

Atlantic Coastal Impacts of Global Warming

Robert Cahalan [bob@cheers.org], APL, Johns Hopkins University, Laurel, MD, USA

We summarize several current and expected impacts of global warming, and then focus on regional sea level rise along the east coast of the United States. Ocean height has remained roughly steady for the past 6,000-8,000 years. In recent decades, though, global warming has begun to thermally expand the oceans, and melt sea ice and land ice. If all ice sheets and glaciers in the world melt, sea level will be 212 ft (65 m) higher than today. Sea level is expected to continue to rise for at least 1,000 years. Sea level rise will typically be gradual, but high tides, storms, and erosion can rapidly change shorelines. Today's extreme tide will be tomorrow's routine high tide, and in the next few decades will produce routine tidal flooding in many cities along the US East Coast of the Atlantic Ocean. Storm surges that ride on top of high tides, as happened during Hurricane Sandy, will amplify extreme coastal flooding.