With about 60% of the Philippine population living on the coast, millions of Filipinos are vulnerable to ....

COASTAL INUNDATION

Coastal Inundation refers to the increase of water level beyond the mean high water line to cause flooding on normally dry ground. This event may be attributed to increased river discharge, tidal flooding, storm surge and tsunami. Through the years, coastal inundation has significantly intensified and has become more frequent due to the effects of climate change and attendant sea level rise.

Tsunami

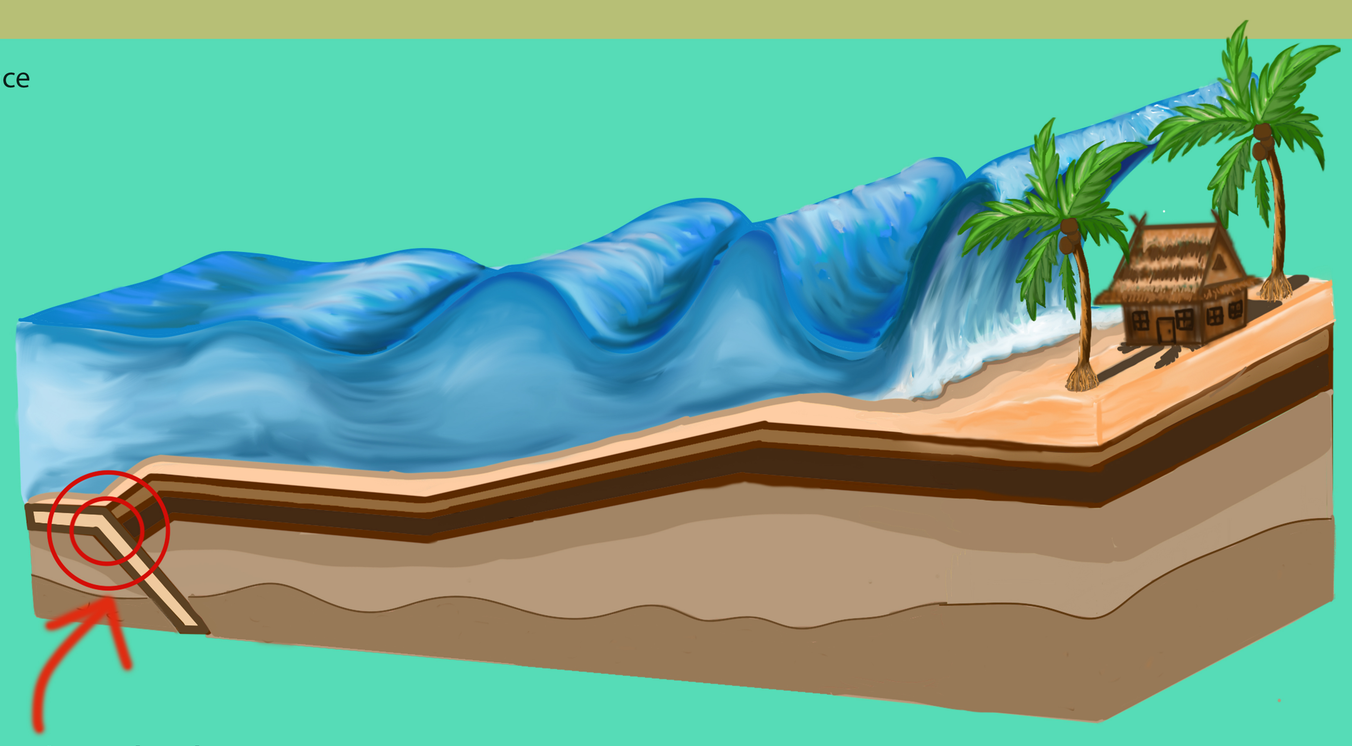
Tsunami is a series of large waves generated by extreme underwater disturbance such as seismic activity, submarine volcanic eruption, submarine landslide or meteoric impact.

Higher tsunami waves and extreme inundation are frequently observed near the generation location of the tsunami.

However, tsunami inundation can extend for hundreds of meters inland, depending on the gradient of the shoreline and nearshore zones and the intensity of incoming tsunami waves.

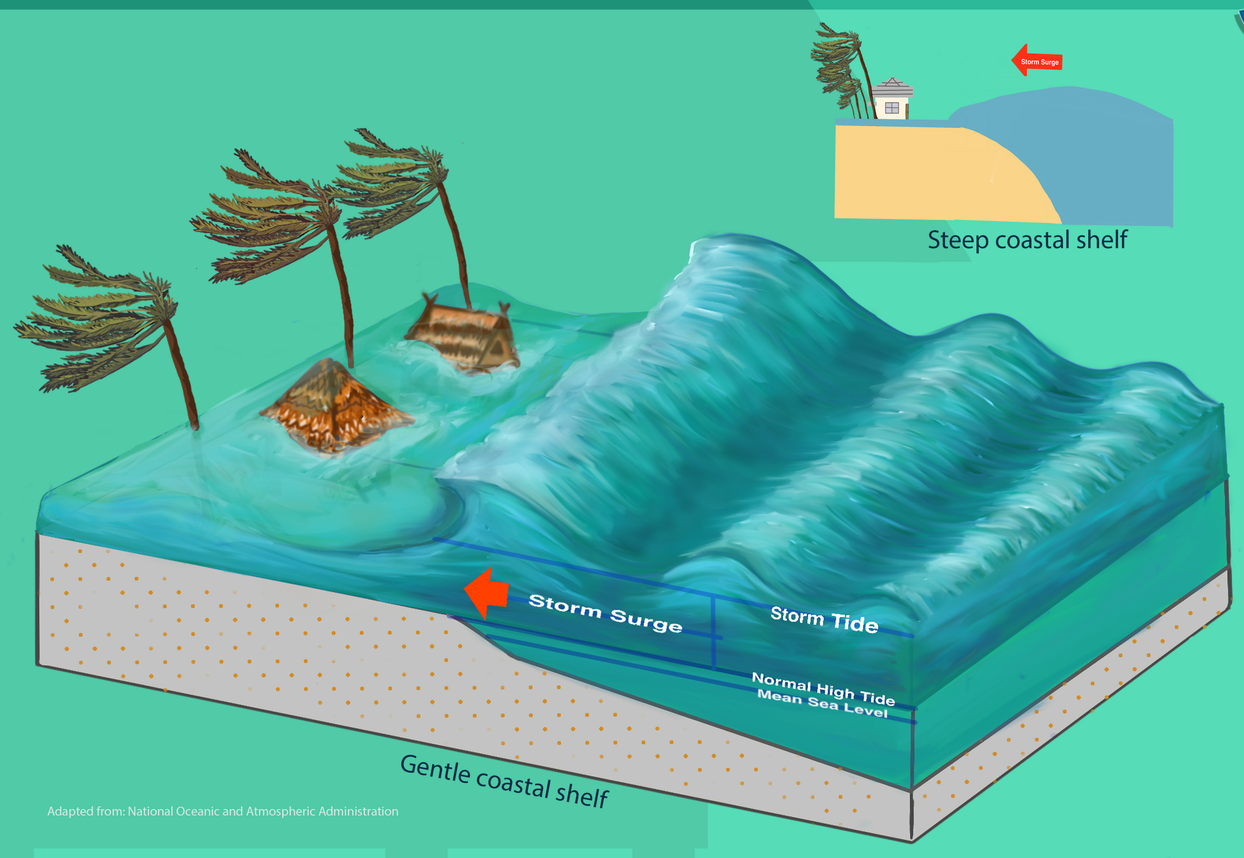
1976 Moro Gulf Tsunami

- the worst tsunami occurrence in the Philippines which severely affected the coastal areas of Moro Gulf and northern Celebes Sea. The tsunami wave height reached up to 9-m in Lebak, Sultan Kudarat.



Submarine earthquake due to plate movement

Storm Surge



Adapted from: National Oceanic and Atmospheric Administration

Storm surge or "Daluyong ng Bagyo" is the abnormal rise in seawater due to typhoon-generated strong winds that push water towards the shore.

The height of incoming storm surge, which is measured above the normal predicted astronomical tide, is dependent on the orientation of the coast with respect to the storm wind direction, the storm intensity, size, and speed and gradient of bounding coastal shelf.

Slope gradient and width of bounding coastal shelf can affect the height of approaching storm surge. Higher storm surge is generated on wide and gently sloping shelf than narrow and steep coastal shelf.

2013 Typhoon Yolanda Storm Surge

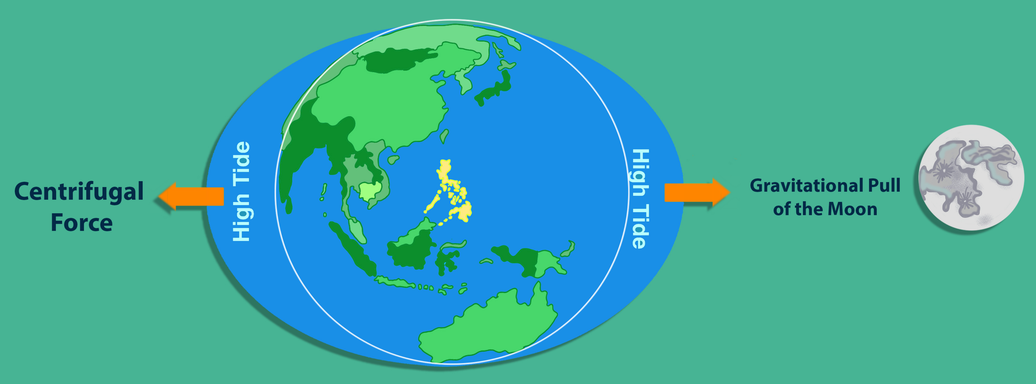
- storm surge height reached 5-8-m, penetrating up to 2-km inland in some areas of Leyte and Samar Provinces.

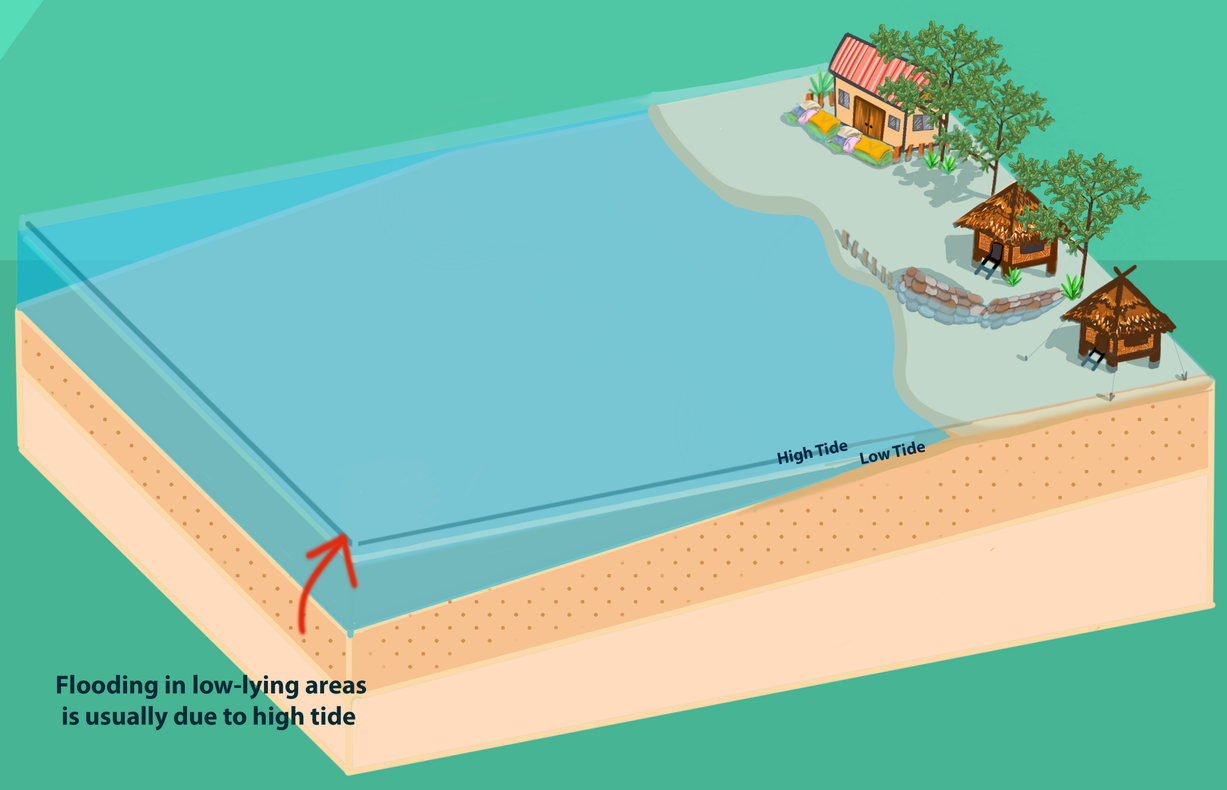
Tidal Flooding

High tide is the rise of the sea due to the gravitational pull of the moon and the effect of centrifugal force on the ocean.

More frequent and greater inundation are expected of tide affected areas due to the effects of climate change. In addition, areas experiencing land subsidence or degradation of natural barriers such as mangroves are likely to be more vulnerable to tidal flooding.

Tidal Flooding is usually prominent in coastal areas with wide shelf or large bay with funnel-shaped opening.





Flooding in low-lying areas is usually due to high tide

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April 2022 Edition | Marine Geological Survey Division

Data Sources: Mines and Geosciences Bureau
National Oceanic and Atmospheric Administration
Philippine Institute of Volcanology and Seismology