

DIRECTORATE OF HYDROGRAPHY AND NAVIGATION

THE PERUVIAN TSUNAMI WARNING CENTER



Lt. Raúl Vásquez Gianella

**Emergency Preparedness Working Group
(EPWG)**

AUGUST 16TH 2016

SUMMARY

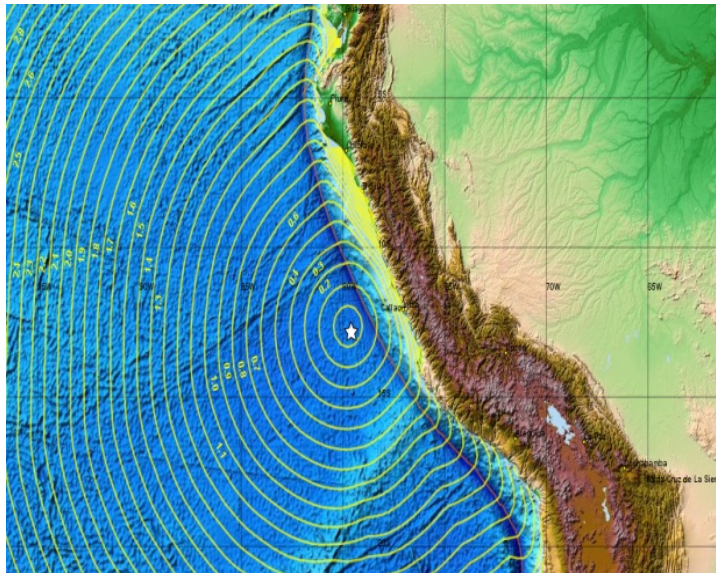
- **NATIONAL TSUNAMI WARNING SYSTEM**
- **NATIONAL TSUNAMI WARNING CENTER**



TYPES OF TSUNAMI

NEAR FIELD

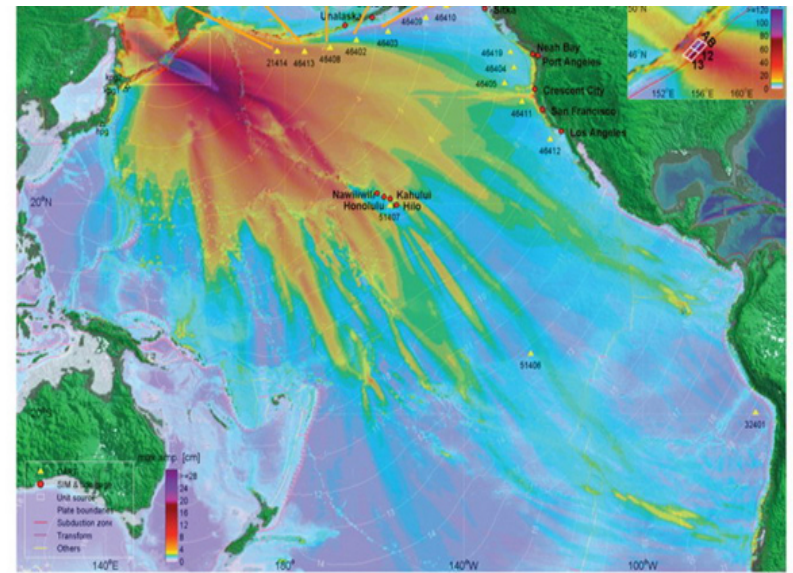
Near to our coasts



Arrival time: MINUTES

FAR FIELD

At far away coasts



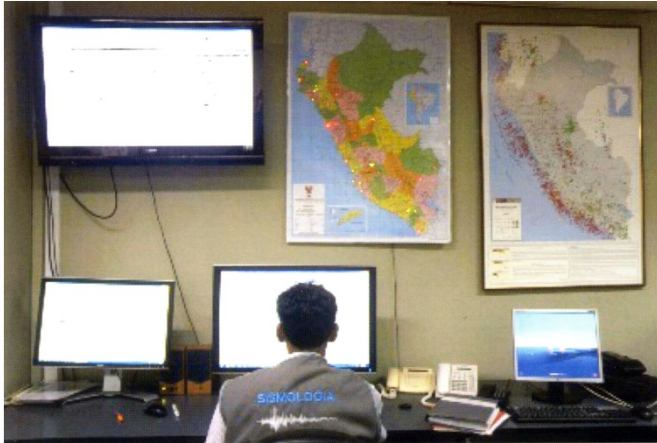
Arrival time: HOURS

THE DIFFERENCE IS IN THE ARRIVAL TIME!

FLOWCHART

IGP

Geophysical Institute of Perú



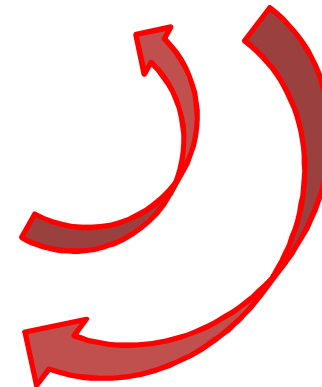
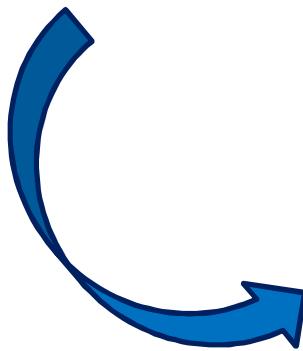
DHN

Directorate of Hidrography and Navigation



INDECI

National Institute of Civil Defense

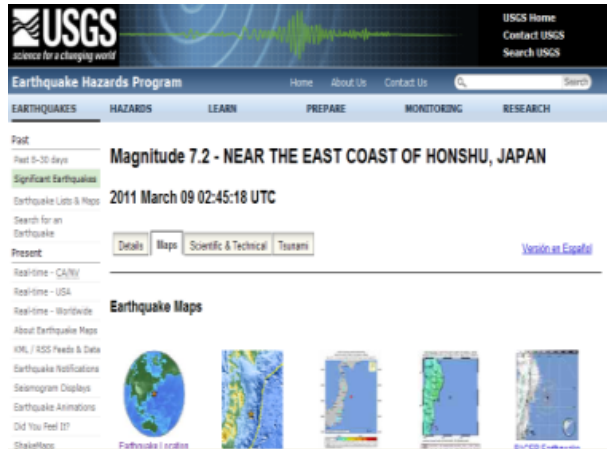


NATIONAL TSUNAMI WARNING CENTER (CNAT)

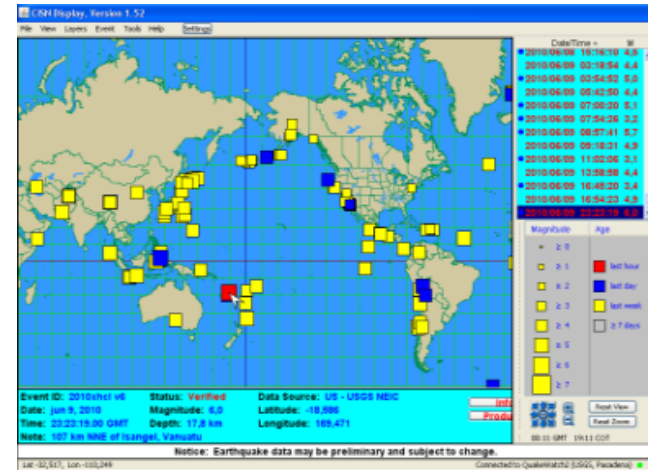


SEISMIC AND TSUNAMI INFORMATION MEDIA

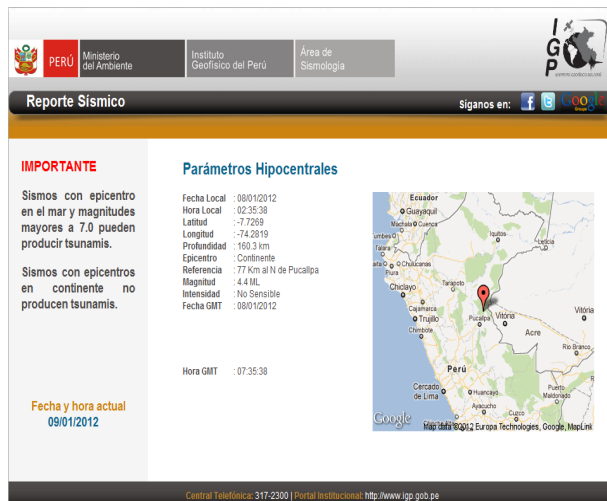
(1)



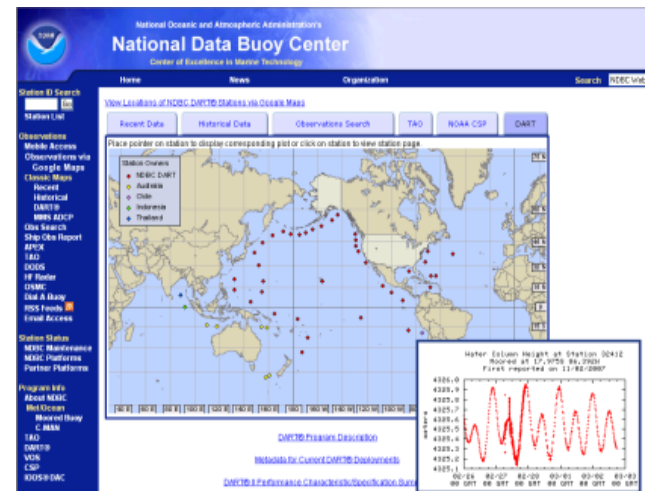
(3)



(2)



(4)

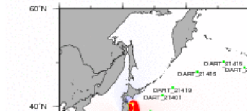


(1) USGS
(2) IGP

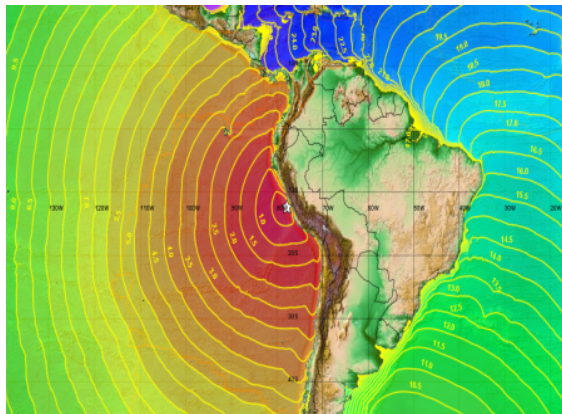
(3) CISN
(4) NDBC-NOAA

SOFTWARES OF TSUNAMI NUMERICAL MODELING

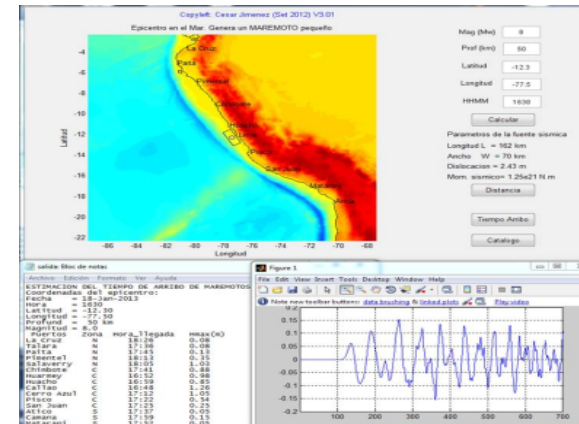
(1)



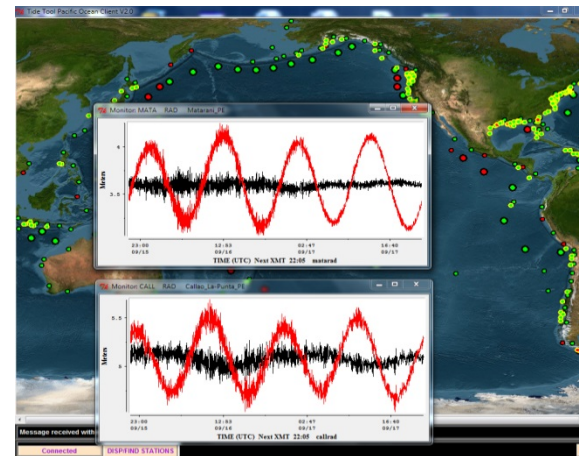
(2)



(3)



(4)



(1) TSDHN
(2) TSUDIG

(3) PRE-TSUNAMI
(4) TIDE TOOLS

PERUVIAN NTCW SOFTWARE: PRE TSUNAMI

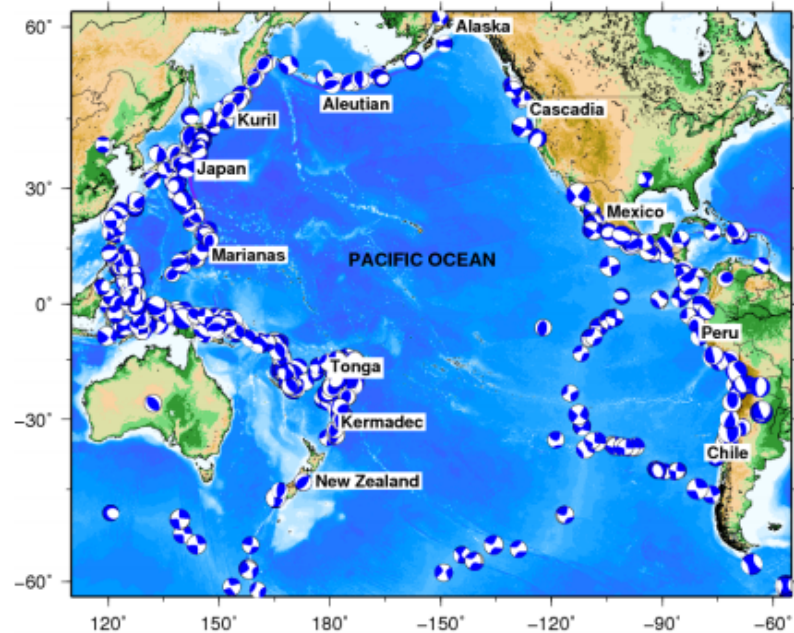


Fig. 1 Bathymetry of the Pacific Ocean from GEBCO 30. The circles represent the focal mechanism of seismic events ($M_w > 5.0$) of 2015 from Global CMT catalogue.

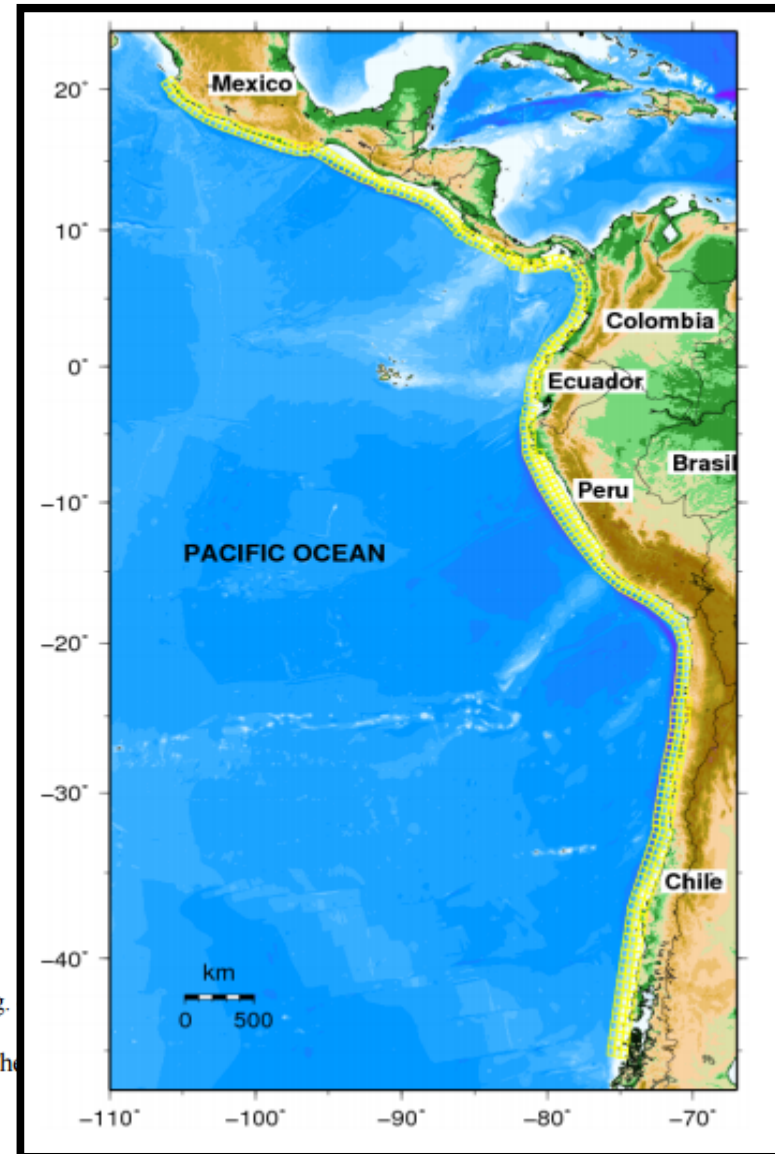
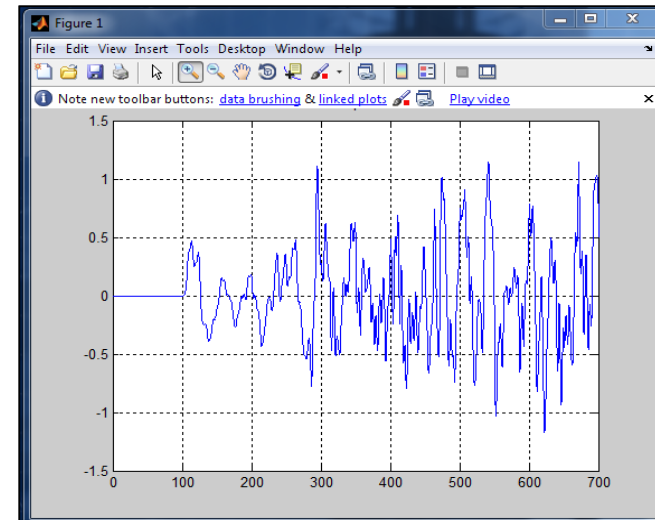
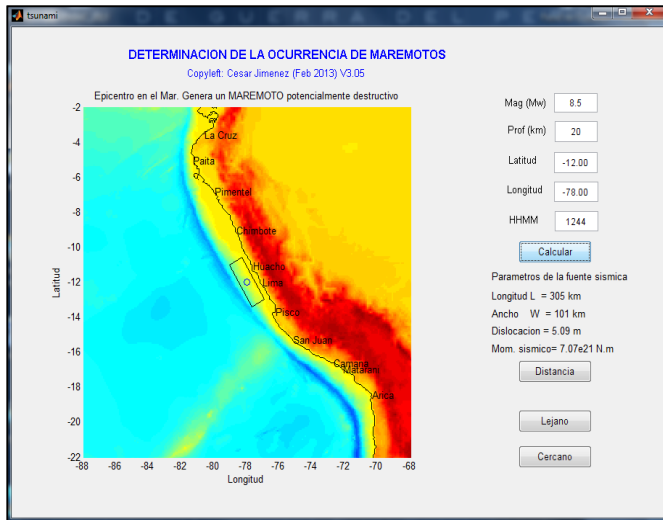


Fig.
The

e).
e).

PERUVIAN NTCWC SOFTWARE: PRE TSUNAMI



Activar Alerta de Tsunami

Datos del Sismo

ORIGEN Cercano Lejano FECHA 16-JUL-2013
 PAIS PERU HORA LOCAL 1244
 REGION CALLAO HORA GMT 1744
 LATITUD -12.00 MAGNITUD MW 8.5
 LONGITUD -78.00 PROFUNDIDAD 20 KM KM

Responsables
 JEFE SERVICIO A.FGT. AGUILAR LAVANDA MAN OPERADOR OM1 HID VALLADARES MONCAE

ALARMA (Muy alta posibilidad que genere tsunami)
 EVACUAR ZONAS COSTERAS BAJAS

Sólo Imprime los Formatos y Envía correo sólo a la Cuenta Tsunami

EJERCICIO BOLETIN DE INFORMACION
 BOLETIN DE ALERTA BOLETIN DE ALARMA
 CANCELACION ALERTA Y/O ALARMA



salida: Bloc de notas

Archivo Edición Formato Ver Ayuda

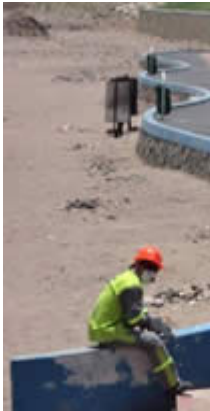
ESTIMACION DEL TIEMPO DE ARRIBO DE MAREMOTOS
 Coordenadas del epicentro:
 Fecha = 16-Jul-2013
 Hora = 1244
 Latitud = -12.00
 Longitud = -78.00
 Profund = 20 km
 Magnitud = 8.5

Puertos	Zona	Hora_llegada	Hmax(m)	T_arribo
La Cruz	N	14:38	0.23	01:55
Talara	N	13:49	0.14	01:05
Paíta	N	13:58	0.39	01:15
Pimentel	N	14:26	0.86	01:42
Salaverry	N	14:18	2.06	01:34
Chimbote	C	13:55	1.71	01:11
Huarmey	C	13:06	2.34	00:22
Huacho	C	13:04	3.01	00:21
Callao	C	13:07	4.81	00:24
Cerro Azul	C	13:25	3.91	00:41
Pisco	C	13:32	2.30	00:49
San Juan	C	13:34	0.96	00:51
Atico	S	13:46	0.20	01:03
Camana	S	14:07	0.62	01:24
Matarani	S	14:01	0.17	01:17
Ilo	S	14:14	0.42	01:30
Arica	S	14:31	0.37	01:47

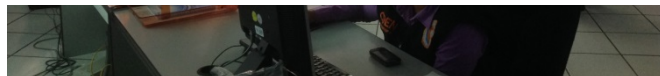
Dissemination Software: "Alerta Tsunami"

USE OF "PRE-TSUNAMI" IN THE TSUNAMI OF CHILE 2014

- ✓ ACCORDING TO THE NATIONAL TSUNAMI WARNING SYSTEM 'S STANDARD OPERATING PROCEDURES, POST – TSUNAMI REPORT WAS ELABORATED
 - EVALUATION PROCEDURES FOLLOW BY THE LOCAL AGENCIES AND AUTHORITIES
 - VALIDATION OF TSUNAMI NUMERICAL MODELING



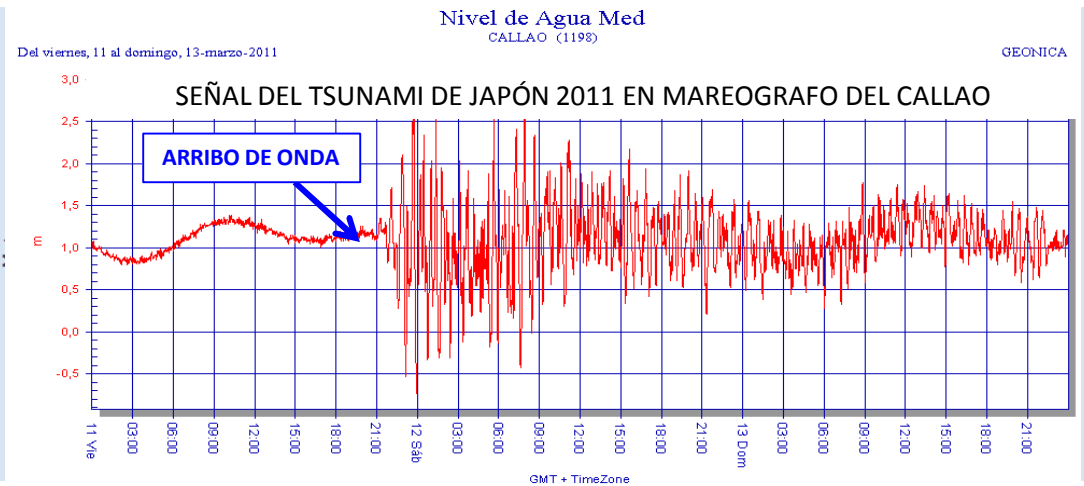
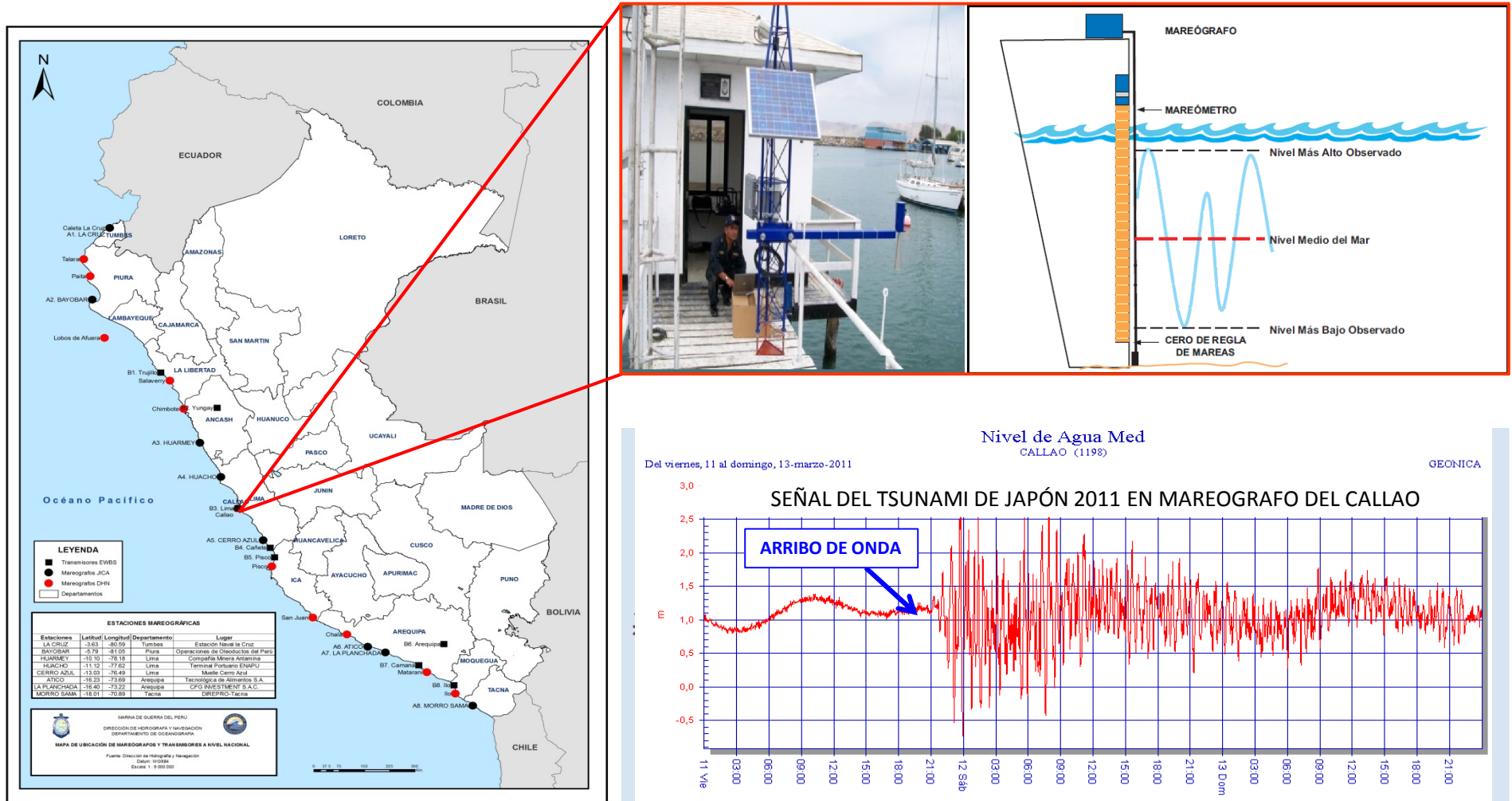
2.00	2.07
1.05	1.12
0.52	0.60
0.45	0.51
0.23	0.33
0.25	0.31
0.15	0.25
0.20	0.16
0.10	0.11



"ALERTA TSUNAMI": AUTOMATED SOFTWARE FOR DISSEMINATION

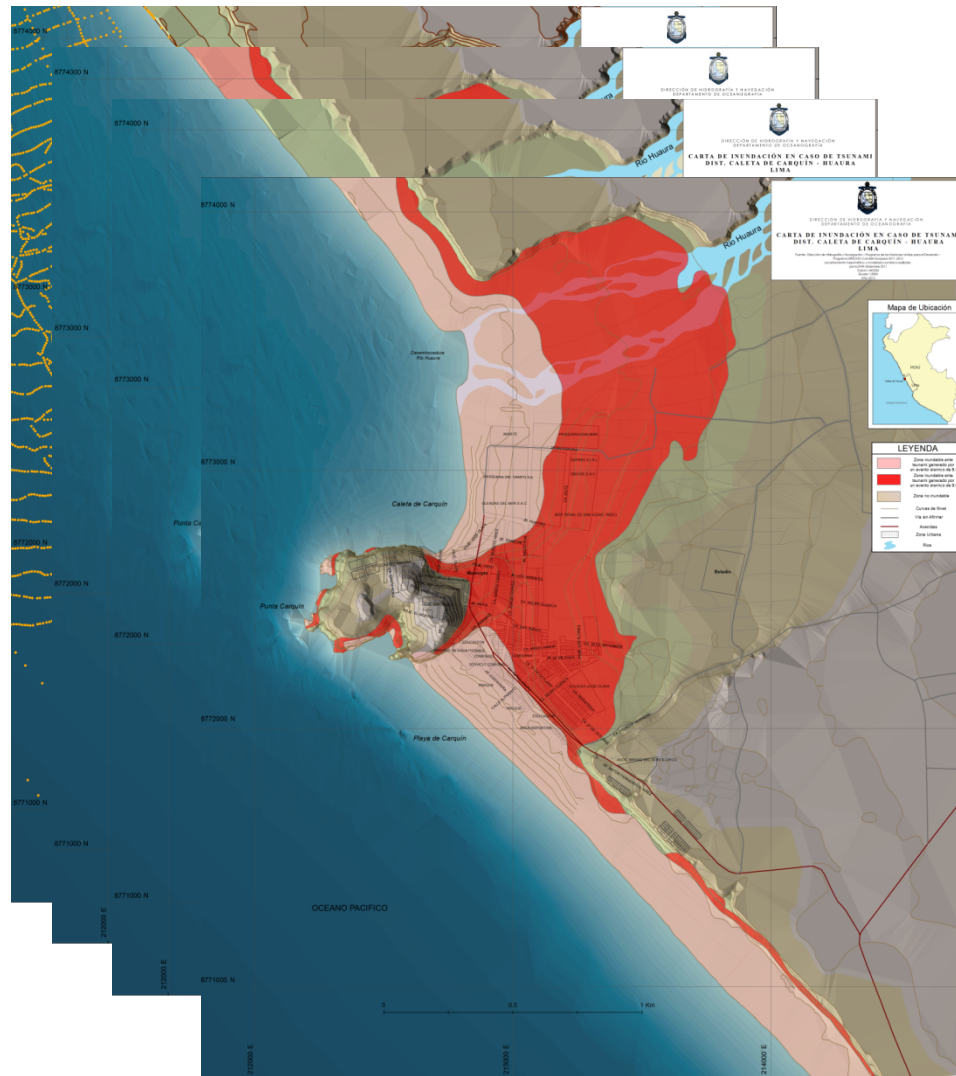


PERUVIAN TIDAL NETWORK



19 TIDE GAUGES (8 TIDE GAUGES DONATED BY JICA)

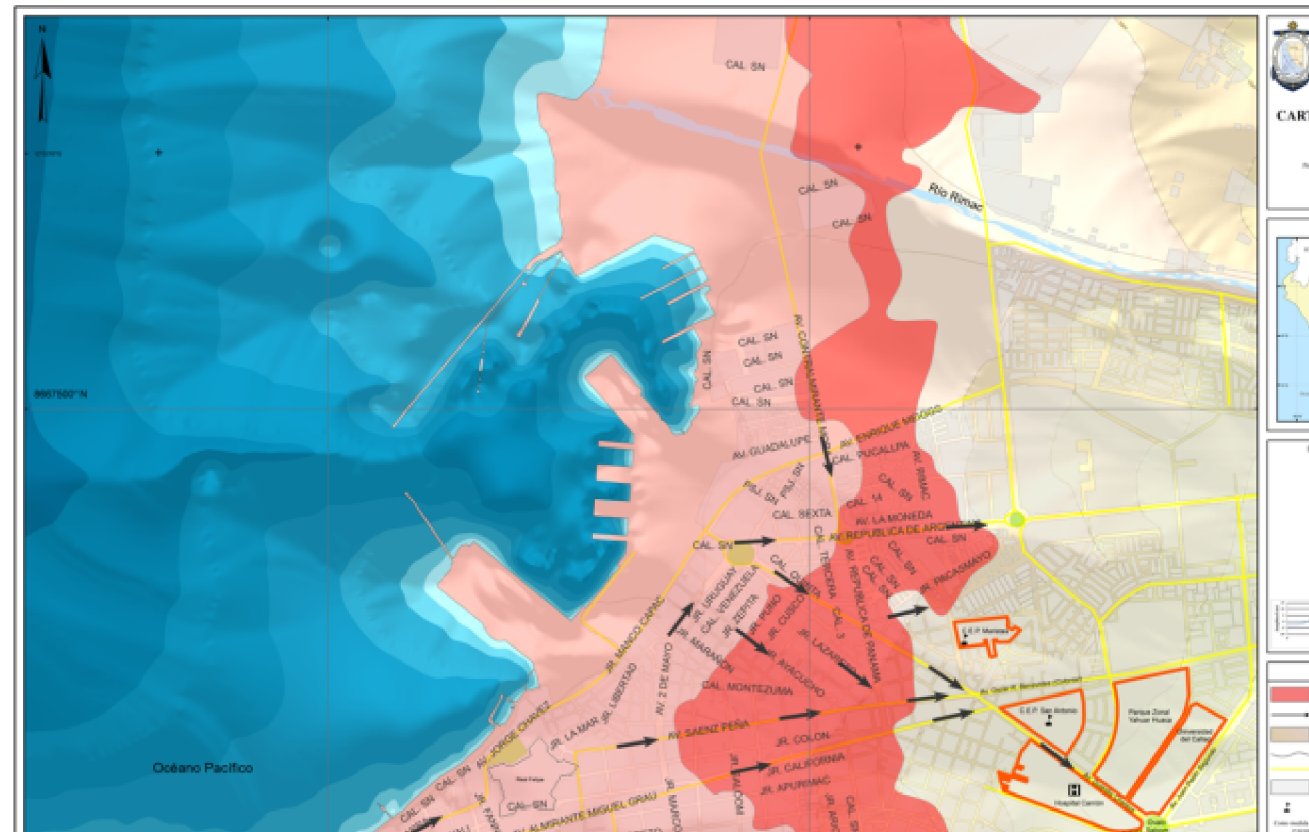
INUNDATION MAPS



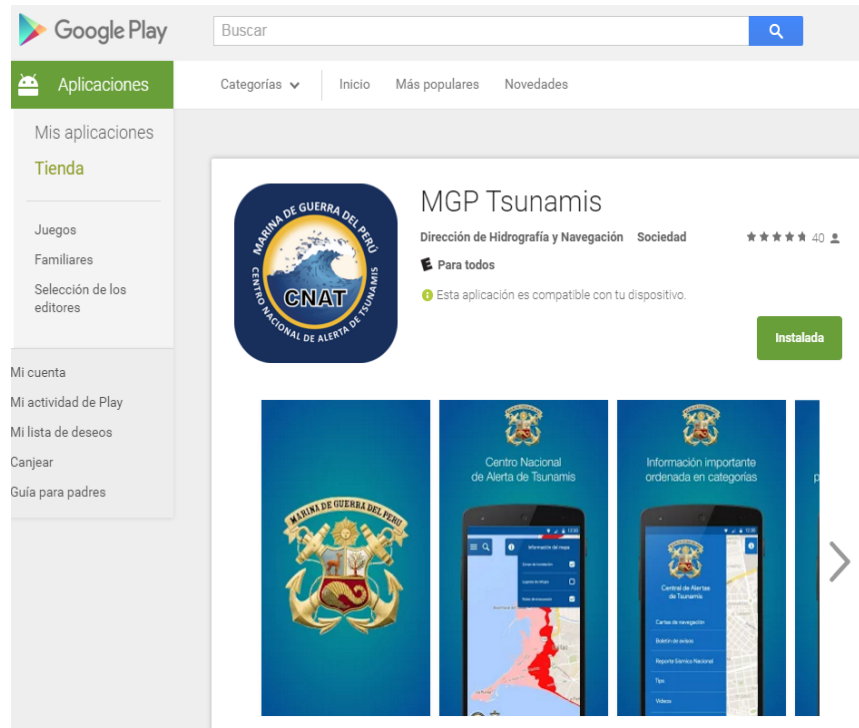
- Tools to mitigate the risk of flooding near-source tsunami which could be generated off our coasts.
- Based on numerical modeling of tsunamis (**TUNAMI MODEL**), previously using topographic and bathymetric information.
- Produced in coordination with the National Tsunami Warning System agencies.

91 inundation maps

Inundation map: La Punta-Callao



NEW APP “MGP TSUNAMIS”



MGP Tsunamis By Marina de Guerra del Perú

Open iTunes to buy and download apps.



[View in iTunes](#)

Free

Category: News
Updated: Jan 29, 2016
Version: 1.0.2
Size: 17.4 MB
Language: English
Seller: Dirección de Hidrografía y Navegación de la Marina de Guerra del Perú
© 2016 Dirección de Hidrografía y Navegación de la Marina de Guerra del Perú
Rated 4+

Compatibility: Requires iOS 7.1 or later. Compatible with iPhone, iPad, and iPod touch.

Customer Ratings

We have not received enough ratings to display an average for the current version of this application.

[View More by This Developer](#)

Description

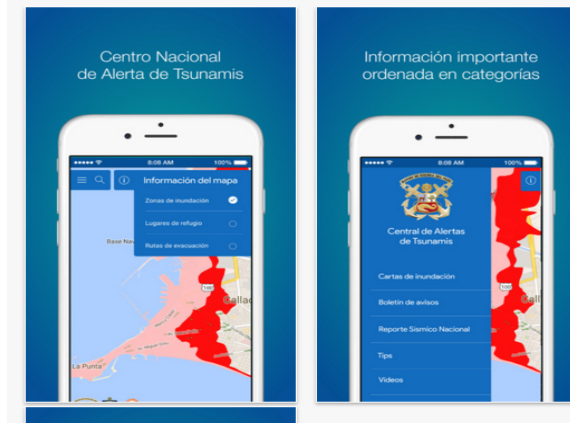
Con la aplicación del Centro Nacional de Alerta de Tsunamis de la Marina de Guerra del Perú podrás conocer lo siguiente:

[Marina de Guerra del Perú Web Site](#) [MGP Tsunamis Support](#) [...More](#)

What's New in Version 1.0.2

Actualizamos las cartas de inundación para una mejor experiencia.

iPhone Screenshot



- ✓ AVAILABLE FOR ANDROID AND IOS
- ✓ YOUR POSITION IS AUTOMATICALLY GEOREFERENCED IN THE INUNDATION MAP
- ✓ RECEIVE REAL TIME NOTIFICATIONS OF OUR TSUNAMI WARNING BULLETINS
- ✓ TIPS
- ✓ FREQUENTLY ASKED QUESTIONS (FAQ'S)
- ✓ ALL THE INUNDATION MAPS AVAILABLE

FINALE

<http://www.dhn.mil.pe>