US Army Corps of Engineers
Sea-Level Rise Change Curve Calculator

Sea-Level Change Curve Calculator (Version 2019.21)

This version employs the same computations as previous versions, yielding the same projections along with some additional functionality, the 2014 NOAA rates, and several additional gauges. Previous versions include 2017.55, 2015.46 and its manual (*pdf, 1.4MB*); 2014.88 and its manual (*pdf, 4.5 MB*); and the original superseded calculator. EC 1165-2-212 (*pdf, 845 KB*) and its successor ER 1100-2-8162 *(pdf, 317 KB)* were developed with the assistance of coastal scientists from the NOAA National Ocean Service and the US Geological Survey. Their participation on the USACE team allows rapid infusion of science into engineering guidance. ETL 1100-2-1 (*pdf, 9.87 MB*) , Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation. EC 1165-2-212 (*pdf, 845 KB*) and its successor ER 1100-2-8162 *(pdf, 317 KB)* use the historic rate of sea-level change as the rate for the "USACE Low Curve". ETL 1100-2-1 (*pdf, 9.87 MB*) , Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation.
The rate for the "USACE Intermediate Curve" is computed from the modified NRC Curve I considering both the most recent IPCC projections and modified NRC projections with the local rate of vertical land movement added.

The rate for the "USACE High Curve" is computed from the modified NRC Curve III considering both the most recent IPCC projections and modified NRC projections with the local rate of vertical land movement added.

The three scenarios proposed by the NRC result in global eustatic sea-level rise values, by the year 2100, of 0.5 meters, 1.0 meters, and 1.5 meters. Adjusting the equation to include the historic GMSL change rate of 1.7 mm/year and the start date of 1992 (which corresponds to the midpoint of the current National Tidal Datum Epoch of 1983-2001), instead of 1986 (the start date used by the NRC), results in updated values for the coefficients (b) being equal to 2.71E-5 for modified NRC Curve I, 7.00E-5 for modified NRC Curve II, and 1.13E-4 for modified NRC Curve III.

The three local relative sea level change scenarios updated from EC 1165-2-212 (*pdf, 845 KB*) (and and its successor ER 1100-2-8162*)*, Equation 2 are depicted in the Figure to the right of the table. ETL 1100-2-1 (*pdf, 9.87 MB*) , Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation.

EC 1165-2-212, Equation 2: $E(t) = 0.0017t + bt^2$

This on-line Sea Level Change Calculator has several added features which are detailed in the User's Manual. The superseded calculator is available here... You can plot both the USACE and NOAA curves in feet or meters relative to either NAVD88 or LMSL.

Alternate Projections:

- The West Coast National Research Council 2012 West Coast projections are available when a west coast gauge is selected.
- The New York State Department of Environmental Conservation Proposed Regulation 6 NYCRR Part 490 projections for New York City and Long Island are available when the NOAA gauge, "The Battery" or "Montauk Point" is selected.
- The New York City Panel on Climate Change 2013/2015 projections are available for The Battery (8518750) for New York City.
- The Maryland Climate Change Commission 2013 Projections are available when selecting a gauge in Maryland.
- The University of Maryland Center for Environmental Science 2018 Projections are available when selecting a gauge in Maryland.
- The CARSWG REGIONAL SEA LEVEL SCENARIOS FOR COASTAL RISK MANAGEMENT Report 2016
- The US Global Change Research Program 2017 (NOAA et al. 2017)
  This calculator also develops the SLC curves between the user entered dates using equation #3 in ER 1100-2-8162.

USACE Sea Level Change Curve Calculator (2017.55)