

Tsunami Activities at JRC

A. Annunziato

17th UNESCO/IOC NEAMTWS 24-26 November 2021

22-11-2021 12:45:08 UTC - IDSL-50 Puerto de Tazacorte (Comunidad Autónoma de Canarias - Spain)



Table of Content



- Status of Last Mile Projects
- Status of Sea Level Activities
 - IDSL-50, La Palma
- Transfer of activities to UNESCO/IOC
- Conclusions

- **Status of Last Mile Projects**
- Status of Sea Level Activities
 - IDSL-50, La Palma
- Transfer of activities to UNESCO/IOC
- Conclusions

The Last Mile Projects



- Objectives of the projects:
 - Creation of pilot cities where an harmonized set of technological tools are installed to provide Early Warning to the population
 - System **fully integrated** with the National and Regional warning systems
 - Execution of a **public drill** to test the local preparation and to highlight the benefits of those new tools
 - **Final workshop** to show the results of the project
- Phase 1 - Timeline: 2 years, 2018-2019
 - **Kos, Greece**
 - **Bodrum, Turkey**
- Phase 2 – Timeline: about 2 years 2019 – 2022
 - **Marsaxlokk, Malta**
 - **Pandangan, Indonesia**

- The Last Mile Package Concept:
 - Identification of Tsunami Largest possible event for the location
 - Identification of inundation zones and evacuation routes
 - Installation of TLM suite:
 - Sea Level Sensors (2), IDSL
 - Seismic sensors (2)
 - Tsunami Alerting Devices (2)
 - Long Range Siren (1)
 - Tsunami Signages (ca 70)
 - Table top exercise and final Large scale exercise

Tsunami Last Mile Phase 1

Bodrum

Min PGA to alert*: **0.04 g (0.39 m/s²)** } **

Max event: **Mw 7.8 Amorgos+landslide** }

Evacuation routes: **identified**

Installations:

1 IDSL

2 Seismic sensors

Drill exercise **5/11/2019**

Table Top Exercise involving all local administrations up to Regional Governor and regional AFAD

**corresponding to a Mw 6.0 event at 100km*



Kos

Max PGA to alert*: **0.05 g (0.49 m/s²)** }

Max event: **Mw 7.8 Gokova Bay** }

Evacuation routes: **identified**

Installations:

2 TAD and 2 IDSL

2 Seismic sensors

1 Long range siren

68 Tsunami signs

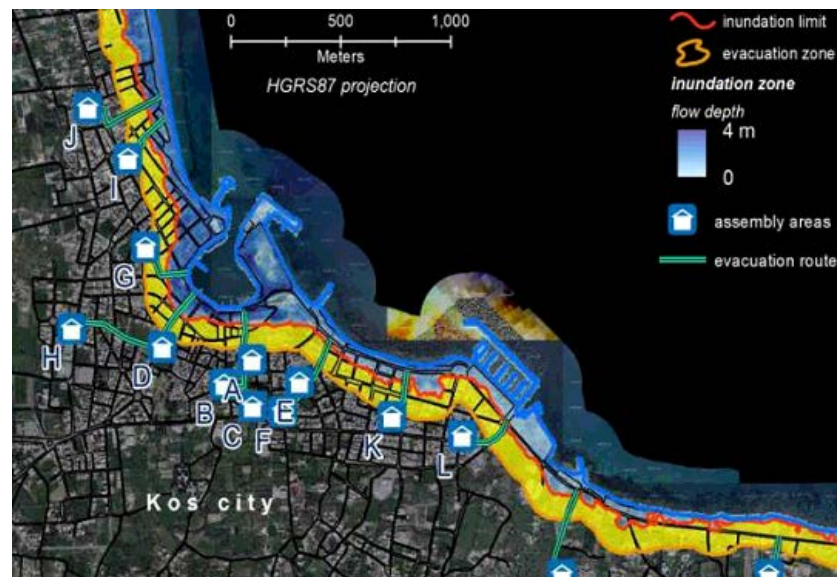
Drill exercise **19/11/2019**

2 schools via evacuation signs

General Secretariat of Civ. Protection

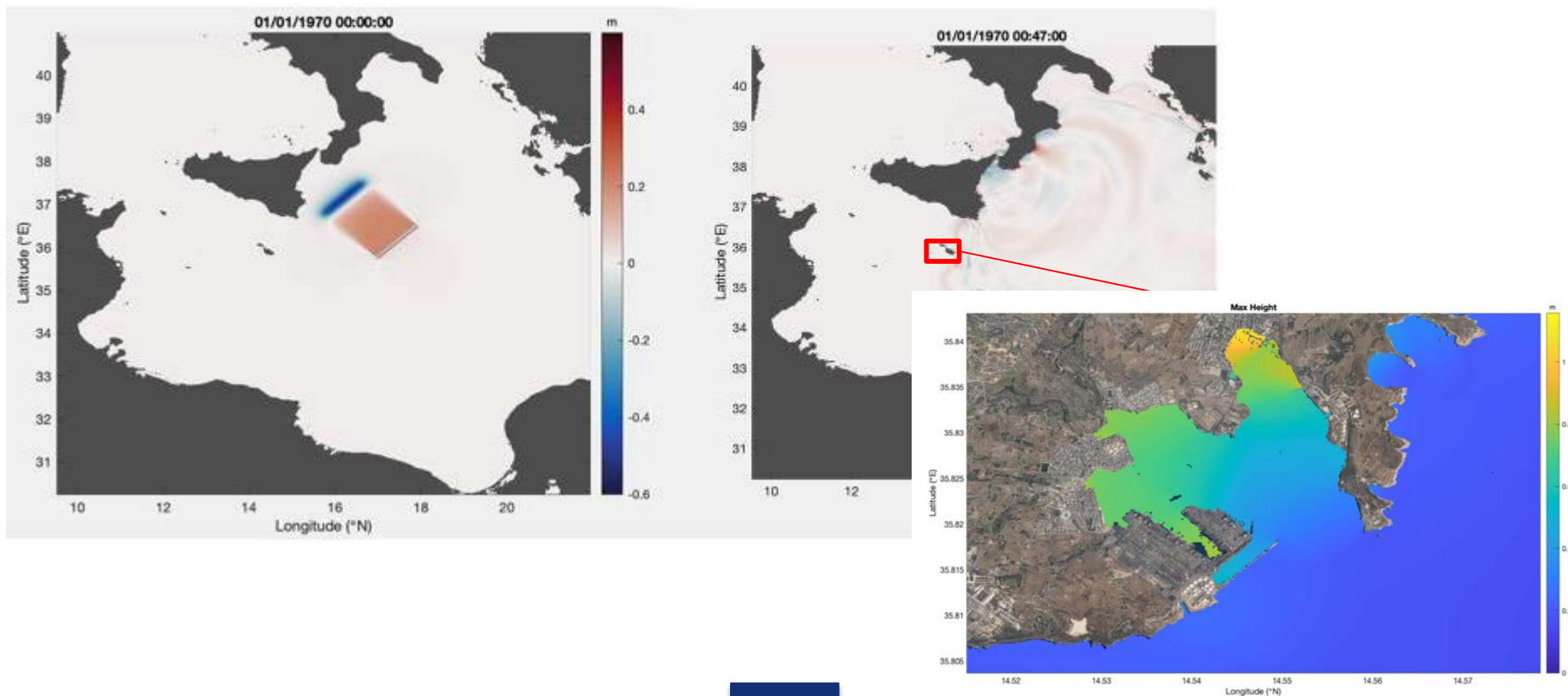
KATWARN technology tested

***PGA and Mw not for the same event*



Marsaxlokk, Malta

- Univ. of Malta performed the Tsunami analysis and selected the Ionian Sea as the most challenging event for Malta: wave arriving in Marsaxlokk in 57 min

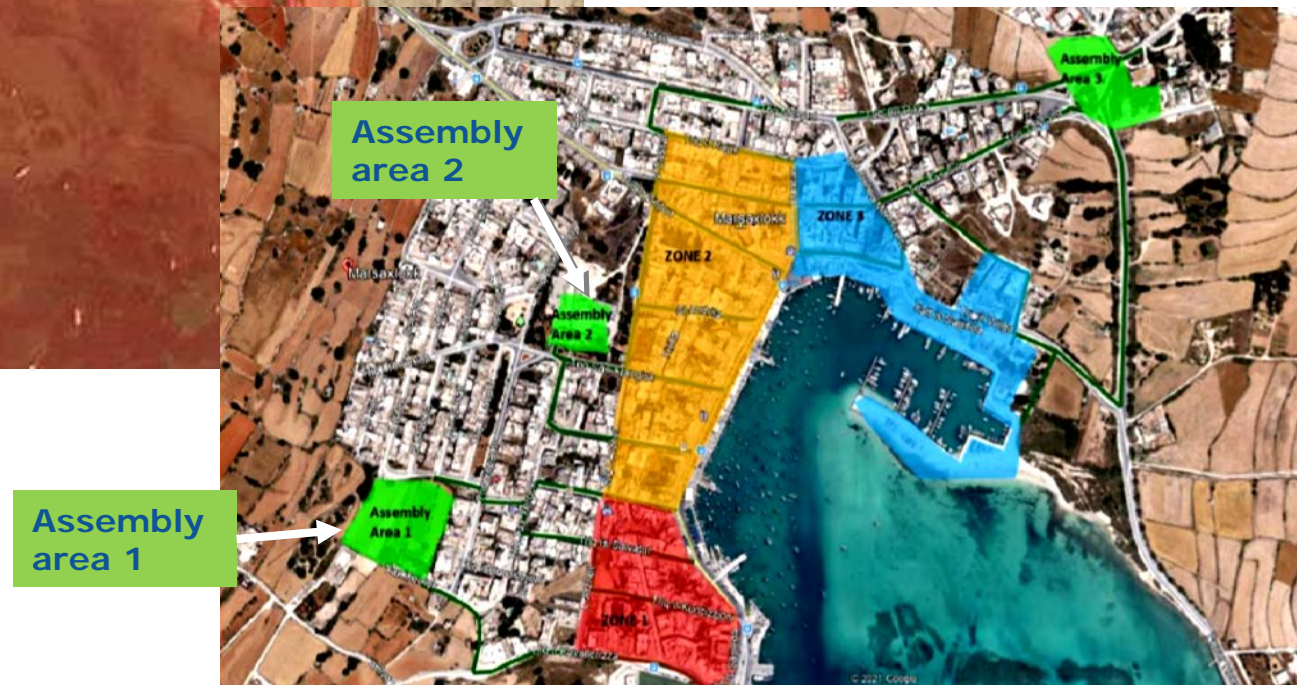


Marsaxlokk

- Inundation extent and evacuation routes identified for the city of Marsaxlokk



Assembly area 3



Installation of devices

Long range siren



Seismic devices



TAD MT-001



TAD MT-002



IDSL-42
IDSL-43

Malta Exercise:

**WORLD
TSUNAMI
AWARENESS
DAY**
5 NOVEMBER



**ISTITUTO NAZIONALE
DI GEOFISICA E VULCANOLOGIA**



Media attention

Google search: Malta Tsunami drill, more than 20 first images are related to the exercise



tsunami drill in Marsaxlokk, Malta ...
alamy.com



WATCH: Eerie Moment Tsunami Sirens ...
lovinmalta.com



Tsunami drill conducted in Marsaxlokk ...
independent.com.mt



Marsaxlokk in tsunami drill
timesofmalta.com



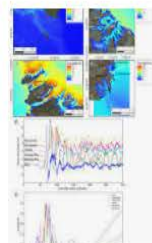
tsunami drill in Marsaxlokk ...
gettyimages.dk



Marsaxlokk, Malta. 5th Nov. 2021. A ...
alamy.com



IN PICTURES: Tsunami drill condu...
mediterraneanobserver



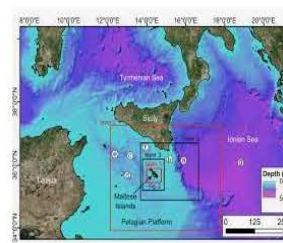
The Tsunami Inundation Hazard of the ...
link.springer.com



Marsaxlokk to run a tsunami drill next ...
timesofmalta.com



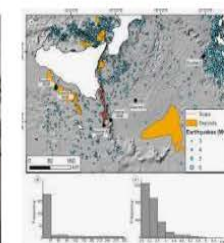
Emergency services lead tsunami drill ...
newsbook.com.mt



The Tsunami Inundation Hazard of the ...
link.springer.com



Emergency services lead tsunami drill ...
newsbook.com.mt



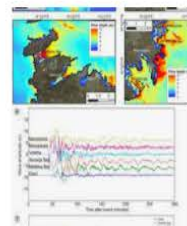
The Tsunami Inundation Hazard o...
link.springer.com



Tsunami drill conducted in Marsaxlokk ...
independent.com.mt



tsunami drill in... News Photo ...
gettyimages.com



The Tsunami Inundation Haz...
researchgate.net



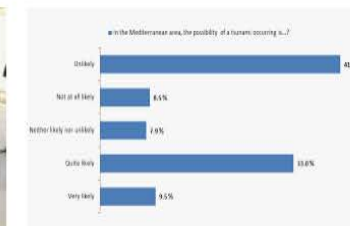
national tsunami exercise ...
maltatoday.com.mt



Could tsunami that hit Malta's coast ...
dailymail.co.uk



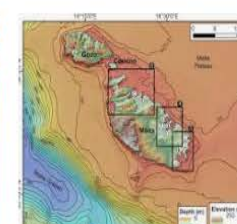
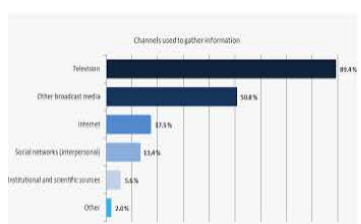
Marsaxlokk in tsunami drill ...
unravelmalta.com



NHES - Tsunami risk perception in ...
nhes.copernicus.org



Geosciences at UM - Post | ...
it-it.facebook.com



Preliminary results of Last Mile Projects



- Detailed planning and coordination between national and local authorities
- Difficulty to balance the economic interests of local authorities with the needs for the exercise simulations: involvement of local touristic organizations
- Important to perform 2 or 3 table top exercises well before the real exercise:
 - What can be wrong will be wrong !
- Careful installation of devices and signages in strategical positions
- Media attention: important to perform during the 5 Nov Tsunami Awareness day
- Evaluation of the exercise is ongoing (Marzia Santini)

Pangandaran, Indonesia, South Java

- Collaboration between JRC and MMAF after Krakatoa Tsunami
- Current plan foresees
 - Development of analytical studies (done already in the past)
 - Installation of sea levels devices and Tsunami alerting devices
 - Execution of the tsunami drill

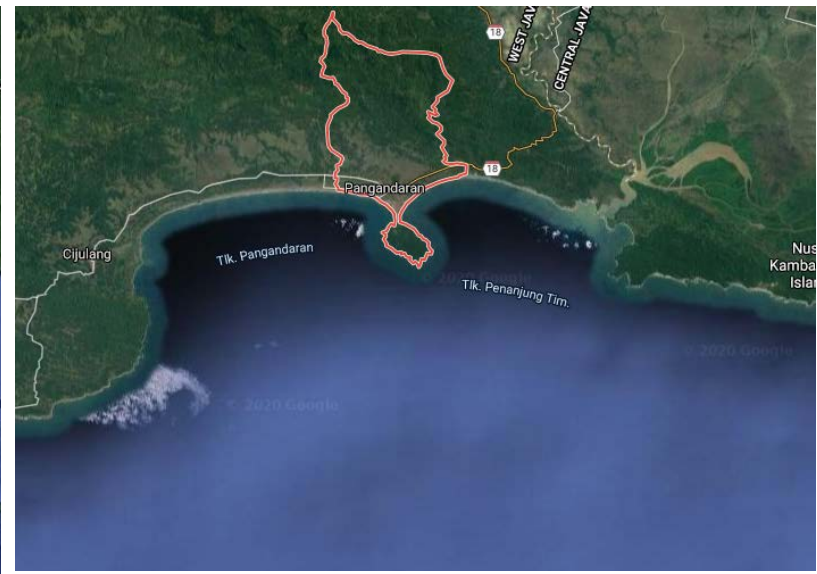
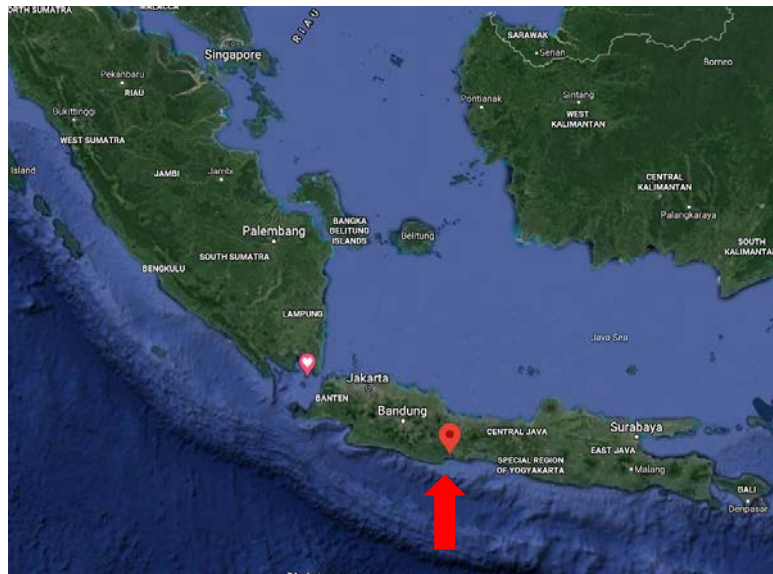


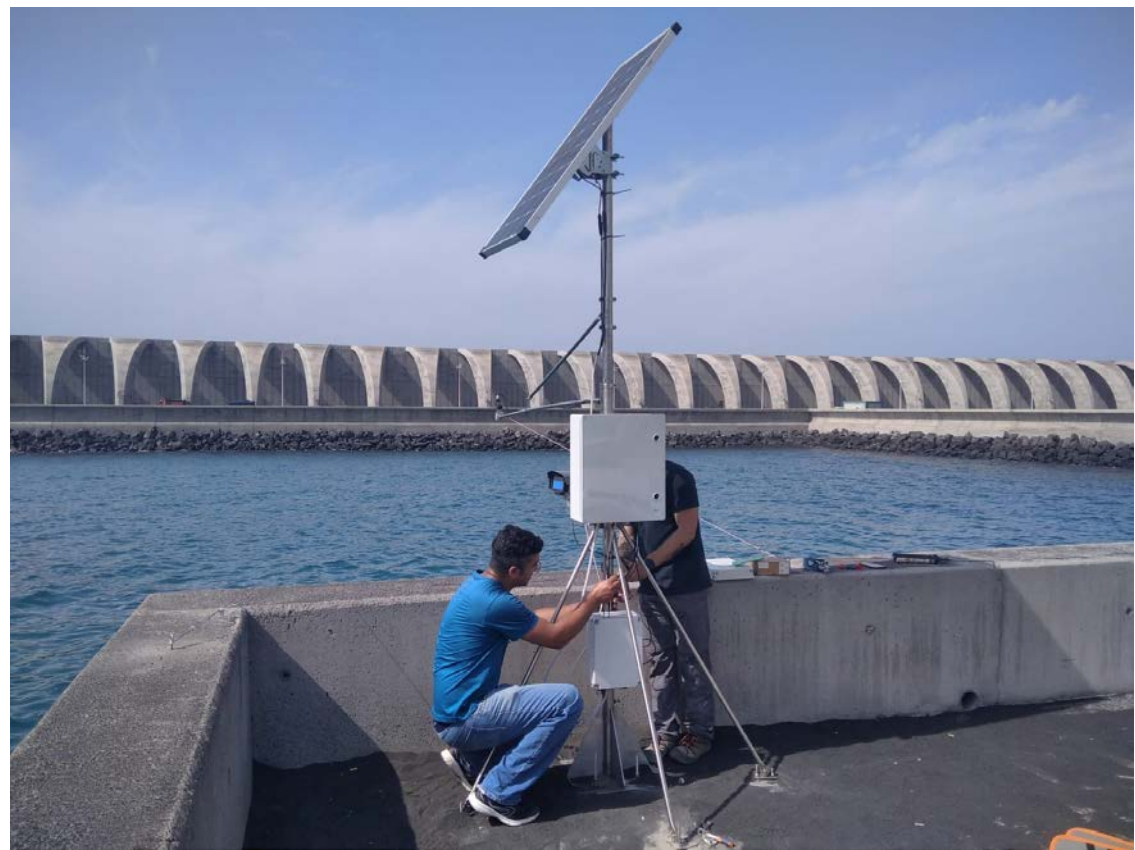
Table of Content



- Status of Last Mile Projects
- Status of Sea Level Activities
 - **IDSL-50, La Palma**
- Transfer of activities to UNESCO/IOC
- Conclusions

La Palma IDSL-50

- IGN requested JRC the provision of a new IDSI to monitor the behaviour of La Palma Volcano
- Possible Tsunami risk and Volcano lava entrance in water monitoring
- Data in real time to IGN and to Spanish Civil Protection
- Installation performed by IGN on **20 Oct 2021**



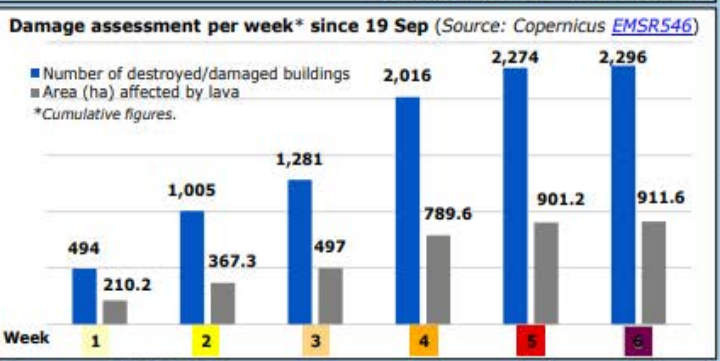
Spain, Canary Islands (La Palma) | Cumbre Vieja volcanic eruption



IDSL-50

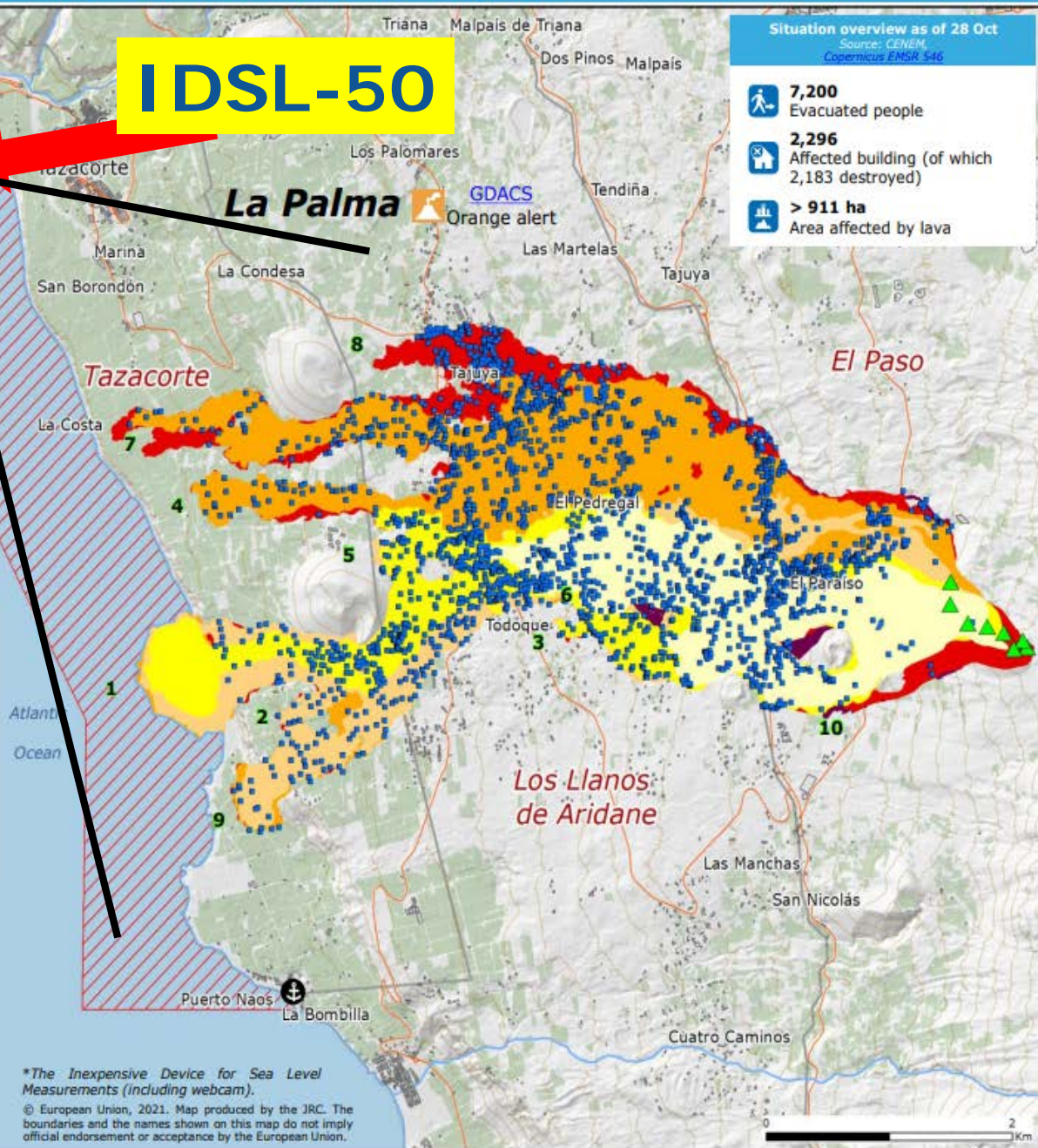
Situation overview as of 28 Oct
Source: CENEM, Copernicus EMSR 546

- 7,200** Evacuated people
- 2,296** Affected building (of which 2,183 destroyed)
- > 911 ha** Area affected by lava

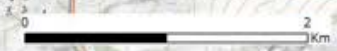


COPERNICUS EMSR546 ACTIVATION

- Eruptive vent
- Lava flow (Week, date)**
 - 1, 19-26 Sep
 - 2, 27 Sep-3 Oct
 - 3, 4-10 Oct
 - 4, 11-17 Oct
 - 5, 18-24 Oct
 - 6, 25-27 Oct
- Destroyed/damaged building
- Progressive number of lava front (Source: CABILDO LA PALMA)
- Maritime exclusion zone (Source: DSN)
- Location of the JRC/IGN IDSL* (Source: JRC-WEBCRITECH)
- Name** Affected Municipality
- Cropland
- Municipality limit
- Roads
- Port



*The Inexpensive Device for Sea Level Measurements (including webcam).
© European Union, 2021. Map produced by the JRC. The boundaries and the names shown on this map do not imply official endorsement or acceptance by the European Union.



Webcam and live sea level data



22-11-2021 12:45:08 UTC - IDSL-50 Puerto de Tazacorte (Comunidad Autónoma de Canarias - Spain)

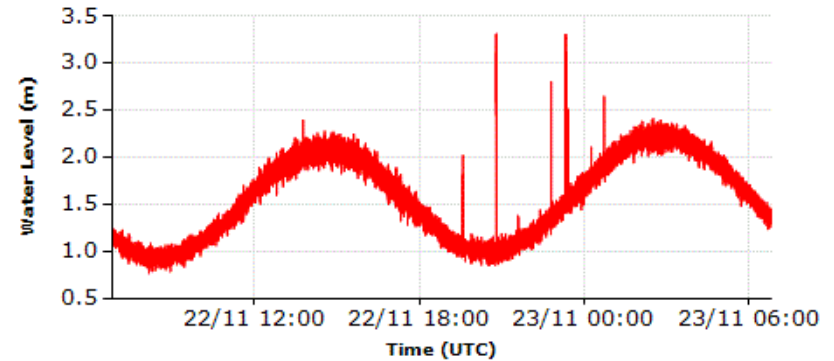


Eruption crater

Lava drop into sea

https://webcritech.jrc.ec.europa.eu/TAD_server/Device/669

Measured Water Level



22-11-2021 19:00:24 UTC - IDSL-50 Puerto de Tazacorte (Comunidad Autónoma de Canarias - Spain)



VOLCANO DISCOVERY

Home > New! Volcanoes > Europe (continent) > Spain > Canary Islands > La Palma

Tours | Photos | Videos | Volcanoes | Earthquakes | Geology | News | About | Volcano Glossary | FAQ



Try our free app!



Android | iOS version

Volcano Tours



Our expert volcanologists and photographers offer unique travel experiences: volcano expeditions, photo tours, and relaxed walking & study tours.

Guaranteed tours

- 7-15 May 2022: From Stromboli to Etna - Sicily and Eolian Islands (Italy)
- 20 May - 3 Jun 2022:

La Palma volcano webcams and live data:

shield volcano 2426 m
Canary Islands (Spain), 28.58°N / -17.84°W

Last earthquakes nearby

Available webcams:



Webcam at Tide gauge Tazacorte port (TAD server, EU Commission) (source)

Eruption Update

Images

Latest news

Mon, 30 Nov 2021, 09:45

La Palma Volcano Volcanic Ash Advisory:
ERUPTION AT 20210919/1410Z ASH
EMISSION ONGOING OBS VA DTG: 21/0300Z
to 8000 ft (2400 m)

Sun, 21 Nov 2021, 21:00

La Palma Volcano Volcanic Ash Advisory:
ERUPTION AT 20210919/1410Z ASH EMISSION
ONGOING OBS VA DTG: 21/2100Z to 8000 ft
(2400 m)



IDS L-50, 22 Nov 2021



Table of Content



- Status of Last Mile Projects
- Status of Sea Level Activities
 - IDSL-50, La Palma
- **Transfer of activities to UNESCO/IOC**
- Conclusions

Transfer of activities to UNESCO



- JRC will no longer install IDSLs or TAD panels
- JRC will continue to host the TAD_server for data collection and give support
- DG-ECHO project on Tsunami Last Mile includes the following topics
 - Organization of Last Mile Exercises in some locations in the Mediterranean Sea
 - Maintenance and enlargement of the IDSL Network
- Practical organization matters
 - Know how transfer for both TLM and IDSL will be organized
 - Use of remaining material at JRC for the new project
 - Identification of local support for IDSLs

- **Last Mile Projects**
 - **Phase 1**
 - Kos, Bodrum
 - **Phase 2**
 - Exercise completed in Malta, 5 Nov 2021
 - Preparation for Pangandaran, Indonesia
- **Sea Level Devices**
 - Emergency installation in La Palma island, Oct 2021, in collaboration with IGN
- Transfer of activities to UNESCO/IOC, need to coordinate the know-how on devices, discussions ongoing on practical terms

Thanks !

