



The NOAA 'Tides and Currents' website also provides an archive of sea level measurements for hundreds of places around the world based on tide gauges and satellite data for the past 100 years.

[http://tidesandcurrents.noaa.gov/sltrends/sltrends\\_station.shtml?stnid=8761724](http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8761724)

The plot above shows the sea level rise since 1950 for Grand Isle, Louisiana, which has an average elevation of 2-meters, and a population of 1,500 people. A storm surge from Hurricane Katrina on August 28, 2005 had an elevation of 1.5 meters, and did severe damage to hundreds of homes.

**Problem 1** - Assume a linear sea level change of the form  $h = mt + b$  where  $h$  is the sea level height in meters and  $t$  is the number of years since 1950. What is the best-fit linear equation for the sea level rise?

**Problem 2** - In what year will the sea level equal the storm surge from Hurricane Katrina?

**Problem 1** - Assume a linear change of the form  $h = mt + b$  where  $h$  is the sea level height in meters and  $t$  is the number of years since 1950. What is the best-fit linear equation for the sea level rise?

Answer: Point 1 = (1950, -0.45) Point 2 = (2010, +0.10) then  
 $M = (0.10 + 0.45)/(2010-1950) = +0.0092$  meters/year

$$H = 0.0092(t-1950) - 0.45$$

**Problem 2** - In what year will the seal level equal the storm surge from Hurricane Katrina?

Answer:  $1.5 = 0.0092 (T-1950) - 0.45$  so **T = 2162**