



NOAA & NOAA Partner Sea Level Rise Education and Data Resources



[NOAA Sea Level Rise Portal](#)

Science-based tools allow people to make informed decisions given the sea level changes we are seeing now and predict in the future. This portal provides access to NOAA reports and informational descriptions, real-time and archived data, visualization tools, videos, and educational materials available from NOAA and other federal agencies.

[NOAA Ocean Service Sea Level Rise Learning Module](#)

Developed by NOAA's Ocean Service and NASA's Jet Propulsion Laboratory, this module informs about sea level rise, its causes, and impacts; and challenges students to think about what they can do in response. It features 6th - 12th grade level-appropriate instruction and activities centered on a 23-minute video presentation.

[NOAA Data in the Classroom Sea Level Rise Module](#)

Activities designed for middle school level students - with adaptable content for elementary and high school level students as well, helps to explain sea level and how it is changing using real data. Educators can use any of the five modules developed to explore dynamic Earth processes and understand the impact of environmental events on a regional or global scale.

[Beat the Uncertainty: Planning Climate Resistant Cities](#)

You and your fellow players are the leaders - citizens, policymakers, business leaders, nonprofit leaders, and researchers - of a coastal city. You are excited to make the city a better place, but you also face many challenges. One of these is climate change. One impact of climate change is rising sea level. Other effects of climate change include more severe hurricanes, heat waves, and heavier rainfall. Can your team make smart decisions to increase the city's resilience to climate change. The problem? You do not know exactly what impacts climate change will have on your city, how severe they will be, or when they will occur.

[Climate.Gov Sea Level Rise Related Teaching Resources and Learning Activities](#)

NOAA'S Climate.gov Website is a source of timely and authoritative scientific data, information, and educational resources about climate and the impacts of climate change. These teaching resources, learning activities, and multimedia materials, are presented for formal and informal educators looking to incorporate sea level change into their teaching environments.

NOAA Ocean Today Videos:

- [Global vs. Local Sea Level Rise](#)
- [Sea Levels on the Move](#)

These short videos present NOAA's science and activities on sea level rise. The first video shows why global sea level is rising, and why this impacts coastal areas around the world differently due to sea level fluctuations, changes in land elevation, winds, and ocean circulation. The second video presents how NOAA continuously measures sea level changes, taking height measurements of the ocean and land using tide gauges stationed along coastal areas, and satellites orbiting the Earth.

[Sea Level Change: Past, Present and Future.](#)

Stephen Gill, Former Senior Scientist for NOAA's Center for Operational Oceanographic Products and Services, provides an overview of the fundamental concepts and causes of global sea level change. He reviews and illustrates basic oceanographic definitions and historical sea-level change over ice-age time scales. He also discusses how present rates of sea level change are determined from tide gauges and satellite altimeters.

[Diving into Sea Level Change It's 'App'ropriate](#)

Columbia University's Lamont-Doherty Earth Observatory Polar Team has been measuring changes in ice sheets and oceans for decades. This data helps determine changes in sea level and develop predictions and impacts for the future. Hear about the science of monitoring sea level rise based on land ice melt and how they've made it accessible via the free Sea Level Rise: Polar Explorer App which offers a guided tour through the many layers of science that impact sea level rise.

[Sea Level Rise: Polar Explorer App](#)

Polar Explorer's interactive maps allow navigation through a range of topics, including: What is sea level and how do we measure it? Why does sea level change? Where is it changing now? What was sea level in the past and what are scientists predicting for the future? Framed around a series of questions, users can choose their own pathway and level of complexity, while exploring authentic science data in engaging and accessible ways. The App reinforces the NGSS science practice of asking questions around data.

[Climate and Water Teaching Box \(UCAR\)](#)

Teaching Boxes are collections of classroom-ready standards-aligned activities, content, and multimedia that build student understanding of science, technology, engineering, and math. This teaching box helps secondary students learn how climate change is affecting the water cycle with a particular focus on sea level rise.

[NOAA Tides & Currents - Sea Level Trends](#)

NOAA's Center for Operational Oceanographic Products and Services has been measuring sea level for over 150 years, with tide stations of the [National Water Level Observation Network](#) operating on all U.S. coasts. Changes in Mean Sea Level, either a sea level rise or sea level fall, have been computed at 142 long-term water level stations using a minimum span of 30 years of observations at each location. These measurements have been averaged by month to present accurate linear sea level trends.

[NOAA's Digital Coast Sea Level Rise Viewer](#)

This tool allows visualization of community-level impacts from coastal flooding or sea level rise (up to 6 feet above average high tides). Photo simulations of future flooding impacts of local landmarks are provided, as well as data on water depth, connectivity, flood frequency, socio-economic vulnerability, wetland loss and migration, and mapping confidence.

[Sea Level Change: Observations from Space](#)

NASA keeps track of sea level change and its causes from space. On this site you can learn how NASA satellite observations help our understanding of this complex topic. You'll find excellent tutorials and videos explaining about sea level, how and why it's changing globally and regionally, explore the data, hear from scientists and read news features.