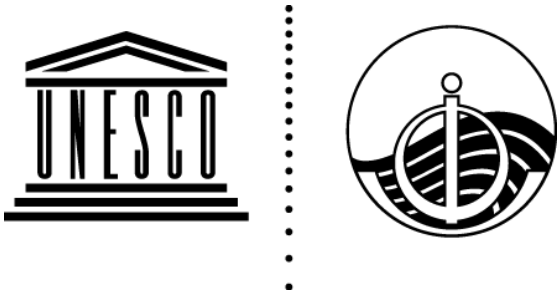
Intergovernmental Oceanographic Commission
technical series

116



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

Third Enlarged Communication Test Exercise (CTE3)

1 October 2013

Volume 1 Exercise Manual

UNESCO

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TABLE OF CONTENTS

ANNEXES

1. INTRODUCTION

The Tsunami Watch Providers (TWPs), National Tsunami Warning Centres (NTWCs), and Tsunami Warning Focal Points (TWFPs) must keep a high level of readiness so as to be able to act efficiently and effectively to provide for the public's safety during fast-onset and rapidly-evolving natural disasters like the tsunamis. To maintain this high state of operational readiness and especially for infrequent events such as tsunamis, TWPs/NTWCs and emergency agencies must regularly practice their response procedures to ensure that vital communication links work seamlessly, and that agencies and response personnel know the roles that they will need to play during an actual event.

For this purpose, Tsunami Communication Test Exercises (CTEs) must be conducted regularly, ideally every 1 to 3 months on a fully operating system.

General objectives of a CTE are:

1. Evaluate and validate the Tsunami Watch Providers' dissemination process of issuing tsunami messages to the NEAM (North-Eastern Atlantic, the Mediterranean and Connected Seas) region.
2. Evaluate and validate the process for countries to receive and confirm tsunami messages.
3. Develop and implement mechanisms for the regular update of NTWCs and TWFPs contacts.
4. Help the establishment and updating of Standard Operational Procedures (SOPs) as regards the communications used to disseminate and receive tsunami messages in the NEAM region.

TWFPs are the key players in terms of translating the warning message into essential information for Civil Protection and Disaster Management Authorities (CP–DMA), especially if they are not CP–DMA by themselves. The CTEs are important tools in terms of seeking the involvement of CP–DMAs. Therefore, the NEAMTWS–CTE will address not only the questions related to the evaluation and issuance of the warning message by (candidate) Tsunami Watch Providers, but will also attempt to assess the national and/or local response and warning dissemination mechanisms once emergency authorities receive a warning.

The CTE will involve all possible TWFPs using conventional message dissemination channels, like e-mail, fax and SMS. Message dissemination using GTS will be only available between TWFPs that have that system available at the operational level. It is also desirable that relevant organizations not belonging to the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS), like the European Union Monitoring and Information Centre (MIC), and the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE-EWS) participate in the NEAMTWS–CTE as observers and they are encouraged to fill also the questionnaires related to the exercise.

Tsunami Communication Test Exercises are planned, conducted and evaluated by dedicated Task Teams established by the ICG/NEAMTWS. This manual together with the report of previously conducted CTEs are available through the IOC website. This manual provides detailed information and guidance on the preparation, conduct and evaluation of a CTE. A CTE Timeline Flowchart has been provided in ANNEX XV to use as a quick-guide for the CTE covering the most essential issues, and a CTE Checklist is provided in ANNEX XVI as a process control mechanism for all parties involved in the CTE. While these two annexes could be considered as a chart summary of the manual, parties involved in a CTE are

strongly encouraged to read this manual thoroughly to have a better understanding of all the requirements in detail.

2. PREPARATION OF NEAMTWS–CTE (COMMUNICATION TEST EXERCISE)

The Message Provider is chosen among the candidate TWPs and agreed upon within the ICG/NEAMTWS appropriate Task Team (TT). The identification of the Message Provider will be clearly identified in the CTE announcement. When in operation, the TWPs will define in their SOP the periodicity for conducting CTEs. Message recipients will involve all possible TWFPs and NTWCs belonging to the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS).

The CTE period begins by issuing a first announcement from official channels of the Intergovernmental Oceanographic Commission (IOC) to all TWFPs registered in the NEAMTWS, at least 4 weeks in advance of the planned exercise date. This CTE Manual should also be sent at the first announcement as an attachment, and the announcement should clearly indicate from where this manual could be downloaded.

In the announcement, CTE participants should be strongly invited to read this manual in detail and report any inconsistencies to the IOC Secretariat. During the following 3 weeks period, TWFPs from Member States (MS) will have the time to correct and or update all the contact information.

The CTE is preceded, one week before, by a second announcement sent by the Message Provider via e-mail in order to ensure that the anti-spam and firewall software operating in the Message Receivers networks do not block the Communication Test Exercise Message. This will also allow the Message Provider to check any limitation in the number of email recipients. The text of these two announcements should be very clear on the actions that are required by the message recipients in order to participate in the exercise and in its evaluation. **Evaluation Questionnaire to Message Receiver (**ANNEX VII**) should also be distributed as a word file to the Message Receivers during this second announcement.**

On the day of the second announcement, the IOC Secretariat will send the most up-to-date list of TWFP/TNC contact information in the format below (Table 1) to the Message Provider, copied to the Task team Chair/Co-chairs. It should be reminded that it is the responsibility of the Member States to nominate their Tsunami National Contacts (TNCs) and Tsunami Warning Focal Points (TWFPs) and to ensure the actuality of this information.

		TWFP CONTACT INFO				TSUNAMI MESSAGES					
						Fax Message		E-mail Message		Voice/SMS Message	
		Name	Address	E-mail	Fax	Primary	Alternate	Primary	Alternate	Primary	Alternate
Country 1	Institute 1										
	Institute 2										
Country 2	Institute 1										
	Institute 2										

Table 1. Format of the TWFP/TNC contact information list.

3. DESCRIPTION OF NEAMTWS–CTE

NEAMTWS Tsunami Communication Test Exercises will simulate the dissemination of tsunami messages by one Regional Tsunami Watch Centre (RTWC) Tsunami Watch Provider (TWP) and its timely reception by the NTWCs and all participating TWFPs. It will try

to evaluate the communications delays that may be involved in the international communication systems, and identify possible bottlenecks by requiring the record of adequate time stamps. To do this properly, it is desirable that all exercise participants have their equipment synchronized, either to local time or universal time. If possible, each exercise participant should provide the methods and procedures used to ensure the synchronization of equipment, PCs and fax.

The NEAMTWS–CTEs will use email, fax, GTS, and SMS as means of communication. It will be conducted in such a way to be completed in a timely manner during reasonable work hours across the time zones found in the NEAM region, most likely between 10.00–14.00 UTC. It is important to note that, while being an old generation of communication technology, the well-proven reliability of GTS in case of emergency situations makes its use indispensable.

The NEAMTWS–CTE begins by the broadcast of a Tsunami Test Message by one of the candidate TWPs. (See the message description in ANNEX I and ANNEX II).

In order to simulate in the best way possible the operation of a TWP, the instant when the message provider is aware that a tsunami message has to be delivered should be considered as time zero of the evaluation (time stamp zero or TS0). The message should already be preformatted missing only the time stamp on the header. The message provider will then take all the actions required to issue this message by e-mail, fax, GTS, and SMS to all possible message recipients. This means that the preparation latency from the message provider can be also evaluated.

The participant NTWC/TWFP then receives this message. It is required that the operator that receives the message takes note of the time when the message was received by the local equipment (TS1), and the time when the message was read and understood by the operator (TS2). It is important that these time stamps are well taken and reported in the evaluation questionnaire. Some guidelines on the cares to be taken to report TS1 accurately are presented in ANNEX XI and ANNEX XII.

The NEAM–TWP tsunami text messages, format and content, including information on the rules used for the numbering of Tsunami Communication Test Messages, can be found in the NEAMTWS Interim Operational Users Guide (I-OUG), available at NEAMTIC website (http://neamtic.ioc-unesco.org/docs/tech-docs). The names of countries/institutions and corresponding abbreviations to be used in the test should also be taken from the I-OUG.

4. REQUIREMENTS AND GUIDELINES FOR THE COMMUNICATON TECHNOLOGIES TO BE USED IN NEAMTWS–CTE

4.1 GENERAL REQUIREMENTS

ASCII character set should be used in the message templates used in all communication technologies. All times in the evaluation questionnaires should be reported in HH:MM:SS UTC format.

Message Providers are encouraged to make use of an interface especially created for message dissemination by accessing preformatted messages and updating the time information and channelling the messages to e-mail, fax, GTS, and SMS dissemination to avoid human errors.

No country/institution other than the Message Provider is entitled to broadcast the CTE message. Participating institutions are free to make use of CTE message as they wish as long as they assure that communication test messages should not cause concern among the public and/or relevant institutions. All deviations from this guideline need to be reported in the Evaluation Questionnaire.

4.2 REQUIREMENTS FOR EMAIL

The number of email message recipients would be restricted to 2 email addresses per agency and 4 email addresses per Member State.

In addition to TS0, TS1E (time stamp of email message) should be reported by the Message Provider. Message Recipients are recommended to develop codes to automatically detect e-mail messages and send the subject line to the designated mobile phone number of TWFP via SMS.

4.3 REQUIREMENTS FOR FAX

The number of fax message recipients would be restricted to 2 per Member State; thus 1 per agency if two agencies are designated. If a single agency has been designated, both primary and alternate fax numbers would be utilized.

At least an 8-channel fax server should be used for the fax message dissemination. The Message Provider should set up the fax server in such a way so that each recipient fax number will be subject to at least three attempts to send the fax message, where in each attempt the fax recipient will be ringed at. In addition to TS0, TS1F (time stamp of fax message) should be reported by the Message Provider and ASCII character set should be used in the fax message templates.

For the easier evaluation of fax message dissemination, the sequencing of the fax numbers should be done in such a way so that in each group, the last two digits of the three digit fax sequence code would always correspond to the same country, sorted in alphabetical order. An example is given below:

101_COUNTRY-1	INSTNO-1	FAXNO-PRIM
1XX_COUNTRY-N	INSTNO-1	FAXNO-PRIM
201_COUNTRY-1	INSTNO-2	FAXNO-PRIM
1XX_COUNTRY-N	INSTNO-2	FAXNO-PRIM
201_COUNTRY-1	INSTNO-1	FAXNO-ALT

Table 2. Example of fax requirements to be used in CTE

As described above, it is recommended to limit the fax numbers to 2 per institute, where the number of institutes per countries should be limited to 2, also. If required, messages could be distributed by the primary or alternate TWFPs to other national organizations. Any arrangement for this should be within the discretion of the respective country. Member States are encouraged to provide alternate fax numbers.

Message Recipients are recommended to develop codes to automatically detect fax messages and send them as internal email.

4.4 REQUIREMENTS FOR GTS

In addition to TS0, TS1G (time stamp of GTS message) should be reported, and ASCII character set should be used in the GTS message templates. **In coordination with the WMO-NR (NEAM region), detailed GTS logs should be acquired both by the Message Provider and Message Recipient, where applicable**. Message Recipients are recommended to develop codes to automatically detect GTS messages and send them as internal email. Similar mechanism could be implemented to automatically detect the header of the message and inform the TWFP via SMS. GTS connects meteorological and other centres throughout the world. Its primary purpose is to distribute meteorological, hydrological, and other data, products, alerts, and warnings to the global meteorological community, composed of member nations of the World Meteorological Organization (WMO). The structure of the GTS makes use of terrestrial communications circuits to disseminate data, products, and messages over a tiered network. The three tiers of the GTS are the World Meteorological Centres (WMCs), the Regional Telecommunications Hubs (RTHs), and the National Meteorological Centres (NMCs). NTWCs and TWPs should employ backup communications for data and information collection required to detect a tsunami. Alternative communication paths within a centre should be employed by tsunami warning centres. In the event of the failure of one of a centre's primary communication links, such as email or fax, information can be re-routed through a secondary connection.

Currently, SMS is not considered as one of the primary communication mechanisms by the NEAMTWS. GTS is among the robust communications methods that are used for the transmission of tsunami warnings. A general overview of GTS can be found in ANNEX VIII.

4.4.1 GTS Capacity Building

TWFPs should contact their national representative for WMO (WMO-NR; see ANNEX X) to establish the necessary infrastructure for GTS including hardware and software. TWFPs can receive the GTS messages through email, ftp, VPN and/or in-situ satellite system, which are connected to the GTS system hosted by WMO-NR. TWFP contact info should be registered at GTS also through the WMO-NR.

To establish a link between the WMO-NR and the TWFP, the TWFP has to contact its WMO-NR requesting:

- Type of transmission mode existing in the WMO-NR (email, ftp, VPN...);
- The establishment of a Memorandum of Understanding (MoU) or other type of agreement to receive the messages.

The TWFP has to provide the list of messages header that would like to receive (ANNEX IX). TWPs are invited and encouraged to cooperate with other TWPs to validate the successful establishment of GTS links. Such cooperation took place between the CENtre d'Alerte aux Tsunamis (CENALT) of France, the Instituto Português do Mar e da Atmosfera (IM) of Portugal, and the Kandilli Observatory and Earthquake Research Institute (KOERI) of Turkey in 2011, before taking place the First Enlarged Communication Test Exercise (ECTE1) (IOC/2011/TS/98Rev.3), which led to the successful utilization of GTS.

The Tsunami Communication Test Exercise will also validate the first part of the transmission path, namely the latency between the TWP and the WMO-NR.

4.5 REQUIREMENTS FOR SMS

At the Fourth Meeting of the Task Team on the Communication Test and Tsunami Exercise of the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (IOC/ICG/NEAMTWS-TTCTTE) held in Paris, France, on 24 April 2013, it was decided to utilize Short Message Service (SMS).

SMS can be encoded using a variety of alphabets: the default GSM 7-bit alphabet, the 8-bit data alphabet, and the 16-bit UCS-2 alphabet. Depending on which alphabet the subscriber has configured in the handset, this leads to the maximum individual short message sizes of 160 7-bit characters, 140 8-bit characters, or 70 16-bit characters. GSM 7-bit alphabet support is mandatory for GSM handsets and network elements, but characters in languages such as Arabic, Chinese, Korean, Japanese, or Cyrillic alphabet languages (e.g., Russian, Serbian, Bulgarian, etc.) must be encoded using the 16-bit UCS-2 character encoding (http://en.wikipedia.org/wiki/Short_Message_Service). Any other language with special characters should require some kind of a limitation in the number of characters. However, the 7-bit encoding allows the transport of texts encoded in the Basic Latin subset of ASCII, as well as some characters of the ISO Latin 1 character set, and it also allows the encoding of texts written in the Greek script, but only capitals; for such use in Greek, the Latin capital letters that look like the Greek letters are reused with the same code, so that the above character set is complete only for modern monotonic Greek restricted to capital letters. (http://en.wikipedia.org/wiki/GSM_03.38). For the purposes of CTE, it was decided to set the character limit to 160 7-bit characters using English alphabet with capital letters.

5. MESSAGE SECURITY

Message security is a major concern in any Tsunami Communication Test Exercise. In NEAMTWS–CTE, the message authorship will be ensured by validating the fax number, and/or fax ID code, email address, telephone number (for SMS), and message headers that the Message Provider will use for the exercise and that are known beforehand. The CTE will provide a true evaluation of the communication channels used for the message dissemination, but it is recommended that message recipients ensure that the anti-spam and firewall software operating in their networks do not block the Communication Test Exercise message.

6. EXERCISE PARTICIPANTS

There are two types of exercise participants: The Message Provider and the Message Receivers.The Message Provider is the candidate Tsunami Watch Provider that offered to participate. The basic requirement for a provider is to be able to disseminate messages to multiple recipients using email, fax, GTS and SMS.

Only Member States with designated TWFP/TNC can participate in the CTE. TNCs communication details would be used in the CTE only if the respective Member State has no TWFP designated. In case of a designated TWFP, TNCs communication details would not be used during the CTE.

The NEAMTWS–CTE messages will be delivered to the TWFP/TNC operational addresses as provided by the Member States to the IOC Secretariat. Member States are invited to verify that these addresses are accurate and up-to-date. **Any changes, corrections or amendments should be sent to the IOC Secretariat through the official channels described in UNESCO/IOC TWFP and TNC nomination forms.** They will be used in the NEAMTWS–CTE if received at least one week before the exercise

The information that is required from each exercise participant is presented in ANNEX IV for the Message Provider and ANNEX V for the Message Recipients. Since the information from the Message Provider is needed to verify the authorative source of the CTE messages, it has to be given beforehand by the two exercise annoucement messages.

The basic information of the Message Recipients (TWFPs and candidate TWPs) is the one that is officially collected by the IOC following information by the Member States. ANNEX V forms will be utilized to verify the Message Recipient Information provided via official channels.

Participants are especially encouraged to read the Exercise Reports of previously conducted CTEs: *First Enlarged Communication Test Exercise (ECTE1); exercise manual and evaluation report (IOC/2011/TS/98Rev.3), and Second Enlarged Communication Test Exercise (CTE2) exercise manual and evaluation report (IOC/2012/TS/102 vol.1, vol.2).*

7. EVALUATION OF NEAMTWS–CTE

The evaluation will be conducted by filling a questionnaire (see the proposed questionnaires in ANNEX VI for the Message Providers; and ANNEX VII for the Message Receivers). Each agency that participates in the CTE3 is requested to deliver one report encompassing all messages received. **These questionnaires should be answered shortly after the end of the exercise, and they must be sent via email to the Message Provider within one week of the CTE3**. The complete address is provided in ANNEX IV.

After reception of all the questionnaires, the Message Provider is responsible to prepare the Exercise Report within 4 weeks after the conduct of the CTE3 and circulate TT–CTTE Co-Chairs. The Exercise Report should include a story book of the CTE starting from TS0 (as the instant when the Message Provider is aware that a tsunami message has to be delivered) to TSE (as the instant when the message dissemination activities are finalized). The Exercise Report should also make use of system logs (including GTS logs obtained from the WMO-NR) of the Message Provider and include statistical information on message dissemination concerning each communication technology utilized. Following parameters should be included: Number of recipients, number of successful message delivery, minimum time of message delivery, maximum time of message delivery, median time of message delivery, and mean time of message delivery. The Exercise Report should include also an evaluation of the TWFP response. The main responsibility of the Message Provider is to prepare a technical report on the exercise based on the logs-questionnaires, of course underlining important issues, which then could be considered by the TT–CTTE Co-Chairs as recommendations for the CTE manual after a TT–CTTE meeting. Hence, CTE report should provide a section at the end of the report with a title as “Issues to be considered by the TT-CTTE”, where each “problem” could be listed as an item, from which the TT–CTTE could pick up and formulate a recommendation.

The Message Provider should also provide all the information required to update the “CTE Performance Indicators” document, distributed in the initial announcement of the CTE together with this manual. These performance indicators are grouped into two major sets, the first one characterizing the universe of the exercise participants, and the second one summarizing the technical details of the exercise results. The “CTE Performance Indicators” document is closely linked and cross-referenced to the CTE Manual and will be updated by the TT–CTTE Co-Chairs after each CTE.

TT–CTTE Co-Chairs are responsible to provide their comments to the Message Provider within the following 2 weeks. If necessary, the Message Provider will update/modify the CTE report accordingly and send it back to the TT–CTTE Co-Chairs within the following 2 weeks. The Task Team Chair/Co-Chairs will send the report to the IOC Secretariat asking for their

comments on the report's content and editorial changes required. The IOC Secretariat will provide these comments within the following 2 weeks. If necessary, the CTWP and/or TT–CTTE Co-Chairs will update the report and the approved version of the report will be sent to the IOC Secretariat by the TT–CTTE Co-Chairs within the following 2 weeks. The IOC Secretariat should then ensure that the CTE Report is electronically published within the following one month. Lessons learned will be applied on consecutive exercises and relevant documentation updated if necessary.

In the Evaluation Report, Message Provider will also indicate which Member States TWFP/TNC contact information differences are observed between the information they have received from the IOC Secretariat and from the ANNEX V. After this, a standard message could be sent by the Secretariat to the respective Member State stating this fact and informing the Member State on the urgent need of updating TWFP/TNC via official channels, indicating that when NEAMTWS is in place, ANNEX V will be removed from the CTE Manual and CTEs will rely only to the information provided to the IOC Secretariat via official channels.

8. SMALL SCALE COMMUNICATION TEST EXERCISE (SSCT)

A Small Scale Communication Test (SSCT) Exercise could be conducted after the initial evaluation of the CTE focusing on the problem areas of the CTE, and to consolidate the lessons learnt from it. The decision on this would be taken by the Task Team responsible for the CTE. The main differences of a SSCT from a CTE are the following:

- A SSCT is limited only to a subset of communication technologies and subset of TWFPs. In case of a need to utilize all communication technologies involving all participants of CTE, a new CTE has to be conducted.

- The requirements and guidelines for the communication technology(ies) provided in this manual will be also applicable to SSCT.

- The announcement of the SSCT will be made by the TWP and should be sent to the participants of the CTE it follows, 10 days before the SSCT clearly defining which States/Centres will be involved.

- The reporting of SSCT will not be subject to same requirements and guidelines as the CTE provided in this document. The Message Provider will be responsible to prepare an exercise report within 15 days and submit it to the the Task Team Chair/Co-Chairs who will be responsible for the approval of the SSCT report within the next 15 days. The SSCT report will be added to the CTE report it follows as an Annex.

9. REFERENCES

IOC. 2011. *Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas: First Enlarged Communication Test Exercise (ECTE1); exercise manual and evaluation report.* Paris, UNESCO. (IOC Technical Series Nº98, IOC/2011/TS/98Rev.3)

IOC. 2010. *Interim Operational Users Guide for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS), version 1.1g.* Paris, UNESCO.

IOC. 2010. *NEAMTWS Task Team on Communication Test Exercises (TT–CTE). Intersessional Activity Report, Version 1*.Paris, UNESCO.

IOC. 2010. *Second NEAMTWS Tsunami Communication Test Exercise (Manual). Version. 1*. Paris, UNESCO.

IOC. 2010. *Second NEAMTWS Tsunami Communication Test Exercise (NEAMTWS–CTE2) Preliminary Post Exercise Report, Version 1*. Paris, UNESCO. *(*IOC Technical Series Nº102, *IOC/2012/TS/102 vol.1, vol.2)*

NOAA. 2013. *NECP Central Operations*. http://www.nco.ncep.noaa.gov/sib/decoders/CREXLIB/toc/tidedcod/

U.S. Indian Ocean Tsunami Warning System Program (U.S. IOTWS). 2007. Tsunami *Warning Center Reference Guide*. Bangkok, UNESCO (U.S. IOTWS Document No. 26-IOTWS-07).

World Meteorological Organization. 2006. *Commission for Basic Systems, On Information Systems & Services. Joint implementation-coordination meeting on the GTS-WIS MTN and meeting of the CBS Expert Team on GTS-WIS operations and implementation.* Geneva, WMO. [ISS/ICMMTN & ET-OI 2005/Doc.4.3 (11.V.2006)].

World Meteorological Organization. 2007. *Manual on the Global Telecommunication System*, Vol.1. No. 386. Geneva, WMO. (ISBN 978-92-63-10386-4)

World Meteorological Organization. 2007. *Meeting of Expert Team on Data Representation and Codes*. Geneva, WMO. [ET/DR&C/Doc. 3.1.3(1) (12.IV.2007)].

World Meteorological Organization. 2011. *The Global Telecommunication System* http://www.wmo.int/pages/prog/www/TEM/GTS/index_en.html

ANNEX I

SAMPLE TEST MESSAGES FOR EMAIL AND FAX

Subject: TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001

Body:

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NEAM KOERI CANDIDATE TSUNAMI WATCH PROVIDER
ISSUED AT 1430Z 10 AUG 2011

... TSUNAMI COMMUNICATION TEST ...
THIS TEST APPLIES TO … CGCCR(BELGIUM)… BAS(BULGARIA)… INMG(CAPE VERDE)…NPRD(CROATIA)… OC(CYPRUS)… DMI(DENMARK)… NRIAG(EGYPT)… EMI(ESTONIA)…FMI(FINLAND)… GSC(FINLAND)… CENALT(FRANCE)… BSH(GERMANY…DWD(GERMANY)… NOA(GREECE)… GSI(ISRAEL)… DPC (ITALY) … NCGR(LEBANON)…CPD(MALTA)… SPMC(MONACO)… KNMI(NETHERLANDS)… DSB(NORWAY)… NHQSFS(POLAND)… IM (PORTUGAL)… NIEP(ROMANIA)… NPO “Typhoon”(RUSSIANFEDERATION)… DGPCE(SPAIN)… SMHI(SWEDEN)… SWO(SYRIA)… AFAD(TURKEY)…DFID(UNITED KINGDOM)

FROM – KANDILLI OBSERVATORY AND EARTHQUAKE RESEARCH INSTITUTE (KOERI)

TO – TWFP PARTICIPANTS IN THE NEAMTWS COMMUNICATION TEST EXERCISE
SUBJECT –TSUNAMI COMMUNICATION TEST

THIS IS A TEST TO VERIFY COMMUNICATION LINKS AND DETERMINE TRANSMISSION TIMES INVOLVED IN THE DISSEMINATION OF OPERATIONAL TSUNAMI MESSAGES FROM THE CANDIDATE TSUNAMI WATCH PROVIDER TO OTHER CANDIDATE TSUNAMI WATCH PROVIDERS, NATIONAL TSUNAMI WARNING CENTERS AND TSUNAMI WARNING FOCAL POINTS OF THE NEAM TSUNAMI WARNING SYSTEM

RECIPIENTS ARE REQUESTED TO FILL THE EVALUATION QUESTIONNAIRE AND SEND IT ACCORDING TO THE NEAMTWS–CTE INSTRUCTIONS

THANK YOU FOR YOUR PARTICIPATION IN THIS COMMUNICATION TEST
THIS WILL BE THE FINAL MESSAGE ISSUED

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001

ANNEX II

SAMPLE TEST MESSAGES FOR GTS

Body:

WEME40 LTAA YYGGgg

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NEAM KOERI CANDIDATE TSUNAMI WATCH PROVIDER
ISSUED AT 1430Z 10 AUG 2011

... TSUNAMI COMMUNICATION TEST ...
THIS TEST APPLIES TO … CGCCR(BELGIUM)… BAS(BULGARIA)… INMG(CAPE VERDE)…NPRD(CROATIA)… OC(CYPRUS)… DMI(DENMARK)… NRIAG(EGYPT)…EMI(ESTONIA)…FMI(FINLAND)… GSC(FINLAND)… CENALT(FRANCE)… BSH(GERMANY…DWD(GERMANY)… NOA(GREECE)… GSI(ISRAEL)… DPC (ITALY) … NCGR(LEBANON)…CPD(MALTA)… SPMC(MONACO)… KNMI(NETHERLANDS)… DSB(NORWAY)… NHQSFS(POLAND)… IM (PORTUGAL)… NIEP(ROMANIA)… NPO “Typhoon”(RUSSIAN FEDERATION)… DGPCE(SPAIN)… SMHI(SWEDEN)… SWO(SYRIA)… AFAD(TURKEY)…DFID(UNITED KINGDOM)

FROM – KANDILLI OBSERVATORY AND EARTHQUAKE RESEARCH INSTITUTE (KOERI)

TO – TWFP PARTICIPANTS IN THE NEAMTWS COMMUNICATION TEST EXERCISE
SUBJECT –NEAMTWS TSUNAMI COMMUNICATION TEST

THIS IS A TEST TO VERIFY COMMUNICATION LINKS AND DETERMINE TRANSMISSION TIMES INVOLVED IN THE DISSEMINATION OF OPERATIONAL TSUNAMI MESSAGES FROM THE CANDIDATE TSUNAMI WATCH PROVIDER TO OTHER CANDIDATE TSUNAMI WATCH PROVIDERS, NATIONAL TSUNAMI WARNING CENTERS AND TSUNAMI WARNING FOCAL POINTS OF THE NEAM TSUNAMI WARNING SYSTEM

RECIPIENTS ARE REQUESTED TO FILL THE EVALUATION QUESTIONNAIRE AND SEND IT ACCORDING TO THE NEAMTWS–CTE INSTRUCTIONS

THANK YOU FOR YOUR PARTICIPATION IN THIS COMMUNICATION TEST
THIS WILL BE THE FINAL MESSAGE ISSUED

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001

ANNEX III

SAMPLE TEST MESSAGES FOR SMS

a) TSUNAMI COMMUNICATION TEST MESSAGE NEAM CENALT CTWP 1049Z 06 JUN 2013 TO TWFP OF NEAM REGION FILL AND SEND EVALUATION QUESTIONNAIRE ACCORDING TO CTE MANUAL

b) TSUNAMI COMMUNICATION TEST MESSAGE NEAM KOERI CTWP 1049Z 06 JUN 2013 TO TWFP OF NEAM REGION FILL AND SEND EVALUATION QUESTIONNAIRE ACCORDING TO CTE MANUAL

c) TSUNAMI COMMUNICATION TEST MESSAGE NEAM NOA-HLNTWC CTWP 1049Z 06 JUN 2013 TO TWFP OF NEAM REGION FILL AND SEND EVALUATION QUESTIONNAIRE ACCORDING TO CTE MANUAL

ANNEX IV

INFORMATION ON MESSAGE PROVIDER

Name of the Country:

Name of the Institution:

Email address to broadcast the communication test message:

Fax number(s) to broadcast the communication test message[1]*:

Fax ID code(s):

GTS Message Header:

Telephone number to broadcast the communication test message*:

TWFP Information[2]

Name:

E-mail address:

Telephone*:

Fax*:

Mailing address:

1 Include all the lines used by the Fax machine in case of parallel broadcasting.

2 Please note that this information is only to identify the person responsible for sending the message, and also responding to the technical questions concerning the CTE.

* All fax/telephone numbers reported here should include international phone codes

ANNEX V

INFORMATION ON MESSAGE RECEIVER

COUNTRY:

INSTITUTION:

Email addresses to receive the test message:

Primary e-mail address:

Alternate e-mail address (if any):

Fax numbers to receive the test message:

Primary fax number*:

Alternate fax number*:

Telephone numbers to receive the SMS test message:

Primary telephone number*:

Is your institute connected to GTS?

Contact Info:

Name:

E-mail:

Telephone*:

Fax*:

Mailing Address:

* All fax/telephone numbers reported here should include international phone codes.

ANNEX VI

EVALUATION QUESTIONNAIRE FOR MESSAGE PROVIDER

Please note that all times should be provided in Universal Time in HH:MM:SS format. Please copy and paste confirmation sheets from the fax machine (if available), and a copy of the messages distributed by email, fax, GTS and SMS. Please verify that the time-stamp information is visible on the documents, if applicable. Preferably the e-mail message text appended to this report should be copied directly from the mail-box server in order to provide all the details on timing and routing. All fax/telephone numbers reported here should include international phone codes.

COUNTRY:				
INSTITUTION:				
Provide T0 Time:				
Provide times of message delivery for each communication technology below:				
	EMAIL	**FAX**	**GTS**	**SMS**
Time stamp:				
Provide a detailed story of all activities starting from T0 and TN (end of the exercise). Did you receive any error messages or observed any problems? If yes, describe them for all dissemination technologies and addresses concerned.				
Describe the operational service to deliver the e-mail messages.				
Describe the operational service to deliver the fax messages.				
Describe the operational service to deliver the GTS messages.				
Describe the operational service to deliver the SMS messages.				
Describe briefly the preparation made in your agency for the Communication Test Exercise				

Describe briefly the procedures taken during the exercise, before time zero, and after time zero.
Did you synchronize the PC before distributing the email messages? If yes, describe briefly the procedure used.
Did you synchronize the fax machine before sending the messages? If yes, describe briefly the procedure used.
Did you find the exercise useful in assessing the readiness of your agency to distribute tsunami related messages?
Do you have any comments on the exercise, including the exercise manual and/or information received related to the exercise?
Have you and/or your institution been contacted by media concerning the exercise before/during/after the exercise? Please provide brief information if applicable.

ANNEX VII

EVALUATION QUESTIONNAIRE TO MESSAGE RECEIVER

Please note that all times should be provided in Universal Time in HH:MM:SS format, where applicable. Please copy and paste into this questionnaire e-mail, fax, GTS and SMS messages received for each delivery. All fax/telephone numbers reported here should include international phone codes.

COUNTRY:	
INSTITUTION:	

Provide the time stamps of the messages received through each communication technology:

Is your institution connected to GTS?

Please mark below the technologies used by your institute during the CTE.

EMAIL	FAX	GTS	SMS

Provide times of message delivery for each communication technology:

Primary E-MAIL	Alternate E-MAIL	Primary FAX	Alternate FAX	GTS	SMS
[type e-mail address]	*[type e-mail address]*	*[type fax number]*	*[type fax number] [*		*[type telephone number]*
[type time in UTC HH:MM:SS format]	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*

Provide times for each communication technology when the message is read and understood by the operator:

Primary E-MAIL	Alternate E-MAIL	Primary FAX	Alternate FAX	GTS	SMS
[type e-mail address]	*[type e-mail address]*	*[type fax number]*	*[type fax number] [*		*[type telephone number]*
[type time in UTC HH:MM:SS format]	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*

Was the provider e-mail address as expected?

Was the e-mail message complete as expected? If not, report the differences.

Was the provider fax number as expected?
Was the fax message complete as expected? If not, report the differences.
Was the GTS message complete as expected? If not, report the differences.
Was the provider telephone number (SMS) as expected?
Was the SMS complete as expected? If not, report the differences.
Did the operator that received the messages understood its content and knew how to respond to it?
Describe briefly the preparation made in your agency for the Communication Test Exercise.
Did you synchronize the PC before distributing the email messages? If yes, describe briefly the procedure used.
Did you synchronize the fax machine before receiving the messages? If yes, describe briefly the procedure used.
Did you find the exercise useful in confirmation communication contacts and delays? |
Do you have any comments on the exercise, including the exercise manual and/or information received related to the exercise?
Do you have any suggestions for the next exercises?
Have you and/or your institution been contacted by media concerning the exercise before/during/after the exercise? Please provide brief information if applicable.

ANNEX VIII

GENERAL OVERVIEW OF GTS

WMO's Global Telecommunication System (GTS) is the communications and data management component that allows the World Weather Watch Programme (WWW) to operate through the collection and distribution of information critical to its processes. GTS is defined as: *"The coordinated global system of telecommunication facilities and arrangements for the rapid collection, exchange and distribution of observations and processed information within the framework of the World Weather Watch."* It is implemented and operated by National Meteorological Services (see ANNEX X) of WMO Members and International Organizations, such as ECMWF and EUMETSAT.

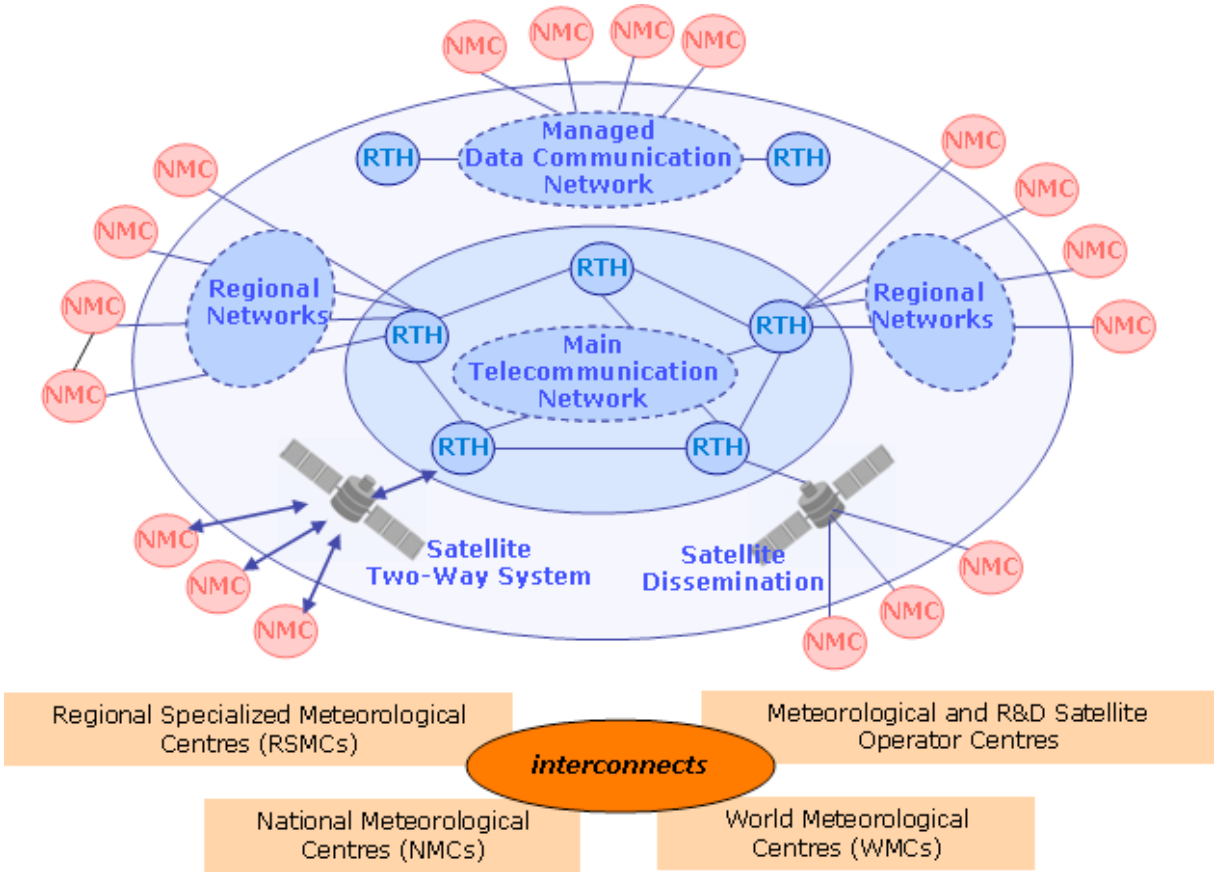

Figure VIII-1. Structure of GTS

GTS also provides telecommunication support to other WMO programmes, facilitating the flow of data and processed products to meet requirements in a timely, reliable and cost-effective way, ensuring that all Members have access to all meteorological and related data, forecasts and alerts. This secured communication network enables real-time exchange of information, critical for forecasting and warnings of hydrometeorological hazards in accordance with approved procedures.

The GTS has a hierarchical structure on three levels. The Main Telecommunication Network(MTN), linking together 3 World Meteorological Centres (Melbourne, Moscow and Washington) and 15 Regional Telecommunication Hubs (Algiers, Beijing, Bracknell, Brasilia, Buenos Aires, Cairo, Dakar, Jeddah, Nairobi, New Delhi, Offenbach, Toulouse, Prague, Sofia and Tokyo). This core network has the function of providing an efficient, rapid and reliable communication service between the Meteorological Telecommunication Centres (MTCs).

The Regional Meteorological Telecommunication Networks (RMTNs) is an integrated network of circuits covering the six WMO regions – Africa, Asia, South America, North America, Central America & the Caribbean, South-West Pacific, Europe and Antarctic – and interconnecting the MTCs thus ensuring the collection of observational data and regional selective distribution of meteorological and other related information to Members. Until the integrated network is completed, HF-radio-broadcasts may be used in order to meet the requirements of the WWW for the dissemination of meteorological information.

The National Meteorological Telecommunication Networks (NMTNs) enable the National Meteorological Centres (NMCs) to collect observational data and receive and distribute meteorological information on a national level.

Satellite-based data collection and/or data distribution systems are also integrated in the GTS as an essential element of the global, regional and national levels of the GTS. Data collection systems operated via geostationary or near-polar orbiting meteorological/environmental satellites, including ARGOS, are widely used for the collection of observational data from Data Collection Platforms. International data distribution systems operated either via meteorological satellites such as the Meteorological Data Distribution (MDD) of METEOSAT, or via telecommunication satellites, such as RETIM or FAX-E via EUTELSAT are efficiently complementing the point-to-point GTS circuits. Several Countries, including Argentina, Canada, China, France, India, Indonesia, Mexico, Saudi Arabia, Thailand and the USA, have implemented satellite-based multi-point telecommunication systems for their national Meteorological Telecommunication Network.

The MTCs function is to accommodate the volume of meteorological information and its transmission within the required time limits for global and interregional exchange of observational data, processed information and any other data required by its Members. Regional Telecommunication Hubs (RTHs) on the MTN perform an interface function between the RMTNs and the MTN.

The GTS is an integrated network of surface-based and satellite-based telecommunication links of point-to-point circuits, and multi-point circuits, interconnecting meteorological telecommunication centres operated by countries for round-the-clock reliable and near-real-time collection and distribution of all meteorological and related data, forecasts and alerts. This secured communication network enables real-time exchange of information, critical for forecasting and warning of hydrometeorological hazards.

WMO GTS is the backbone system for global exchange of data and information in support of multihazard, multipurpose early warning systems, including all meteorological and related data; weather, water and climate analyses and forecasts; tsunami related information and warnings, and seismic parametric data. WMO is building on its GTS to achieve an overarching WMO Information System (WIS), enabling systematic access, retrieval, and dissemination and exchange of data and information of all WMO and related international programmes.

ANNEX IX

GTS HEADER FORMAT FOR TSUNAMI MESSAGES

GTS Header Format for Tsunami Messages

Detailed information for the GTS format can be found at Manual on the Global Telecommunication System, Volume I (WMO-No. 386). In general, the abbreviated GTS header has the following format:

T1T2A1A2ii CCCC YYGGgg BBB

Where:

T_1T_2 data type and/or form designators

T_1=W (Warning)*

T_2=E (Tsunami, when T1=W)

**In the case of NEAMTWS, this WMO terminology applies to all levels of NEAMTWS Tsunami messages.*

A_1A_2 geographical and/or data type and/or time designators

A_1A_2 is one of the following:

ME Eastern Mediterranean area

MM Mediterranean area

MP Central Mediterranean area

MQ Western Mediterranean area

NT North Atlantic area

ii A number with two digits. When an originator or compiler of messages issues two or more messages with the same T1T2A1A2 and CCCC the ii shall be used to differentiate the messages and will be unique to each message.

CCCC International four-letter location indicator of the station or centre originating or compiling the message, as agreed internationally, and published in WMO-No. 9, Volume C1, Catalogue of Meteorological Messages. Examples are:

LFPW Toulouse (Centre Régional de Télécommunications)

LPMG Lisboa (MET COM Centre)

LTAA Ankara (Turkish State Meteorological Service)

YYGGgg International date-time group, where

YY Day of the month.

GGgg UTC time of the compilation of the message.

BBB An abbreviated heading defined by T1T2A1A2 ii CCCC YYGGgg shall be used for only once. Consequently, if this abbreviated heading has to be used again for an addition, a correction or an amendment, it shall be mandatory to add an appropriate BBB indicator, identified by a three-letter indicator which shall be added after the date-time group. The BBB indicator shall have the following forms:

RRx for additional or subsequent issuance of messages;

CCx for corrections to previously relayed messages;

AAx for amendments to previously relayed messages; where x is an alphabetic character of A through X.

For example,

WEME40 LTAA YYGGgg CCA; for the same hour, when the warning message is updated for the first time.

WEME40 LTAA YYGGgg CCB; for the same hour, when the warning message is updated for the second time.

Example Headers for France, Portugal and Turkey are the following:

	France	***Portugal***	***Turkey***
Tsunami Watch, Advisory and Tests	*WEMQ40 LFPW*	*WENT40 LPMG*	*WEME40 LTAA*
Tsunami Information Message	*WEMQ42 LFPW*	*WENT42 LPMG*	*WEME42 LTAA*

The first type of message with the header format xxxx40 request an action from the recipient (Watch-Advisory or respond to the communication test); hence these messages are the highest priority. The second type of message with the header format xxxx42 do not request action; it is only an information.

Sample GTS message for NEAMTWS–CTE is given in ANNEX II. Any candidate Tsunami Watch Provider has to inform WMO, via an official letter from IOC/NEAMTWS Secretariat and from its national weather service, on the GTS headers used and requesting the prioritization and re-routing of all tsunami messages.

ANNEX X

LIST OF NATIONAL METEOROLOGICAL SERVICES IN NEAM REGION

COUNTRY	MET SERVICES
Albania	The Hydrometeorological Institute
Algeria	Ministère des Transports
Belgium	Institut Royal Météorologique
Bosnia and Herzegovina	Meteorological Institute
Bulgaria	National Institute of Meteorology and Hydrology
Croatia	Meteorological and Hydrological Service
Cyprus	Meteorological Service
Denmark	Danish Meteorological Institute
Egypt	The Egyptian Meteorological Authority
Estonia	Estonian Meteorological and Hydrological Institute
Finland	Finnish Meteorological Institute
France	Météo-France
Georgia	Department of Hydrometeorology
Germany	Deutscher Wetterdienst
Greece	Hellenic National Meteorological Service
Iceland	Icelandic Meteorological Office
Ireland	The Irish Meteorological Service
Israel	Israel Meteorological Service
Italy	Servizio Meteorologico
Latvia	Latvian Environment, Geology and Meteorology Agency
Lebanon	Service Météorologique
Lithuania	Lithuanian Hydrometeorological Service
Libyan	Arab Jamahiriya Libyan National Meteorological Centre

COUNTRY	MET SERVICES
Malta	Meteorological Office
Monaco	Mission Permanente de la Principauté de Monaco
Montenegro	Hydrometeorological Institute of Montenegro
Morocco	Direction de la Météorologie Nationale
Netherlands (the)	Royal Netherlands Meteorological Institute
Norway	Norwegian Meteorological Institute
Poland	Institute of Meteorology and Water Management
Portugal	Instituto de Meteorologia
Romania	National Meteorological Administration
Russian Federation	Russian Federal Service for Hydrometeorology and Environmental Monitoring
Serbia Republic	Hydrometeorological Service of Serbia
Slovenia	Meteorological Office
Spain	Agencia Estatal de Meteorología
Sweden	Swedish Meteorological and Hydrological Institute
Syrian	Arab Republic Ministry of Defence Meteorological Department
Tunisia	National Institute of Meteorology
Turkey	Turkish State Meteorological Service
Ukraine	Ukrainian Hydrometeorological Center
United Kingdom	Met Office

ANNEX XI

EXAMPLE OF MESSAGE DETAILS AVAILABLE IN THE SERVER MAIL BOX

```
From ???@??? Thu Jun 24 10:05:46 2010
Return-Path: <hl_ntwc@gein.noa.gr>
Delivered-To: pt.ntwc@meteo.pt
Received: from eris.meteo.pt (eris1.meteo.pt [193.137.20.2])
        by afrodite.meteo.pt (Postfix) with ESMTP id B35684546A9
        for <pt.ntwc@meteo.pt>; Thu, 24 Jun 2010 10:05:47 +0100 (WEST)
Received: from ste.anubis.internal (unknown [80.67.98.165])
        (using TLSv1 with cipher ADH-AES256-SHA (256/256 bits))
        (No client certificate requested)
        by eris.meteo.pt (Postfix) with ESMTPS id 840886A204F
        for <pt.ntwc@meteo.pt>; Thu, 24 Jun 2010 10:04:20 +0100 (WEST)
Received: from mx.anubis.local (ste [10.1.2.2])
        by ste.anubis.internal (Postfix) with ESMTP id 2012A7D815C
        for <pt.ntwc@meteo.pt>; Thu, 24 Jun 2010 10:05:19 +0100 (WEST)
Received: from egelados.gein.noa.gr (egelados.gein.noa.gr [194.177.194.10])
        by mx.anubis.local (Postfix) with ESMTP id D92B17D8159;
        Thu, 24 Jun 2010 10:05:18 +0100 (WEST)
Received: from unknown (localhost [127.0.0.1])
        by egelados.gein.noa.gr (8.12.10+Sun/8.12.10) with ESMTP id o50956nf005048;
        Thu, 24 Jun 2010 12:05:06 +0300 (EEST)
Date: Thu, 24 Jun 2010 12:04:55 +0300
From: hl_ntwc <hl_ntwc@gein.noa.gr>
To: Nicolas.alabrune@cea.fr, pt.ntwc@meteo.pt, twfp_tr@boun.edu.tr
Subject: TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
Message-ID: <20100624120455.0000538a@unknown>
Organization: Geodynamics Institute
X-Mailer: Claws Mail 3.7.6 (GTK+ 2.16.0; i586-pc-mingw32msvc)
Mime-Version: 1.0
Content-Type: text/plain; charset=UTF-8
X-EsetId: 4DE50F2977A9B96C52E30F7D7FFEF9

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NATIONAL OBSERVATORY OF ATHENS (NOA)
ISSUED AT 0900 UTC 24 JUN 2010
```

Image XI–1. Message details in the server mail box

In this example (from CTE1, June 2010) the sequence of message routing is as follows:

Delivery	Reception	Time UTC
hl_ntwc	NOA-local machine	**09:04:55**
NOA-local machine	egelados.gein.noa.gr	09:05:06
egelados.gein.noa.gr	mx.anubis.local	09:05:18
mx.anubis.local	ste.anubis.internal	09:05:19
ste.anubis.internal	eris.meteo.pt	09:04:20*
eris.meteo.pt	afrodite.meteo.pt	09:05:47
afrodite.meteo.pt	<pc operacional>	**09:05:46**

Table XI–1. Example of sequence of message routing

It should be noted that the time stamp that the mail servers usually report is the first one in the table which represents indeed the delivery time by the Message Provider, not the reception time. The reception time is the last one in the table and that is the one that it is requested to provide in the Evaluation Questionnaire as TS1. If all computers are synchronized, a time delay in the delivery of the message of 51 seconds could be measured. Also remark that many servers do intervene in the message routing and not all are synchronized.

ANNEX XII

EXAMPLE OF TIME STAMPS ON A FAX MESSAGE

Only the bottom line provides the reception time.

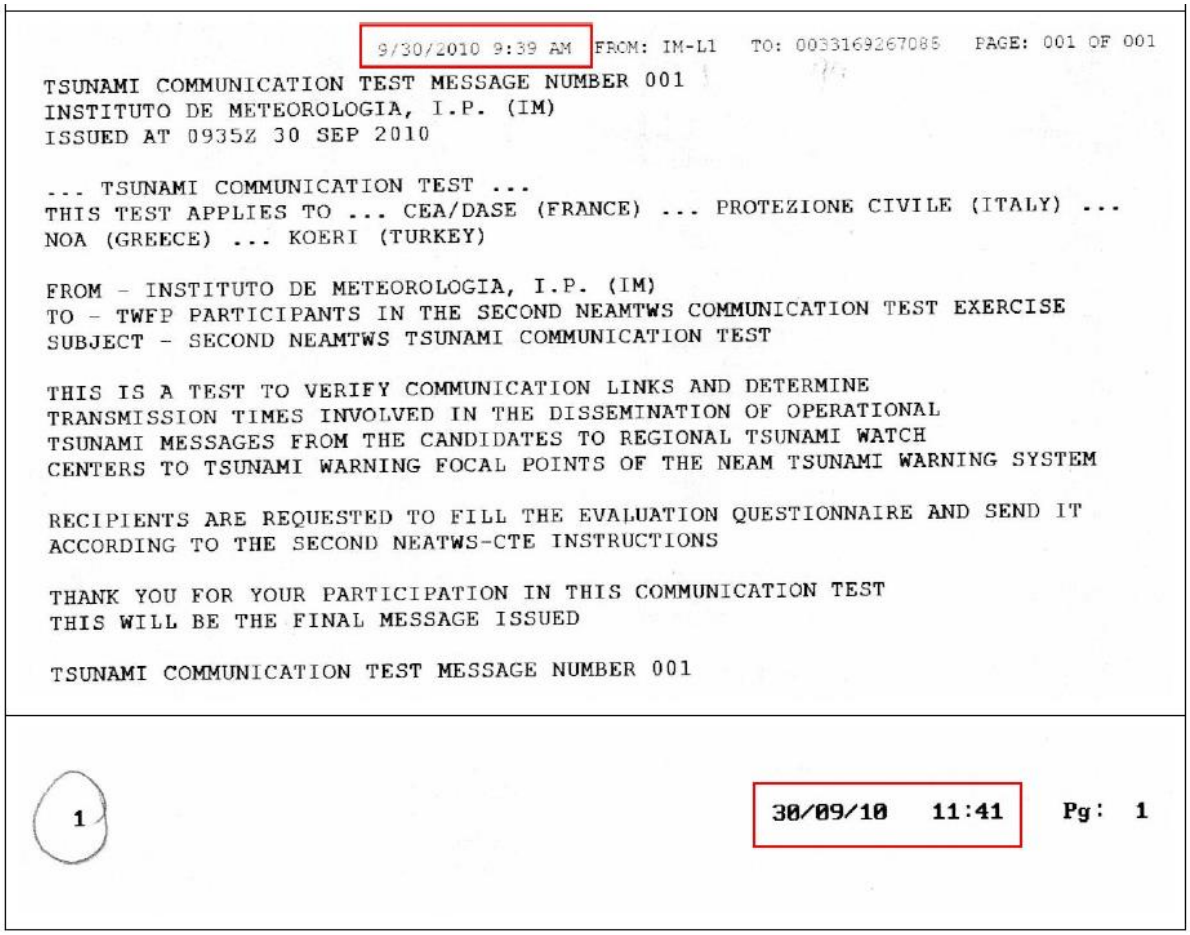

Image XII–1.Example of time stamps on a fax message

In this example, taken from CTE1 June 2010, the time stamp shown on the top of the page is indeed the delivery time of the message and the reception time is found at the bottom of the message. It is this second time that has to be reported in the Evaluation Questionnaire as TS1.

ANNEX XIII

CTE FIRST ANNOUNCEMENT MESSAGE TEMPLATE

We have the pleasure to announce the next NEAMTWS Communication Test Exercise (NEAMTWS–CTE), which will be conducted on [DD/MM/YYY]. The NEAMTWS–CTE will involve the National Tsunami Warning Centres (NTWC), the Tsunami Warning Focal Point (TWFP) and the Tsunami National Contacts (TNC) for Member States (MS) without a designated TWFP.

The Candidate Tsunami Watch Providers (CTWP), National Tsunami Warning Centres (NTWC) and Tsunami Warning Focal Points (TWFP) must keep a high level of readiness so as to be able to act efficiently and effectively to provide for the public's safety during fast-onset and rapidly-evolving natural disasters like the tsunamis. To maintain this high state of operational readiness and especially for infrequent events such as tsunamis, tsunami watch/warning centres and emergency agencies must regularly practice their response procedures to ensure that vital communication links work seamlessly, and that agencies and response personnel know the roles that they will need to play during an actual event.

This NEAMTWS–CTE will consist of the broadcast of a Tsunami Communication Test Message by [MESSAGE PROVIDER] that will act as the Message Provider. This message will be distributed by e-mail, fax, GTS and SMS. The details of the Message Provider are given in ANNEX IV so that each CTE participant can recognize the authority and validity of the messages received. It is suggested that the exercise participants check beforehand that their communication systems do not block the messages originated by the Message Provider. For GTS users, the exercise participants should verify that they are able to receive the appropriate message header identifiers.

The NEAMTWS–CTE messages will be delivered to the TWFP (TNC in the absence of a designated TWFP) operational addresses as provided by MS to the IOC secretariat. MS are invited to verify that these addresses are accurate and up-to-date. Any changes, corrections or amendments should be sent to the IOC secretariat through the official channels described in UNESCO IOC TWFP and TNC nomination forms. They will be used in the NEAMTWS–CTE if received one week before the exercise.

All agencies participating in the NEAMTWS–CTE (TWFPs and optionally TNCs) are requested to fill in the evaluation questionnaire sent as ANNEX VII, one questionnaire for each agency. The questionnaires should be sent to the Message Provider address, given in ANNEX IV within one week after the exercise. It is the responsibility of the Message Provider to collect all evaluation questionnaires and produce the first version of the NEAMTWS–CTE Evaluation Report to be distributed to all exercise participants. The Message Provider will fill a similar questionnaire that will be part of the Evaluation Report.

More information on the nature of exercise together with technical details concerning the conduct and evaluation of the exercise can be found in the NEAMTWS–CTE Manual, attached to this Circular Letter. NEAMTIC website has also a dedicated section on CTE where all relevant information and documentation can be accessed http://neamtic.ioc-unesco.org/.

ANNEX XIV

CTE SECOND ANNOUNCEMENT
MESSAGE TEMPLATE

To whom it may concern;

This e-mail message is sent to you from the CTE message provider [MESSAGE PROVIDER] email address [*e-mail address*] in order to ensure that the anti-spam and firewall software operating at the message recipient side do not block the CTE message on the day of the exercise, [DD/MM/YYY].

You have received this e-mail because either you have provided your e-mail address in ANNEX V of the NEAMTWS–CTE Manual or your e-mail address was provided in TWFP/TNC forms submitted by your State/Government to UNESCO/IOC.

Please be so kind to confirm the receipt of this message.

Best regards,

[MESSAGE PROVIDER NAME]

ANNEX XV

CTE TIMELINE FLOWCHART

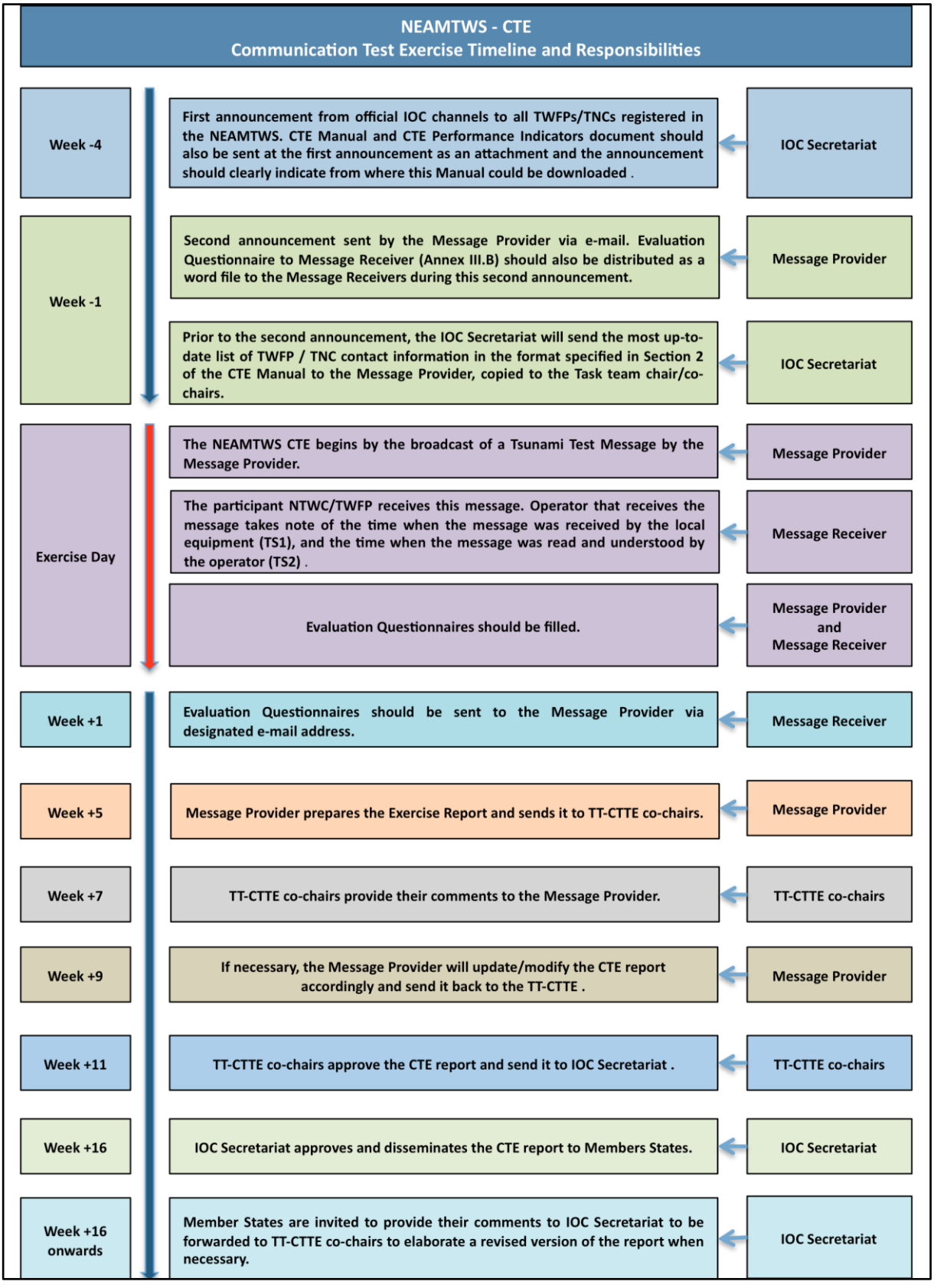

Table XV–1. CTE Timeline flowchart

ANNEX XVI

CTE CHECKLIST

Time-line Week referred to Exercise Day	Action	Tick Boxes MP	MR	IOC
-4	The CTE period begins by issuing a first announcement from official IOC channels to all TWFPs and TNCs registered in the NEAMTWS, at least 4 weeks in advance of the planned exercise date. This CTE Manual and CTE Performance Indicators Document should also be sent at the first announcement as an attachment and the announcement should clearly indicate from where this Manual could be downloaded.			
between -4 and -1	During the following 3 weeks period TWFPs from Member States (MS) will have the time to correct and or update all the contact information. Updates are collected by the IOC Secretariat.			
between -4 and -1	During the following 3 weeks period the Message Provider defines the contacts that will be used to broadcast the Tsunami Test Message. This information is collected by the IOC Secretariat			
-1 and 1/2 days	Prior the CTE second announcement, the IOC Secretariat will send the most up-to-date list of TWFP / TNC contact information in the agreed format (provided in the CTE Manual) to the Message Provider, copied to the Task team chair/co-chairs			
-1	The CTE is preceded, one week before, by a second announcement sent by the Message Provider via e-mail in order to ensure that the anti-spam and firewall software operating in the Message Receivers networks do not block the Communication Test Exercise Message. Evaluation Questionnaire to Message Receiver (Annex III.B) should also be distributed as a word file to the Message Receivers during this second announcement.			
before 0	ASCII character set should be used in the message templates used in all communication technologies. All times in the evaluation questionnaires should be reported in HH:MM:SS UTC format.			
before 0	All communication technology systems should be synchronized.			
before 0	The number of e-mail message recipients would be restricted to 2 e-mail addresses per agency and 4 e-mail addresses per member state.			
before 0	The number of fax message recipients would be restricted to 2 per member state; thus 1 per agency if two agencies are designated. If a single agency has been designated, both primary and alternate fax numbers would be utilized.			
before 0	At least an 8-channel fax server for should be used for the fax message dissemination			
before 0	The Message Provider should set up the fax server in such a way so that each recipient fax number will be subject to at least three attempts to send the fax message, where in each attempt the fax recipient will be ringed at.			
before 0	Message Recipients are recommended to develop codes to automatically detect fax messages and send them as internal email.			
before 0	Message Recipients are recommended to develop codes to automatically detect GTS messages and send them as internal email.			
0	**The Message Provider broadcasts the Tsunami Test Message**			
0	In addition to TS0, TS1E (time stamp of e-mail message) should be reported by the Message Provider			
0	In addition to TS0, TS1F (time stamp of fax message) should be reported by the Message Provider and ASCII character set should be used in the fax message templates.			
0	In addition to TS0, TS1G (time stamp of GTS message) should be reported and ASCII character set should be used in the GTS message templates.			
0	In coordination with the WMO-National Representatives, detailed GTS logs should be acquired both by the Message Provider and Message Recipient, where applicable.			
0	Operator that receives the message takes note of the time when the message was received by the local equipment (TS1), and the time when the message was read and understood by the operator (TS2) .			
0	Evaluation Questionnaires should be filled on the day of CTE.			
1	Evaluation Questionnaires should be sent to the Message Provider via designated e-mail address.			

Table XVI–1. CTE Checklist

ANNEX XVII

LIST OF ACRONYMS

CP–DMA	Civil Protection and Disaster Management Authorities
CTE	Communication Test Exercise
ICG/NEAMTWS	Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
IOC	Intergovernmental Oceanographic Commission
I-OUG	Interim Operational Users Guide
MIC	European Union Monitoring and Information Centre
MS	Member States
NEAMTWS	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
NMC	National Meteorological Centres
NTWC	National Tsunami Warning Centre
RTH	Regional Telecommunications Hubs
RTWC	Regional Tsunami Watch Provider
SMS	Short Message Service
SOP	Standard Operational Procedures
SSCT	Small Scale Communication Test Exercise
TNC	Tsunami National Contact
TT	Task Team
TWFP	Tsunami Warning Focal Points
TWP	Tsunami Watch Providers
UNESCO	United Nations Educational, Scientific and Cultural Organization
WMC	World Meteorological Centre
WMO	World Meteorological Organization

IOC Technical Series

No.	Title	Languages
1	Manual on International Oceanographic Data Exchange. 1965	(out of stock)
2	Intergovernmental Oceanographic Commission (Five years of work). 1966	(out of stock)
3	Radio Communication Requirements of Oceanography. 1967	(out of stock)
4	Manual on International Oceanographic Data Exchange - Second revised edition. 1967	(out of stock)
5	Legal Problems Associated with Ocean Data Acquisition Systems (ODAS). 1969	(out of stock)
6	Perspectives in Oceanography, 1968	(out of stock)
7	Comprehensive Outline of the Scope of the Long-term and Expanded Programme of Oceanic Exploration and Research. 1970	(out of stock)
8	IGOSS (Integrated Global Ocean Station System) - General Plan Implementation Programme for Phase I. 1971	(out of stock)
9	Manual on International Oceanographic Data Exchange - Third Revised Edition. 1973	(out of stock)
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11	Bruun Memorial Lectures, 1973	(out of stock)
12	Oceanographic Products and Methods of Analysis and Prediction. 1977	E only
13	International Decade of Ocean Exploration (IDOE), 1971-1980. 1974	(out of stock)
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16	Integrated Ocean Global Station System (IGOSS) General Plan and Implementation Programme 1977-1982. 1977	E, F, S, R
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23	Operational Sea-Level Stations. 1983	E, F, S, R
24	Time-Series of Ocean Measurements. Vol.1. 1983	E, F, S, R
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30	Time-Series of Ocean Measurements. Vol. 2. 1984	E only
31	Time-Series of Ocean Measurements. Vol. 3. 1986	E only
32	Summary of Radiometric Ages from the Pacific. 1987	E only
33	Time-Series of Ocean Measurements. Vol. 4. 1988	E only

(continued)

No.	Title	Languages
34	Bruun Memorial Lectures, 1987: Recent Advances in Selected Areas of Ocean Sciences in the Regions of the Caribbean, Indian Ocean and the Western Pacific. 1988	Composite E, F, S
35	Global Sea-Level Observing System (GLOSS) Implementation Plan. 1990	E only
36	Bruun Memorial Lectures 1989: Impact of New Technology on Marine Scientific Research. 1991	Composite E, F, S
37	Tsunami Glossary - A Glossary of Terms and Acronyms Used in the Tsunami Literature. 1991	E only
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43	IGOSS Plan and Implementation Programme 1996-2003. 1996	E, F, S, R
44	Design and Implementation of some Harmful Algal Monitoring Systems. 1996	E only
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47	Peace in the Oceans: Ocean Governance and the Agenda for Peace; the Proceedings of *Pacem in Maribus* XXIII, Costa Rica, 1995. 1997	E only
48	Neotectonics and fluid flow through seafloor sediments in the Eastern Mediterranean and Black Seas - Parts I and II. 1997	E only
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50	Global Sea-Level Observing System (GLOSS) Implementation Plan-1997. 1997	E only
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52	Cold water carbonate mounds and sediment transport on the Northeast Atlantic Margin. 1998	E only
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54	Geological Processes on the Northeast Atlantic Margin (8^{th} training-through-research cruise, June-August 1998). 1999	E only
55	Bruun Memorial Lectures, 1999: Ocean Predictability. 2000	E only
56	Multidisciplinary Study of Geological Processes on the North East Atlantic and Western Mediterranean Margins (9^{th} training-through-research cruise, June-July 1999). 2000	E only
57	Ad hoc Benthic Indicator Group - Results of Initial Planning Meeting, Paris, France, 6-9 December 1999. 2000	E only
58	Bruun Memorial Lectures, 2001: Operational Oceanography – a perspective from the private sector. 2001	E only
59	Monitoring and Management Strategies for Harmful Algal Blooms in Coastal Waters. 2001	E only
60	Interdisciplinary Approaches to Geoscience on the North East Atlantic Margin and Mid-Atlantic Ridge (10^{th} training-through-research cruise, July-August 2000). 2001	E only
61	Forecasting Ocean Science? Pros and Cons, Potsdam Lecture, 1999. 2002	E only

No.	Title	Languages
62	Geological Processes in the Mediterranean and Black Seas and North East Atlantic (11th training-through-research cruise, July- September 2001). 2002	E only
63	Improved Global Bathymetry – Final Report of SCOR Working Group 107. 2002	E only
64	R. Revelle Memorial Lecture, 2006: Global Sea Levels, Past, Present and Future. 2007	E only
65	Bruun Memorial Lectures, 2003: Gas Hydrates – a potential source of energy from the oceans. 2003	E only
66	Bruun Memorial Lectures, 2003: Energy from the Sea: the potential and realities of Ocean Thermal Energy Conversion (OTEC). 2003	E only
67	Interdisciplinary Geoscience Research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge (12th training-through-research cruise, June-August 2002). 2003	E only
68	Interdisciplinary Studies of North Atlantic and Labrador Sea Margin Architecture and Sedimentary Processes (13th training-through-research cruise, July-September 2003). 2004	E only
69	Biodiversity and Distribution of the Megafauna / Biodiversité et distribution de la mégafaune. 2006 Vol.1 The polymetallic nodule ecosystem of the Eastern Equatorial Pacific Ocean / Ecosystème de nodules polymétalliques de l'océan Pacifique Est équatorial Vol.2 Annotated photographic Atlas of the echinoderms of the Clarion-Clipperton fracture zone / Atlas photographique annoté des échinodermes de la zone de fractures de Clarion et de Clipperton Vol.3 Options for the management and conservation of the biodiversity — The nodule ecosystem in the Clarion Clipperton fracture zone: scientific, legal and institutional aspects	E F
70	Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean Basin (14th training-through-research cruise, July-September 2004). 2006	E only
71	Indian Ocean Tsunami Warning and Mitigation System, IOTWS. Implementation Plan, 7–9 April 2009 (2nd Revision). 2009	E only
72	Deep-water Cold Seeps, Sedimentary Environments and Ecosystems of the Black and Tyrrhenian Seas and the Gulf of Cadiz (15th training-through-research cruise, June–August 2005). 2007	E only
73	Implementation Plan for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS), 2007–2011. 2007 *(electronic only)*	E only
74	Bruun Memorial Lectures, 2005: The Ecology and Oceanography of Harmful Algal Blooms – Multidisciplinary approaches to research and management. 2007	E only
75	National Ocean Policy. The Basic Texts from: Australia, Brazil, Canada, China, Colombia, Japan, Norway, Portugal, Russian Federation, United States of America. (Also Law of Sea Dossier 1). 2008	E only
76	Deep-water Depositional Systems and Cold Seeps of the Western Mediterranean, Gulf of Cadiz and Norwegian Continental margins (16th training-through-research cruise, May–July 2006). 2008	E only
77	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – 12 September 2007 Indian Ocean Tsunami Event. Post-Event Assessment of IOTWS Performance. 2008	E only
78	Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE EWS) – Implementation Plan 2013–2017 (Version 2.0). 2013	E only

(continued)

No.	Title	Languages
79	Filling Gaps in Large Marine Ecosystem Nitrogen Loadings Forecast for 64 LMEs – GEF/LME global project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
80	Models of the World's Large Marine Ecosystems. GEF/LME Global Project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
81	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – Implementation Plan for Regional Tsunami Watch Providers (RTWP). 2008	E only
82	Exercise Pacific Wave 08 – A Pacific-wide Tsunami Warning and Communication Exercise, 28–30 October 2008. 2008	E only
83.	*Cancelled*	
84.	Global Open Oceans and Deep Seabed (GOODS) Bio-geographic Classification. 2009	E only
85.	Tsunami Glossary	E, F, S
86	Pacific Tsunami Warning System (PTWS) Implementation Plan *(under preparation)*	
87.	Operational Users Guide for the Pacific Tsunami Warning and Mitigation System (PTWS) – Second Edition. 2011	E only
88.	Exercise Indian Ocean Wave 2009 (IOWave09) – An Indian Ocean-wide Tsunami Warning and Communication Exercise – 14 October 2009. 2009	E only
89.	Ship-based Repeat Hydrography: A Strategy for a Sustained Global Programme. 2009	E only
90.	12 January 2010 Haiti Earthquake and Tsunami Event Post-Event Assessment of CARIBE EWS Performance. 2010	E only
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92.	27 February 2010 Chile Earthquake and Tsunami Event – Post-Event Assessment of PTWS Performance (Pacific Tsunami Warning System). 2010	E only
93.	Exercise CARIBE WAVE 11 / LANTEX 11—A Caribbean Tsunami Warning Exercise, 23 March 2011	
	Vol. 1 Participant Handbook / Exercise CARIBE WAVE 11 —Exercice d'alerte au tsunami dans les Caraïbes, 23 mars 2011. Manuel du participant / Ejercicio Caribe Wave 11. Un ejercicio de alerta de tsunami en el Caribe, 23 de marzo de 2011. Manual del participante. 2010	E/F/S
	Vol. 2 Report. 2011	E only
	Vol. 3 Supplement: Media Reports. 2011	E/F/S
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95.	International Post-Tsunami Survey for the 25 October 2010 Mentawai, Indonesia Tsunami	*Under preparation*
96.	Pacific Tsunami Warning System (PTWS) 11 March 2011 Off Pacific coast of Tohoku, Japan, Earthquake and Tsunami Event. Post-Event Assessment of PTWS Performance	*Under preparation*
97.	Exercise PACIFIC WAVE 11: A Pacific-wide Tsunami Warning and Communication Exercise, 9–10 November 2011	
	Vol. 1 Exercise Manual. 2011	E only
	Vol. 2 Report. 2013	E only
98.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and connected seas. First Enlarged Communication Test Exercise (ECTE1). Exercise Manual and Evaluation Report. 2011	E only

No.	Title	Languages
99.	Exercise INDIAN OCEAN WAVE 2011 – An Indian Ocean-wide Tsunami Warning and Communication Exercise, 12 October 2011 Vol. 1 Exercise Manual. 2011 Supplement: Bulletins from the Regional Tsunami Service Providers Vol. 2 Exercise Report. 2013	E only
100.	Global Sea Level Observing System (GLOSS) Implementation Plan – 2012. 2012	E only
101.	Exercise Caribe Wave/Lantex 13. A Caribbean Tsunami Warning Exercise, 20 March 2013. Volume 1: Participant Handbook. 2012	E only
102.	*(In preparation)*	
103.	Exercise NEAMWAVE 12. A Tsunami Warning and Communication Exercise for the North-eastern Atlantic, the Mediterranean, and Connected Seas Region, 27–28 November 2012. Vol. I: Exercise Manual. 2012 Vol. II: Evaluation Report. 2013	E only
104.	Seísmo y tsunami del 27 de agosto de 2012 en la costa del Pacífico frente a El Salvador, y seísmo del 5 de septiembre de 2012 en la costa del Pacífico frente a Costa Rica. Evaluación subsiguiente sobre el funcionamiento del Sistema de Alerta contra los Tsunamis y Atenuación de sus Efectos en el Pacífico. 2012	Español solamente (resumen en inglés y francés)
105.	Users Guide for the Pacific Tsunami Warning Center Enhanced Products for the Pacific Tsunami Warning System, August 2014. Revised Edition. 2014	E, S
106.	Exercise Pacific Wave 13. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 1–14 May 2013. Vol. 1 Exercise Manual. 2013 Vol. 2 Summary Report. 2013	E only
107.	Tsunami Public Awareness and Educations Strategy for the Caribbean and Adjacent Regions. 2013	E only
108.	Pacific Tsunami Warning and Mitigation System (PTWS) Medium-Term Strategy, 2014−2021. 2013	E only
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111.	Integrated Regional Assessments in support of ICZM in the Mediterranean and Black Sea Basins. 2014	E only
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114.	Exercise NEAMWAVE 14. A Tsunami Warning and Communication Exercise for the North-Eastern Atlantic, the Mediterranean, and Connected Seas Region, 28–30 October 2014 Vol. I Manual	E only
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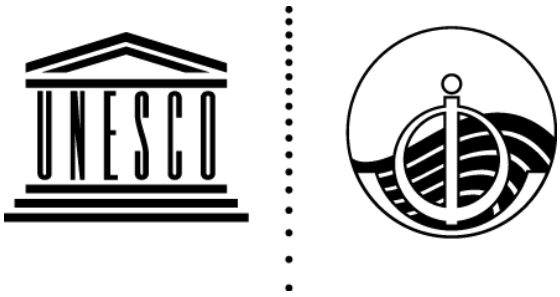
116



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

Third Enlarged Communication Test Exercise (CTE3)

1 October 2013

Volume 2 Evaluation Report

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116

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TABLE OF CONTENTS

1. INTRODUCTION

The Fourth meeting of the Task Team on the Communication Test and Tsunami Exercise (TT–CT&TE) of the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS) was held in Paris, France, on 24 April 2013. The TT–CT&TE is responsible for the preparation and conduct of the Enlarged Communication Test Exercises (NEAMTWS–CTE) and the organization of its assessment. The two previous CTEs were successfully held, the first one by the Kandilli Observatory and Earthquake Research Institute of Turkey (KOERI) on 10 August 2011, and the second one by the CENtre d'Alerte aux Tsunamis of France (CENALT) on 22 May 2012.

At the meeting, it was decided that the Message Provider for the CTE3 would be NOA-HLNTWC (Hellenic National Tsunami Warning Centre) in Greece and that the Extended CTE should be conducted in the second or third quarter of 2013, around mid-September, due to the need for enough evaluation time prior to the Tenth 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-X/3).

The possibility of introducing one additional communication technology for the CTE3 was also discussed during the meeting and in particular the SMS technology, which was decided to be included in the exercise. NOA-HLNTWC was assigned the task of proposing a template for this type of message.

The execution of NEAMTWS–CTE3 is considered important because:

- It validates and updates National Tsunami Warning Centres (NTWCs) and Tsunami Warning Focal Points (TWFP) contact info;
- It evaluates and validates the Tsunami Watch Providers' (TWPs) dissemination process of issuing tsunami messages to the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAM) region;
- It evaluates and validates the process for countries to receive and confirm tsunami messages;
- It assesses the effectiveness of the various communication methods, as well as the latency of each method.

In total 31 countries participated in CTE3, 18 of these (green colour on the map in Figure 1) as message recipients actively participated by filling and sending the evaluation questionnaire back to the message provider (blue colour on the map in Figure 1).

In this report a summary of the results of CTE3 is presented, as extracted from the questionnaires that were compiled by the Message Receivers and returned to the Message Provider (NOA-HLNTWC, Greece). Moreover, it also includes comments and recommendations regarding the possible improvement of future exercises, in order to achieve more extensively their goals.

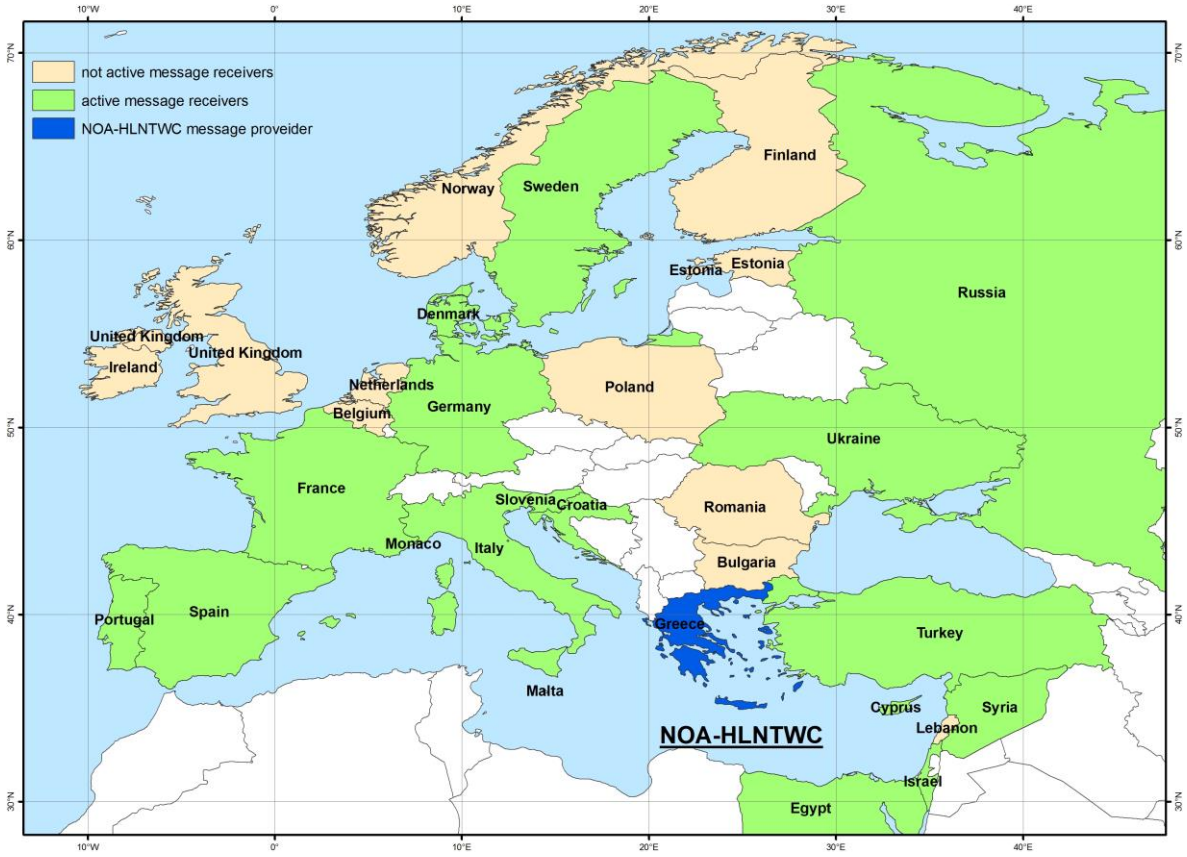


Figure 1. CTE3 Participation Map

2. RECOMMENDATIONS FROM PREVIOUS COMMUNICATION TEST EXERCISE AND THEIR IMPLEMENTATIONS IN CTE3

The following recommendations were noted from the previous CTE2 and implemented accordingly:

1. Problems in the TWFP/TNC contact details database and its update were previously identified during past CTE. Although the procedure that is described in the manual was followed, issues regarding wrong or incomplete contact details seemed to still be present.

2. According to the *Interim Operational Users Guide for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS),* the names of countries and institutions in a CTE message were sorted in alphabetical order in the message body.

3. According to the Task Team on Communication Test and Tsunami Exercise (TT-CT&TE) recommendation, the European Union Monitoring and Information Centre (MIC) participated in the NEAMTWS–CTE3 as an observer. In this case, MIC confirmed the message reception without participating in the compilation of the relevant questionnaire.

4. Message Receiver Information forms were updated in such a way as to identify whether GTS capability exists or not.

5. The message receiver had to provide in the evaluation questionnaire, the time when the message arrived, as well as the time when the message is opened/read by the TWFP personnel. This update in the evaluation questionnaire solved the problem of misunderstanding the time of reception.

6. There were no reports for duplicate GTS messages.

Additionally, all the recommendations that were implemented to the previous CTEs were followed:

- TWFP/TNC contact details were updated according to the list that was distributed by the IOC Secretariat.
- Limitation in the number of e-mail recipients was tested by a preliminary test prior to CTE3.
- The fax server was set up so each recipient's fax number was subjected to at least three attempts.
- An 8 phone line fax server for the fax message dissemination was used.
- A check was made regarding the existence of ASCII characters that could cause problems in correct message appearance.
- Although countries were encouraged to provide alternate fax numbers, only 33% of the countries provided more than one fax number and in most of the cases, it was not made clear which is the primary and which the alternative.
- An in house scripting module was used for disseminating the test message via all the three methods (email, fax & GTS) simultaneously. The SMS dissemination method was not part of the script, since it is not part of the routine procedure.
- According to the *Third Enlarged Communication Test Exercise (CTE3): Exercise Manual* (IOC/2014/TS/116 Vol.1), Message Receivers should configure and synchronize their PC and/or faxes to Universal Time Coordinated (UTC); however this was partially the case, as 46% of the countries synchronized their computers, while 42% did the same for their faxes. There were also cases where the reported time was in local time, instead of UTC.

	Synchronized	Not synchronized	No information
PC	46% (12)	19% (5)	35% (9)
FAX	42% (10)	25% (6)	33% (8)

Table 1. Percentage of Message Receivers
that synchronized/not synchronized PC and/or fax.

3. PREPARATION OF THE NEAMTWS–CTE3

3.1 BACKGROUND INFORMATION

During the Fourth meeting of the Task Team on the Communication Test and Tsunami Exercise (TT-CT&TE) of the Tsunami Early Warning and Mitigation System in the North-

Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS), it was decided that NOA-HLNTWC (Greece) would act as Message Provider for NEAMTWS–CTE3, and to conduct the exercise on 1 October 2013.

The IOC Secretariat sent the First Announcement of CTE3 on 29 August 29 2013, inviting also the Member States to update their contact details. The Second Announcement was sent by NOA-HLNTWC on 24 September 24 2013. Along with the Second Announcement, the questionnaire for the message receivers was circulated to the participants.

3.2 PREPARATION

An updated version of the *Third Enlarged Communication Test Exercise (CTE3): Exercise Manual* was sent by the TT-CT&TE on 13 September 2013 to IOC Secretariat and the Message Provider.

During the preparation period prior to the exercise, all communication methods were thoroughly investigated and tested for possible errors. For the dissemination of the CTE3 message, a scripting module was used that has been developed in house. This module gives to the user the opportunity to send simultaneously all three types of messages by a simple click on the respective desktop icon.

The email message dissemination employs an email server and the available list of predefined recipients. For the delivery of the fax messages, a HylaFax Server managing eight phone lines and the available list of predefined recipients has been utilized. The server gives the opportunity to prioritize the fax numbers in two lists, a primary and an alternative one. Both the email and the HylaFax servers are always automatically synchronized for accurate time to UTC via local NTP server. For broadcasting the GTS messages, the module uses via ftp the VPN link between NOA-HLNTWC and the Operating Centres of the Hellenic National Meteorological Service (HNMS) to transmit the message through GTS at HNMS in Athens. The GTS code for the HLNTWC messages is WEME40 LGAT followed by the date and time of issue of the message.

Moreover, a lot of effort was needed to setup the SMS delivery method. For that purpose, a web service was used, giving the ability to send the predefined message to a list of recipients.

One day before the Second Announcement, the IOC Secretariat provided the TNC and TWFP contact details, as well as the filled message receiver forms. In order to check and correct recipient information, if necessary, and assess all four delivery methods, a communication test message was sent 4 days prior to CTE3.

3.2.1 Preparation concerning emails

The Second Announcement of the NEAMTWS–CTE3 was sent by the Message Provider's email address, in order to ensure that the anti-spam and firewall software operating in the Message Receivers' networks do not block the Communication Test Exercise Message. Moreover, the ability of the Message Provider's e-mail server was checked for sending messages to many addresses at once. There had been only one case where the message was blocked by an anti-spam filter; this issue was identified and solved.

The communication test message sent prior to CTE3 helped in identifying 5 cases where the email addresses were wrong. Email exchange between those Message Receivers and the Message Provider was used to specify the correct addresses. Furthermore, there were 5 cases where an "out of office" auto reply was received.

3.2.2 Preparation concerning faxes

Fax message dissemination is managed by a HylaFax Server machine. For the purpose of the exercise, the available phone lines of the fax server were increased from 4 to 8. However, one phone line was reserved for emergency and incoming messages. The fax numbers were divided in 2 lists, one primary and one alternative, utilizing the fax server's feature to prioritize which list will be used first.

The communication test message sent prior to CTE3 helped in identifying 7 cases where the fax numbers were wrong. Email exchange between those Message Receivers and the Message Provider was used to specify the correct addresses.

3.2.3 Preparation concerning GTS

The GTS messages were sent via ftp, using the VPN link between NOA-HLNTWC and the HNMS Operating Centres. The communication test message that was sent prior to CTE3 also involved GTS message dissemination.

3.2.4 Preparation concerning SMS

Special care was taken regarding the SMS dissemination method, since it was the first time that this technique was used in NEAMTWS–CTE procedure. The message provider used a web service to which it is already subscribed for disseminating earthquake information messages. The communication test message that was sent prior to CTE3 also included SMS message dissemination. This helped in identifying possible issues, like failure in sending messages to international phone numbers or SMS provider incompatibilities. There was one case that an incompatibility between the SMS providers was identified, and this problem was solved.

Moreover, in order to fix a problem in the number that was appearing as "'sender", several trials took place between the Message Provider and one Message Receiver. The issue was not solved, but the reason was clearly identified.

4. NEAMTWS–CTE3: STORY BOOK

The exercise took place in NOA-HLNTWC operation room on 1 October 2013. At the time of the exercise, there were present, besides the two staff members, who were on duty, the director of NOA-HLNTWC and TNC, the coordinator of the CTE3, and a software engineer.

Following the *Third Enlarged Communication Test Exercise (CTE3): Exercise Manual*, the CTE3 message was preformatted, missing only the time information on the header. The same message was used for the 3 dissemination methods, i.e. email, fax and GTS. For the SMS method, a sorter message was created, according to the proposed template that was included in the manual.

As T0 time was assumed the instance when the Message Provider is aware that a tsunami message has to be delivered, i.e. 11:10:00 UTC. The operator then validated the preformatted message and sent it at 11:10:30 UTC for the email, fax and SMS, and at 11:16:00 UTC for GTS. The six minute delay was due to a malfunction of the ftp server that receives the message at the HNMS Operating Centre.

5. EVALUATION OF THE MESSAGE DISSEMINATION

Following are the general comments reported in the questionnaires that were sent by the Message Receivers. Remarks for the comments are also reported in Section 6.

COMMENTS BY MESSAGE RECEIVERS	ANSWERS
We consider that it would be useful if regular telephone lines could be used to signal the start of the exercise or the actual emergency. There should be a standard form to be filled by the receivers stating acknowledgement of the test message.	Regular telephones are not included in the communication methods. A standard form already exists. It is the Annex VII of NEAMTWS–CTE3 manual: Evaluation questionnaire to Message Receivers.
You have also sent the information to this Fax +46 114958001. This number is not watched 24/7 so please take that away from your Fax-number list. Do not ask for number and mail before the test. You should use the numbers that you are going to use if a real tsunami situation.	Issue discussed in Section 6. One of the objectives of the exercise is to validate and update the contact details.
A sample test message for SMS is missing in the manual, so we don't know what are the standards to be implemented (e.g. carriage return or line feed). The GTS message has been issued at 1116Z while the message sent by mail had been issued at 1110Z. Should a UID (unique identifier) be provided into the message? It would allow to easily distinguishing if the operator is reading the same or a different message without having to read the whole message content. We suggest starting testing Twitter Alert and Google Alert as additional channels (maybe in a restricted mode).	A sample test message for SMS was included in the updated version of the NEAMTWS–CTE3 manual. GTS message was disseminated with 6 minutes delay, but this did not affect the correct estimation of latency. To be consider by TT-CT&TE.
All means of communication have been tested successfully; however the communication test on the 27th September was not foreplanned	It is debatable whether a communication test should be necessarily planned in advance or it can be executed at any time.
Eventually to consider identifying fax messages by the fax number of the CTWP. The same applies to SMS	Both fax and SMS message could be identified by the institution's name of the message provider NOA-HLNTWC, instead of different numbers.

COMMENTS BY MESSAGE RECEIVERS	ANSWERS
We believe our info of renewed contact comes too late to the provider of message.	Issue discussed in Section 6.
Yes but our department's email contact details must be revised.	Issue discussed in Section 6.
We wait for the French version of the exercise manual.	To be considered by TT-CT&TE.
During your previous mails in which NEAMTWS Secretariat asked for communication information (information message receiver form) on 29 August 2013, we provided the email as tsunami@afad.gov.tr 09.09.2013 dated CTE3 2nd test message sent by HLNTWC was not received by email and received only by fax. Please check and make necessary corrections and/or additions for our department's contact details and include our email account as "tsunami@afad.gov.tr" for further mailings. If available please ignore the email address of "murat.nurlu@afad.gov.tr" and replace with the one provided above.	The Message Provider did not get any updated information for the specific message receiver from IOC.
KOERI did not receive a fax message at the alternate fax number provided due to an unknown problem at the fax machine at KOERI occurred during the time of the exercise. 1. KOERI expected the dissemination of the updated CTE Manual at the time of the second announcement on 24 September 2013, which was not the case. 2. There was a CTE message disseminated on 27 September, which was not according to the manual and caused a considerable level of confusion. Moreover, the format of the message had also some unexpected characters. We anticipate	The IOC Secretariat is responsible for disseminating the material for the exercise. Even though the Message Provider reminded the IOC Secretariat that they should update the links and send a relevant reminder, no such email was sent by IOC Secretariat. Issue discussed in Section 6. There is no need for comparatively evaluation of the preliminary test with the CTE3, since the purpose of the preliminary test was only to update the list of email addresses, fax and SMS numbers. GTS message was disseminated with 6 minutes delay, but this did not

COMMENTS BY MESSAGE RECEIVERS	ANSWERS
that this was an action to ensure a smooth CTE3, nevertheless, in our point of view; the purposes of a full-scale exercise cannot be fulfilled with another full-scale exercise conducted prior. As demonstrated during the ECTE1, failures or deficiencies of a CTE could be targeted at a small-scale exercise following the full-scale test. Having said that, small-scale preparatory tests could be organized prior the CTE, as it was the case during the CTE3 for SMS dissemination between NOA and KOERI. In this respect, we believe that the results of the two CTEs, conducted on 27 September and 1 October, should be evaluated comparatively and both results should be reported in the CTE3 Report. 3. We have observed that the message issue times differ for e-mail/fax and GTS. 4. KOERI closely assisted NOA in the analysis of the SMS message failure at the initial CTE conducted on 27 September 2013 and provided feedback, including on the day of the exercise. 5. We thank NOA for all the hard-work, preparation and conduct of the CTE3 It is of vital importance that the exercise providers closely follow the CTE Manual. This is not only of especially importance in consideration of the active integration of the CPA community, but also a solid basis for the interoperability of the CTWPs, which should be considered as a crucial element within the NEAMTWS.	affect the correct estimation of latency. The SMS case of the Message Receiver revealed the two important issues that should be closely examined regarding the SMS dissemination method (see also ANNEX VI). Issues were partially solved, thanks to the patient and good cooperation between the receiver and the provider.

Table 2. General comments made by the Message Receivers after the Exercise

5.1 EVALUATION OF THE MESSAGE DISSEMINATION BY MAIL

The e-mail message was disseminated to 60 mailing addresses, which correspond to 25 agencies. Since no error was received from the mailing server, we concluded that all of the messages were sent successfully.

According to the evaluation questionnaires, the reception was confirmed for 26 addresses (18 agencies). There was no confirmation for 5 addresses (4 agencies), and no information for another 7 addresses (3 agencies). There were also 22 addresses, from 16 agencies, for which no evaluation questionnaire was returned.

The mails were received in less than 10 minutes. More than 70% received the message in less than one minute, while 92% received the message in less than 3 minutes. There was an 8% that received the message in 10 minutes.

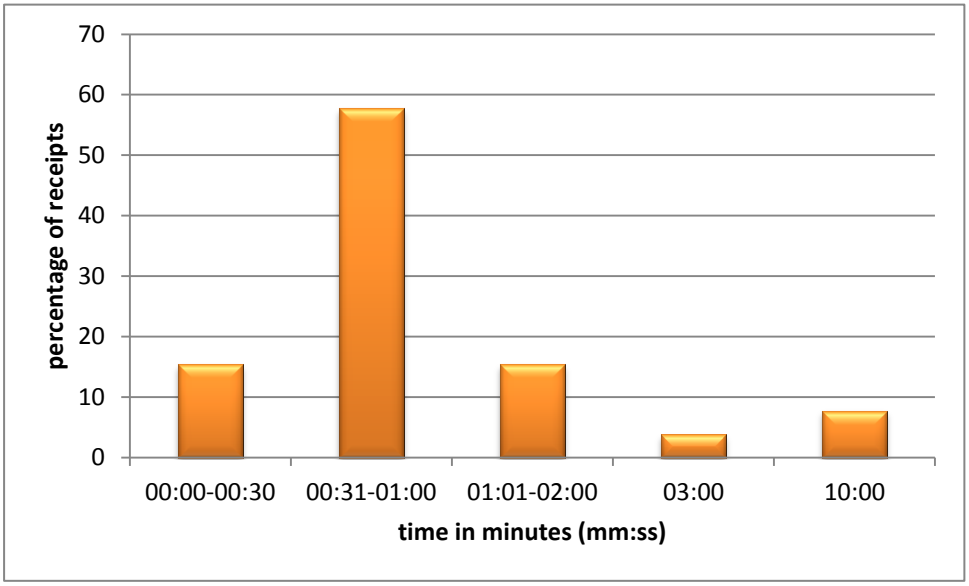


Figure 2. Latency of e-mail message dissemination

5.2 EVALUATION OF THE MESSAGE DISSEMINATION BY FAX

A total number of 49 fax numbers were tested in the CTE3, which corresponds to 25 agencies. There were 10 fax numbers for which the fax server received an error. In all cases the fax message was received by the primary fax, expect one case where the message was received by the alternative fax.

The fax server was setup to send the message to 7 fax numbers at a time. The great amount of messages (92%) was sent in the first 10 minutes after T0, while almost 60% of the messages were sent in less than four (4) minutes. Between 12 and 17 minutes after T0, the fax server managed to send the last 8% of the messages, after several tries.

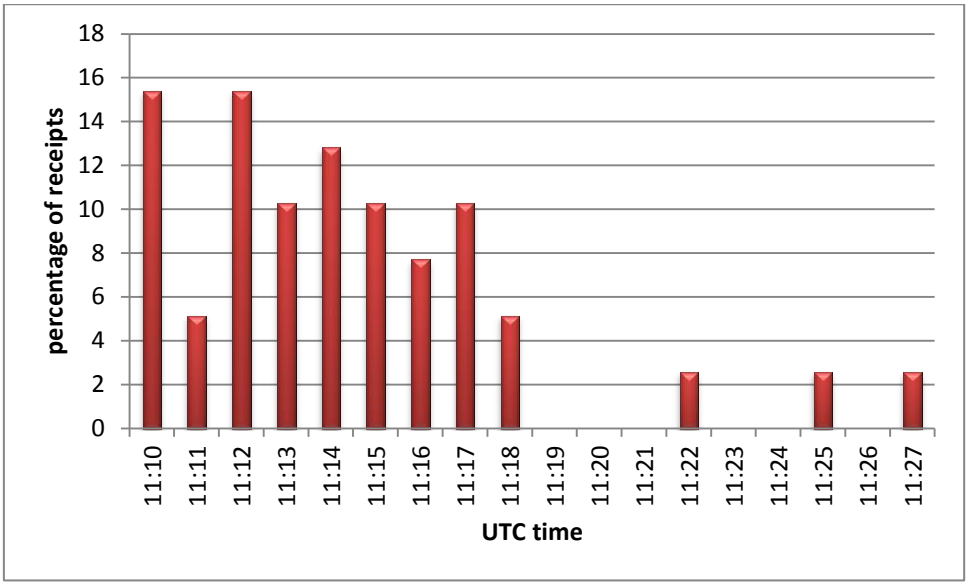


Figure 3. Absolute time in UTC of fax delivery

Out of the 49 faxes sent, 24 were confirmed as received (50%), while for 15 faxes (28%) there was no information. Almost 90% were received between 2 and 9 minutes after T0. For the last 8% the reception time reported in the evaluation questionnaire may be wrong.

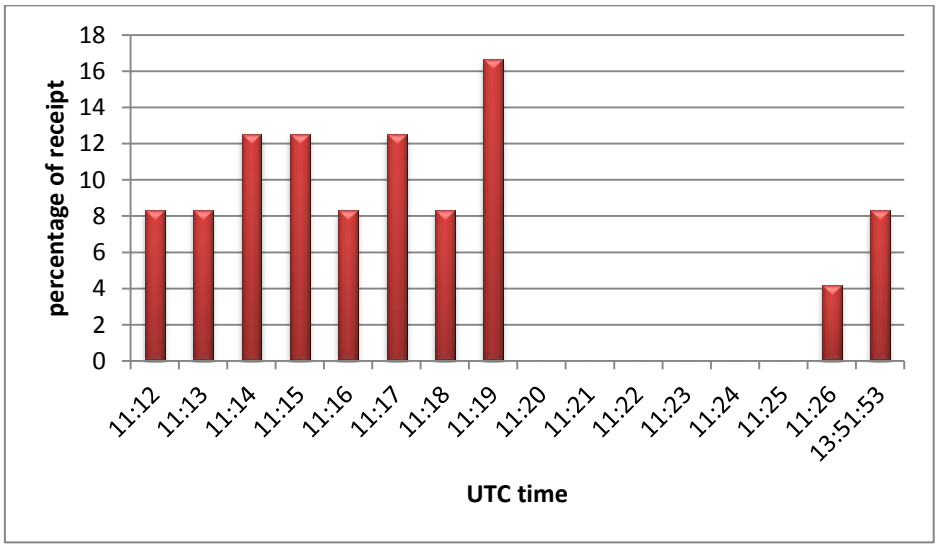


Figure 4. Absolute time in UTC of fax reception

Regarding fax latency, the time of the call duration was calculated by the fax server. The minimum latency was about half a minute, while the maximum was 1 minute and a half. 60% of the messages have a latency of less than a minute.

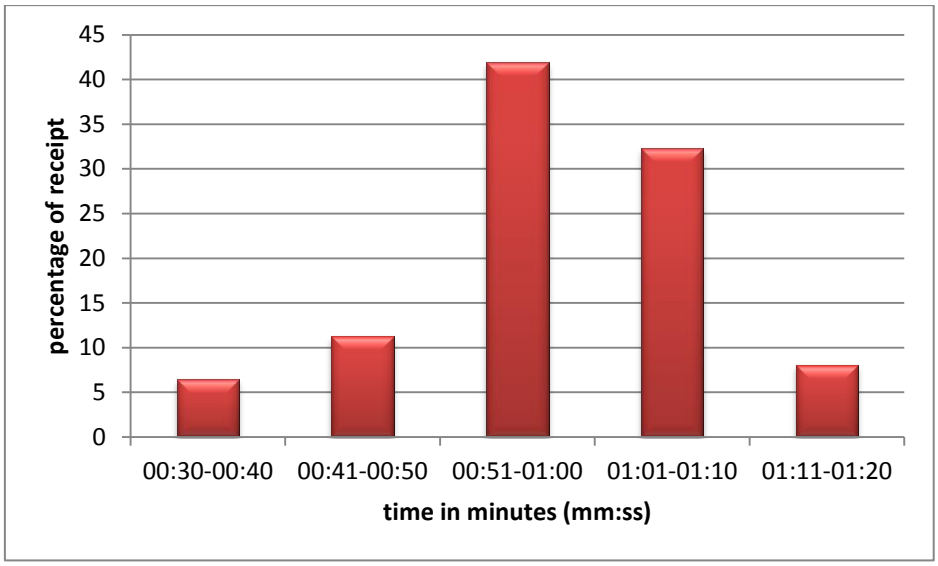


Figure 5. Latency of fax message dissemination

5.3 EVALUATION OF THE MESSAGE DISSEMINATION BY GTS

Only a few countries, i.e. 12 out of 31 (39%), confirmed the GTS reception of the message. The minimum latency was less than 1 minute for 36%, while the maximum was 4 minutes. Sixty-four percent (64%) of the countries received the GTS message in less than 2 minutes. Thirteen (13) agencies reported that they did not have access to a GTS system.

There was no report for duplicate GTS messages, although the GTS message reception, for most of the countries is managed by their meteorological offices and hence message dissemination could be more complicated.

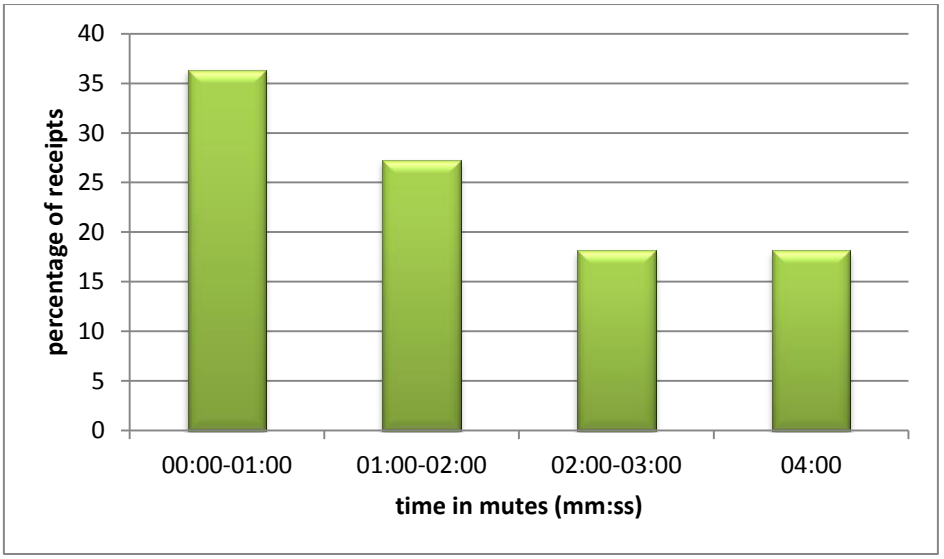


Figure 6. Latency of GTS message dissemination

5.4 EVALUATION OF THE MESSAGE DISSEMINATION BY SMS

SMS phone numbers were provided by 12 countries (14 agencies). The SMS server reported 2 errors, while there was no information for 4 numbers. Among the remaining cellular numbers (14) that confirmed reception, 62% received the message in 40 seconds, while 77% received the message in a little more than a minute. There was one country that reported SMS reception prior to any other method. However, a lot needs to be discussed regarding this new technology, before it could be included in the standard dissemination message procedure.

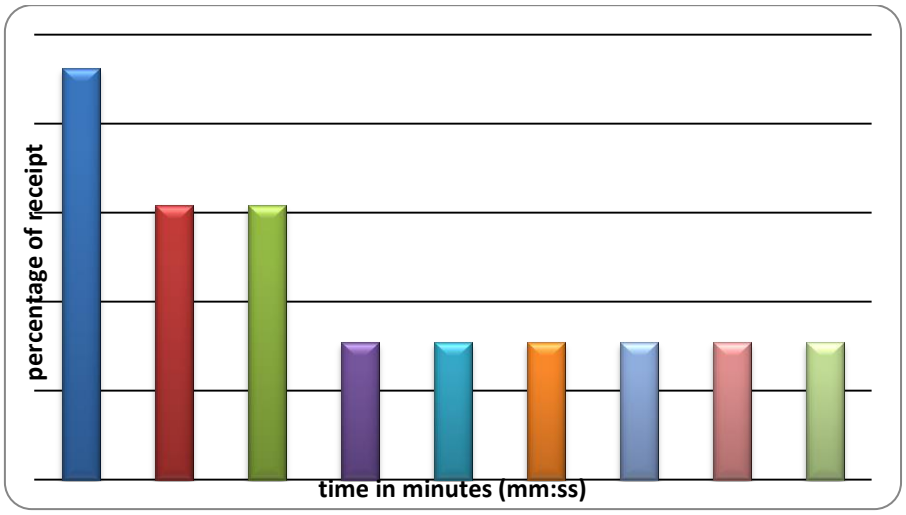


Figure 7. Latency of SMS message dissemination

5.5 GENERAL OBSERVATIONS

During the CTE3, 18 countries out of 31 (58.1%) and 25 agencies out of 41 (61%) filled and returned the evaluation questionnaire partially or totally. Seventy-three percent (73%) received the message in less than 1 minute, while the rest of the countries received the alert messages in less than 3 minutes, except one that the time receipt of the various messages was not in UTC time.

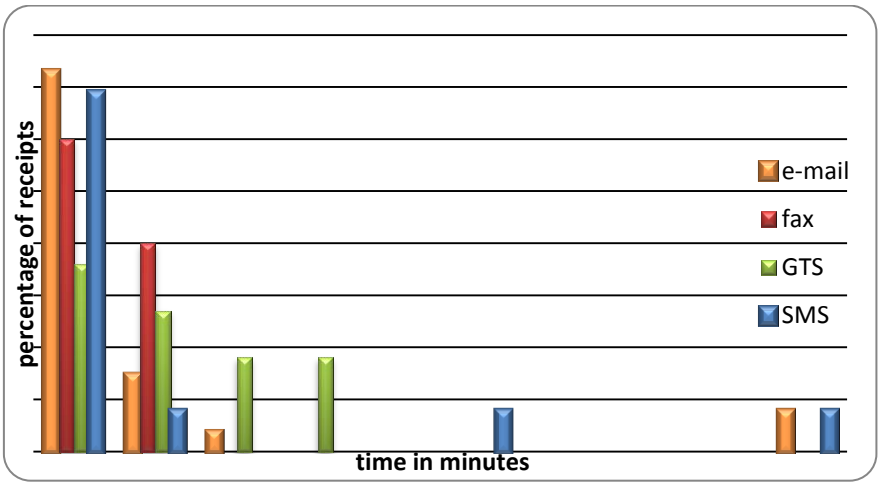


Figure 8. Latency of each way of communication

6. NOTES AND ISSUES TO BE CONSIDERED

- A major issue for the tsunami message dissemination remains the completeness of the TWFP/TNC contact details database that the IOC Secretariat develops. The list itself has many email addresses or fax numbers that are wrong or incomplete. It is not clear in the list which are the “operational 24/7” email addresses and fax numbers. This results in some answers from the Message Receivers reporting that they are not 24/7 operational and, on the other hand, those receivers does not usually feel obliged to fill and return the evaluation questionnaire. Three such cases where revealed.

- Moreover, the updating procedure of the contact details that is described in the manual is not the most effective. There is one case where the updated information never reached the Message Provider, even if the message receiver reported that it was sent to IOC. On the other hand, it is not clear whether the contact details that are filled in the updating information form should replace those in the TWFP/TNC contact details database of IOC or they should be used in a supplementary way.

- The first priority of the CTEs is to assess and improve through service the times that the message via a variety of methods is disseminated and delivered. It is not to find the correct phone numbers or email addresses. Therefore, a preliminary test message was sent 4 days prior to CTE3 to correct as much contact details as possible. Otherwise, the assessment of the effectiveness and latency between the various communication methods could not been correctly evaluated. The preliminary test managed to solve many issues, but not apparently all. For 4 emails addresses, 7 fax numbers and 8 SMS numbers correction was requested to be the message receivers.

- In several cases, the time stamp that is reported in the evaluation questionnaires, did not include seconds, but only minutes.

- The evaluation of the fax dissemination messages was made, using the time stamp of the end of message transmission. However, it is suspected that according to the type of the fax system used by the Message Receivers (fax machine or fax server), the time of the beginning of transmission may have been reported instead.

- During the CTE3, the SMS dissemination method was tested. Although the participation of Message Receivers was not very wide, 2 major issues were identified and analysed. For the delivery of the SMS messages, the Message Provider used a web service to which it is already subscribed for disseminating earthquake information messages. The first issue identified is that not all cell phone carriers are compatible with all web services. For this reason, extra communication was needed in order to include the specific cell phone carriers of the Message Receivers to the web service. The second issue had to do with identification of the sender. It was found out that not all cell phone carriers support alphanumeric values, while not all web services support numeric values. This resulted in the case where the Message Receiver reported an unidentifiable number as sender, while the Message Provider has declared the name of the institute (NOA-HLNTWC) in the sender’s field.

ANNEX I

CTE3 FIRST ANNOUNCEMENT

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

UNESCO - 1, rue Miollis - 75732 Paris cedex 15, France
http://ioc-unesco.org - fax: +33 (0)1 45 68 58 10 - contact phone: +33 (0)1 45 68 39 83/84
E-mail: w.watson-wright@unesco.org

IOC Circular Letter No. 2495
(Also available in French)

IOC/WWW/TA/FS
Paris, 22 August 2013

To : ICG/NEAMTWS Tsunami Warning Focal Points (TWFP) and Tsunami National Contacts (TNC)
ICG/NEAMTWS Chair, Vice-Chairs and Officers

cc. : Official National Coordinating Body for liaison with the IOC Member States
Permanent Delegates/Observer Missions to UNESCO of IOC Member States and
National Commissions for UNESCO of IOC Member States in the NEAM region

Subject : Invitation to participate to the third NEAMTWS Communication Test Exercise (NEAMTWS-CTE3) on 1 October 2013

We have the pleasure to announce the third NEAMTWS Communication Test Exercise (NEAMTWS-CTE3), which will be conducted on 1 October 2013. The NEAMTWS-CTE3 will involve the National Tsunami Warning Centres (NTWC) and the Tsunami Warning Focal Points (TWFP).

The candidate Tsunami Watch Provider (TWP), National Tsunami Warning Centres (NTWC) and Tsunami Warning Focal Points (TWFP) must keep a high level of readiness so as to be able to act efficiently and effectively to provide for the public's safety during fast-onset and rapidly-evolving natural disasters like the tsunamis. To maintain this high state of operational readiness and especially for infrequent events such as tsunamis, tsunami watch/warning centres and emergency agencies must regularly practice their response procedures to ensure that vital communication links work seamlessly, and that agencies and response personnel know the roles that they will need to play during an actual event.

.../...

NEAMTWS-IX during 11-13 September 2012 in Southampton – United Kingdom, confirmed a Task Team on Communication Test and Tsunami Exercises (TT-CT&TE) which is responsible for the preparation and conduct of NEAMTWS-CTE3 and organization of its assessment. The aim of the NEAMTWS-CTE3 is to refine procedures for testing the communication of tsunami alert messages between National Tsunami Warning Centres and all Tsunami Warning Focal Points (TWFPs), including speed and availability within NEAMTWS region. CTEs conducted during the previous intersessional period highlighted the importance of having other communication methods like Global Telecommunication System (GTS). Moreover, during the TT-CT&TE meeting, held in Paris on 24 April 2013, it was decided to introduce one additional communication technology, the SMS (http://www.ioc-unesco.org/index.php?option=com_oe&task=viewEventRecord&eventID=1307). Therefore the utilization of SMS during the NEAMTWS-CTE3 is another aim of the Exercise. We, therefore, kindly ask you to send us a phone number in order to test the SMS functionality. The information concerning the Messages Provider (Greek NOA National Observatory of Athens) will be provided in the second letter of Announcement.

NEAMTWS-CTE3 will address the questions related to the evaluation and issuance of the warning message by Tsunami Watch Provider, as in the previous CTEs, but will also attempt to assess the national and/or local response and warning dissemination mechanisms once emergency authorities receive a warning. NEAMTWS-CTE3 will involve all possible TWFPs using conventional message dissemination channels that have been previously subject to test between candidate TWP and NTWCs. Message dissemination using GTS will be only available between TWFPs that have this system available to them at the operation level.

The NEAMTWS-CTE3 messages will be delivered to the TWFP (TNC in the absence of a designated TWFP) operational addresses as provided by Member States to the IOC secretariat. Member States are invited to verify that these addresses are accurate and up-to-date. Any changes, corrections or amendments should be sent to the IOC Secretariat through the official channels described in UNESCO IOC TWFP and TNC nomination forms. They will be used in the NEAMTWS-CTE3 if received one week before the exercise.

We kindly ask you to fill the attached form and to send it to the Secretariat (neamtws-secretariat@unesco.org) not later than 18 September 2013.

More information on the nature of the exercise together with technical details concerning the conduct and evaluation of the exercise can be found in the NEAMTWS Communication Exercise Manual, attached to this Circular Letter. All relevant documentation and updated information on the Exercise can be accessed through the NEAMTIC website (http://neamtic.ioc-unesco.org)

Thank you in advance for your cooperation.

Yours sincerely,

François Schindelé
Chairman, ICG/NEAMTWS

Wendy Watson-Wright
Assistant Director-General, UNESCO
Executive Secretary, IOC

[signed]

Annex:
Form with contacts of the message receiver for the communication test

NEAMTWS Communication Exercise Manual

ANNEX II

CTE3 SECOND ANNOUNCEMENT

From: Hellenic Tsunami Warning Center [mailto:hl_ntwc@noa.gr]
Sent: Tuesday, September 24, 2013 7:12 PM
To: hl_ntwc@noa.gr
Cc: f.santoro@unesco.org
Subject: CTE 3 SECOND ANNOUNCEMENT MESSAGE

To whom it may concern;

This e-mail message is sent to you from the CTE message provider NEAM NOA HL-NTWC Candidate Tsunami Watch Provider e-mail address hl_ntwc@noa.gr in order to ensure that the anti-spam and firewall software operating at the message recipient side do not block the CTE message on the day of the exercise, 01/10/2013.

You have received this e-mail because either you have provided your e-mail address in Annex V of the *NEAMTWS-CTE Manual* or your e-mail address was provided in TWFP/TNC forms submitted by your State/Government to UNESCO/IOC.

Please be so kind to confirm the receipt of this message.

Best regards,

NEAM NOA HL-NTWC Candidate Tsunami Watch Provider

ANNEX III

CONTACT UPDATING FORM
FOR THE MESSAGE RECEIVERS AND PROVIDER

INFORMATION ON MESSAGE RECEIVER	
COUNTRY:	
INSTITUTION:	
Email addresses to receive the test message:	
Primary e-mail address:	
Alternate e-mail address (if any):	
Fax numbers to receive the test message:	
Primary fax number:	
Alternate fax number:	
Phone numbers to receive the test message:	
Primary phone number:	
Alternate phone number:	
Contact Info:	
Name:	
E-mail:	
Fax:	
Mailing Address:	

INFORMATION ON MESSAGE PROVIDER	
Name of the Country:	**GREECE**
Name of the Institution:	**NATIONAL OBSERVATORY ATHENS HELLENIC NATIONAL TSUNAMI WARNING CENTER**
Email address to broadcast the communication test message:	**hl_ntwc@noa.gr**
Fax number(s) to broadcast the communication test message[1]*:	**+302103490050 / +302103490198 / +302103490194 / +302103490155 / +302103490126 / +302103490128 / +302103490130 / +302103490044**
Fax ID code(s):	
GTS Message Header:	**WEME40 LGAT DDHHMM**
Telephone number to broadcast the communication test message*:	**NOA-HLNTWC (+306944583610)**
TWFP Information[2]	
Name:	Marinos Charalampakis
E-mail address:	cmarinos@noa.gr
Telephone*:	+302103490175
Fax*:	+302103490180
Mailing address:	Lofos Nymfon, 118-10, Thissio, Athens, Greece

[1] Include all the lines used by the Fax machine in case of parallel broadcasting.

[2] Please note that this information is only to identify the person responsible for sending the message, and also responding to the technical questions concerning the CTE.

* All fax/telephone numbers reported here should include international phone codes

ANNEX IV

MESSAGE SENT BY EMAIL AND FAX

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NEAM NOA HL-NTWC CANDIDATE TSUNAMI WATCH PROVIDER
ISSUED AT 1110Z 01 OCT 2013

... TSUNAMI COMMUNICATION TEST ...
THIS TEST APPLIES TO ... CGCCR (BELGIUM)... BAS (BULGARIA)...
INMG (CAPE VERDE)... NPRD (CROATIA)... OC (CYPRUS)... DMI (DENMARK)...
NIOF (EGYPT)... NRIAG (EGYPT)... EMI (ESTONIA)...
MIC (EUROPEAN COMMISSION)... FMI (FINLAND)... GSC (FINLAND)...
CENALT (FRANCE)... BSH (GERMANY)... DWD (GERMANY)... GSCP (GREECE)...
NOA (GREECE)... GSI (IRELAND)... GII (ISRAEL)... INGV (ITALY) ...
NCGR (LEBANON)... CPD (MALTA)... SPMC (MONACO)... KNMI (NETHERLANDS)...
DSB (NORWAY)... NHQSFS (POLAND)... ANPC (PORTUGAL)... IPMA (PORTUGAL)...
NIEP (ROMANIA)... NPO (RUSSIAN FEDERATION)... EARS (SLOVENIA)...
DGPCE (SPAIN)... SMHI (SWEDEN)... SWO (SYRIA)... DEMP (TURKEY)...
KOERI (TURKEY) ... MHI (UKRAINE)... IOC (UNESCO)...
DFID (UNITED KINGDOM)

FROM - NEAM NOA HL-NTWC CANDIDATE TSUNAMI WATCH PROVIDER
TO - TWFP PARTICIPANTS IN THE NEAMTWS COMMUNICATION TEST EXERCISE
SUBJECT - NEAMTWS TSUNAMI COMMUNICATION TEST

THIS IS A TEST TO VERIFY COMMUNICATION LINKS AND DETERMINE TRANSMISSION TIMES INVOLVED IN THE DISSEMINATION OF OPERATIONAL TSUNAMI MESSAGES FROM THE CANDIDATE TSUNAMI WATCH PROVIDER TO OTHER CANDIDATE TSUNAMI WATCH PROVIDERS, NATIONAL TSUNAMI WARNING CENTERS AND TSUNAMI WARNING FOCAL POINTS OF THE NEAM TSUNAMI WARNING SYSTEM

RECIPIENTS ARE REQUESTED TO FILL THE EVALUATION QUESTIONNAIRE AND SEND IT ACCORDING TO THE NEAMTWS-CTE INSTRUCTIONS

THANK YOU FOR YOUR PARTICIPATION IN THIS COMMUNICATION TEST
THIS WILL BE THE FINAL MESSAGE ISSUED
TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001

ANNEX V

MESSAGE SENT BY GTS

996
WEME40 LGAT 011116

TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001
NEAM NOA HL-NTWC CANDIDATE TSUNAMI WATCH PROVIDER
ISSUED AT 1116Z 01 OCT 2013

.. TSUNAMI COMMUNICATION TEST ...
THIS TEST APPLIES TO ... CGCCR (BELGIUM)... BAS (BULGARIA)...
INMG (CAPE VERDE)... NPRD (CROATIA)... OC (CYPRUS)... DMI (DENMARK)...
NIOF (EGYPT)... NRIAG (EGYPT)... EMI (ESTONIA)...
MIC (EUROPEAN COMMISSION)... FMI (FINLAND)... GSC (FINLAND)...
CENALT (FRANCE)... BSH (GERMANY)... DWD (GERMANY)... GSCP (GREECE)...
NOA (GREECE)... GSI (IRELAND)... GII (ISRAEL)... INGV (ITALY) ...
NCGR (LEBANON)... CPD (MALTA)... SPMC (MONACO)... KNMI (NETHERLANDS)...
DSB (NORWAY)... NHQSFS (POLAND)... ANPC (PORTUGAL)... IPMA (PORTUGAL)...
NIEP (ROMANIA)... NPO (RUSSIAN FEDERATION)... EARS (SLOVENIA)...
DGPCE (SPAIN)... SMHI (SWEDEN)... SWO (SYRIA)... DEMP (TURKEY)...
KOERI (TURKEY) ... MHI (UKRAINE)... IOC (UNESCO)...
DFID (UNITED KINGDOM)

FROM - NEAM NOA HL-NTWC CANDIDATE TSUNAMI WATCH PROVIDER
TO - TWFP PARTICIPANTS IN THE NEAMTWS COMMUNICATION TEST EXERCISE
SUBJECT - NEAMTWS TSUNAMI COMMUNICATION TEST

THIS IS A TEST TO VERIFY COMMUNICATION LINKS AND DETERMINE TRANSMISSION TIMES INVOLVED IN THE DISSEMINATION OF OPERATIONAL TSUNAMI MESSAGES FROM THE CANDIDATE TSUNAMI WATCH PROVIDER TO OTHER CANDIDATE TSUNAMI WATCH PROVIDERS, NATIONAL TSUNAMI WARNING CENTERS AND TSUNAMI WARNING FOCAL POINTS OF THE NEAM TSUNAMI WARNING SYSTEM

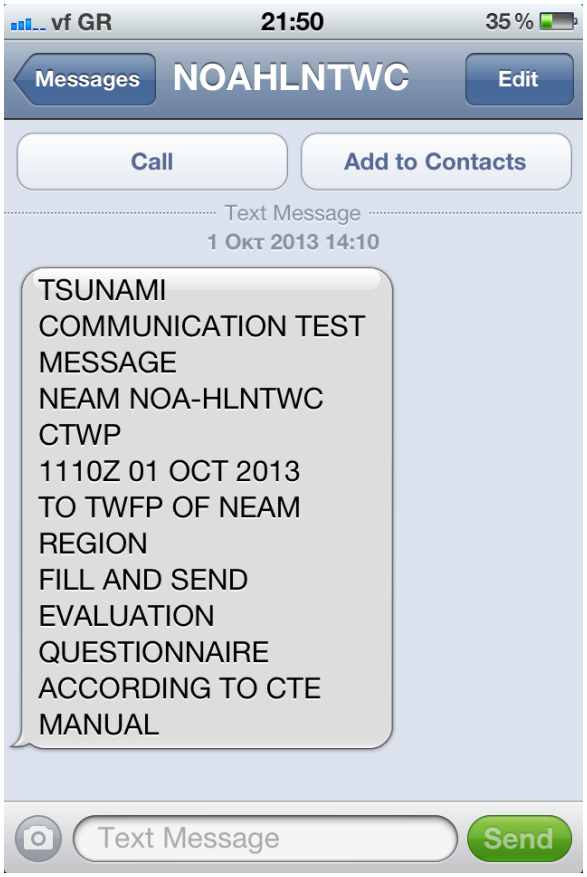
RECIPIENTS ARE REQUESTED TO FILL THE EVALUATION QUESTIONNAIRE AND SEND IT ACCORDING TO THE NEAMTWS-CTE INSTRUCTIONS

THANK YOU FOR YOUR PARTICIPATION IN THIS COMMUNICATION TEST
THIS WILL BE THE FINAL MESSAGE ISSUED
TSUNAMI COMMUNICATION TEST MESSAGE NUMBER 001

ANNEX VI

MESSAGE SENT BY SMS

TSUNAMI COMMUNICATION TEST MESSAGE
NEAM NOA-HLNTWC CTWP
1110Z 01 OCT 2013
TO TWFP OF NEAM REGION
FILL AND SEND EVALUATION QUESTIONNAIRE
ACCORDING TO CTE MANUAL



ANNEX VII

EVALUATION QUESTIONNAIRE
FOR MESSAGE PROVIDER

Please note that all times should be provided in Universal Time in HH:MM:SS format. Please copy and paste confirmation sheets from the fax machine (if available), and a copy of the messages distributed by email, fax, GTS and SMS. Please verify that the time-stamp information is visible on the documents, if applicable. Preferably the e-mail message text appended to this report should be copied directly from the mail-box server in order to provide all the details on timing and routing. All fax/telephone numbers reported here should include international phone codes.

EVALUATION QUESTIONNAIRE FOR MESSAGE PROVIDER				
COUNTRY:	**GREECE**			
INSTITUTION:	**National Observatory of Athens – Hellenic National Tsunami Warning Center (NOA-HLNTWC)**			
Provide T0 Time:	**11:10:00 UTC**			
Provide times of message delivery for each communication technology below:				
	E-MAIL	FAX	GTS	SMS
time stamp:	**11:10:30 UTC**	**11:10:30 UTC**	**11:16:00 UTC**	**11:10:30 UTC**
Provide a detailed story of all activities starting from T0 and TN (end of the exercise). Did you receive any error messages or observed any problems? If yes, describe them for all dissemination technologies and addresses concerned.				
See section 4. NEAMTWS-CTE3 – STORY BOOK				
Describe the operational service to deliver the e-mail messages.				
For the dissemination of the e-mail messages a scripting module was used that has been developed in house. This module utilizes the e-mail server and the available list of predefined recipients.				
Describe the operational service to deliver the fax messages.				
For the delivery of the fax messages a HylaFax Server managing eight (8) phone lines and the available list of predefined recipients is utilized. The server gives the opportunity to prioritize the fax numbers in two lists, a primary and an alternative one.				
Describe the operational service to deliver the GTS messages.				
For broadcasting the GTS messages, the module uses via ftp the VPN link between NOA HL-NTWC and the HNMS Operating Centres to transmit the message through GTS at HNMS in Athens.				
Describe the operational service to deliver the SMS messages.				

EVALUATION QUESTIONNAIRE FOR MESSAGE PROVIDER
For the dissemination of the SMS messages, a web service was used, giving the ability to send the predefined message to a list of recipients.
Describe briefly the preparation made in your agency for the Communication Test Exercise
A number of meetings took place during the preparation period prior to the exercise, while all communication methods were thoroughly investigated for possible errors and tried.
Describe briefly the procedures taken during the exercise, before time zero, and after time zero.
The exercise took place in NOA-HLNTWC operation room on October 1st 2013. At the time of the exercise there were present, besides the two staff members, who were on duty, the director of NOA-HLNTWC & TNC, the coordinator of the ECET3 and a software engineer. **The CTE3 message was pre-formatted, missing only the time information on the header. The same message was used for the three dissemination methods, i.e. e-mail, fax & GTS. For the SMS method a sorter message was created.** **As T0 time was assumed the instance when the message provider is aware that a Tsunami message has to be delivered, i.e. 11:10:00 UTC. The operator then validated the pre-formatted message and sent it at 11:10:30 UTC for the e-mail, fax & SMS and at 11:16:00 UTC for GTS.**
Did you synchronize the PC before distributing the email messages? If yes, describe briefly the procedure used.
Yes. E-mail server is always synchronized to UTC via NTP server
Did you synchronize the fax machine before sending the messages? If yes, describe briefly the procedure used.
Yes. Fax server is always synchronized to UTC via NTP server
Did you find the exercise useful in assessing the readiness of your agency to distribute tsunami related messages?
Yes.
Do you have any comments on the exercise, including the exercise manual and/or information received related to the exercise?
See section 6. NOTES & ISSUES TO BE CONSIDERED
Have you and/or your institution been contacted by media concerning the exercise before/during/after the exercise? Please provide brief information if applicable.
No.

ANNEX VIII

**EVALUATION QUESTIONNAIRE
FOR MESSAGE RECEIVER**

Please note that all times should be provided in Universal Time in HH:MM:SS format, where applicable. Please copy and paste into this questionnaire e-mail, fax, GTS and SMS messages received for each delivery. All fax/telephone numbers reported here should include international phone codes.

EVALUATION QUESTIONNAIRE FOR MESSAGE RECEIVER					
COUNTRY:					
INSTITUTION:					
Provide the time stamps of the messages received through each communication technology:					
Is your institution connected to GTS?					
Please mark below the technologies used by your institute during the CTE.					
E-MAIL	**FAX**	**GTS**	**SMS**		
Provide times of message delivery for each communication technology:					
Primary E-MAIL	**Alternate E-MAIL**	**Primary FAX**	**Alternate FAX**	**GTS**	**SMS**
[type e-mail address]	*[type e-mail address]*	*[type fax number]*	*[type fax number]*		**8.** *[type telephone number]*
[type time in UTC HH:MM:SS format]	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*
Provide times for each communication technology when the message is read and understood by the operator:					
Primary E-MAIL	**Alternate E-MAIL**	**Primary FAX**	**Alternate FAX**	**GTS**	**SMS**
[type e-mail address]	*[type e-mail address]*	*[type fax number]*	*[type fax number]*		*[type telephone number]*
[type time in UTC HH:MM:SS format]	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*	*[type time in UTC HH:MM:SS format]*

EVALUATION QUESTIONNAIRE FOR MESSAGE RECEIVER	
Was the provider e-mail address as expected?	
Was the e-mail message complete as expected? If not, report the differences.	
Was the provider fax number as expected?	
Was the fax message complete as expected? If not, report the differences.	
Was the GTS message complete as expected? If not, report the differences.	
Was the provider telephone number (SMS) as expected?	
Was the SMS complete as expected? If not, report the differences.	
Did the operator that received the messages understood its content and knew how to respond to it?	
Describe briefly the preparation made in your agency for the Communication Test Exercise.	
Did you synchronize the PC before distributing the email messages? If yes, describe briefly the procedure used.	
Did you synchronize the fax machine before receiving the messages? If yes, describe briefly the procedure used.	
Did you find the exercise useful in confirmation communication contacts and delays?	
Do you have any comments on the exercise, including the exercise manual and/or information received related to the exercise?	

Do you have any suggestions for the next exercises?
Have you and/or your institution been contacted by media concerning the exercise before/during/after the exercise? Please provide brief information if applicable.

ANNEX IX

FAX SERVER LOG

Owner	Number	Status	Tries	ID	State	Scheduled time
hylafax	900902163086489	No carrier detected; too many attempts to dial	1	251	Failed	2013-10-01 11:45:06 AM
hylafax	900380692545276	No carrier detected; too many attempts to dial	2	253	Failed	2013-10-01 11:39:41 AM
hylafax	90040214050673	No carrier detected; too many attempts to dial	0	242	Failed	2013-10-01 11:37:05 AM
hylafax	9002034801553		1	256	Done	2013-10-01 11:27:55 AM
hylafax	9002034801553		1	225	Done	2013-10-01 11:27:17 AM
hylafax	900902163083061	Busy signal detected; too many attempts to dial	0	263	Failed	2013-10-01 11:26:41 AM
hylafax	90046859361738	Failure to train remote modem at 2400 bps or minimum speed; Giving up after 3 attempts to send same page	3	262	Failed	2013-10-01 11:25:19 AM
hylafax	900358919293303	Busy signal detected; too many attempts to dial	0	257	Failed	2013-10-01 11:25:02 AM
hylafax	900963116122360	No carrier detected	0	249	Failed	2013-10-01 11:23:37 AM
hylafax	90046114958001		1	247	Done	2013-10-01 11:22:58 AM
hylafax	90038614784050	RSPREC error/got DCN (receiver abort); Giving up after 3 attempts to send same page	3	260	Failed	2013-10-01 11:22:14 AM
hylafax	92103490180		1	264	Done	2013-10-01 11:19:33 AM
hylafax	90034915373226		1	261	Done	2013-10-01 11:19:14 AM
hylafax	90035722305144		1	255	Done	2013-10-01 11:18:43 AM
hylafax	900351218483228		1	259	Done	2013-10-01 11:18:41 AM
hylafax	9003222986651		1	254	Done	2013-10-01 11:18:36 AM
hylafax	90033169267004		1	258	Done	2013-10-01 11:18:35 AM
hylafax	90035722895051	No carrier detected	0	221	Failed	2013-10-01 11:18:05 AM
hylafax	900902163329820		1	252	Done	2013-10-01 11:17:25 AM
hylafax	90046859362204		1	248	Done	2013-10-01 11:17:22 AM
hylafax	900903122879370		1	250	Done	2013-10-01 11:17:19 AM
hylafax	900358919293413	No carrier detected	0	226	Failed	2013-10-01 11:16:41 AM
hylafax	90034915628941		1	246	Done	2013-10-01 11:16:22 AM
hylafax	90074843940704		1	244	Done	2013-10-01 11:16:20 AM
hylafax	90038614784033		1	245	Done	2013-10-01 11:16:11 AM
hylafax	90074843940910		1	243	Done	2013-10-01 11:16:07 AM
hylafax	90097289255211		2	232	Done	2013-10-01 11:16:02 AM
hylafax	900351214165151		1	241	Done	2013-10-01 11:15:27 AM
hylafax	90048226286575		1	239	Done	2013-10-01 11:15:13 AM
hylafax	900351218402370		1	240	Done	2013-10-01 11:15:11 AM
hylafax	90031302201364		1	238	Done	2013-10-01 11:15:00 AM
hylafax	90037793156007		1	237	Done	2013-10-01 11:14:54 AM
hylafax	90035621462607		1	236	Done	2013-10-01 11:14:43 AM
hylafax	9009614981886		1	235	Done	2013-10-01 11:14:22 AM
hylafax	90039065041227		1	234	Done	2013-10-01 11:14:14 AM
hylafax	900390668897697		1	233	Done	2013-10-01 11:14:10 AM
hylafax	9004940312224		1	231	Done	2013-10-01 11:14:04 AM
hylafax	90033169267147		1	229	Done	2013-10-01 11:13:29 AM
hylafax	90049403174584		1	230	Done	2013-10-01 11:13:29 AM
hylafax	90033169267085		1	228	Done	2013-10-01 11:13:05 AM
Owner	Number	Status	Tries	ID	State	Scheduled time
hylafax	900358916066585		1	227	Done	2013-10-01 11:13:01 AM
hylafax	90020225548020		1	224	Done	2013-10-01 11:12:39 AM
hylafax	9004539291212		1	223	Done	2013-10-01 11:12:31 AM
hylafax	90035952370483		1	218	Done	2013-10-01 11:12:08 AM
hylafax	9003225064709		1	217	Done	2013-10-01 11:11:53 AM
hylafax	90035722496900		1	222	Done	2013-10-01 11:11:42 AM
hylafax	9002382411294		1	219	Done	2013-10-01 11:11:41 AM
hylafax	90038513855989		1	220	Done	2013-10-01 11:11:29 AM
hylafax	92103359912		1	216	Done	2013-10-01 11:11:24 AM

ANNEX X

SMS LOG

Mass sms details

Group name ECTE3 (29)

Originator NOA-HLNTWC

Date 2013-10-01 14:10:32

Text TSUNAMI COMMUNICATION TEST MESSAGE NEAM NOA-HLNTWC CTWP 1110Z 01 OC 2013 TO TWFP OF NEAM REGION FILL AND SEND EVALUATION QUESTIONNAIRE ACCORDI TO CTE MANUAL

Totally were sent 29 sms to 29 contacts. From your account were removed 45 sms.

Date	Originator	Mobile	Status	Cost
2013-10-01 14:10:39	NOA-HLNTWC	Chouliaras 306944520440	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Egypt1 20225583887	Failed	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Egypt2 201223779117	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Finland1 358505012970	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Sweden2 46708148330	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Turkey2 905326385419	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Marinos 306945376326	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal1 351924123802	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Melis 306977412693	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Slovenia1 38651671163	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Spain2 34659308722	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Turkey1 905336642459	Sent	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal3 351961717672	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Germany 494031903190	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal2 351912451108	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	France2 33677373710	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal6 351910501417	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Slovenia2 38651608758	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Italy 393456612817	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Finland2 358505970946	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Spain1 34609116133	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Sweden1 46768933084	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Denmark1 4539157245	Failed	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal5 351964324090	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	France1 33683663337	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	str@noa.gr 306972008243	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Portugal4 351961479526	Delivered	2 sms
2013-10-01 14:10:39	NOA-HLNTWC	Greece 306944583610	Delivered	1 sms
2013-10-01 14:10:39	NOA-HLNTWC	Denmark2 4540600235	Delivered	1 sms

ANNEX XI

LIST OF ACROMYMS

ASCII	American Standard Code for Information Interchange
CENALT	CENtre d'Alerte aux Tsunamis of France
CTE	Communication Test Exercise
HNMS	Hellenic National Meteorological Service
ICG/NEAMTWS	Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
IOC	Intergovernmental Oceanographic Commission
KOERI	Kandilli Observatory and Earthquake Research Institute of Turkey
MIC	European Union Monitoring and Information Centre
NEAM region	North-Eastern Atlantic, the Mediterranean and Connected Seas
NEAMTWS	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas
NOA-HLNTWC	Hellenic National Tsunami Warning Centre
NTWC	National Tsunami Warning Centre
TT–CT&TE	Task Team on the Communication Test and Tsunami Exercise
TWFP	Tsunami Warning Focal Point
TWP	Tsunami Watch Provider
UNESCO	United Nations Educational, Scientific and Cultural Organization
UTC	Universal Time Coordinated

IOC Technical Series

No.	Title	Languages
1	Manual on International Oceanographic Data Exchange. 1965	(out of stock)
2	Intergovernmental Oceanographic Commission (Five years of work). 1966	(out of stock)
3	Radio Communication Requirements of Oceanography. 1967	(out of stock)
4	Manual on International Oceanographic Data Exchange - Second revised edition. 1967	(out of stock)
5	Legal Problems Associated with Ocean Data Acquisition Systems (ODAS). 1969	(out of stock)
6	Perspectives in Oceanography, 1968	(out of stock)
7	Comprehensive Outline of the Scope of the Long-term and Expanded Programme of Oceanic Exploration and Research. 1970	(out of stock)
8	IGOSS (Integrated Global Ocean Station System) - General Plan Implementation Programme for Phase I. 1971	(out of stock)
9	Manual on International Oceanographic Data Exchange - Third Revised Edition. 1973	(out of stock)
10	Bruun Memorial Lectures, 1971	E, F, S, R
11	Bruun Memorial Lectures, 1973	(out of stock)
12	Oceanographic Products and Methods of Analysis and Prediction. 1977	E only
13	International Decade of Ocean Exploration (IDOE), 1971-1980. 1974	(out of stock)
14	A Comprehensive Plan for the Global Investigation of Pollution in the Marine Environment and Baseline Study Guidelines. 1976	E, F, S, R
15	Bruun Memorial Lectures, 1975 - Co-operative Study of the Kuroshio and Adjacent Regions. 1976	(out of stock)
16	Integrated Ocean Global Station System (IGOSS) General Plan and Implementation Programme 1977-1982. 1977	E, F, S, R
17	Oceanographic Components of the Global Atmospheric Research Programme (GARP) . 1977	(out of stock)
18	Global Ocean Pollution: An Overview. 1977	(out of stock)
19	Bruun Memorial Lectures - The Importance and Application of Satellite and Remotely Sensed Data to Oceanography. 1977	(out of stock)
20	A Focus for Ocean Research: The Intergovernmental Oceanographic Commission - History, Functions, Achievements. 1979	(out of stock)
21	Bruun Memorial Lectures, 1979: Marine Environment and Ocean Resources. 1986	E, F, S, R
22	Scientific Report of the Interealibration Exercise of the IOC-WMO-UNEP Pilot Project on Monitoring Background Levels of Selected Pollutants in Open Ocean Waters. 1982	(out of stock)
23	Operational Sea-Level Stations. 1983	E, F, S, R
24	Time-Series of Ocean Measurements. Vol.1. 1983	E, F, S, R
25	A Framework for the Implementation of the Comprehensive Plan for the Global Investigation of Pollution in the Marine Environment. 1984	(out of stock)
26	The Determination of Polychlorinated Biphenyls in Open-ocean Waters. 1984	E only
27	Ocean Observing System Development Programme. 1984	E, F, S, R
28	Bruun Memorial Lectures, 1982: Ocean Science for the Year 2000. 1984	E, F, S, R
29	Catalogue of Tide Gauges in the Pacific. 1985	E only
30	Time-Series of Ocean Measurements. Vol. 2. 1984	E only
31	Time-Series of Ocean Measurements. Vol. 3. 1986	E only
32	Summary of Radiometric Ages from the Pacific. 1987	E only
33	Time-Series of Ocean Measurements. Vol. 4. 1988	E only

(continued)

No.	Title	Languages
34	Bruun Memorial Lectures, 1987: Recent Advances in Selected Areas of Ocean Sciences in the Regions of the Caribbean, Indian Ocean and the Western Pacific. 1988	Composite E, F, S
35	Global Sea-Level Observing System (GLOSS) Implementation Plan. 1990	E only
36	Bruun Memorial Lectures 1989: Impact of New Technology on Marine Scientific Research. 1991	Composite E, F, S
37	Tsunami Glossary - A Glossary of Terms and Acronyms Used in the Tsunami Literature. 1991	E only
38	The Oceans and Climate: A Guide to Present Needs. 1991	E only
39	Bruun Memorial Lectures, 1991: Modelling and Prediction in Marine Science. 1992	E only
40	Oceanic Interdecadal Climate Variability. 1992	E only
41	Marine Debris: Solid Waste Management Action for the Wider Caribbean. 1994	E only
42	Calculation of New Depth Equations for Expendable Bathymerographs Using a Temperature-Error-Free Method (Application to Sippican/TSK T-7, T-6 and T-4 XBTS. 1994	E only
43	IGOSS Plan and Implementation Programme 1996-2003. 1996	E, F, S, R
44	Design and Implementation of some Harmful Algal Monitoring Systems. 1996	E only
45	Use of Standards and Reference Materials in the Measurement of Chlorinated Hydrocarbon Residues. 1996	E only
46	Equatorial Segment of the Mid-Atlantic Ridge. 1996	E only
47	Peace in the Oceans: Ocean Governance and the Agenda for Peace; the Proceedings of *Pacem in Maribus* XXIII, Costa Rica, 1995. 1997	E only
48	Neotectonics and fluid flow through seafloor sediments in the Eastern Mediterranean and Black Seas - Parts I and II. 1997	E only
49	Global Temperature Salinity Profile Programme: Overview and Future. 1998	E only
50	Global Sea-Level Observing System (GLOSS) Implementation Plan-1997. 1997	E only
51	L'état actuel de 1'exploitation des pêcheries maritimes au Cameroun et leur gestion intégrée dans la sous-région du Golfe de Guinée *(cancelled)*	F only
52	Cold water carbonate mounds and sediment transport on the Northeast Atlantic Margin. 1998	E only
53	The Baltic Floating University: Training Through Research in the Baltic, Barents and White Seas - 1997. 1998	E only
54	Geological Processes on the Northeast Atlantic Margin (8^{th} training-through-research cruise, June-August 1998). 1999	E only
55	Bruun Memorial Lectures, 1999: Ocean Predictability. 2000	E only
56	Multidisciplinary Study of Geological Processes on the North East Atlantic and Western Mediterranean Margins (9^{th} training-through-research cruise, June-July 1999). 2000	E only
57	Ad hoc Benthic Indicator Group - Results of Initial Planning Meeting, Paris, France, 6-9 December 1999. 2000	E only
58	Bruun Memorial Lectures, 2001: Operational Oceanography – a perspective from the private sector. 2001	E only
59	Monitoring and Management Strategies for Harmful Algal Blooms in Coastal Waters. 2001	E only
60	Interdisciplinary Approaches to Geoscience on the North East Atlantic Margin and Mid-Atlantic Ridge (10^{th} training-through-research cruise, July-August 2000). 2001	E only
61	Forecasting Ocean Science? Pros and Cons, Potsdam Lecture, 1999. 2002	E only

No.	Title	Languages
62	Geological Processes in the Mediterranean and Black Seas and North East Atlantic (11th training-through-research cruise, July- September 2001). 2002	E only
63	Improved Global Bathymetry – Final Report of SCOR Working Group 107. 2002	E only
64	R. Revelle Memorial Lecture, 2006: Global Sea Levels, Past, Present and Future. 2007	E only
65	Bruun Memorial Lectures, 2003: Gas Hydrates – a potential source of energy from the oceans. 2003	E only
66	Bruun Memorial Lectures, 2003: Energy from the Sea: the potential and realities of Ocean Thermal Energy Conversion (OTEC). 2003	E only
67	Interdisciplinary Geoscience Research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge (12th training-through-research cruise, June-August 2002). 2003	E only
68	Interdisciplinary Studies of North Atlantic and Labrador Sea Margin Architecture and Sedimentary Processes (13th training-through-research cruise, July-September 2003). 2004	E only
69	Biodiversity and Distribution of the Megafauna / Biodiversité et distribution de la mégafaune. 2006 Vol.1 The polymetallic nodule ecosystem of the Eastern Equatorial Pacific Ocean / Ecosystème de nodules polymétalliques de l'océan Pacifique Est équatorial Vol.2 Annotated photographic Atlas of the echinoderms of the Clarion-Clipperton fracture zone / Atlas photographique annoté des échinodermes de la zone de fractures de Clarion et de Clipperton Vol.3 Options for the management and conservation of the biodiversity — The nodule ecosystem in the Clarion Clipperton fracture zone: scientific, legal and institutional aspects	E F
70	Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean Basin (14th training-through-research cruise, July-September 2004). 2006	E only
71	Indian Ocean Tsunami Warning and Mitigation System, IOTWS. Implementation Plan, 7–9 April 2009 (2nd Revision). 2009	E only
72	Deep-water Cold Seeps, Sedimentary Environments and Ecosystems of the Black and Tyrrhenian Seas and the Gulf of Cadiz (15th training-through-research cruise, June–August 2005). 2007	E only
73	Implementation Plan for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas (NEAMTWS), 2007–2011. 2007 *(electronic only)*	E only
74	Bruun Memorial Lectures, 2005: The Ecology and Oceanography of Harmful Algal Blooms – Multidisciplinary approaches to research and management. 2007	E only
75	National Ocean Policy. The Basic Texts from: Australia, Brazil, Canada, China, Colombia, Japan, Norway, Portugal, Russian Federation, United States of America. (Also Law of Sea Dossier 1). 2008	E only
76	Deep-water Depositional Systems and Cold Seeps of the Western Mediterranean, Gulf of Cadiz and Norwegian Continental margins (16th training-through-research cruise, May–July 2006). 2008	E only
77	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – 12 September 2007 Indian Ocean Tsunami Event. Post-Event Assessment of IOTWS Performance. 2008	E only
78	Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (CARIBE EWS) – Implementation Plan 2013–2017 (Version 2.0). 2013	E only

(continued)

No.	Title	Languages
79	Filling Gaps in Large Marine Ecosystem Nitrogen Loadings Forecast for 64 LMEs – GEF/LME global project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
80	Models of the World's Large Marine Ecosystems. GEF/LME Global Project Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems. 2008	E only
81	Indian Ocean Tsunami Warning and Mitigation System (IOTWS) – Implementation Plan for Regional Tsunami Watch Providers (RTWP). 2008	E only
82	Exercise Pacific Wave 08 – A Pacific-wide Tsunami Warning and Communication Exercise, 28–30 October 2008. 2008	E only
83.	*Cancelled*	
84.	Global Open Oceans and Deep Seabed (GOODS) Bio-geographic Classification. 2009	E only
85.	Tsunami Glossary	E, F, S
86	Pacific Tsunami Warning System (PTWS) Implementation Plan *(under preparation)*	
87.	Operational Users Guide for the Pacific Tsunami Warning and Mitigation System (PTWS) – Second Edition. 2011	E only
88.	Exercise Indian Ocean Wave 2009 (IOWave09) – An Indian Ocean-wide Tsunami Warning and Communication Exercise – 14 October 2009. 2009	E only
89.	Ship-based Repeat Hydrography: A Strategy for a Sustained Global Programme. 2009	E only
90.	12 January 2010 Haiti Earthquake and Tsunami Event Post-Event Assessment of CARIBE EWS Performance. 2010	E only
91.	Compendium of Definitions and Terminology on Hazards, Disasters, Vulnerability and Risks in a coastal context	*Under preparation*
92.	27 February 2010 Chile Earthquake and Tsunami Event – Post-Event Assessment of PTWS Performance (Pacific Tsunami Warning System). 2010	E only
93.	Exercise CARIBE WAVE 11 / LANTEX 11—A Caribbean Tsunami Warning Exercise, 23 March 2011	
	Vol. 1 Participant Handbook / Exercise CARIBE WAVE 11 —Exercice d'alerte au tsunami dans les Caraïbes, 23 mars 2011. Manuel du participant / Ejercicio Caribe Wave 11. Un ejercicio de alerta de tsunami en el Caribe, 23 de marzo de 2011. Manual del participante. 2010	E/F/S
	Vol. 2 Report. 2011	E only
	Vol. 3 Supplement: Media Reports. 2011	E/F/S
94.	Cold seeps, coral mounds and deep-water depositional systems of the Alboran Sea, Gulf of Cadiz and Norwegian continental margin (17th training-through-research cruise, June–July 2008)	*Under preparation*
95.	International Post-Tsunami Survey for the 25 October 2010 Mentawai, Indonesia Tsunami	*Under preparation*
96.	Pacific Tsunami Warning System (PTWS) 11 March 2011 Off Pacific coast of Tohoku, Japan, Earthquake and Tsunami Event. Post-Event Assessment of PTWS Performance	*Under preparation*
97.	Exercise PACIFIC WAVE 11: A Pacific-wide Tsunami Warning and Communication Exercise, 9–10 November 2011	
	Vol. 1 Exercise Manual. 2011	E only
	Vol. 2 Report. 2013	E only
98.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and connected seas. First Enlarged Communication Test Exercise (ECTE1). Exercise Manual and Evaluation Report. 2011	E only

No.	Title	Languages
99.	Exercise INDIAN OCEAN WAVE 2011 – An Indian Ocean-wide Tsunami Warning and Communication Exercise, 12 October 2011 Vol. 1 Exercise Manual. 2011 Supplement: Bulletins from the Regional Tsunami Service Providers Vol. 2 Exercise Report. 2013	E only
100.	Global Sea Level Observing System (GLOSS) Implementation Plan – 2012. 2012	E only
101.	Exercise Caribe Wave/Lantex 13. A Caribbean Tsunami Warning Exercise, 20 March 2013. Volume 1: Participant Handbook. 2012	E only
102.	*(In preparation)*	
103.	Exercise NEAMWAVE 12. A Tsunami Warning and Communication Exercise for the North-eastern Atlantic, the Mediterranean, and Connected Seas Region, 27–28 November 2012. Vol. I: Exercise Manual. 2012 Vol. II: Evaluation Report. 2013	E only
104.	Seísmo y tsunami del 27 de agosto de 2012 en la costa del Pacífico frente a El Salvador, y seísmo del 5 de septiembre de 2012 en la costa del Pacífico frente a Costa Rica. Evaluación subsiguiente sobre el funcionamiento del Sistema de Alerta contra los Tsunamis y Atenuación de sus Efectos en el Pacífico. 2012	Español solamente (resumen en inglés y francés)
105.	Users Guide for the Pacific Tsunami Warning Center Enhanced Products for the Pacific Tsunami Warning System, August 2014. Revised Edition. 2014	E, S
106.	Exercise Pacific Wave 13. A Pacific-wide Tsunami Warning and Enhanced Products Exercise, 1–14 May 2013. Vol. 1 Exercise Manual. 2013 Vol. 2 Summary Report. 2013	E only
107.	Tsunami Public Awareness and Educations Strategy for the Caribbean and Adjacent Regions. 2013	E only
108.	Pacific Tsunami Warning and Mitigation System (PTWS) Medium-Term Strategy, 2014−2021. 2013	E only
109.	Exercise Caribe Wave/Lantex 14. A Caribbean and Northwestern Atlantic Tsunami Warning Exercise, 26 March 2014. Vol. 1 Participant Handbook. 2014	E/S
110.	Directory of atmospheric, hydrographic and biological datasets for the Canary Current Large Marine Ecosystem. 2014	E only
111.	Integrated Regional Assessments in support of ICZM in the Mediterranean and Black Sea Basins. 2014	E only
112.	*11 April 2012 West of North Sumatra Earthquake and Tsunami Event - Post-event Assessment of IOTWS Performance*	*In preparation*
113.	*Exercise Indian Ocean Wave 2014: An Indian Ocean-wide Tsunami Warning and Communication Exercise.*	*In preparation*
114.	Exercise NEAMWAVE 14. A Tsunami Warning and Communication Exercise for the North-Eastern Atlantic, the Mediterranean, and Connected Seas Region, 28–30 October 2014 Vol. I Manual	E only
115.	*Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean*	*In preparation*
116.	Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas. Third Enlarged Communication Test Exercise (CTE3), 1st October 2013. Vol. 1 Exercise Manual Vol. 2 Evaluation Report	E only