Observations from the 08 June 2026 Mw 7.8 Offshore Sarangani, Philippines Earthquake: A PSSMGE Report

June 2026

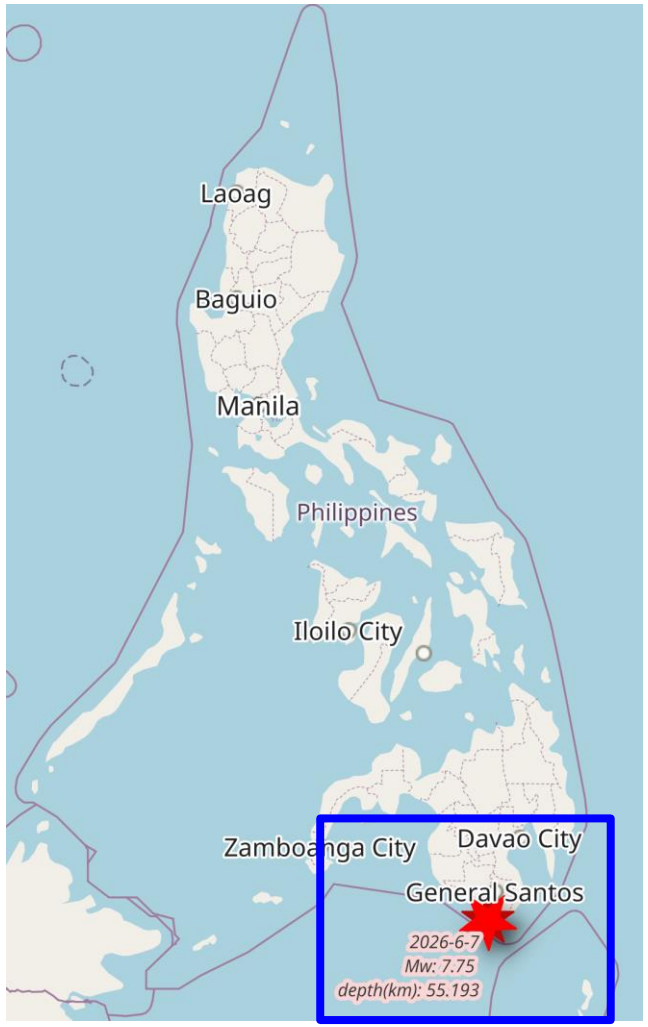
PSSMGE
PHILIPPINE SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING

amh
PHILIPPINES, inc.
ENGINEERS • CONSULTANTS

THE 08 JUNE 2026 MW 7.8 OFFSHORE SARANGANI EARTHQUAKE

EARTHQUAKE EVENT INFORMATION

PH MAP



PHIVOLCS PRIMER

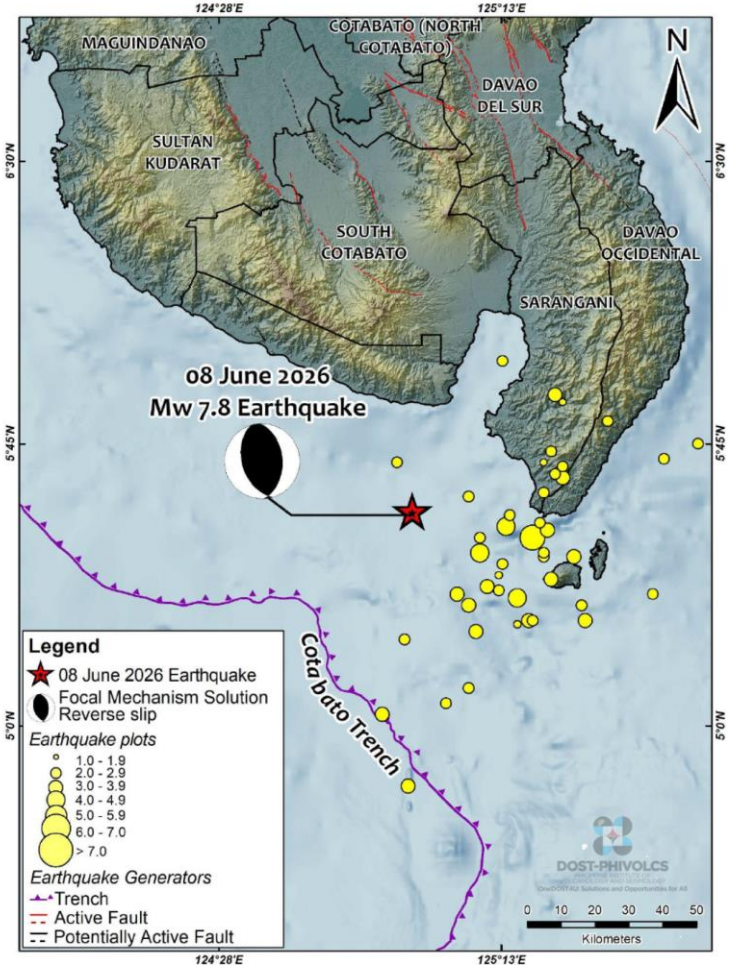
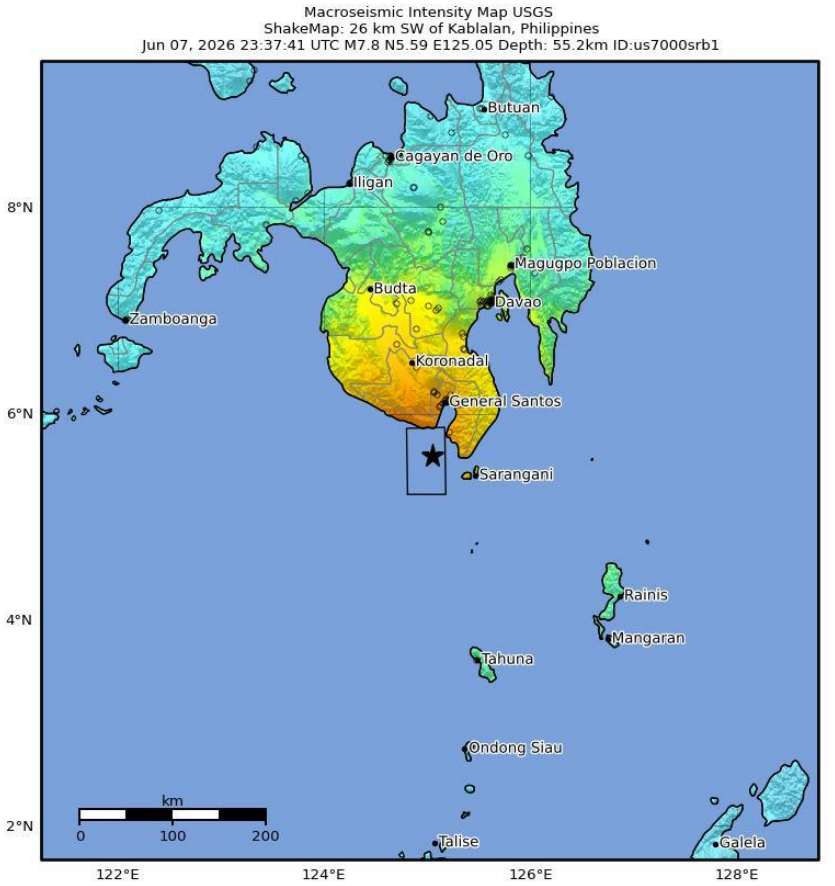


Figure 1. Plot of the 08 June 2026 Magnitude 7.8 Offshore Sarangani Earthquake and aftershocks as of 12:00 PM.

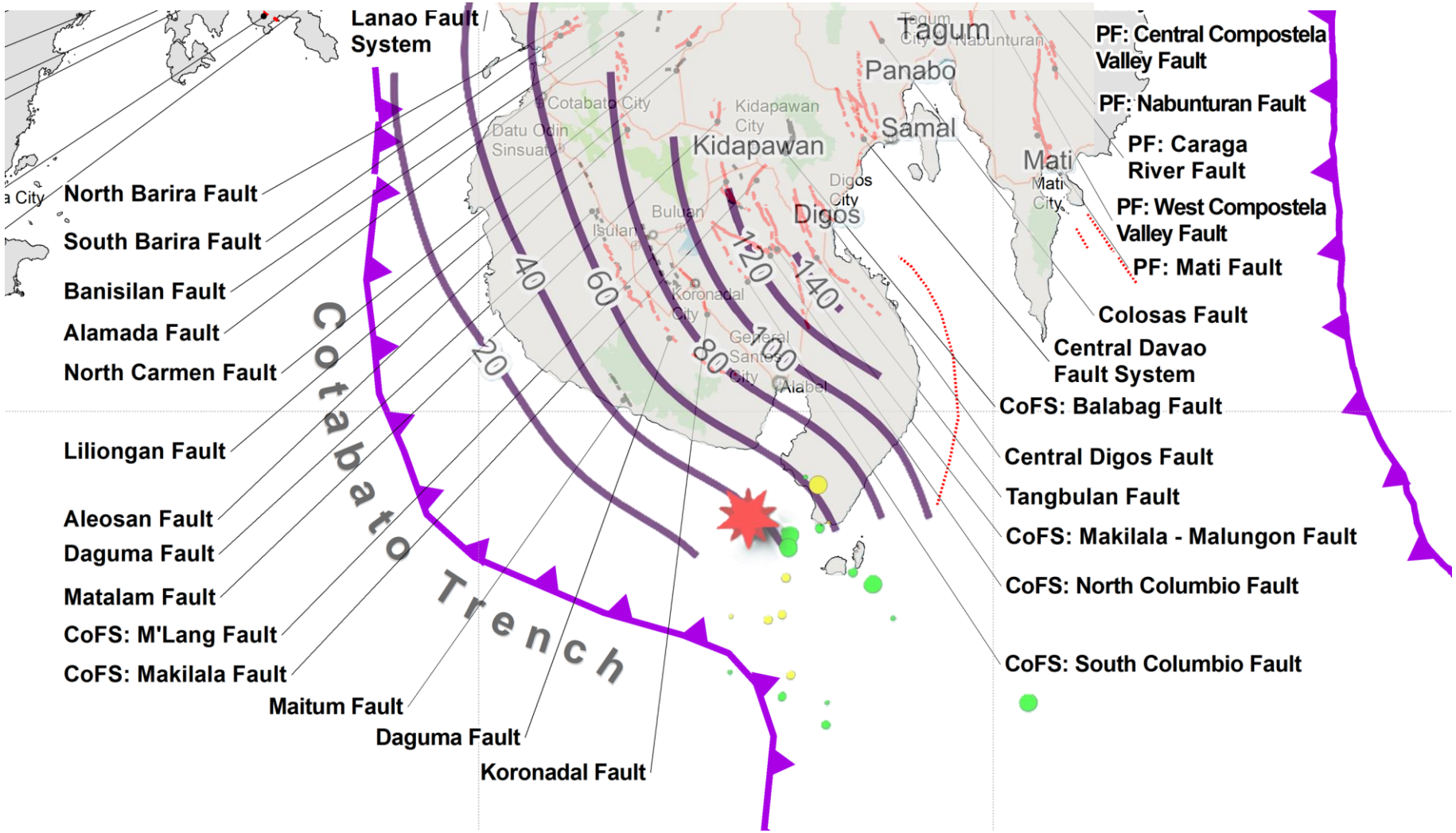
USGS SHAKEMAP



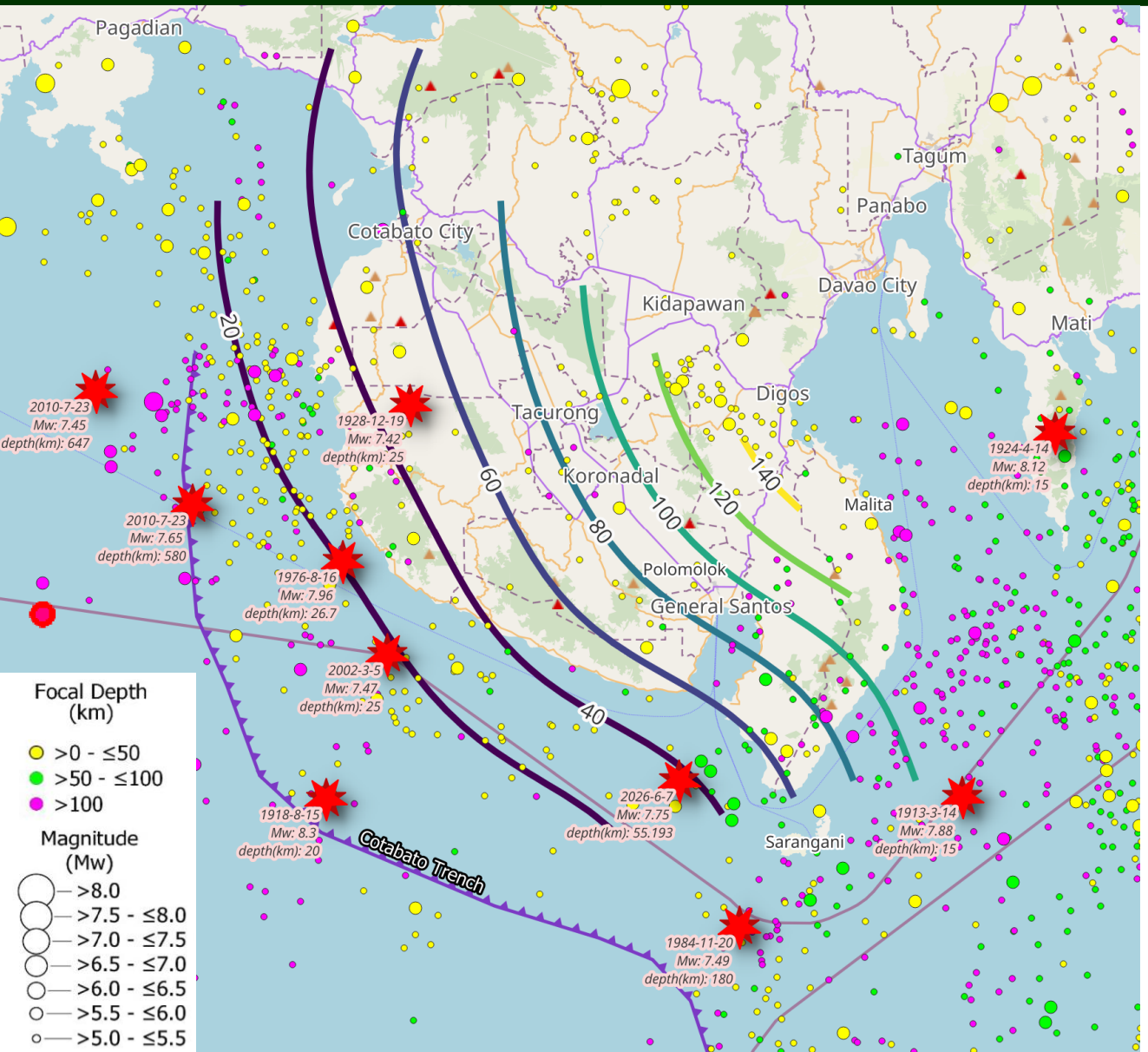
SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
DAMAGE	None	None	None	Very light	Light	Moderate	Moderate/heavy	Heavy	Very heavy
PGA(%g)	<0.0464	0.297	2.76	6.2	11.5	21.5	40.1	74.7	>139
PGV(cm/s)	<0.0215	0.135	1.41	4.65	9.64	20	41.4	85.8	>178
INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based on Worden et al. (2012) Version 5: Processed 2026-06-09T00:02:57Z
△ Seismic Instrument ○ Reported Intensity ★ Epicenter ▭ Rupture

FAULT MAP AND COTABATO TRENCH

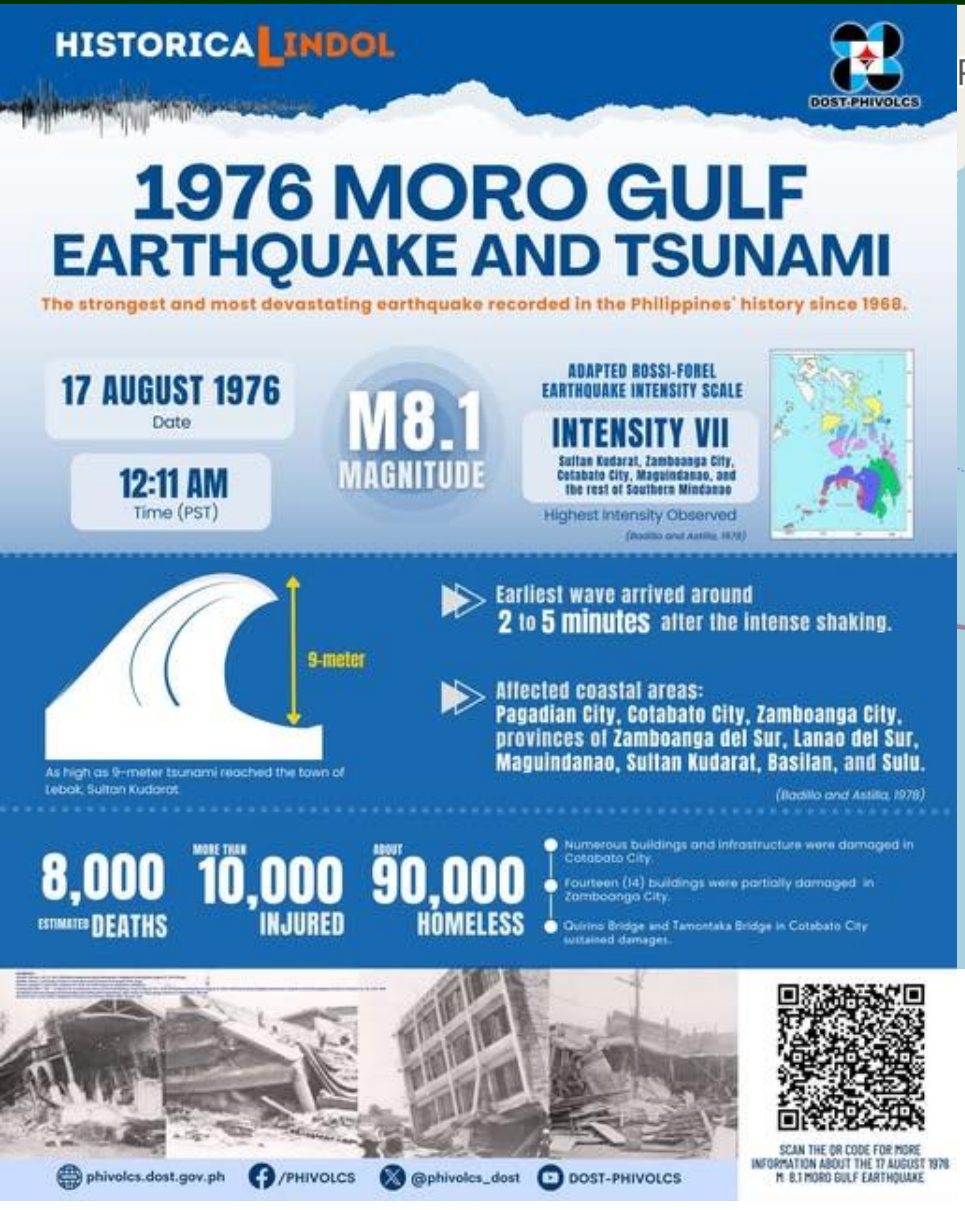


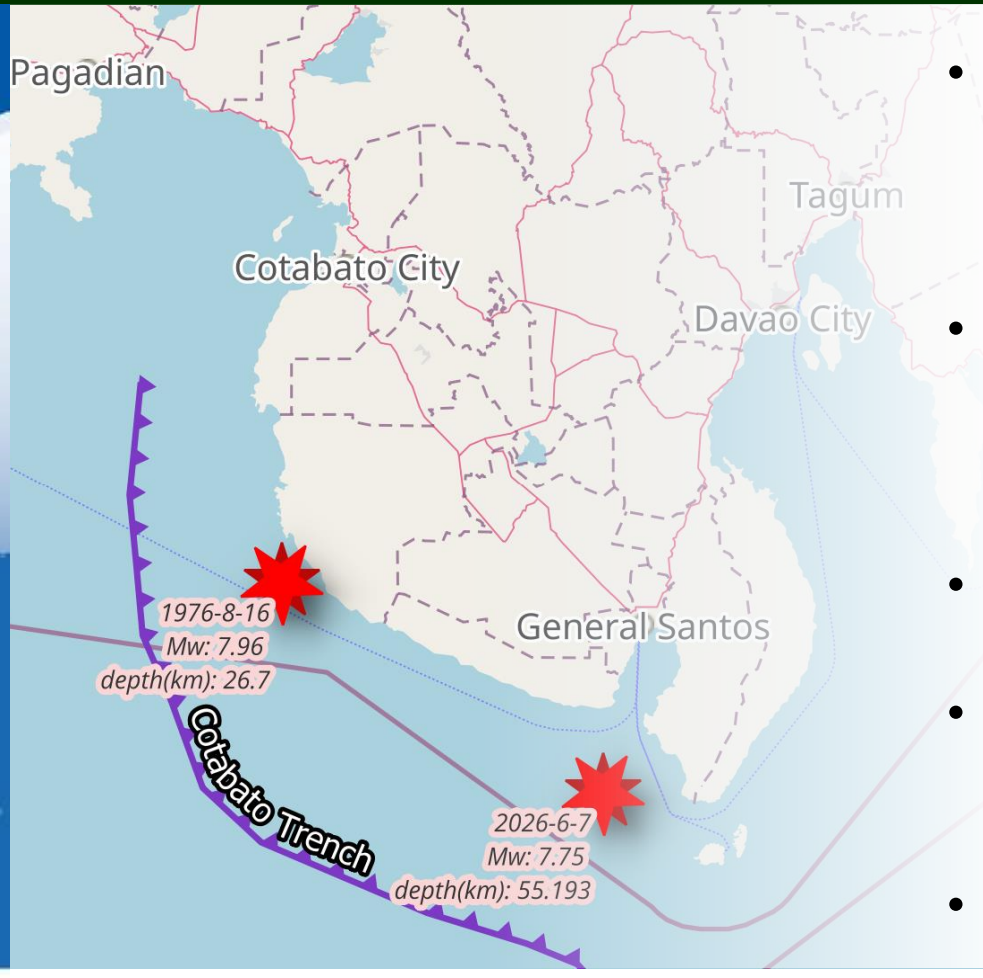
100-YEAR SEISMICITY RECORD



- The region around this earthquake is tectonically active and large earthquakes are common.
- Since the beginning of the 20th century, 35 earthquakes with a magnitude of M 7+ have occurred within 300 km of this event.
- The largest was a magnitude 8.3 earthquake on August 15th, 1918 that occurred 118 km to the west.

1976 MORO GULF EARTHQUAKE

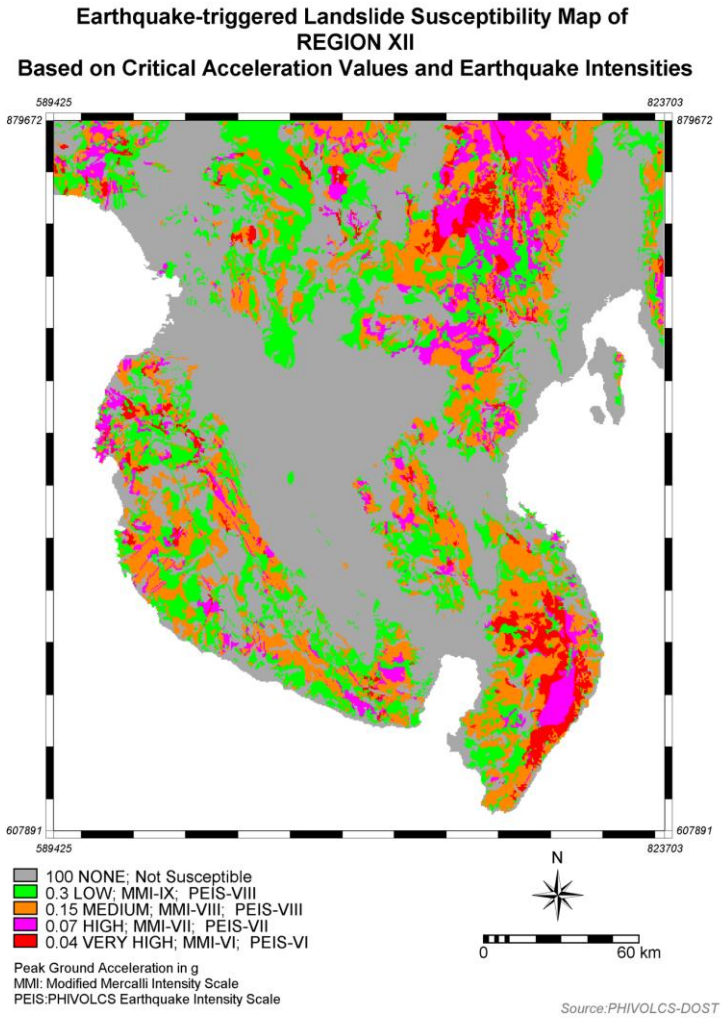


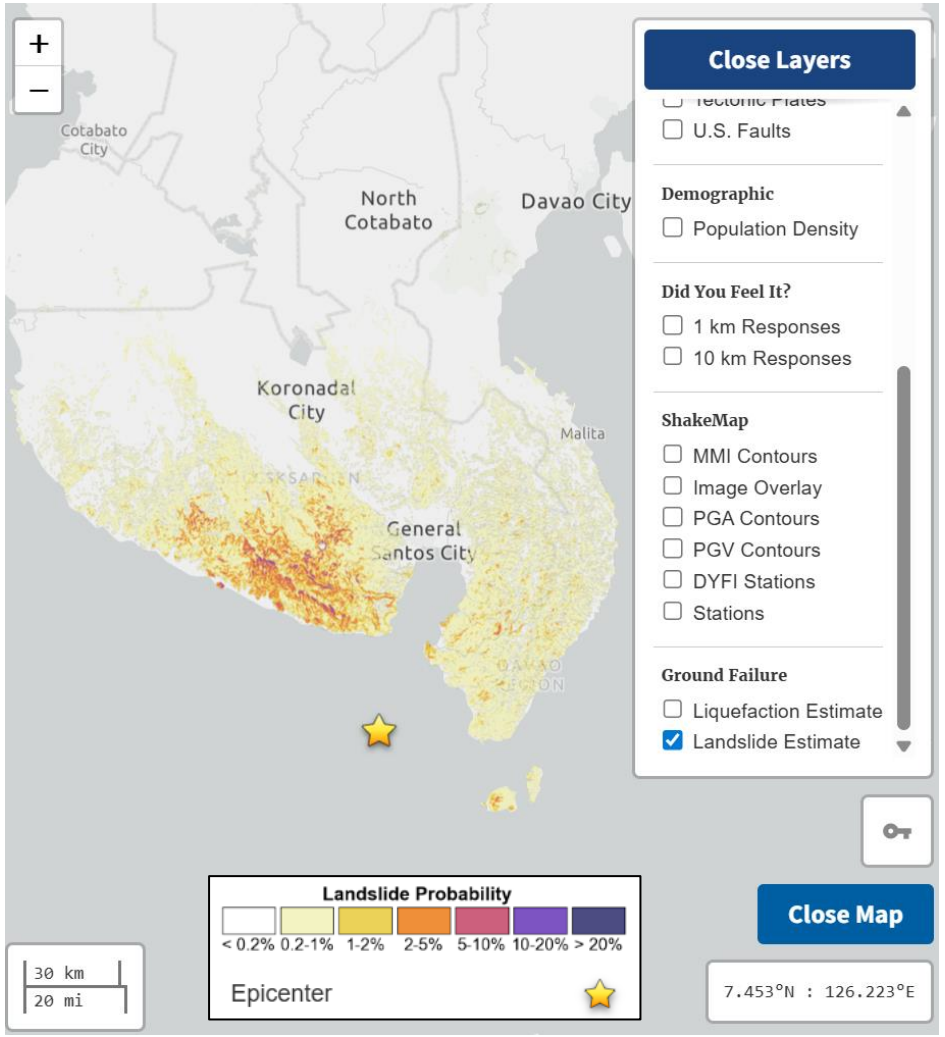


- Same EQ generator nearly 50 years apart (Cotabato Trench)
- M8.1 / (Mw 8.0) Strongest recorded EQ in recent history
- 8,000 Deaths
- 9-meter tsunami height in Lebak, Sultan Kudarat
- Houses along the coast of Pagadian City within 500 meters inland were destroyed by tsunami

HAZARD MAP – *LANDSLIDE SUSCEPTIBILITY*

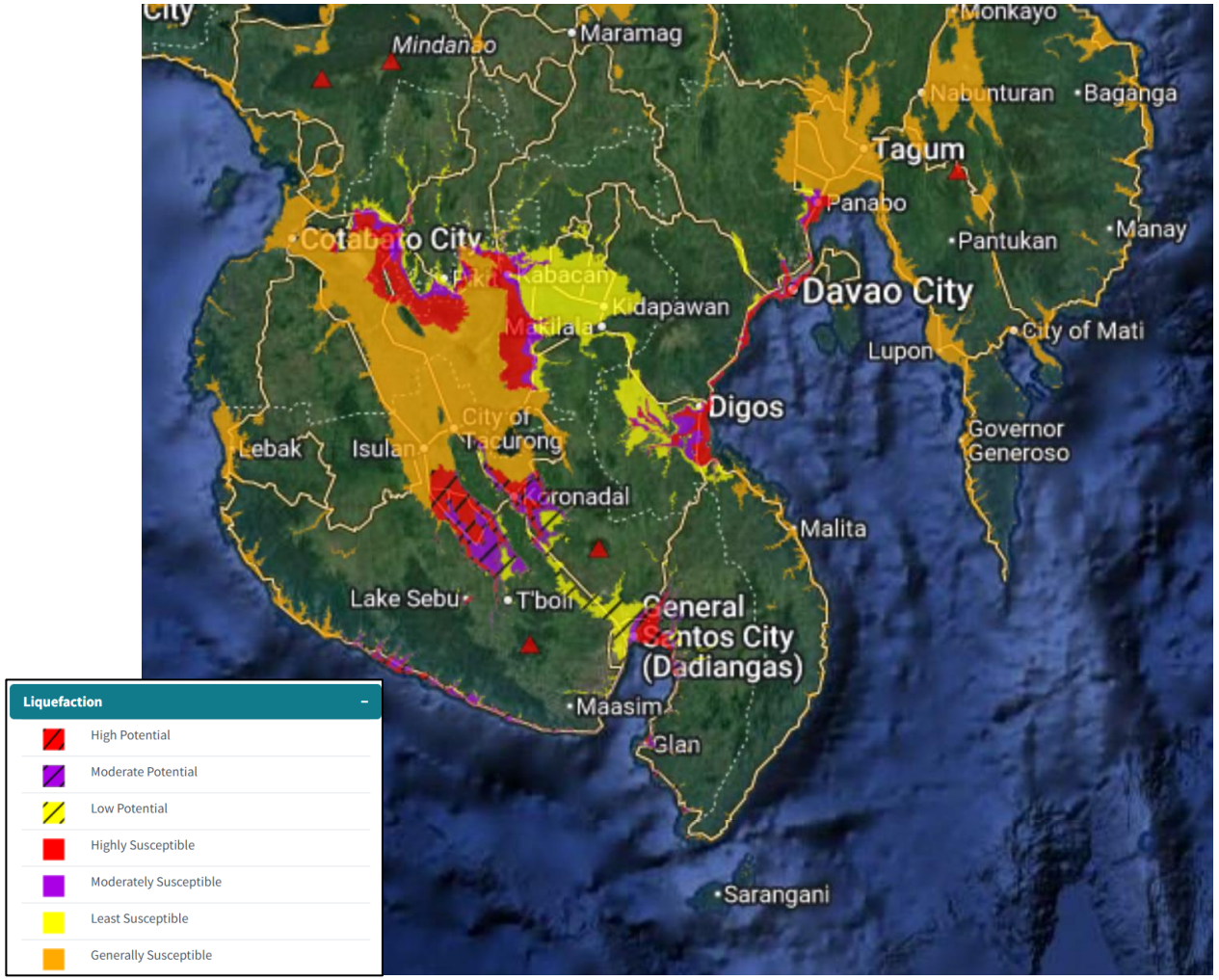
Landslide Susceptibility

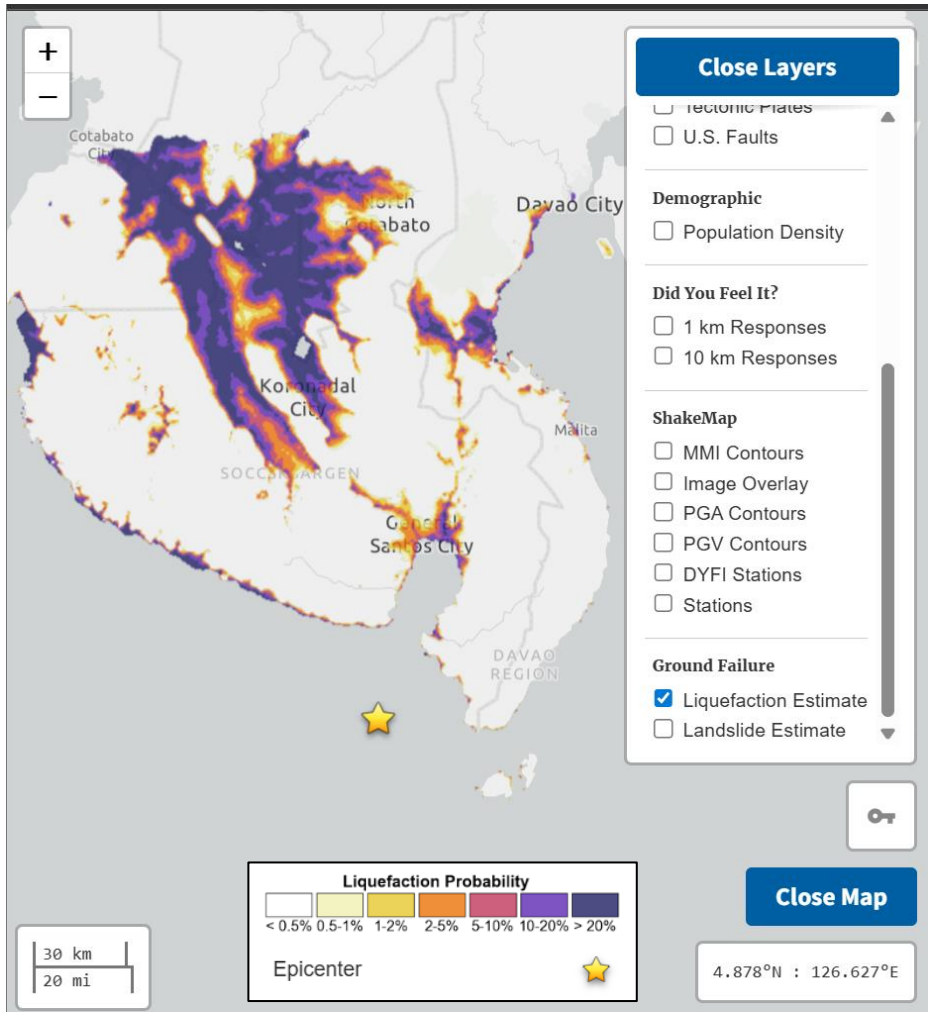




HAZARD MAP - *LIQUEFACTION*

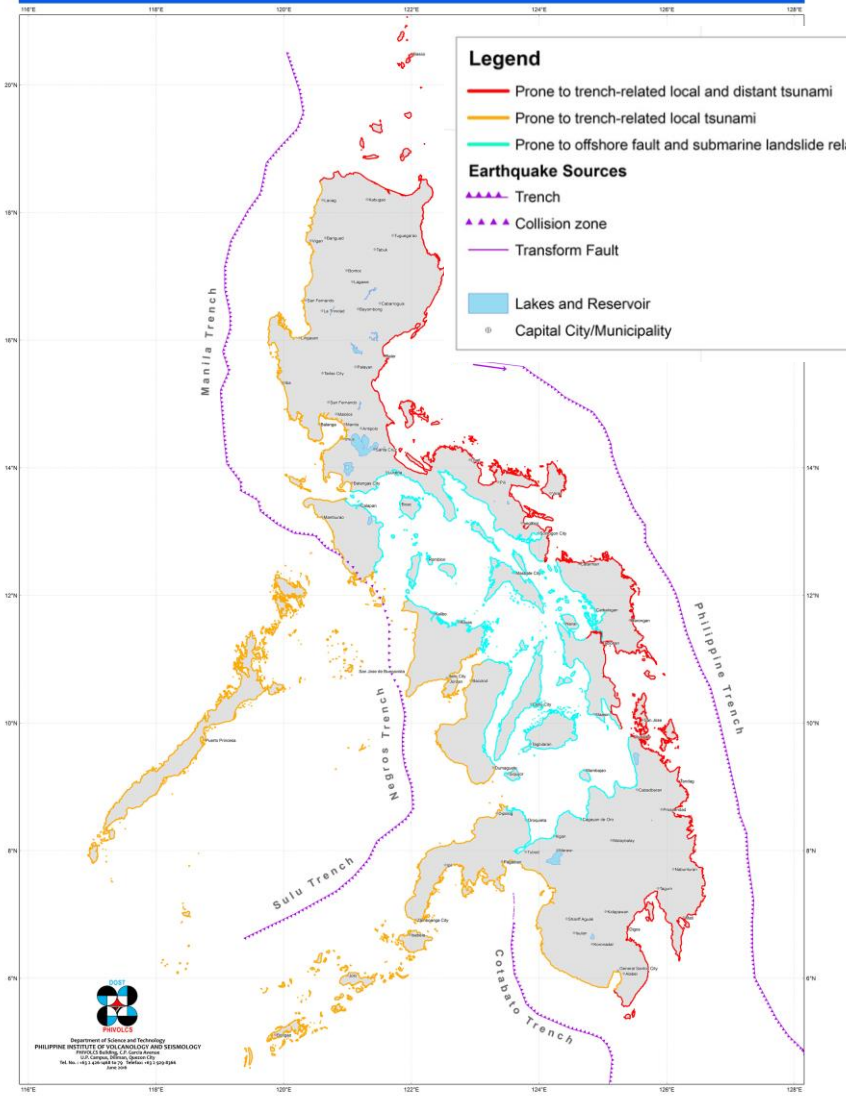
Liquefaction Susceptibility



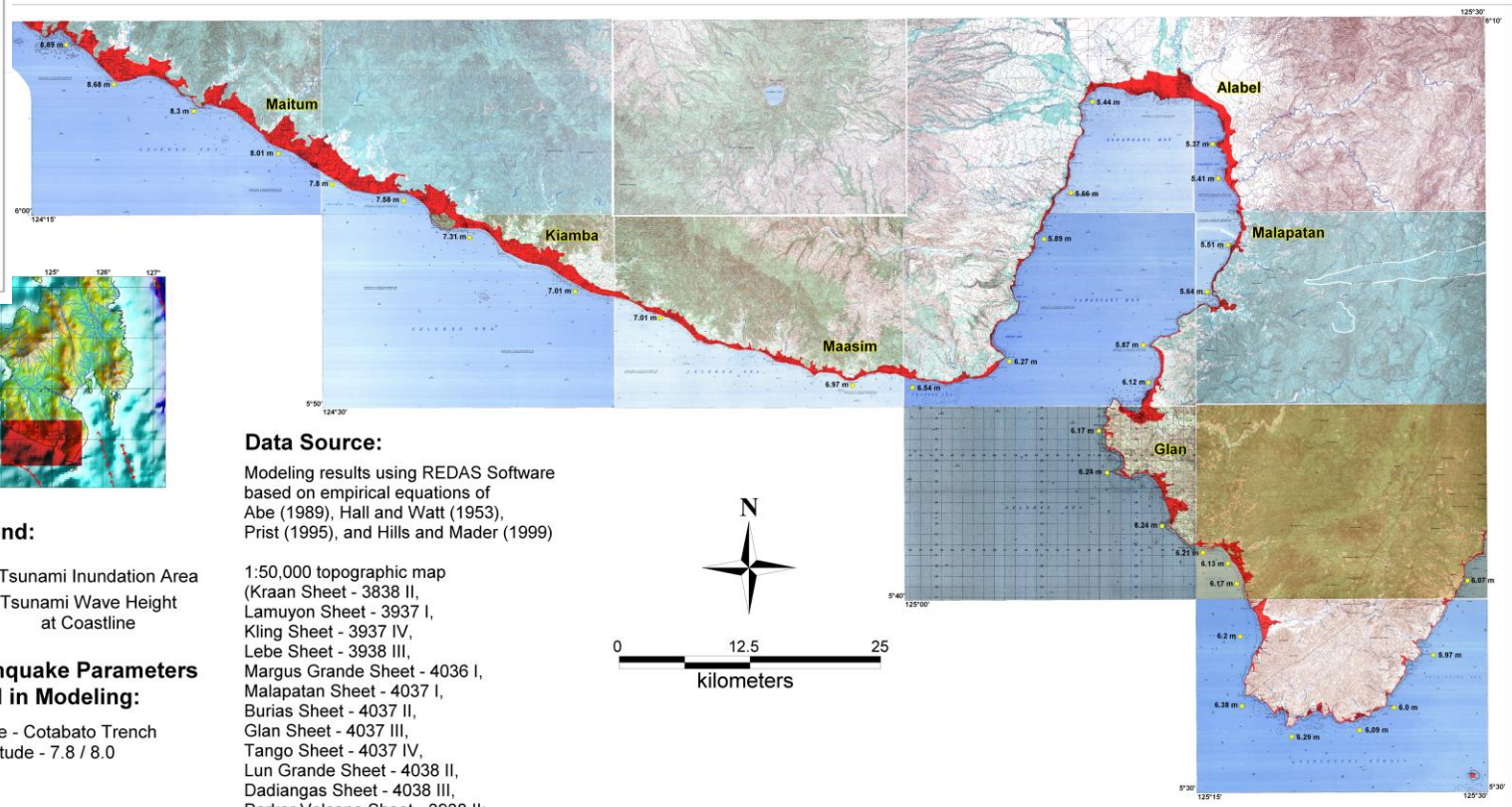


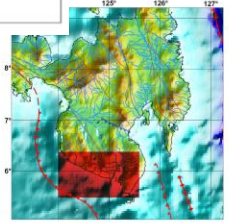
HAZARD MAP - *TSUNAMI*

Tsunami Prone Areas in the Philippines



TSUNAMI HAZARD MAP
Sarangani Province





Legend:

- Tsunami Inundation Area
- 3 m Tsunami Wave Height at Coastline

Earthquake Parameters Used in Modeling:

Source - Cotabato Trench
Magnitude - 7.8 / 8.0

Data Source:

Modeling results using REDAS Software based on empirical equations of Abe (1989), Hall and Watt (1953), Prist (1995), and Hills and Mader (1999)

1:50,000 topographic map
(Kraan Sheet - 3838 II,
Lamuyon Sheet - 3937 I,
Kling Sheet - 3937 IV,
Lebe Sheet - 3938 III,
Margus Grande Sheet - 4036 I,
Malapatan Sheet - 4037 I,
Burias Sheet - 4037 II,
Glan Sheet - 4037 III,
Tango Sheet - 4037 IV,
Lun Grande Sheet - 4038 II,
Dadiangas Sheet - 4038 III,
Parker Volcano Sheet - 3938 II;
1993-reprint, NAMRIA)

Map Prepared By:

Philippine Institute of Volcanology and Seismology (PHIVOLCS) -
Department of Science and Technology (DOST)
Under the DOST-GIA Program
December 2007

TSUNAMI RISK MITIGATION PROGRAM '06-'07

PHIVOLCS DOST

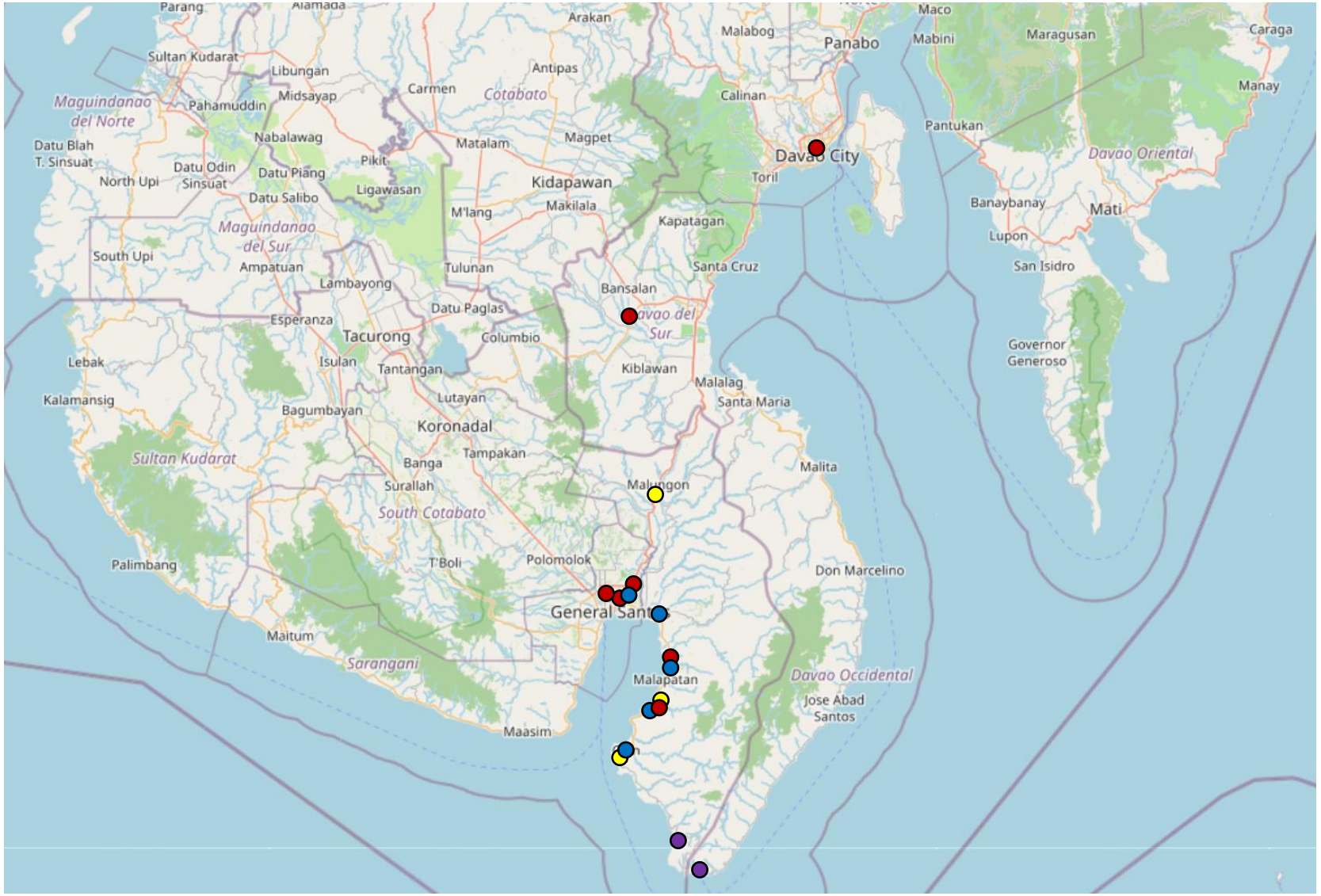
Explanation:

This indicative map is based on maximum computed wave height and inundation using worst case scenario earthquakes from major offshore source zones. The indicated wave height decreases away from the shoreline.

IMPACTS ON THE COMMUNITY AND EARTHQUAKE AFTERMATH OBSERVATIONS

- June 11 to 12, 2026

EARTHQUAKE IMPACT LOCATIONS



LEGEND:

- Damaged / Collapsed infrastructures
- Ground Deformations / Lateral Spreading
- Landslide
- Coastal uplift

Note: Some locations were validated through field reconnaissance, while others were identified from PHIVOLCS, LGU reports, news sources, and other secondary information.

DAMAGED INFRASTRUCTURE

Fast Food Chains in General Santos City

Photos taken on 11 June 2026

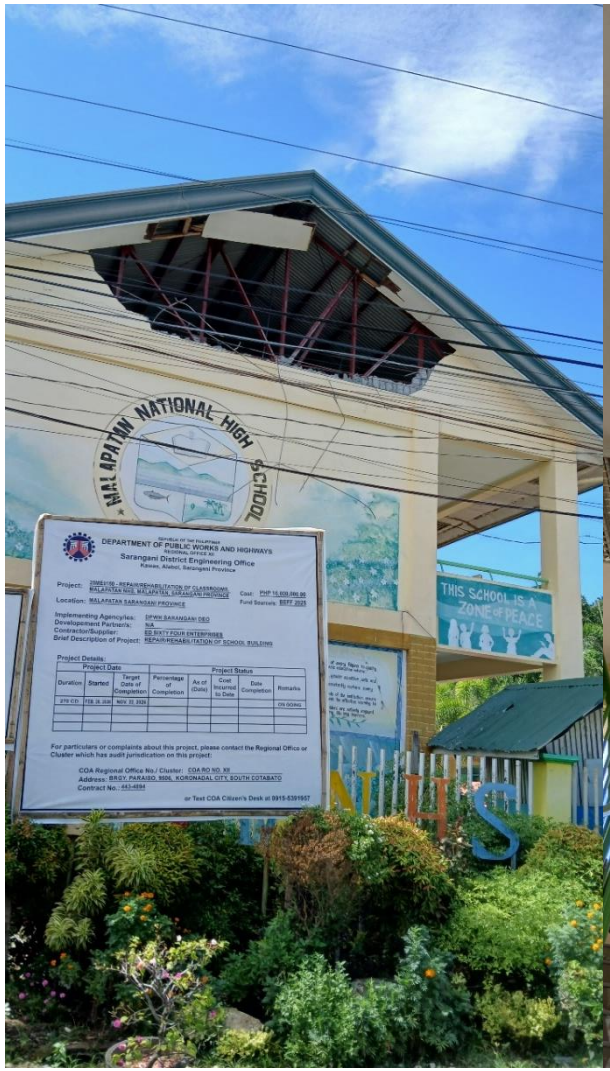
DAMAGED INFRASTRUCTURE

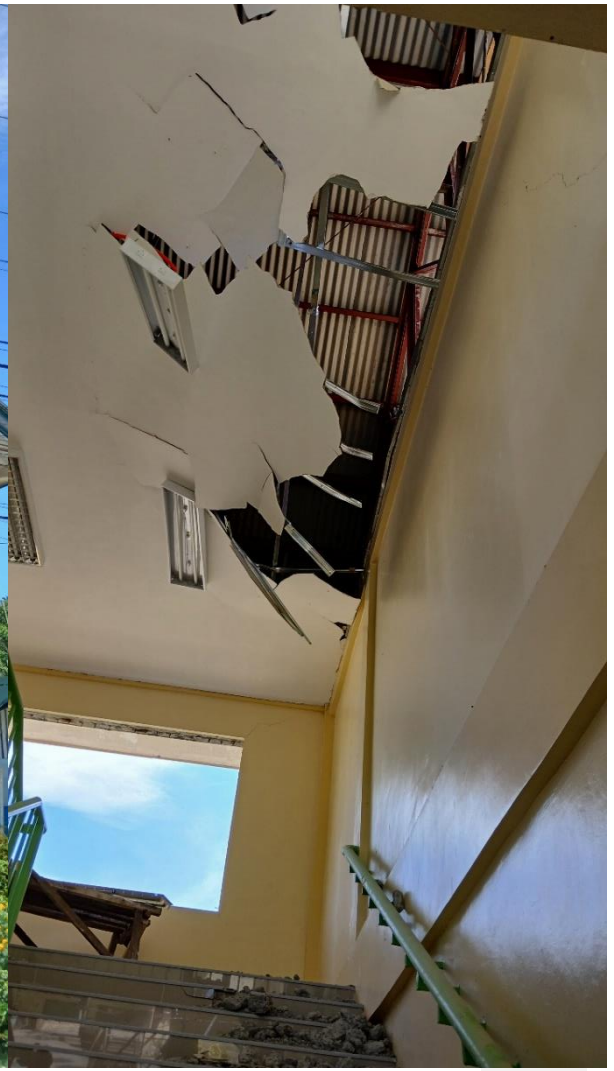
Notre Dame of Dadiangas University, General Santos City

Photos taken on 11 June 2026

DAMAGED INFRASTRUCTURE

Malapatan National High School, Malapatan, Sarangani





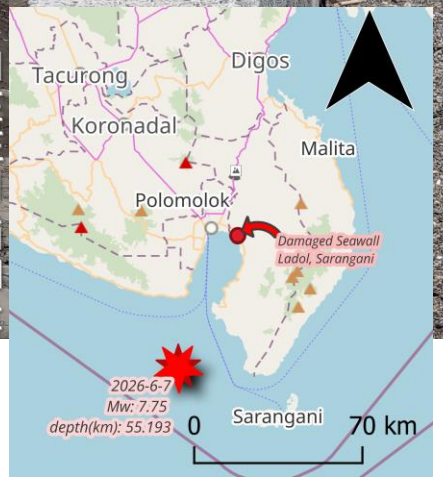
Photos taken on 12 June 2026

DAMAGED INFRASTRUCTURE

Sapu Masla Bridge, Brgy. Sapu Masla, Malapatan, Sarangani

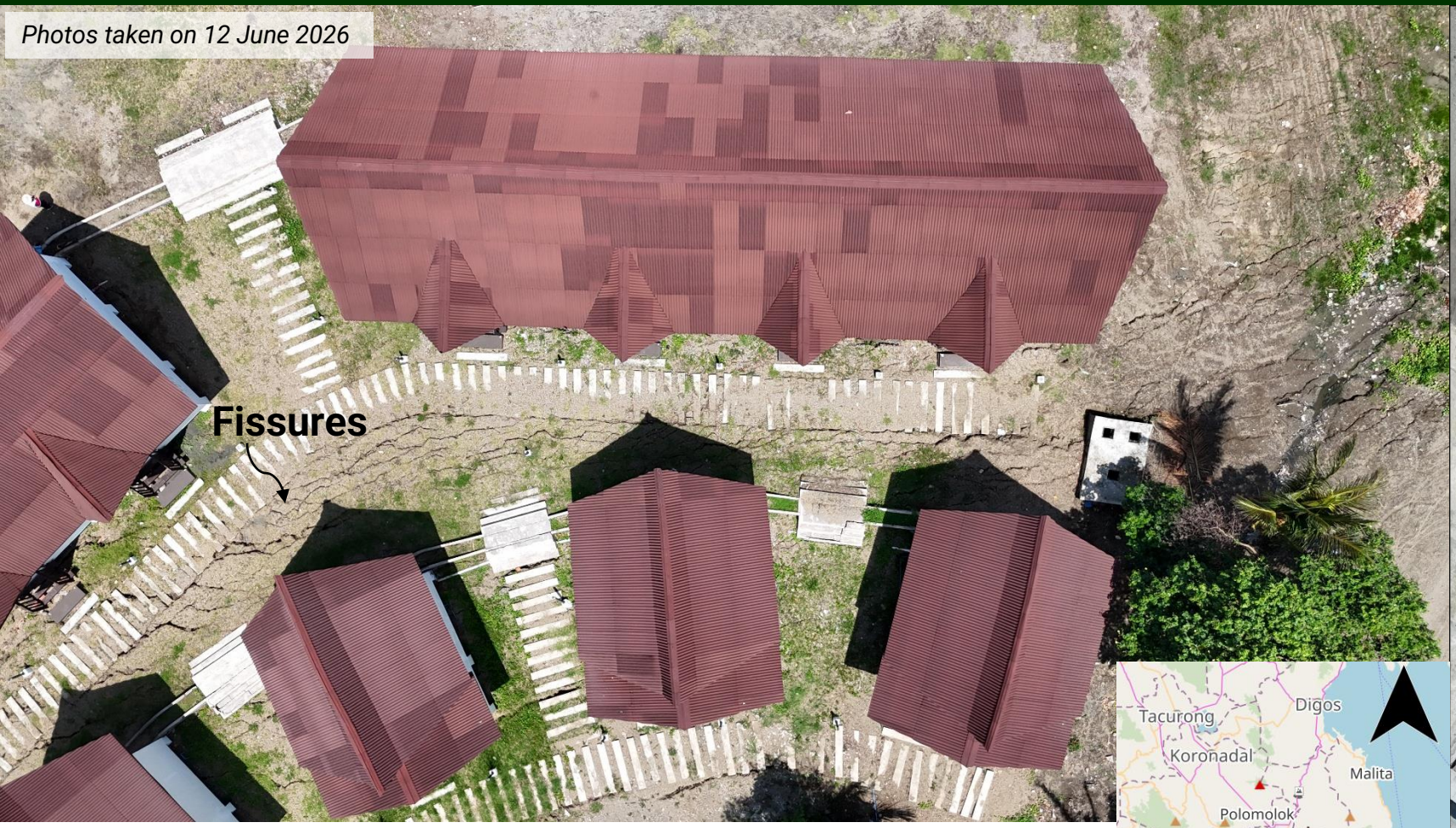
DAMAGED INFRASTRUCTURE

Damaged Sea wall in Ladol Beach, Alabel, Sarangani

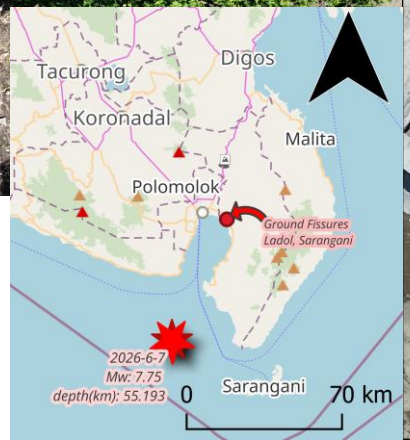


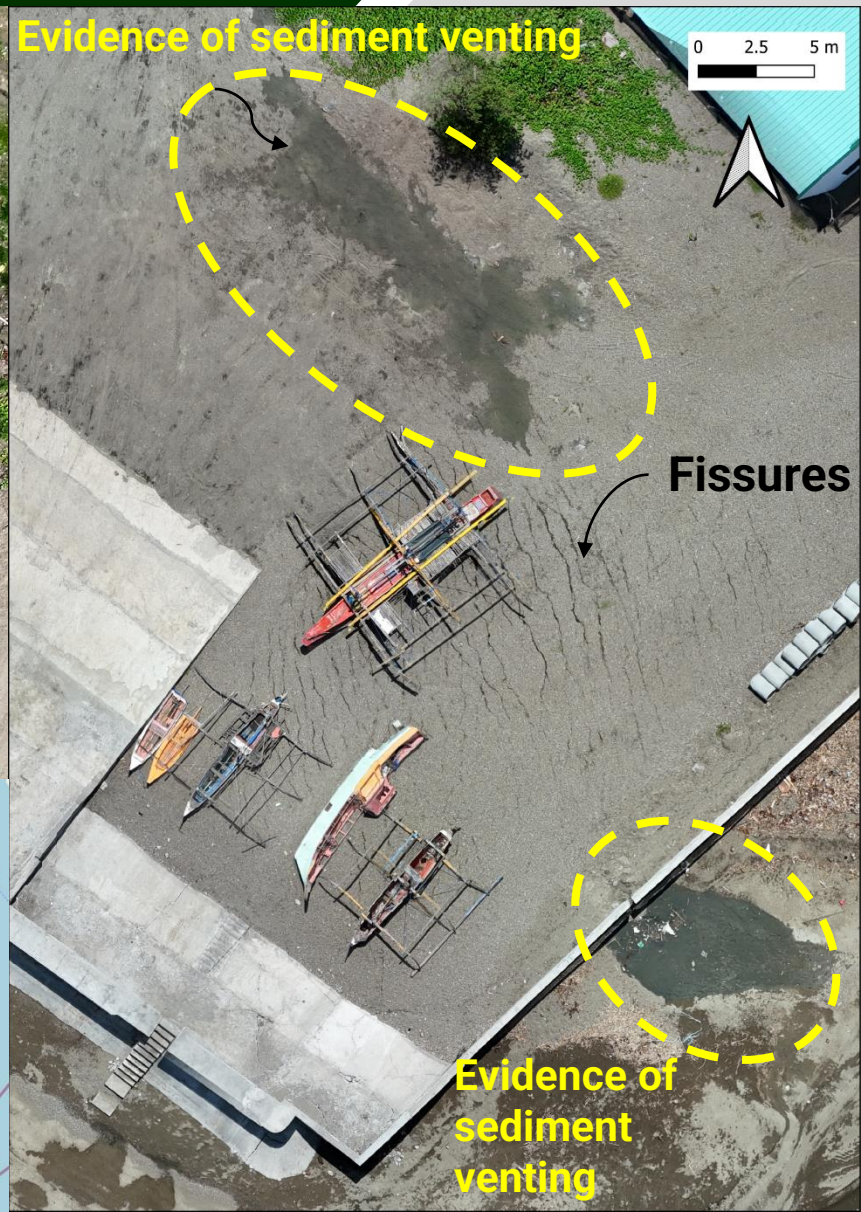
DAMAGED INFRASTRUCTURE

Photos taken on 12 June 2026



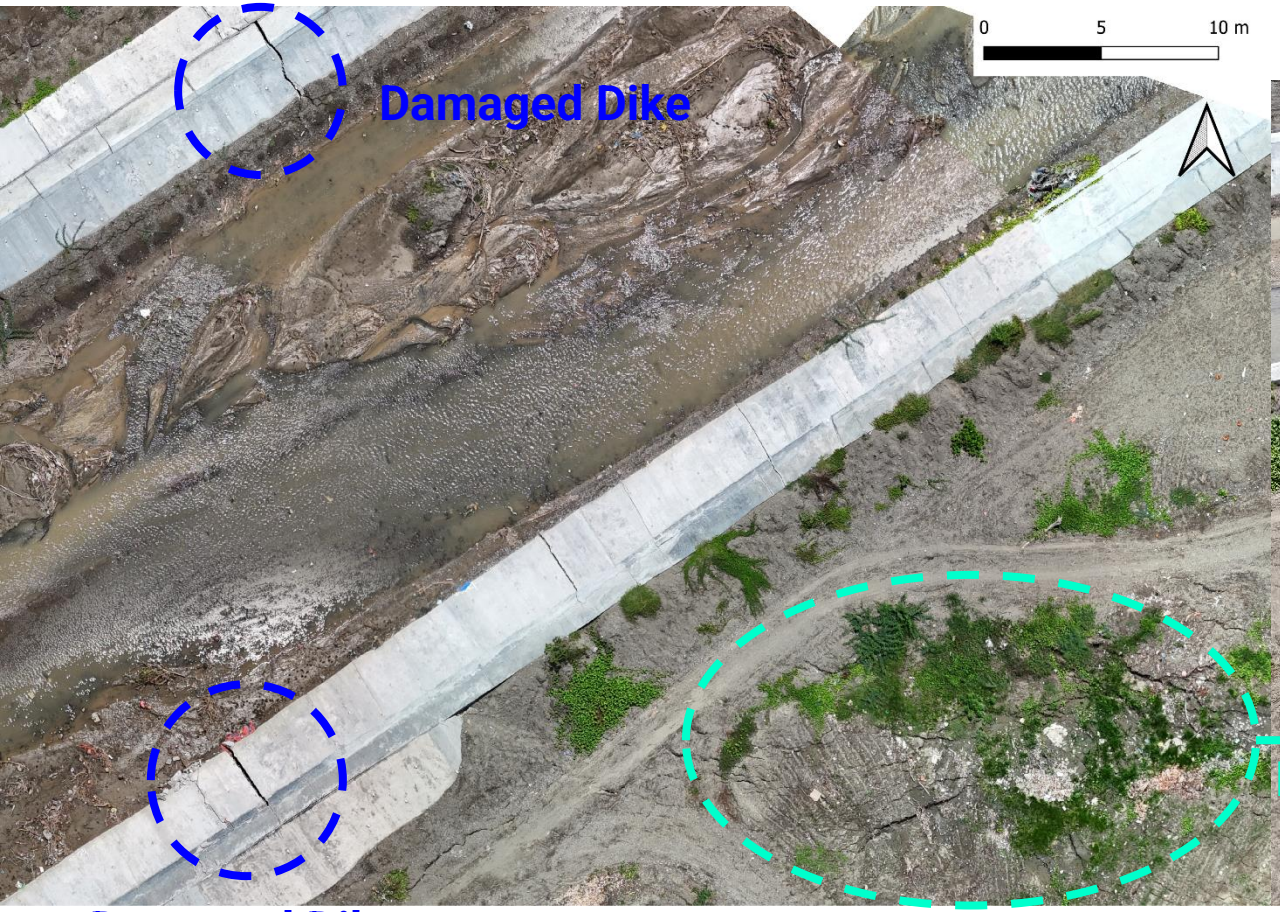
Lateral Spreading in Ladol Beach, Alabel, Sarangani

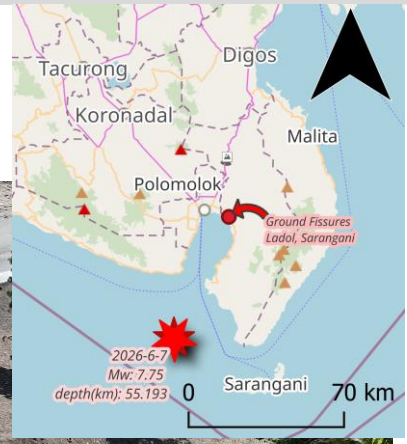




DAMAGED INFRASTRUCTURE

Lateral Spreading in Ladol Beach, Alabel, Sarangani

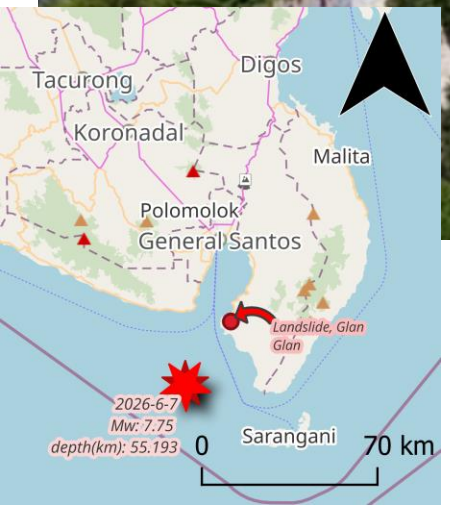




Photos taken on 12 June 2026

DAMAGED INFRASTRUCTURE

Access Road to Glan, Sarangani



Source: Municipal Vice Mayor of Glan, Sarangani

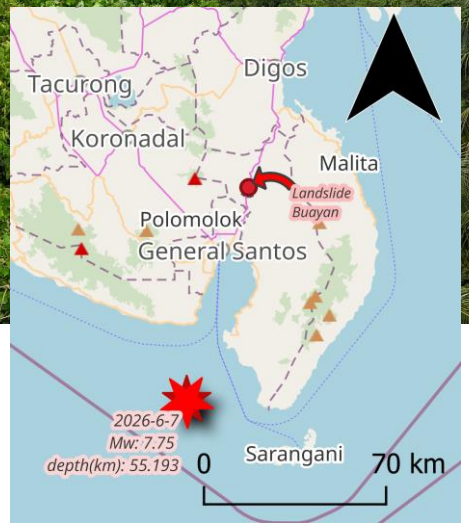
DAMAGED HOUSES

Lateral Spreading in Hicban Subd., Brgy. Lagao, GenSan City

Photos taken on 11 June 2026

EQ-TRIGGERED LANDSLIDES

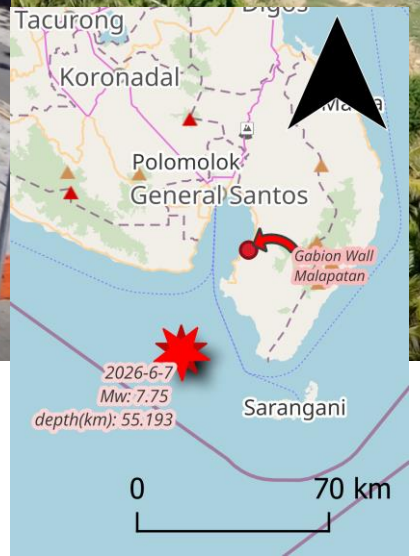
Landslides along Davao-GenSan Highway



Photos taken on 12 June 2026

EQ-TRIGGERED LANDSLIDES

Landslide along Sarangani-Davao Coastal Road



Photos taken on 12 June 2026

TSUNAMI & COASTAL UPLIFT

Reported tsunami heights (PHIVOLCS, June 8, 2026):

- Kiamba, Sarangani = 1.48 m
- Kalamansig, Sultan Kudarat = 0.84 m
- Maasim, Sarangani = 0.48 m
- City of Zamboanga = 0.25 m
- City of Mati, Davao Oriental = 0.21 m
- City of Tandag, Surigao del Sur = 0.09 m

Also reported in the following:

- Sulawesi Island, Indonesia = 83 cm
- Palau, Davao = ~30 cm
- Ogasawara Islands, Okinawa, Japan = ~20 cm

FINDINGS AND RECOMMENDATIONS

INITIAL FINDINGS

- **Design and Construction Practices:** Outdated structural design and detailing practices, poor enforcement leading to low compliance of existing building codes, non-engineered structures.
- **Structural Integrity:** Issues related structural integrity of buildings and infrastructure, and potential pre-seismic geotechnical/environmental factors.
- **Non-Structural Damage:**

Majority of observed damage involves non-structural/non-load bearing components.

INITIAL FINDINGS

- **Liquefaction Effects:**

Clear evidence of liquefaction-induced ground failure, including lateral spreading, differential settlement, and sediment venting. Many affected structures are located near river deltas and in areas identified by PHIVOLCS as susceptible to liquefaction.

- **Landslides and Slope Instability:**

Earthquake-triggered landslides impacted critical infrastructure (e.g., access roads and major highways). Ongoing slope instability, rockfalls, and material movement indicate continued landslide risk post-event.

INITIAL RECOMMENDATIONS

- **Enhance seismic design**: Improve both structural and non-structural systems to increase overall building resilience.
- **Enforce compliance:** Enforcing pertinent codes and standards, together with appropriate QA/QC protocols.
- **Strengthen critical infrastructure**: Assess and retrofit essential lifeline infrasructure to ensure post-earthquake operability.
- **Advance geotechnical investigations**: Conduct detailed studies in areas exposed to geotechnical/geologic hazards.
- **Implement risk reduction measures**: Prioritize structural evaluations, slope stabilization, hazard monitoring, and integration of updated hazard data into planning and development.

FURTHER WORKS

- **Further Investigation and Data Gathering**
  - To be presented in future gatherings and conferences
- **DRRM for Disaster Resilience**
- **PSSMGE: Institutionalize Disaster Quick Response Team**
- **Collaboration**
  - Strengthen cooperation with **ISSMGE GeoWB** on geotechnical hazard assessment and resilience strategies
  - Facilitate knowledge exchange, capacity building, and technical guidance
  - Support joint reconnaissance, studies and dissemination of lessons learned from recent earthquakes.

POST-EQ QUICK RESPONSE TEAM

Reconnaissance Team:

- Kate Trishia Papina
- John Alejandro Rivera
- Enrico Luis Abcede
- Kirsten Julia Cruz

Home Office Support:

- John Michael Tanap
- Elaine Marie Peña
- Geraldine Frias

From left to right: Enrico Luis Abcede, Kate Trishia Papina, John Alejandro Rivera, Kirsten Julia Cruz

A Meaningful 21ST ICSMGE...

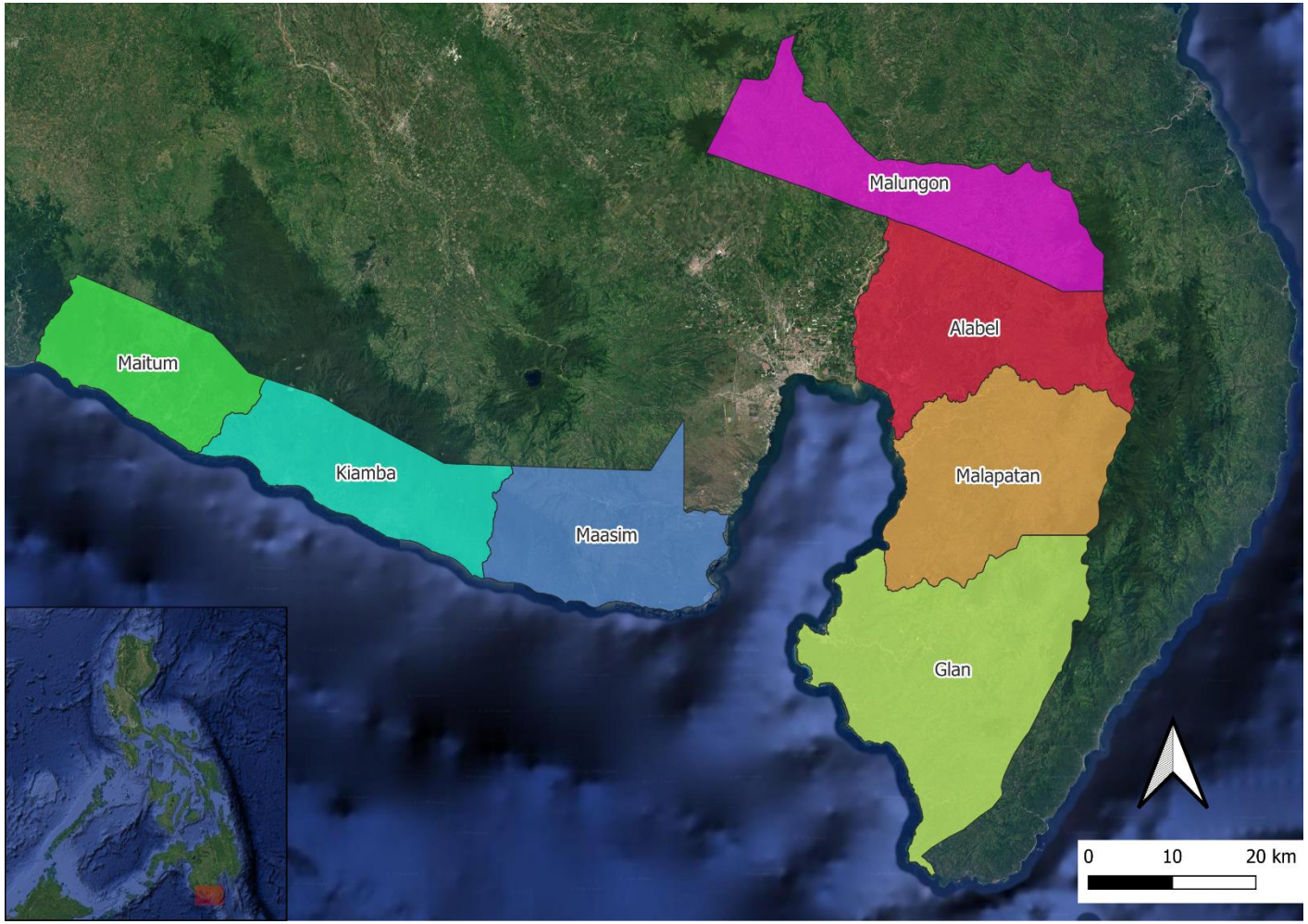
PSSMGE / Philippine Delegation:

- Roy Luna
- Mark Zarco
- Eric Santos
- Mike Gargullo
- Gian Reyes
- Patrick Selda
- Francis Bernales
- Anjo Victor
- Travis Alcantara
- Rolly Orense

THANK YOU.

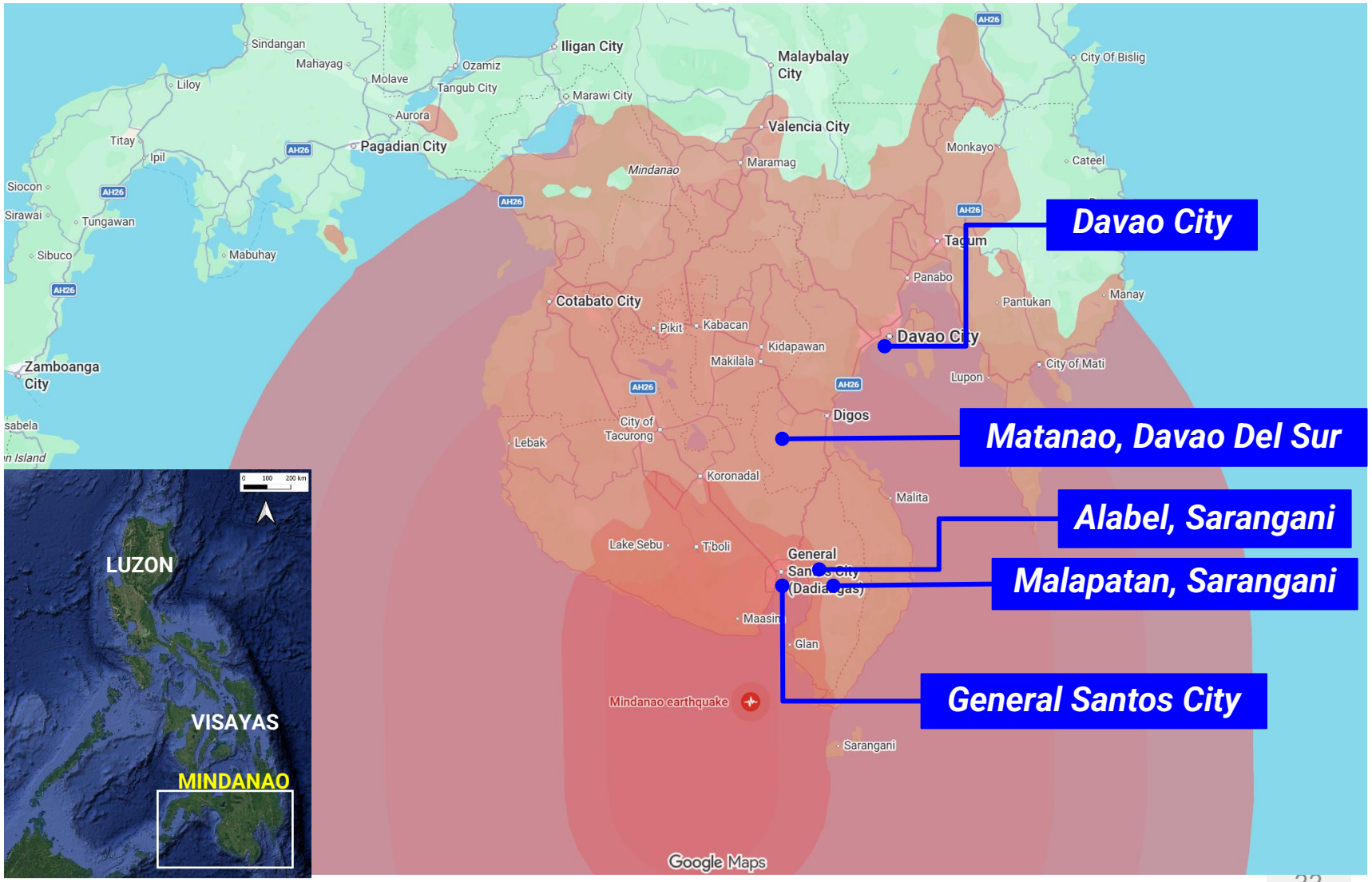
SARANGANI PROVINCE

- Population: 580,915 (based on 2025 census)
- Number of Barangays: 141
- Total Area : 3,601.25 km^2
- Terrain: Coastal plains, rolling hills, and rugged mountain ranges



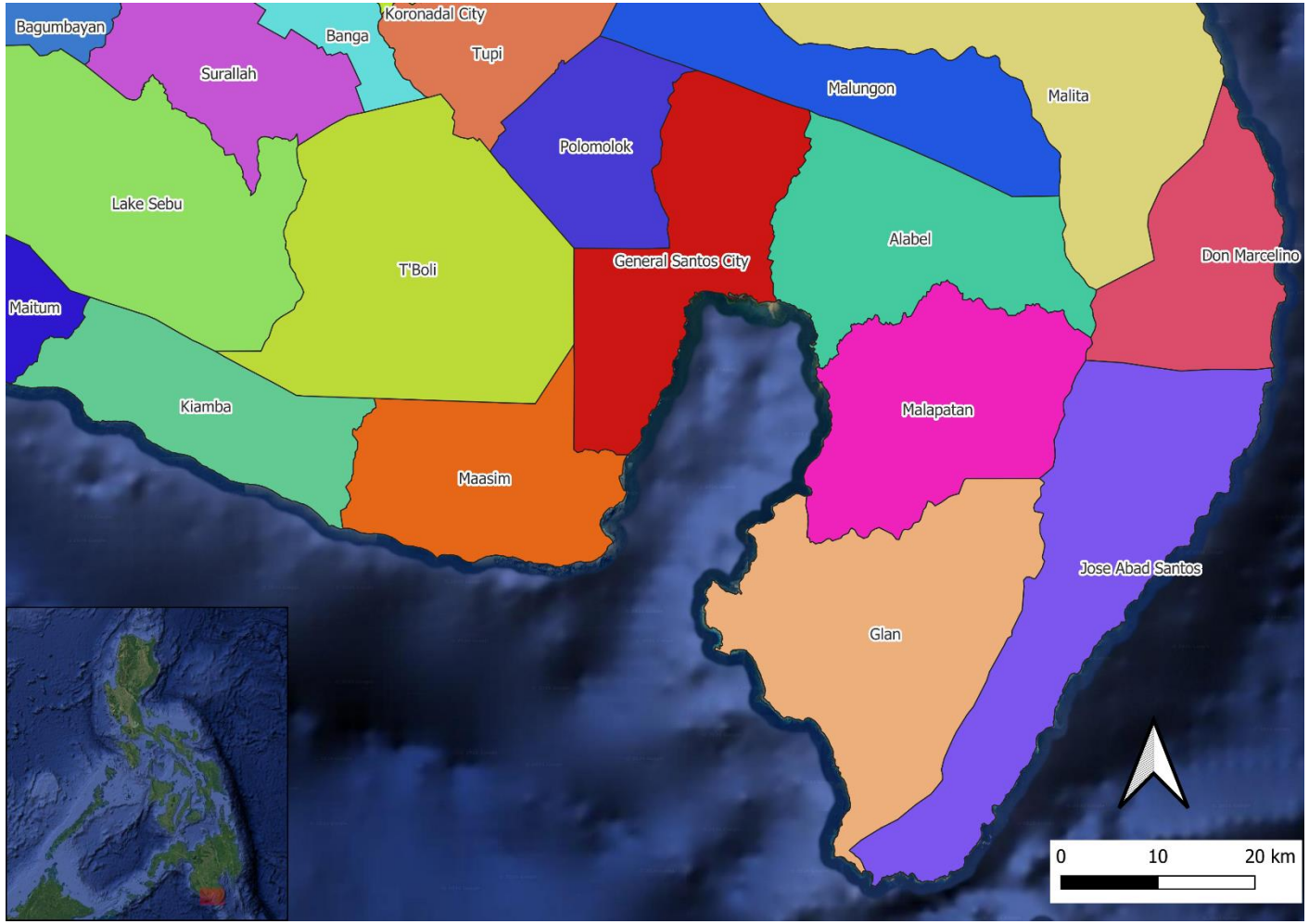
AFFECTED AREAS

- Caused deaths, injuries, and the evacuation of thousands of residents.
- Damaged buildings, roads, schools, and other infrastructure.
- Triggered tsunami warnings and coastal evacuations.
- Disrupted power, water, transportation, and business activities.
- Led to landslides, ground deformation, and numerous aftershocks.



GENERAL SANTOS (GENSAN) CITY

- Population: 722, 059 (based on 2025 census)
- Number of Barangays: 26
- Total Area : 492.86 km^2
- Terrain: Coastal plains, rolling hills, and rugged mountain ranges
- Known as the “Tuna Capital of the Philippines”
- Hometown of boxing legend and former world champion Manny Pacquiao



SITUATIONAL REPORT

REPUBLIC OF THE PHILIPPINES
NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT COUNCIL
National Disaster Risk Reduction and Management Center, Camp Aguinaldo, Quezon City, Philippines

Magnitude 7.8 Earthquake in Maasim, Sarangani (2026)

Situational Report No. 6 for the Effects of Magnitude 7.8 Earthquake in Maasim, Sarangani (2026)

June 14, 2026 08:00 am

CASUALTIES

**This includes those that have been reported but are not yet reflected in the NDRRMC SitRep.*

Dead	50 Total	50 For Validation	Injured	1403 Total	1402 For Validation
		0 Confirmed			1 Confirmed
Missing	40 Total	40 For Validation			
		0 Confirmed			

DAMAGED HOUSES

34,347
Damaged Houses

- 26,993 – Partially Damaged
- 7,354 – Totally Damaged

DAMAGE TO INFRASTRUCTURE

711
Damaged Infrastructure

- Health facilities
- Bridges
- Schools
- Government Facilities
- Private
- Roads

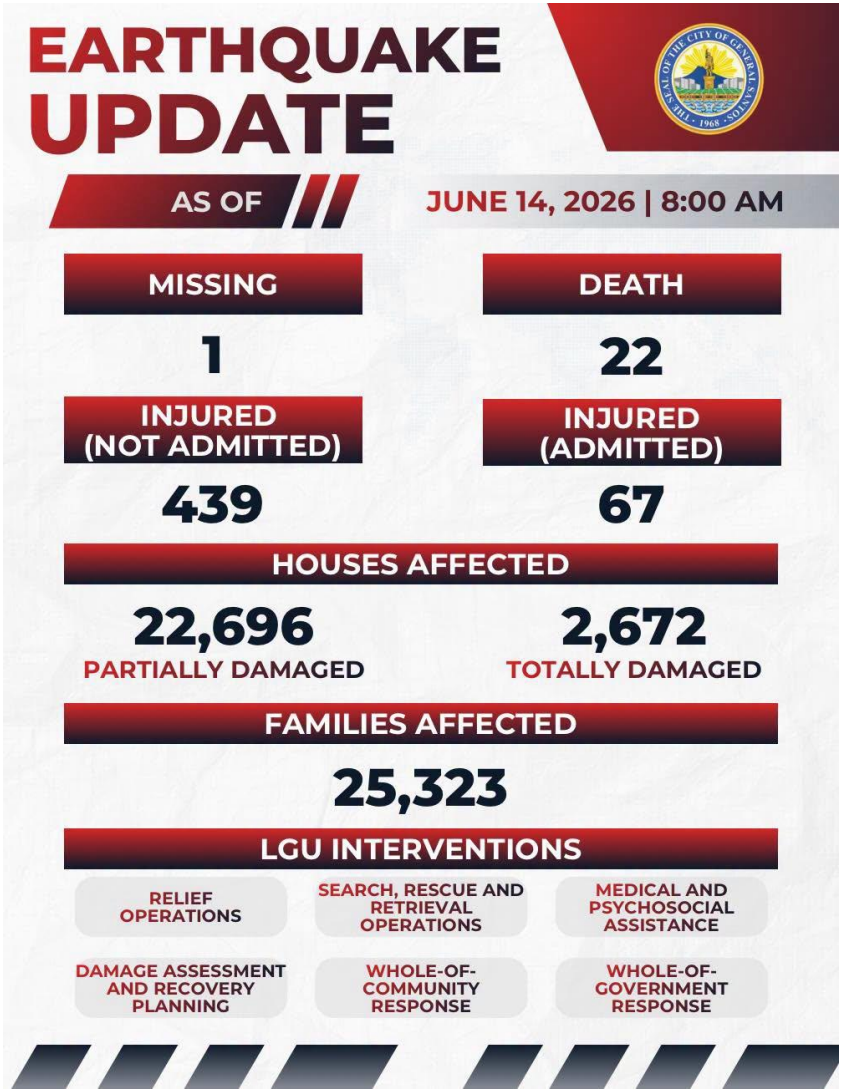
1/2

Estimated Cost of Damaged Infrastructure

₱ 144,169,000

EQ UPDATES FROM LGU

General Santos City



Sarangani Province