Mapping Project

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EAST BREAK LANDSLIDE (26Km^3)

Time = 7 min

Seattle, 2012
Practical 3D numerical simulation comparison with FLOW3D
Mississippi Canyon submarine landslide, excavation limits and surrounding bathymetry (in meters).
West Florida submarine landslide location, excavation limits and surrounding bathymetry (in meters).
EAST BREAKS LANDSLIDE MODEL
MISSISSIPPI CANYON LANDSLIDE MODEL
MISSISSIPPI CANYON LANDSLIDE
MAXIMUM WAVE AMPLITUDE
MISSISSIPPI CANYON LANDSLIDE - ZOOM UP - MAXIMUM WAVE AMPLITUDE
MISSISSIPPI CANYON LANDSLIDE - TSUNAMI ARRIVAL TIME
WEST FLORIDA LANDSLIDE MODEL
EAST BREAKS LANDSLIDE RESULTS
EAST BREAKS INUNDATION DEPTH

AVG WATER DEPTH 3ft = Category 2 Hurricane
MISSISSIPPI CANYON LANDSLIDE RESULTS
MISSISSIPPI CANYON INUNDATION DEPTH

AVG WATER DEPTH 8ft = Category 4 Hurricane
EAST BREAKS MOMENTUM FLUX

MOM. FLUX AVG
25 m^3/s^2
CONCLUSIONS

These landslide scenarios have the potential to cause severe flooding and damage to the GOM coastal communities and oil infrastructure. Such landslide sources can flood Port Aransas with an:

Avg. water depth of 3 - 8ft (0.9 - 2.4m)

In term of flooding the tsunamis generated by these landslide are comparable to storm surges originated by hurricanes of category 2 to 4.
Table 1. Maximum Water Elevation for hurricane of a given category in Port Aransas TX.

<table>
<thead>
<tr>
<th>Hurricane Category</th>
<th>Maximum Water Elevation Range (ft)</th>
<th>Numerical Model Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.3-4.9</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7.3-7.6</td>
<td>East-Breaks</td>
</tr>
<tr>
<td>3</td>
<td>9.6-10.3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>13-13.2</td>
<td>Mississippi Canyon</td>
</tr>
<tr>
<td>5</td>
<td>16.3-16.6</td>
<td></td>
</tr>
</tbody>
</table>

By Thomas LeBlanc
CONCLUSIONS

Tsunami energy focusing is identified in several regions along the GOM coastline

Regions most impacted are:
1- southern tip of South Padre Island, TX.,
2- Grand Island, LA,
3- Fort Walton Beach-to-Cape San Blas, FL,
4- Tamaulipas, Mexico.