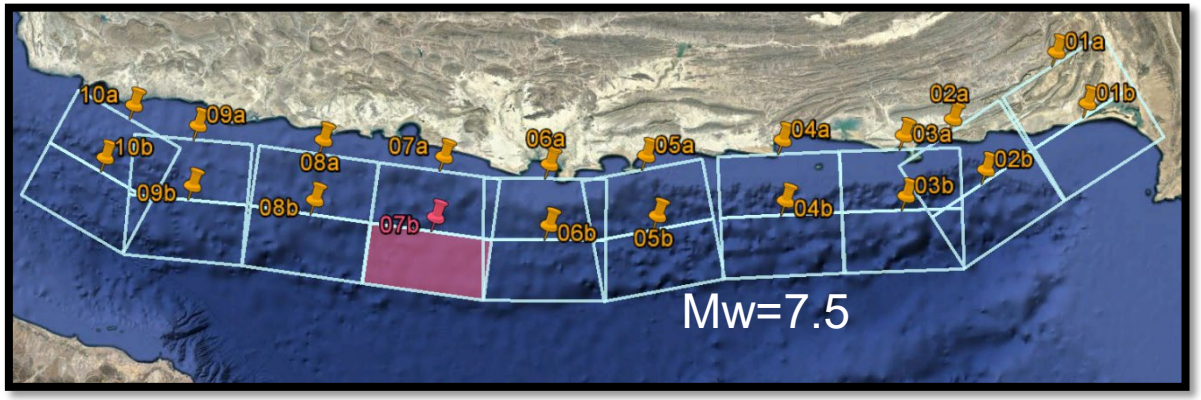
United Nations
Educational, Scientific and
Cultural Organization

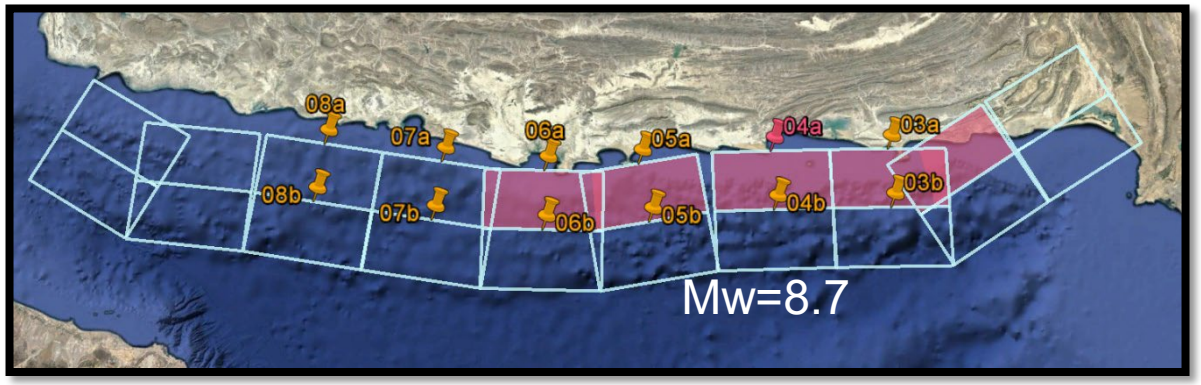
Intergovernmental
Oceanographic
Commission

Iranian National Institute for
Oceanography and Atmospheric
Science (INIOAS)

Inundation maps for tsunami evacuation Planning (TEP) study cases - IRAN

Scenarios of MSZ earthquakes and tsunamis





Final Number of tsunami scenarios: 206 × 4 = **824**

Magnitude	L(km)	W(km)	U_0 (m)	Number of scenarios based on possible location
7.0 Mw	60	18	1.07	20
7.5 Mw	110	25	2.37	20
7.8 Mw	170	29	3.82	18
8.0 Mw	200	35	5.25	18
8.1Mw	230	37	6.15	18
8.2 Mw	260	40	7.21	16
8.3 Mw	300	42	8.45	16
8.4 Mw	340	44	9.91	16
8.5 Mw	400	45	11.61	14
8.6 Mw	455	48	13.61	14
8.7 Mw	515	51	15.96	12
8.8 Mw	610	52	18.71	10
8.9 Mw	720	53	21.93	8
9 Mw	850	54	25.70	6

206 Scenario

Numerical Modeling

https://nctr.pmel.noaa.gov/ComMIT/

NOAA Center for Tsunami Research
Pacific Marine Environmental Laboratory

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

Home | Tsunami Forecasting | Hazard Assessment | Research | DART | Events | Info

Community Model Interface for Tsunami (ComMIT)

ComMIT is an internet-enabled interface to the community tsunami model developed by the NOAA Center for Tsunami Research (NCTR).

ComMIT Background and General Description

ComMIT documents from IOTWS Archive

ComMIT User Guide and Help

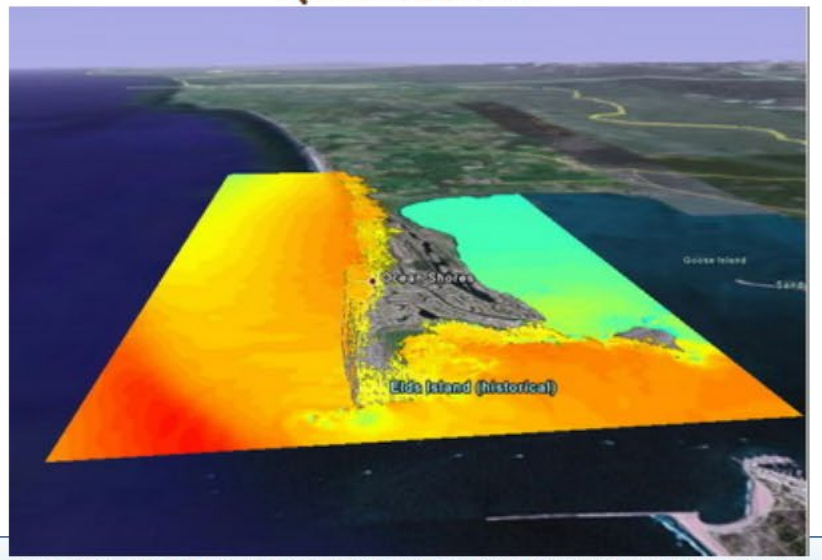
Screen Snapshots of ComMIT

Download software & Group email (requires password)

Model Benchmarking

ComMIT Training

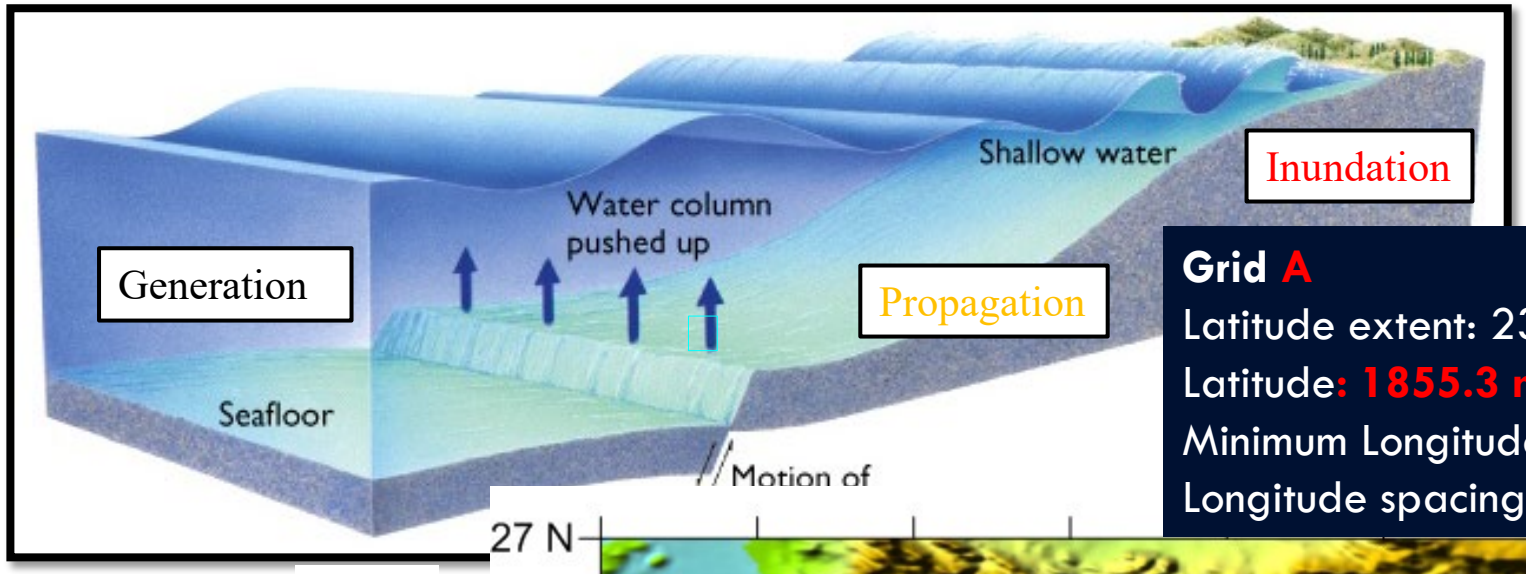
Click images to enlarge



Computer modeled tsunami inundation from a great Cascadia Subduction Zone earthquake for the coastal community of Ocean Shores, Washington. Screen snapshot of model results displayed in Google Earth.

- ✓ Community Model Interface for Tsunami (ComMIT)
- ✓ MOST (Method of Splitting Tsunami) numerical code
- ✓ Non-linear shallow water equation

Three-level nested grid



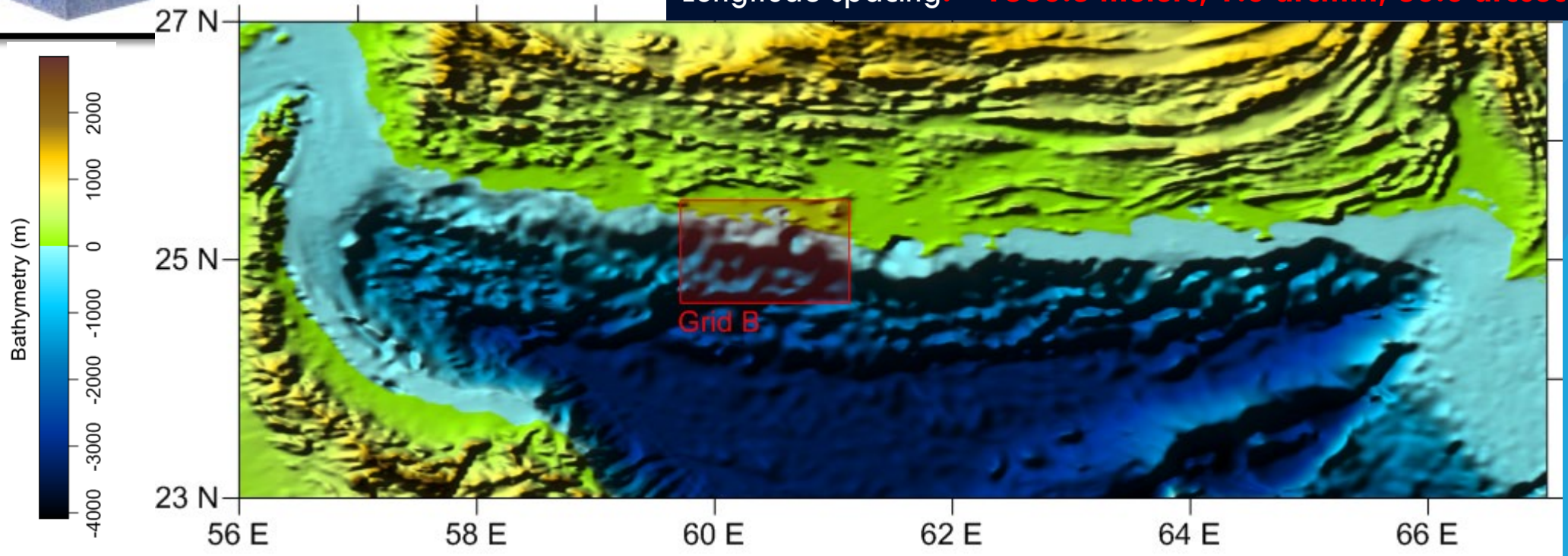
Grid A

Latitude extent: 23.0000 to 27.0000

Latitude: **1855.3 meters, 1.0 arcmin, 60.0 arcsec**

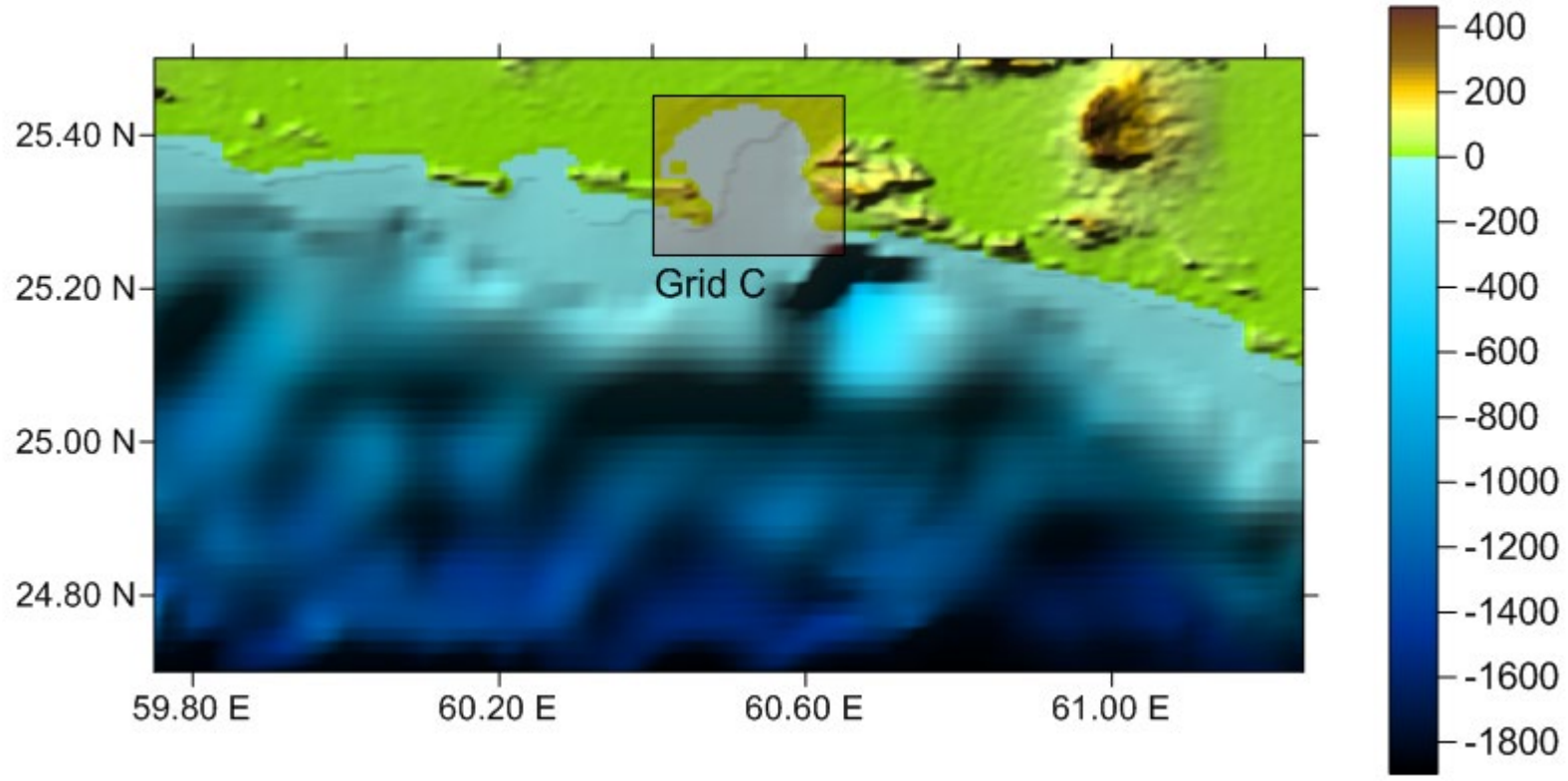
Minimum Longitude: 56.0000 Maximum Longitude: 67.0000

Longitude spacing: **~1680.6 meters, 1.0 arcmin, 60.0 arcsec**



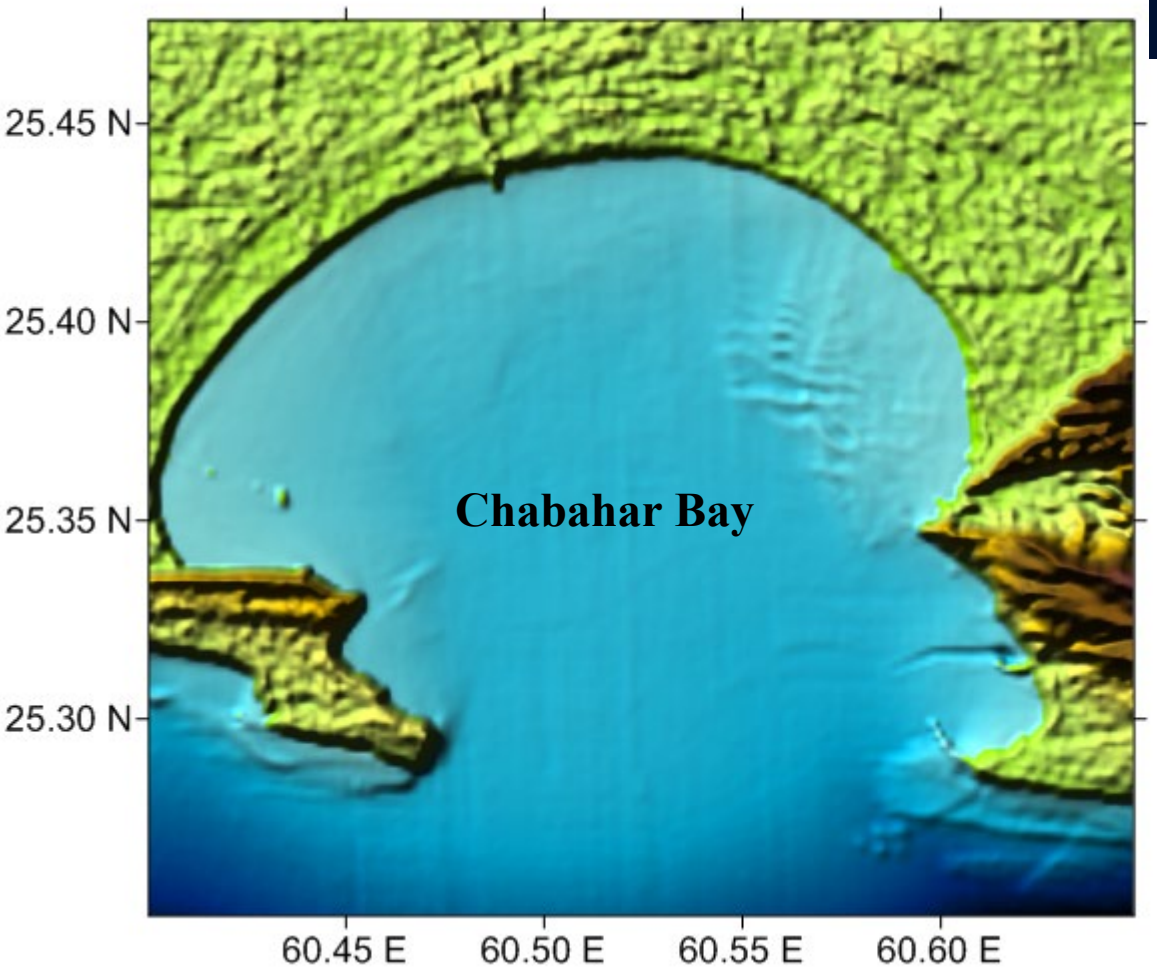
Three-level nested grid

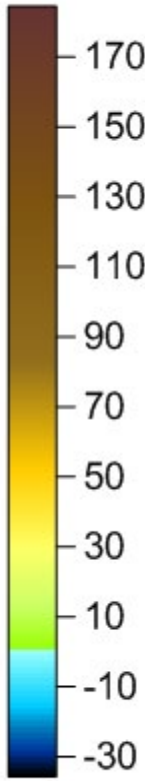
Grid B
Latitude extent: 24.70 to 25.50
Latitude spacing: **309.2 meters, 0.2 arcmin, 10.0 arcsec**
Minimum Longitude: 59.75 Maximum Longitude: 61.25
Longitude spacing:: **~280.0 meters, 0.2 arcmin, 10.0 arcsec**



Three-level nested grid

Grid C
Latitude extent: 25.2504 to 25.4766 degrees
Latitude spacing: **66.8 meters, 0.0 arcmin, 2arcsec**
Minimum Longitude: 60.4003 Maximum Longitude: 60.6493
Longitude spacing: **~60.4 meters, 0.0 arcmin, 2 arcsec**

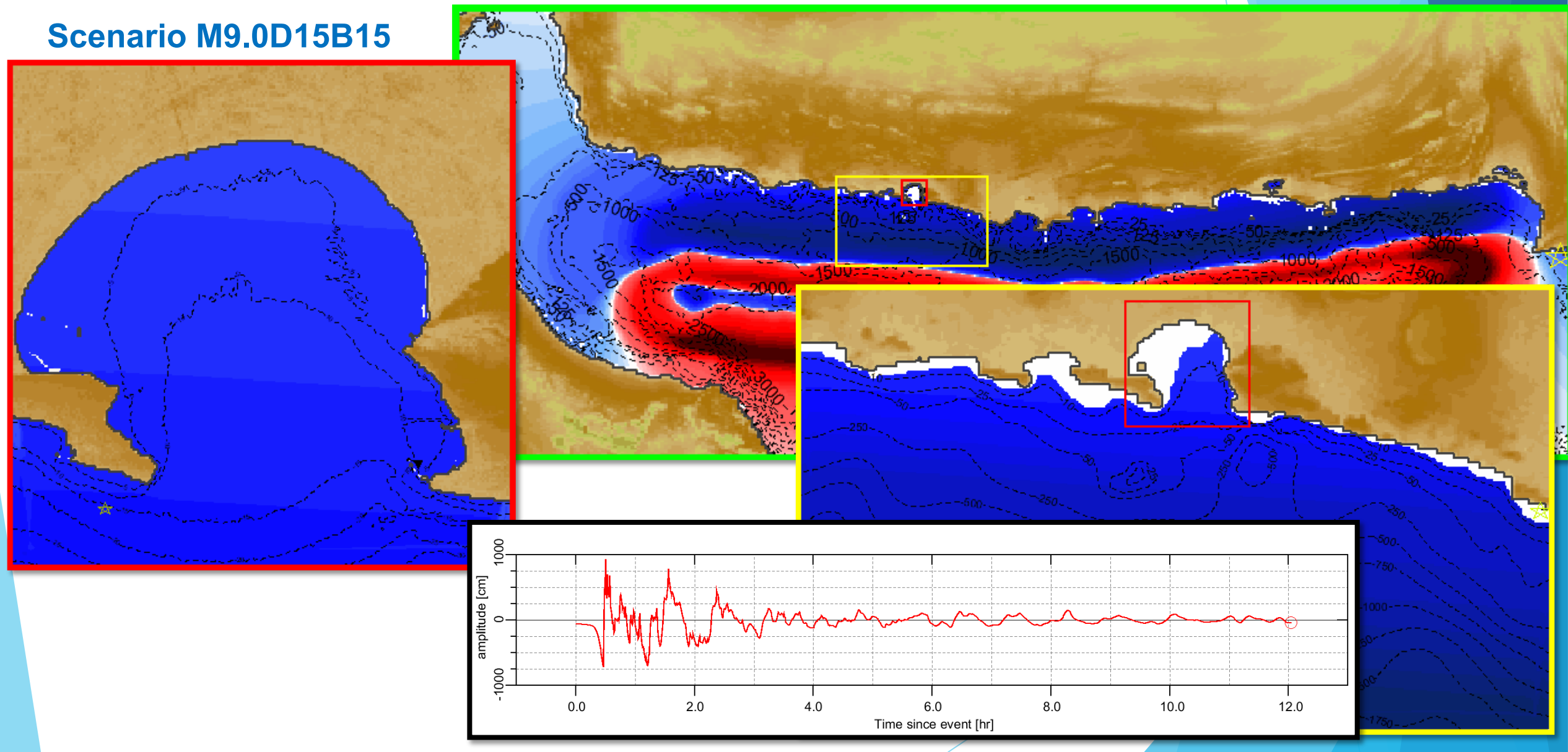




- ✓ The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)
- ✓ The General Bathymetric Chart of the Oceans (GEBCO)
- ✓ Hydrographic survey data

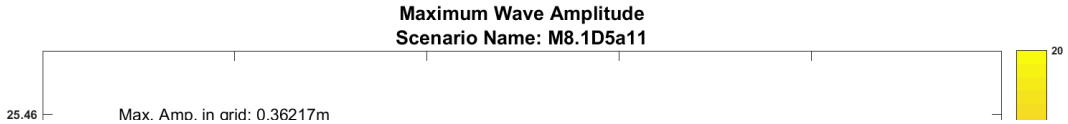
Simulation Results

Scenario M9.0D15B15



Simulation Results

Watch



Time Arrival (H>2cm) =59.7333 min

Time Arrival (First H>50cm) = Not Available

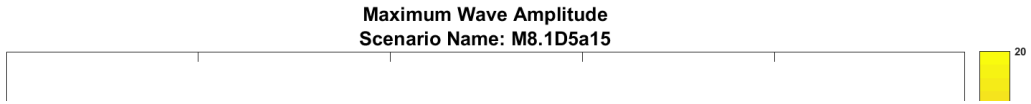
Time Arrival (Hmax) =104.5333 min

Time Arrival (Last H>50cm) = Not Available

Max Beach =0.21081 m

Max Deep =0.12976 m

Alert



Time Arrival (H>2cm) =14.9333 min

Time Arrival (First H>50cm) =20.266

Time Arrival (Hmax) =17.0667 min

Time Arrival (Last H>50cm) =221.33

Max Beach =0.99027 m

Max Deep =0.44286 m

Warning

Time Arrival (H>2cm) =9.0667 min

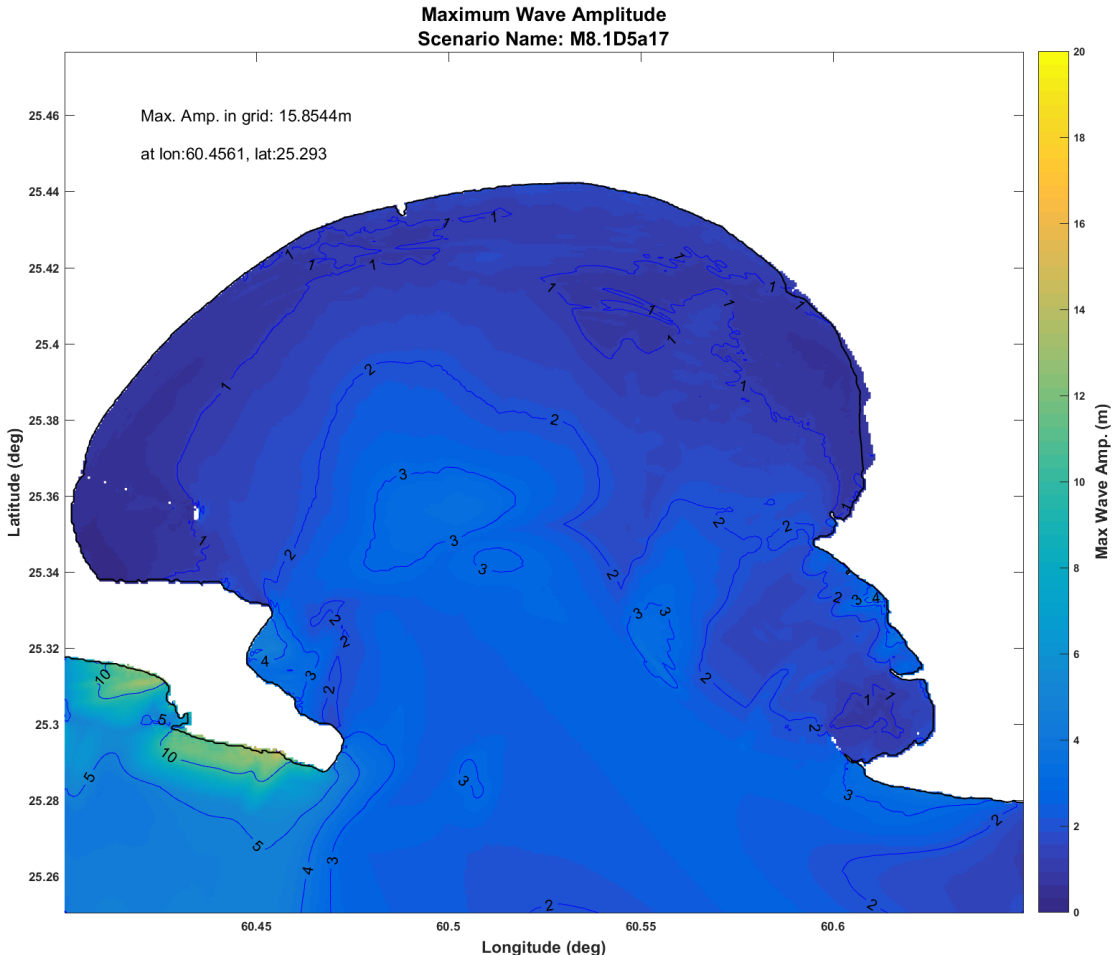
Time Arrival (First H>50cm) =9.6 min

Time Arrival (Hmax) =12.2667 min

Time Arrival (Last H>50cm) =122.1333 min

Max Beach =12.0467 m

Max Deep =3.7403 m



The worst-case scenario

Warning

Time Arrival (H>2cm) =17.6 min

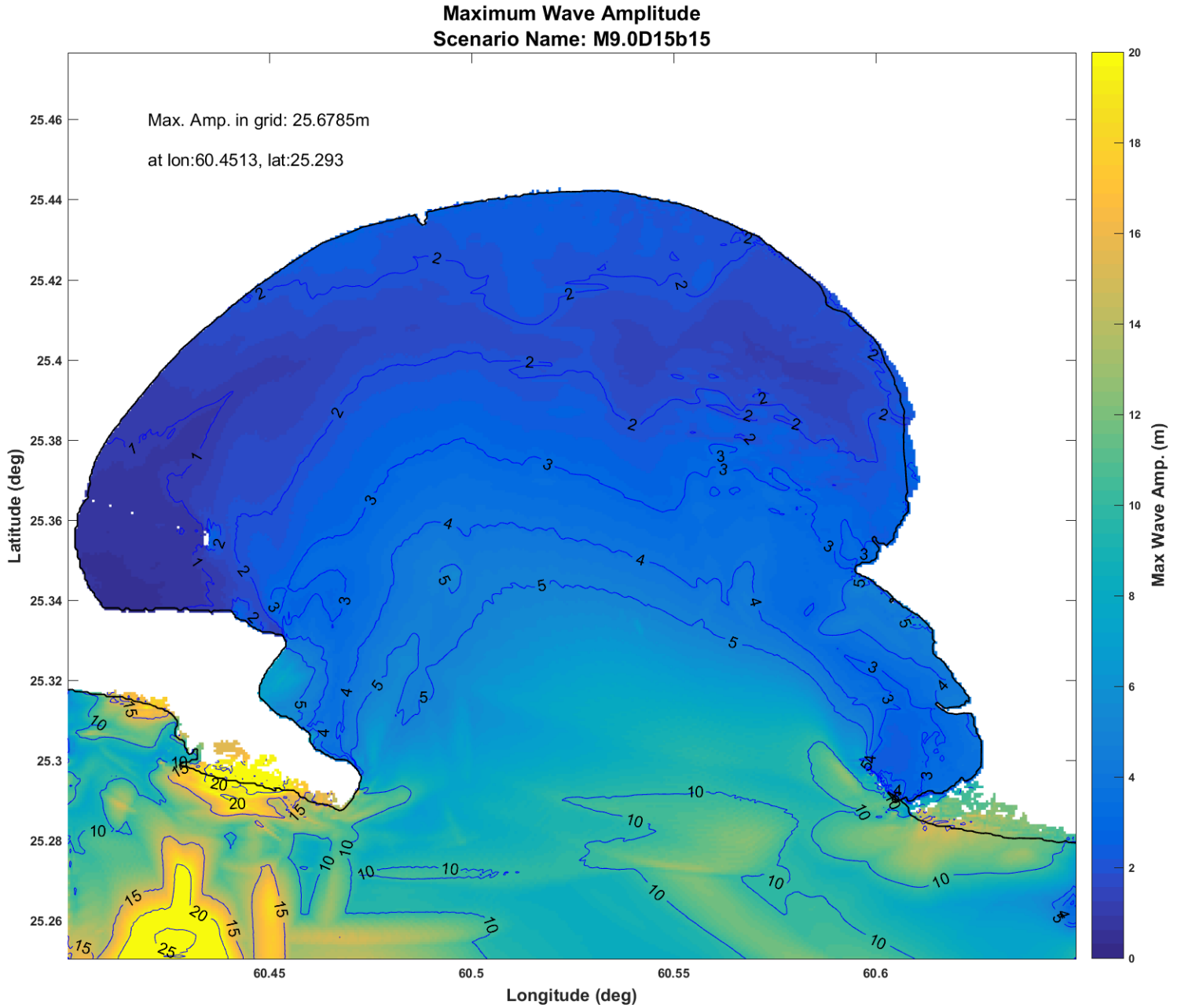
Time Arrival (First H>50cm) =17.6 min

Time Arrival (Hmax) =20.2667 min

Time Arrival (Last H>50cm) =292.2667 min

Max Beach =12.7813 m

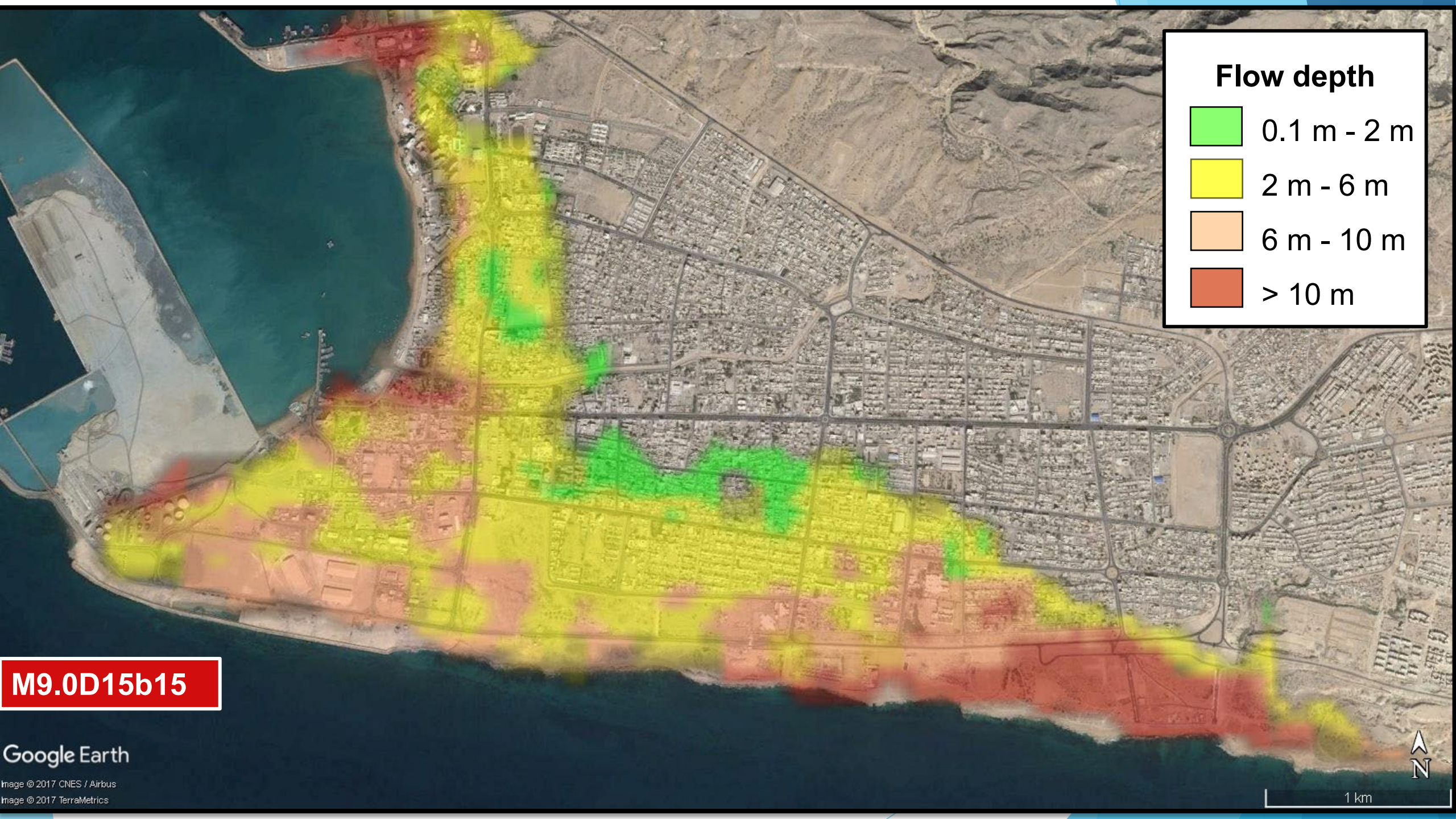
Max Deep =11.6552 m



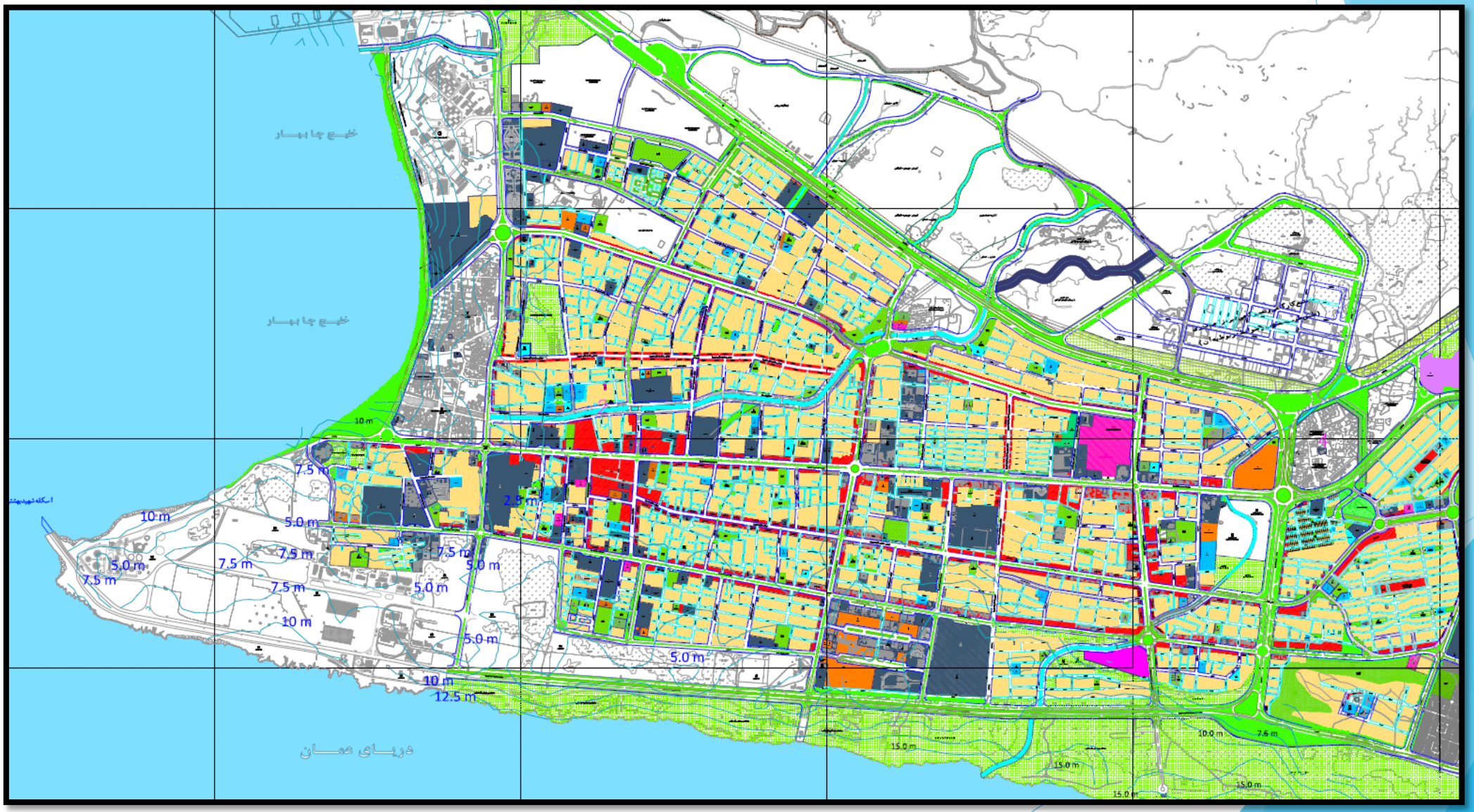
The worst-case scenario

Scenario Numbe	Scena1rio Na1m	Mw	L (km)	W (km)	Δ (m)	Dip Angle (°)	Rake Angle (°)	Depth (km)	Epicenter Name	Epicenter Lon	Epicenter Lat	Strike Angle (°)
801	M9.0D5a14	9.0	850	54	25.70	10	90	5	a14	62.9666	25.1583	262
802	M9.0D5b14	9.0	850	54	25.70	10	90	5	b14	63.0226	24.7138	262
803	M9.0D5a15	9.0	850	54	25.70	10	90	5	a15	62.0178	25.0673	266
804	M9.0D5b15	9.0	850	54	25.70	10	90	5	b15	62.0637	24.6227	266
805	M9.0D5a16	9.0	850	54	25.70	10	90	5	a16	61.1954	25.0580	274
806	M9.0D5b16	9.0	850	54	25.70	10	90	5	b16	61.1652	24.6112	274
807	M9.0D15a14	9.0	850	54	25.70	10	90	15	a14	62.9666	25.1583	262
808	M9.0D15b14	9.0	850	54	25.70	10	90	15	b14	63.0226	24.7138	262
809	M9.0D15a15	9.0	850	54	25.70	10	90	15	a15	62.0178	25.0673	266
810	M9.0D15b15	9.0	850	54	25.70	10	90	15	b15	62.0637	24.6227	266
811	M9.0D15a16	9.0	850	54	25.70	10	90	15	a16	61.1954	25.0580	274
812	M9.0D15b16	9.0	850	54	25.70	10	90	15	b16	61.1652	24.6112	274
813	M9.0D25a14	9.0	850	54	25.70	10	90	25	a14	62.9666	25.1583	262
814	M9.0D25b14	9.0	850	54	25.70	10	90	25	b14	63.0226	24.7138	262
815	M9.0D25a15	9.0	850	54	25.70	10	90	25	a15	62.0178	25.0673	266
816	M9.0D25b15	9.0	850	54	25.70	10	90	25	b15	62.0637	24.6227	266
817	M9.0D25a16	9.0	850	54	25.70	10	90	25	a16	61.1954	25.0580	274
818	M9.0D25b16	9.0	850	54	25.70	10	90	25	b16	61.1652	24.6112	274
819	M9.0D35a14	9.0	850	54	25.70	10	90	35	a14	62.9666	25.1583	262
820	M9.0D35b14	9.0	850	54	25.70	10	90	35	b14	63.0226	24.7138	262

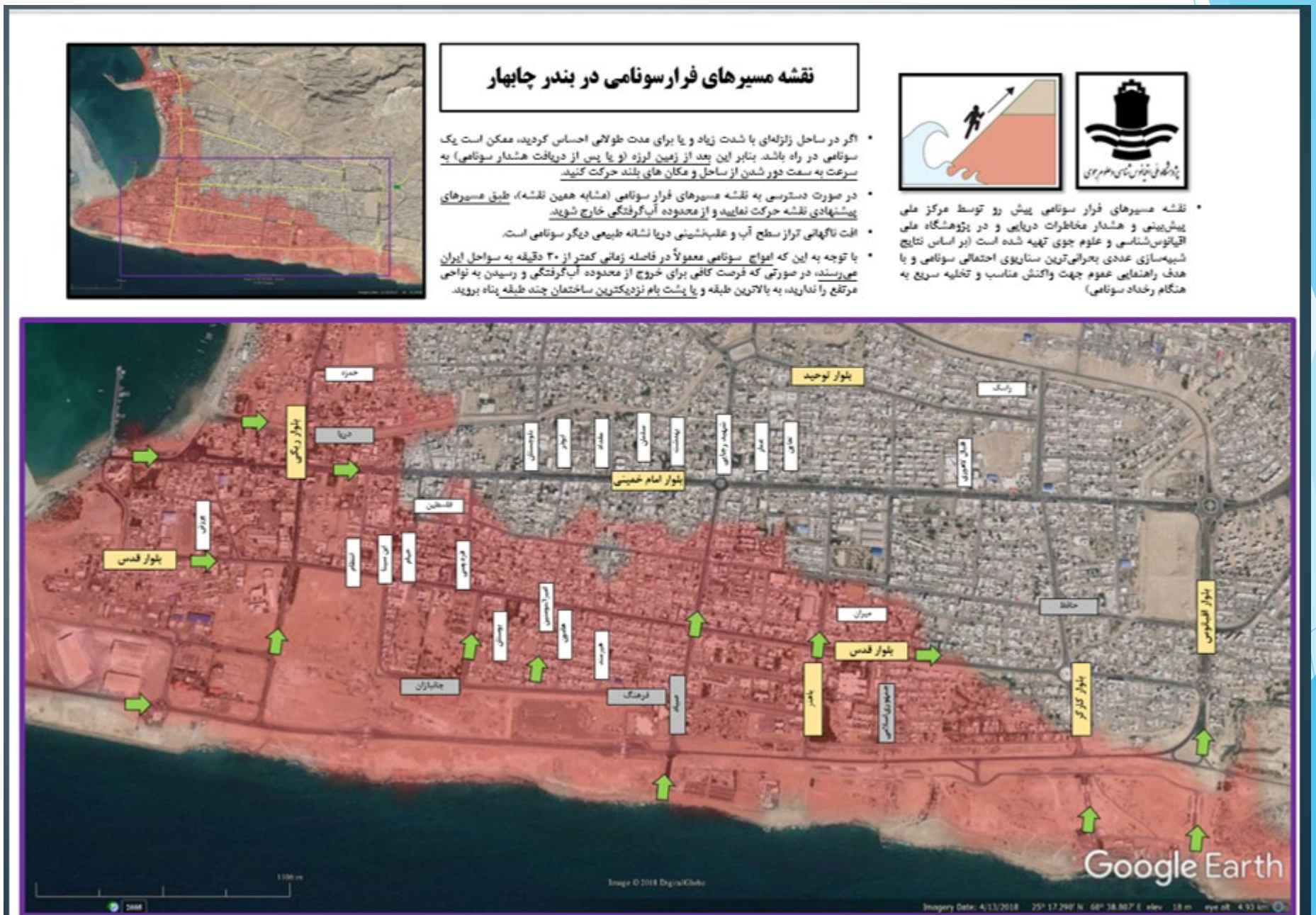
... | Mw=8.1 | Mw=8.2 | Mw=8.3 | Mw=8.4 | Mw=8.5 | Mw=8.6 | Mw=8.7 | Mw=8.8 | Mw=8.9 | Sheet1 | Mw=9.0


Flow depth
0.1 m - 2 m
2 m - 6 m
6 m - 10 m
> 10 m
M9.0D15b15
Google Earth
Image © 2017 CNES / Airbus
Image © 2017 TerraMetrics
N
1 km

Inundation Map / Land use Map



Evacuation Map



Thank You For your kind attention