Sea level rise

- Peter Sinclair and Yale Climate Connections discuss what sea level rise looks like in real life (6:58)
https://www.youtube.com/watch?v=X1hJYLw7OlM

Sea levels have risen 8 inches globally since the start of the 1900s. This is the result of two factors. The first is the expansion of water. Liquid water expands very slightly as the water molecules vibrate more when it warms. The cumulative effect in a large body of water like the ocean is enough to cause a measurable change in sea level. This "thermal expansion" accounts for most of the sea level rise during the 20th century.

The other factor is the polar ice caps on land in Greenland and Antarctica. Each ice mass is over a mile thick in some places, five times taller than the Empire State Building. The ice caps extend for many, many square miles.

Ponds of meltwater form on top of the Greenland ice sheet.
Source: theguardian.com

However, the warmer the climate gets, the faster the ice will melt. If all the ice on Greenland were to melt into the sea, it would result in about six meters (20 feet) of sea level rise. If all the ice on Antarctica were to melt, sea level would rise about ten times that amount, by 60 meters (200 feet).
This level of melting will not happen in the span of one lifetime. There's a good chance that Antarctica wouldn't fully melt for thousands of years. However, expected melting and continued expansion of ocean waters could result in around 3 feet of sea level rise in the next 80 years.

Sea level rise is already changing coastal ecosystems around the world. Rising seas mean that plants on the shoreline are exposed to more saltwater than they can tolerate. Immediate effects of sea level rise include increased erosion of shorelines during storms.

Even a couple of centimeters of sea level rise can be enough to turn a storm surge - the water pushed towards the shore by a big storm - into a very destructive flood. If the water is even one or two millimeters above the top of a floodwall, you might as well have the entire ocean pouring in. Events such as the flooding from Superstorm Sandy in 2012 and Hurricane Irma in 2017 are more and more

likely to happen for every inch of sea level rise. Gradual change can have very sudden and dramatic impacts.

More information

- An interactive map lets you enter a location anywhere in the world to see what different amounts of sea level rise would look like: http://sealevel.climatecentral.org/