The climate of the **U.S. Virgin Islands** is changing. The air and ocean are warming, heavy rainstorms are becoming more severe, sea level is rising, and the ocean is becoming more acidic. In the coming decades, these environmental changes are likely to increase threats to life and property from severe storms, reduce the availability of fresh water during the dry season, harm or destroy much of the islands’ coral reef ecosystems, and make air temperatures uncomfortably hot more often.

Our climate is changing because the earth is warming. People have increased the amount of carbon dioxide in the air by 40 percent since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These gases have warmed the surface and lower atmosphere of our planet about one degree during the last 50 years. Evaporation increases as the atmosphere warms, which increases humidity, average rainfall, and the frequency of heavy rainstorms—but also contributes to drought.

Greenhouse gases are also changing the world’s oceans and ice cover. Carbon dioxide reacts with water to form carbonic acid, so the oceans are becoming more acidic. Worldwide, the surface of the ocean has warmed about one degree during the last 80 years. Warming is causing mountain glaciers to retreat, and even the great ice sheets on Greenland and Antarctica are shrinking. Thus the sea is rising at an increasing rate.

**Ocean Warming and Sea Level Rise**

The waters around the U.S. Virgin Islands have warmed by nearly two degrees since 1901, and sea level has been rising by about an inch every ten years. As the oceans and atmosphere continue to warm, sea level is likely to rise one to three feet in the next century. Rising sea level submerges marshes, mangroves, and dry land; erodes beaches; and exacerbates coastal flooding. Although most of the territory is well above sea level, the waterfront blocks of Charlotte Amalie are generally within three or four feet of sea level.

**Coral Reefs and Ocean Acidification**

In the next several decades, warming waters are likely to harm most coral reefs, and widespread loss of coral is likely due to warming and increasing acidity of coastal waters. Rising water temperatures can harm the algae that live inside corals and provide food for them. This loss of algae weakens corals and can eventually kill them. This process is commonly known as “coral bleaching” because the loss of algae also causes corals to turn white.

Increasing acidity can also damage corals. Ocean acidity has increased by about 25 percent in the past three centuries, and it is likely to increase another 40 to 50 percent by 2100. As the ocean becomes more acidic, corals are less able to remove minerals from the water to build their skeletons. Shellfish and other organisms also depend on these minerals, and acidity interferes with their ability to build protective skeletons and shells.

Warming and acidification could harm the U.S. Virgin Islands’ marine ecosystems and economic activities that depend on them. Coral reefs provide critical habitat for a diverse range of species, while shellfish and small shell-producing plankton are an important source of food for larger animals. Healthy reefs and fish populations support fisheries and tourism.
The importance of aspects that are not mentioned. For more information about climate change science, impacts, responses, and what you can do, visit EPA’s Climate Change website www.epa.gov/climatechange.

The sources of information about climate and the impacts of climate change in this publication are: the national climate assessments by the U.S. Global Change Research Program, synthesis and assessment products by the U.S. Climate Change Science Program, assessment reports by the Intergovernmental Panel on Climate Change, and EPA’s Climate Change Indicators in the United States. Mention of a particular season, location, species, or any other aspect of an impact does not imply anything about the likelihood or importance of aspects that are not mentioned. For more information about climate change science, impacts, responses, and what you can do, visit EPA’s Climate Change website at www.epa.gov/climatechange.