As global temperatures increase, water expands. This means that the volume of the world's oceans will steadily increase in time. This causes the sea level to increase.

Also, some areas of the world are still changing after the enormous weight of the ice sheets from the last Ice Age have gone away. This causes land areas to rise, and so in those coastal areas, such as the East Coast of North America, sea levels are falling. A simple function that models the average sea level around the world is given by

$$H(X) = 0.21X - 401.1$$

where X is the year (currently X=2012), and H is the sea level change since 1910 in centimeters.

Problem 1 - What was the change in sea level by 2012?

Problem 2 - Compared to 2012, how much higher will it be in the year 2100 according to this model?

Problem 1 - In 2012, H(2012) = 21.3 centimeters.

Problem 2 - H(2100) = 40.0 centimeters. The increase will be about 40 cm - 21.3 cm = 18.7 centimeters (about 7 inches).

To see the sea level rise where you live, check out:

http://tidesandcurrents.noaa.gov/sltrends/sltrends_global.shtml

Select your location in North America from the left menu, or your location around the world from the right menu. The display shows data taken by tide gauges at these locations since 1900.