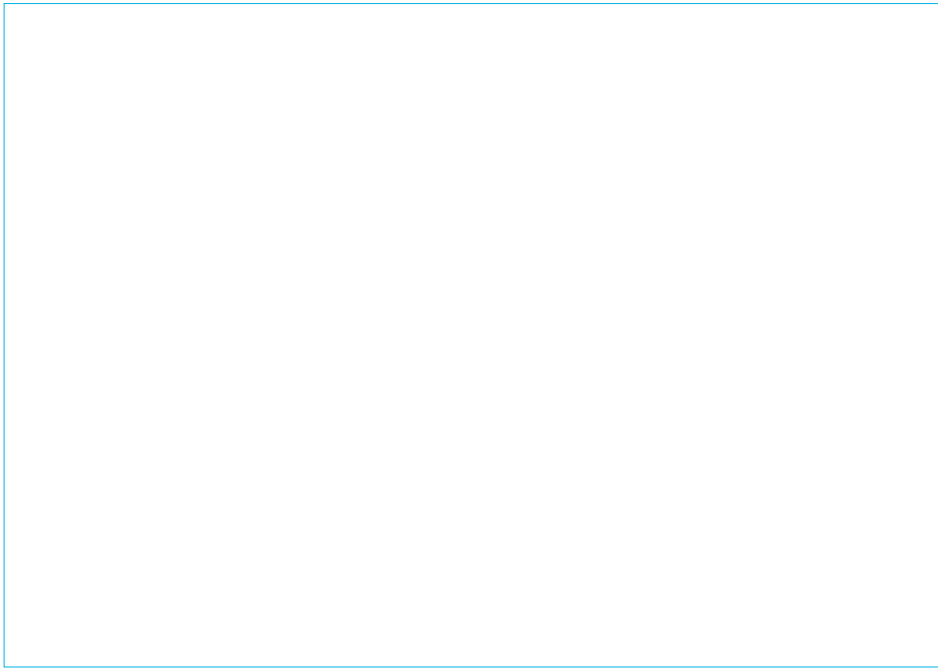
● National Tsunami Warning Centres (NTWC)

Denmark, France, Germany, Greece, Italy, Portugal, Romania, Spain, and Turkey.

● Earthquake Source Zone Monitored by the NEAMTWS-CTSPs

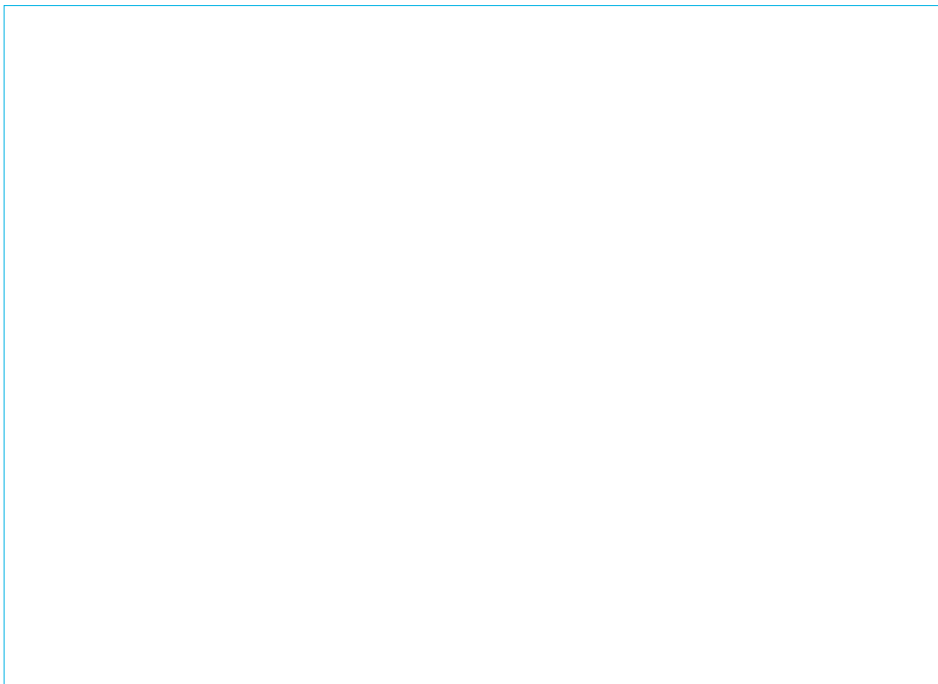


- **NEAMTWS Core Seismic Network**



This map reflects the information provided by Member States to Working Group 2 Co-Chairs

- **NEAMTWS Core Coastal Sea level Station and Deep Ocean Tsunameter Networks**



This map reflects the information provided by Member States to Working Group 3 Co-Chair

● Historical tsunami catalogue

A unified catalogue containing 290 tsunamis generated in the European and Mediterranean seas since 6150 B.C. to current days was developed based on the GITEC, GITEC-II, and TRANSFER projects.



Euro-Mediterranean Tsunami Catalogue:

<http://www.arcgis.com/apps/StorytellingTextLegend/index.html?appid=8329c2ad9b7f43c18562bddd6c1ad26>

Bibliography: Maramai A., Brizuela, B., Graziani L. 2014. The Euro-Mediterranean Tsunami Catalogue. Annals of geophysics, Vol 57, No 4.

(<http://www.annalsofgeophysics.eu/index.php/annals/article/view/6437>)

● Enlarged Communications Tests Exercises (ECTE)

ECTE	Participating Member States
ECTE1, 10 August 2011	31
ECTE2, 22 May 2012	31
CTE3, 1 October 2013	31
CTE4, 30 June 2014	31

● Exercises NEAMWAVE

NEAMWAVE	Participating Member States
NEAMWAVE 12, 27–28 November 2012	18
NEAMWAVE 14, 28–30 October 2014	20

● NEAMTIC

NEAMTIC activities are aiming at:

- Making citizens aware of risks of floods from the sea in coastal areas, such as tsunamis, storm surges and strong swells;
- Acquiring knowledge on and practicing safe behaviour;
- Identifying, sharing and disseminating good practices in plans, methods and procedures to strengthen preparedness for sea-level related hazards, including mitigation through integrated coastal zone management approaches;

Educational and awareness raising materials can be downloaded from NEAMTIC website:

neamtic.ioc-unesco.org

● Guiding documents

- NEAMTWS Implementation Plan v. 3.4 (2009)
- NEAMTWS Interim Operations Users Guide (2011)
- NEAMTWS Development Plan (2011)

● Summary of NEAMTWS-CTSP bulletins issued from January 2013 to February 2015

Mediterranean Region

No.	Time (UTC) Date	Region	USGS Final Mag M _{ww}	GCMT Final Mag Mw	NOA Final Mag Mw	CTSP HL-NTWC (NOA)		CTSP-TR (KOERI)		CTSP-FR (GENALT)	
						No. EQ Bulletins Issued (NOA mag issued)	No. Threat Bulletins Issued	No. EQ Bulletins Issued (and Final Mag)	No. Threat Bulletins Issued	No. Messages Issued (and Final Mag)	No. Threat Bulletins Issued
1	14:18:08 8 Jan 2013	N. Aegean Sea, Limnos Isl. (GR)	5.7		5.7	1 (5.8)	1 (No Threat)	1 (6.2 ML)	1 (No Threat)		
2	21:17 17 Jan 2013	Egypt	4.9 (mb)					1 (5.5 Mw)	1 (No Threat)		
3	16:11:02 15 Jun 2013	Crete Isl. (GR)	6.2		6.1	1 (5.9)	1 (No Threat)	1 (5.4 Mw)	1 (No Threat)		
4	03.12 17 Feb 2013	Ionian Sea	4.9 (mb)					1 (5.4 Mw)	1 (No Threat)		
5	21:39:04 16 Jun 2013	Crete Isl. (GR)	6.0		5.8	1 (5.7)	1 (No Threat)	1 (5.9 Mw)	1 (No Threat)		
6	13:11:53 12 Oct 2013	W. Crete Isl. (GR)	6.6		6.4	1 (6.3)	1 (No Threat)	1 (6.4 Mw)	2 (Threat)		
7	15:21:05 28 Dec 2013	Cyprus region	5.9		5.9	1 (5.9 EMSC)	1 (No Threat)	1 (6.1 Mw)	1 (No Threat)		
8	18:45:08 26 Jan 2014	Ionian Sea, Cephalonia Isl. (GR)	6.1		5.3	1 (5.9)	1 (No Threat)				
9	03:08:44 3 Feb 2014	Ionian Sea, Cephalonia Isl. (GR)	6.0		5.9	1 (5.9)	1 (No Threat)				
10	20:08:07 4 Apr 2014	Aegean Sea, Hydra Isl. (GR)	5.6		5.4	1 (5.6)	1 (No Threat)				
11	09:25:02 24 May 2014	N. Aegean Sea, Samothraki Isl. (GR)	6.9		6.8	1 (6.0)	1 (No Threat)	1 (6.6 Mw)	2 (Threat)		
12	04:11 01 Aug 2014	North Algeria		5.6						1 – 5.6	1 (No threat)
13	03:45:05 29 Aug 2014	S. Aegean Sea, SE Peloponnesus (GR)	5.8		5.8	1 (5.8)	1 (No Threat)	1 (5.6 Mw)	1 (No Threat)		

North-Eastern Atlantic Region

No.	Time/Date (UTC)	Region	GCMT Final Mag Mw	CTSP-FR (CENALT)	
				No. Messages Issued (and Final Mag)	Alert level
1	06:25 30/04/2013	Azores Islands	5.8	1 – 5.7	Information
2	22:04 24/06/2013	North Atlantic Ridge	6.5	1 – 6.7	Information
3	04:01 05/09/2013	Atlantic Ridge	6.0	1 – 5.9	Information
4	01:46 30/06/2014	Ascension	5.7	1 – 5.6	Information
5	01:28 27/07/2014	North Atlantic Ridge	6.1	1 – 5.5	Information
6	09:08 07/09/2014	Iceland	5.6	1 – 5.7	Information
7	10:22 07/10/2014	Iceland	5.5	1 – 5.6	Information
8	12:45 19/01/2015	Greenland Sea	5.4	1 – 5.5	Information
9	18:59 13/02/2015	North Atlantic Ridge	7.1	1 – 6.6	Information



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

7, place de Fontenoy 75352 Paris 07 SP France

Tel: +33 1 45 68 10 00

Fax: +33 1 45 68 58 12

www.ioc-unesco.org

www.ioc-tsunami.org