Sea Level and Storm Surge
Inundation Monitoring System
with Artificial Neural Network
Project SURGE

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For the past decades, **destructive typhoons** enter the **Philippines Area of Responsibility** causing **storm surges**.
Storm surge abnormal rise in sea level along the path of storm.

The Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) under the Department of Science and Technology (DOST) developed a storm surge categorization with a color-coded warning system depending on the storm surge expected height in the area.

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### Storm Surge Warning Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Expected Height</th>
<th>Action to Be Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>3 meters above</td>
<td>Storm surge is CATASTROPHIC. There is significant threat to life. Mandatory evacuation is enforced.</td>
</tr>
<tr>
<td>ORANGE</td>
<td>1.1 to 3 meters</td>
<td>Storm surge is EXPECTED. Conditions could become life-threatening. All marine activities must be cancelled. Follow evacuation guidelines from local authorities.</td>
</tr>
<tr>
<td>YELLOW</td>
<td>0.5 to 1 meter</td>
<td>Storm surge is POSSIBLE. Stay away from the coast or beach. Preparation measures must be carried out.</td>
</tr>
<tr>
<td>GREEN</td>
<td>No alert</td>
<td>No action required.</td>
</tr>
</tbody>
</table>

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www.mapua.edu.ph
Storm surge is catastrophic.

Typhoon Yolanda
Tacloban, Philippines

Project Title:
Sea Level and Storm Surge Inundation Monitoring System with Artificial Neural Network (Project SURGE)

Objective 1:
Design and develop sea level monitoring system using different sensors (tide level, air pressure, air temperature, wind speed) capable of sending through wireless communication.

https://simple.wikipedia.org/wiki/Electronics
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Objective 2:
**Predict** the highest *storm surge height* given a lead time using **Artificial Neural Network** and NARX model.

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Objective 3:
Conduct **actual testing** using the **sea level monitoring** system and comparing the predicted and actual values of surge height.

Locations that are susceptible to **storm surge**!
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ASEAN IVO - ICT for Environment Protection and Disaster Prevention

Thank you very much.
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