Climate change and sea level rise in Virginia

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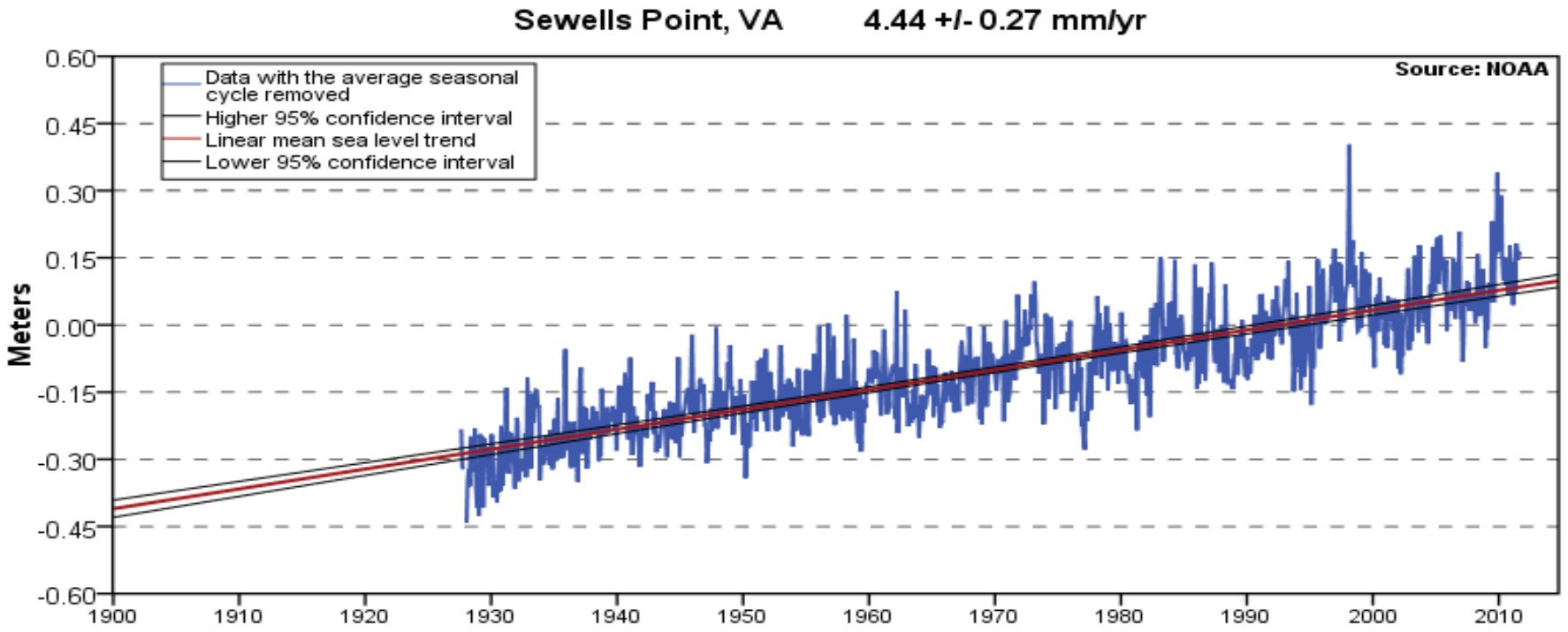
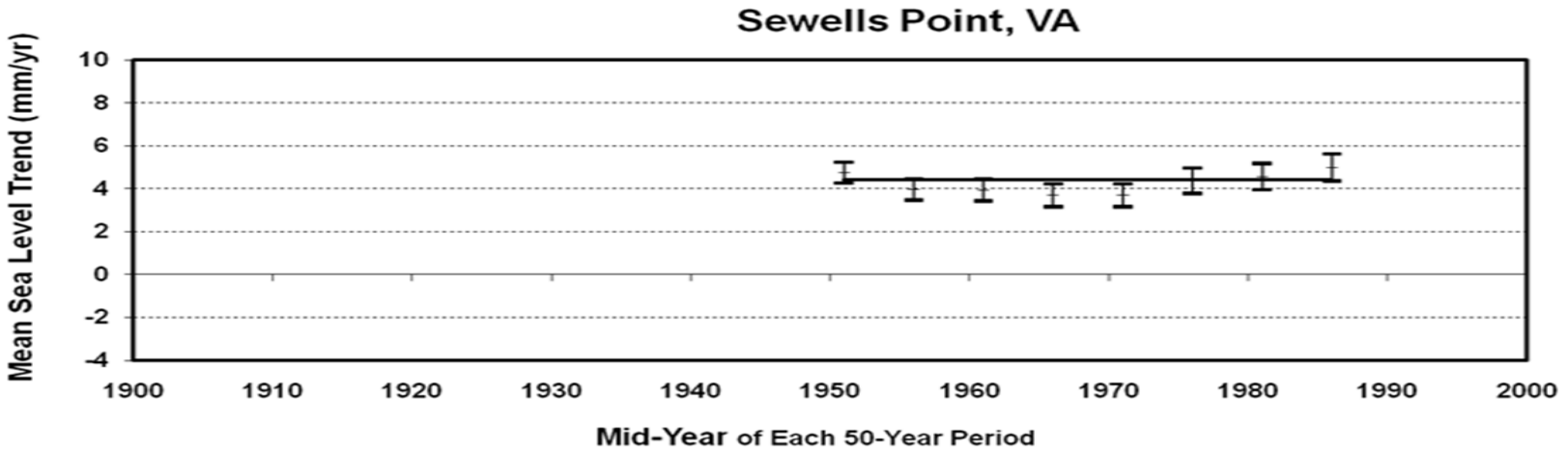
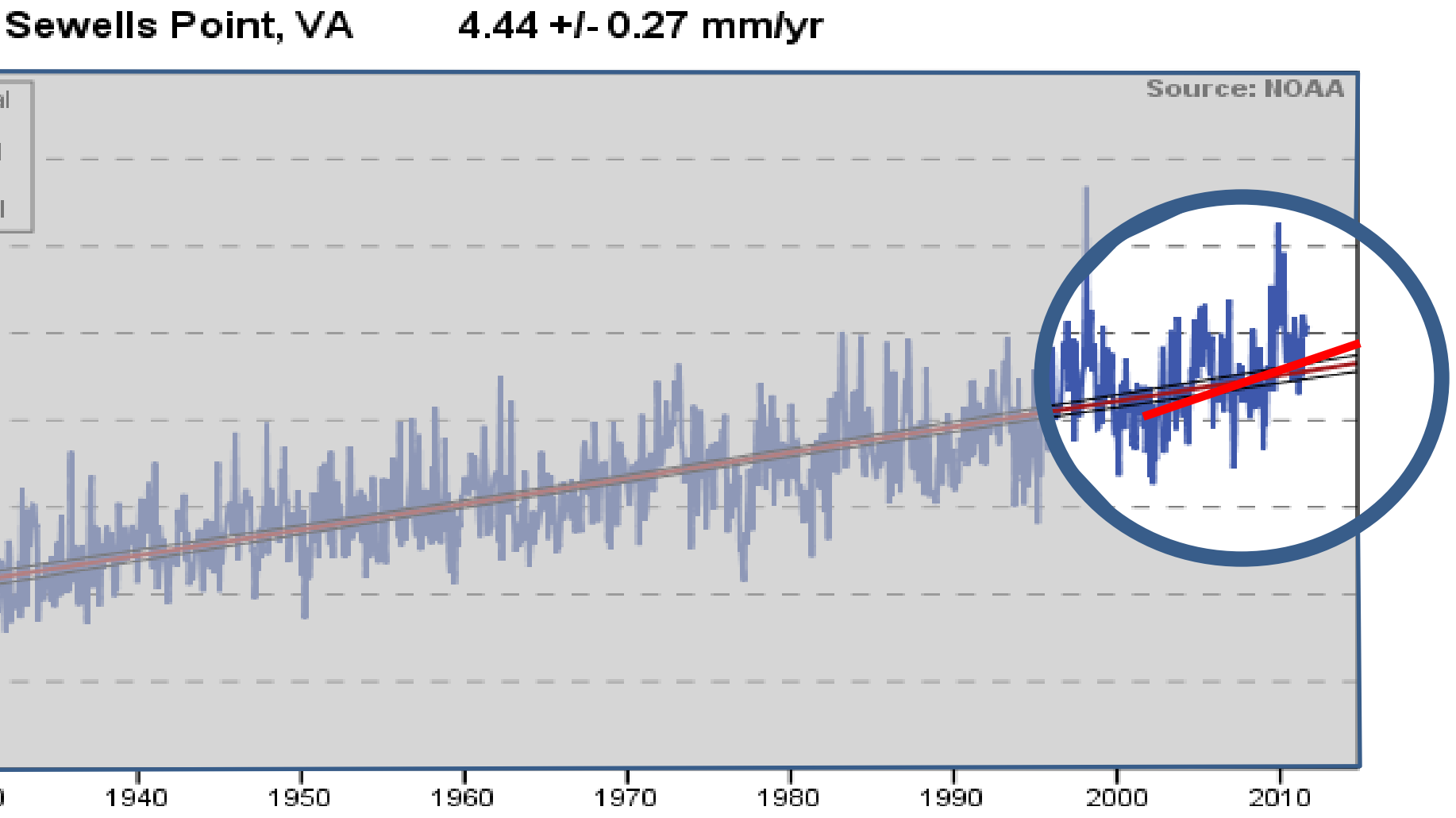
Sea level changes in Virginia





Sea level changes in Virginia

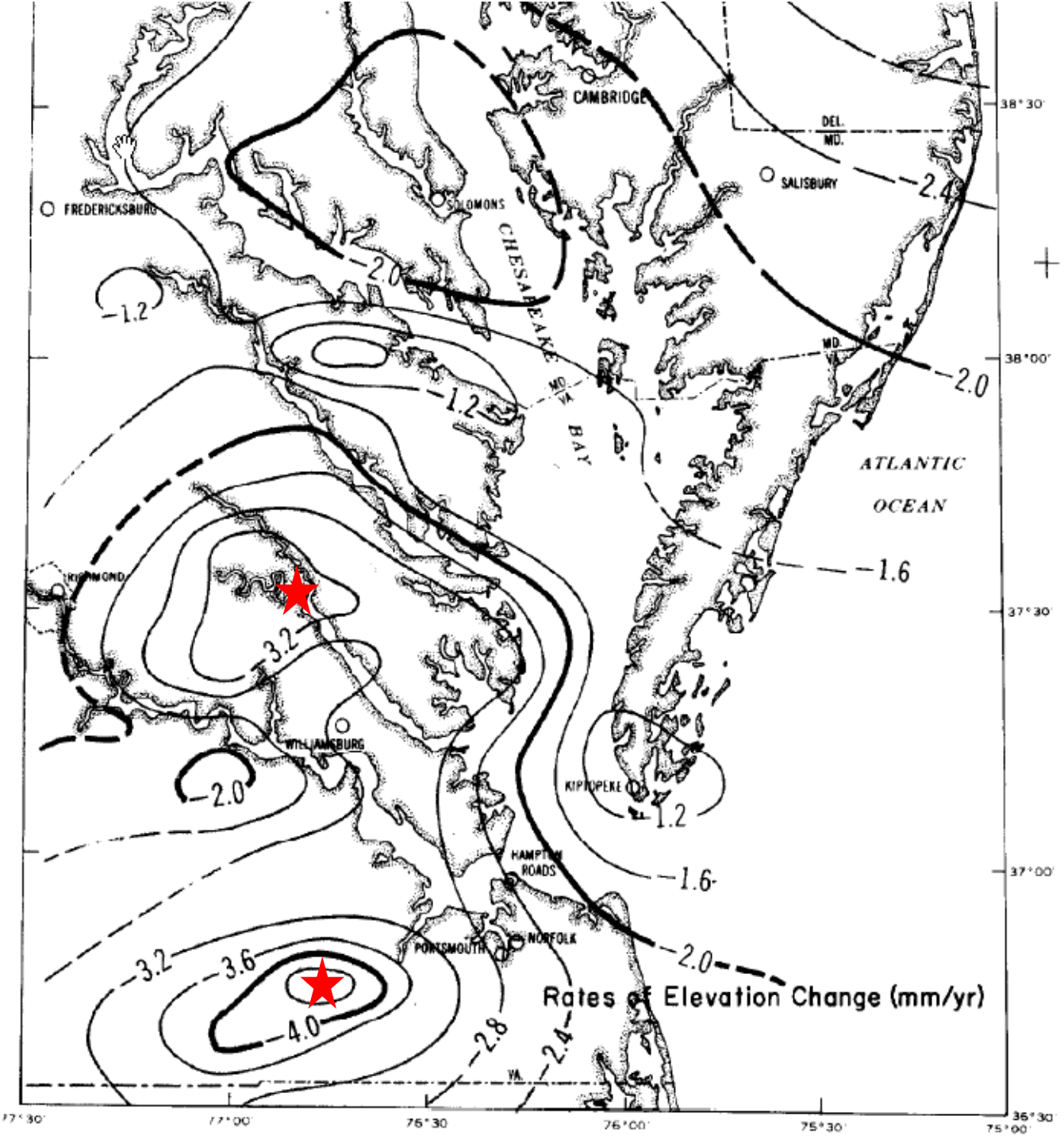


Relative sea level rise in Virginia

- Global sea level rise (2 - 4 mm/yr)
  - Melting ice caps
  - Warming (expanding) ocean water
- Land sinking (1 – 3 mm/yr)
  - Isostatic glacial rebound
  - Local subsidence
    - Ground water withdraw
    - Meteor crater sediment compaction
- Ocean circulation

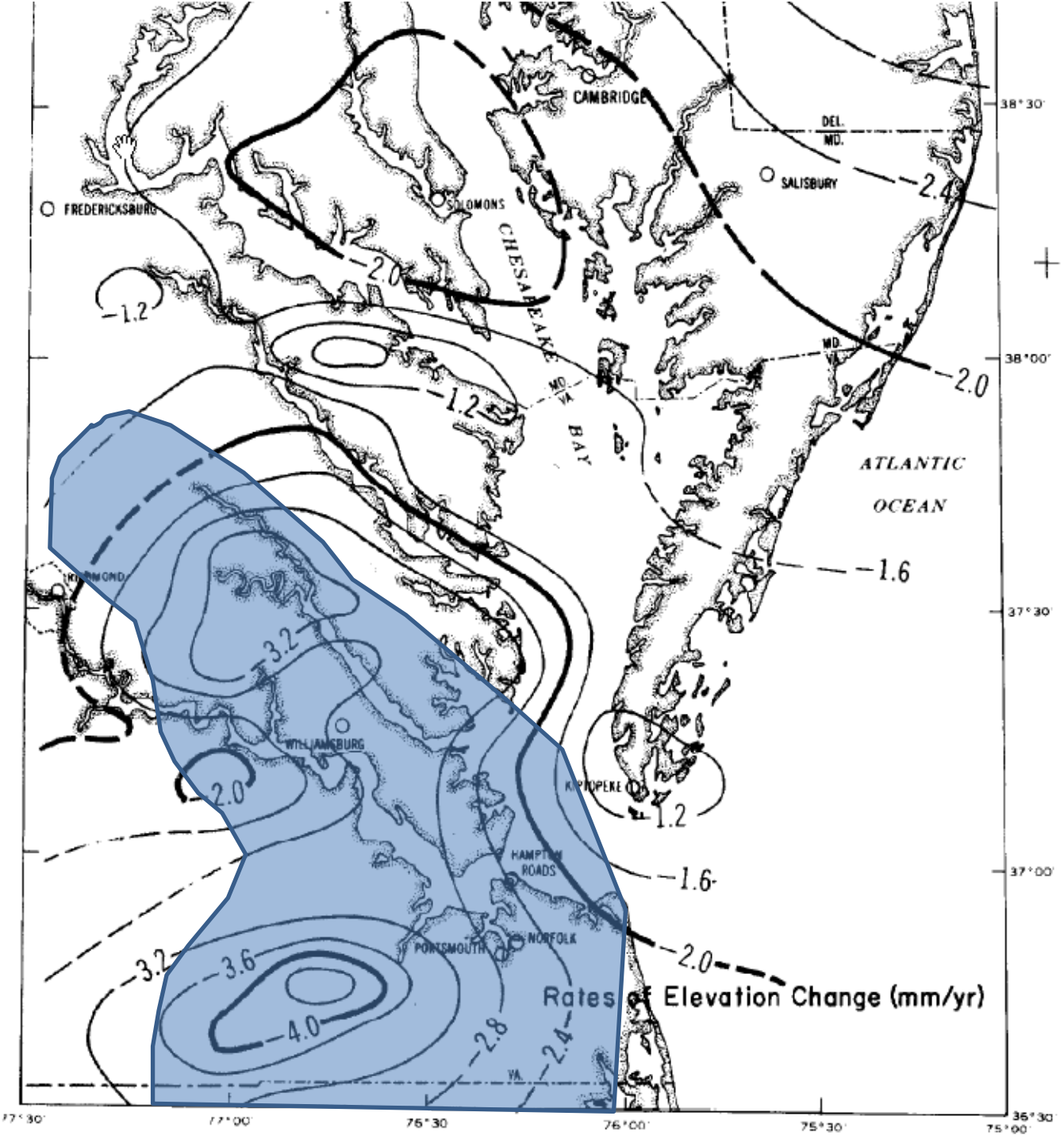
land subsidence

rate of vertical land surface movement (mm/year) from 1942 to 1971 Holdahl and Morrison, 1974



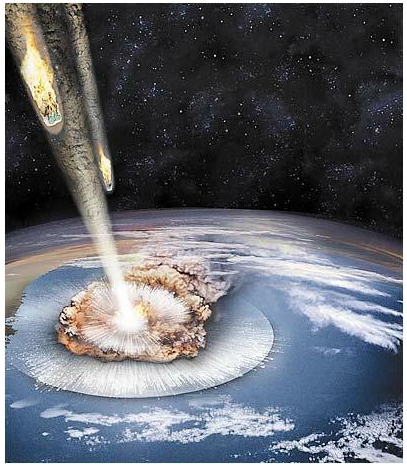
land subsidence due to groundwater withdrawals

after Pope and Burbey, 2004

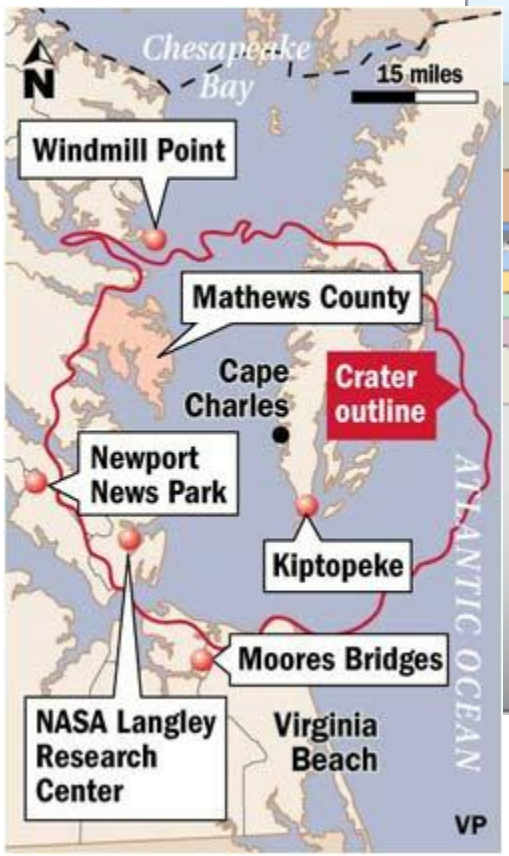


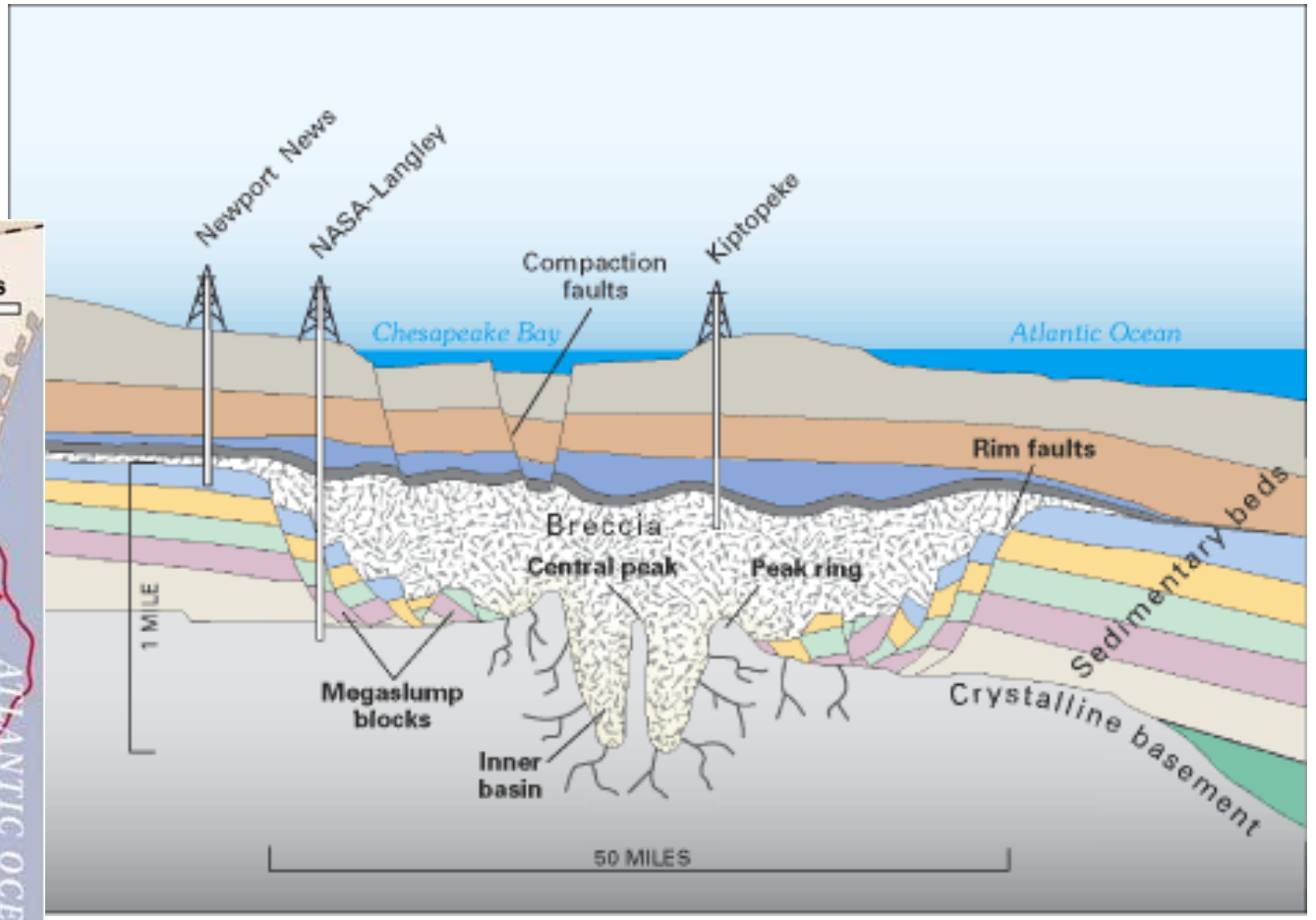
Chesapeake Bay impact crater

35 million years ago in late Eocene epoch



Virginian Pilot



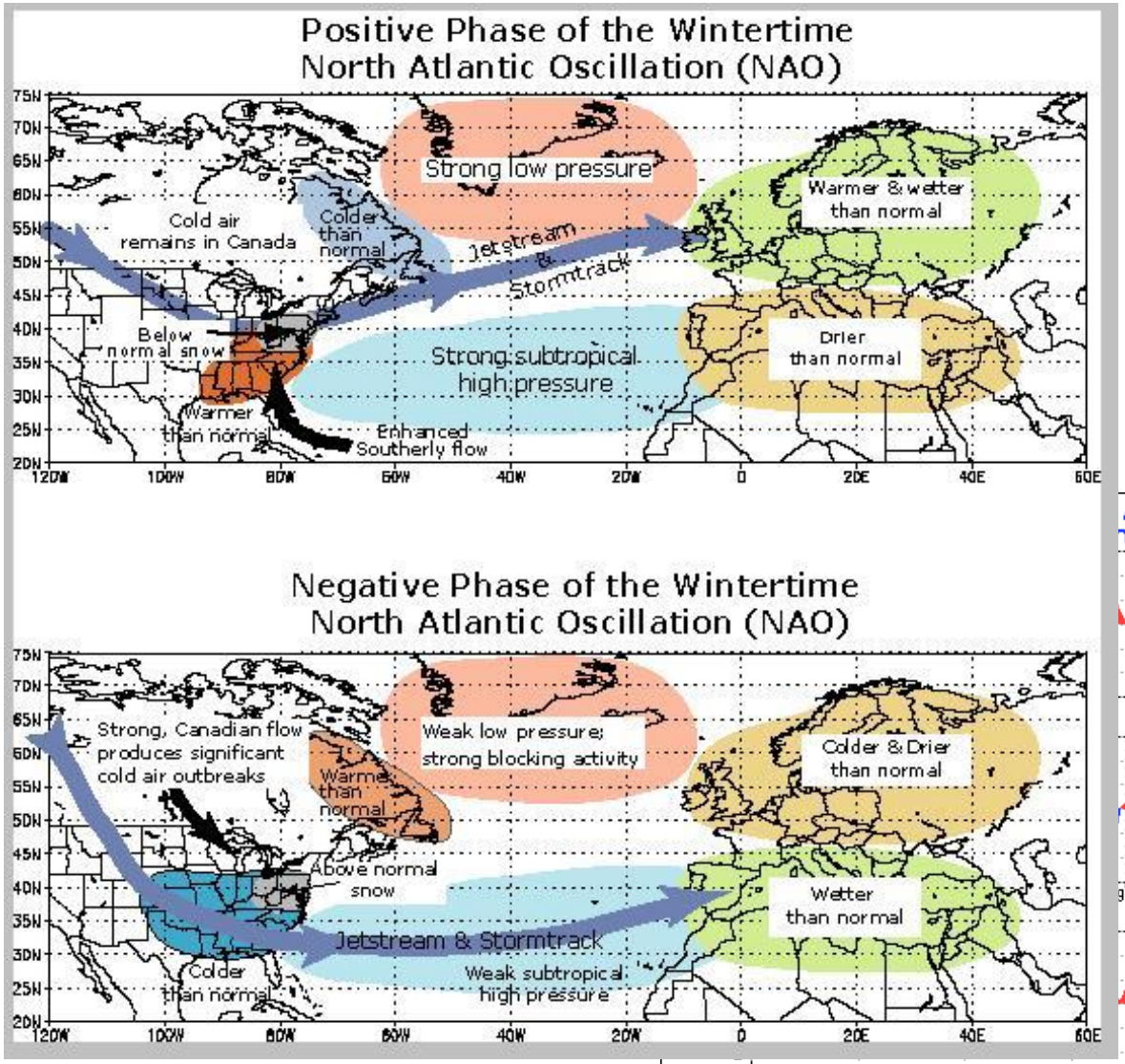


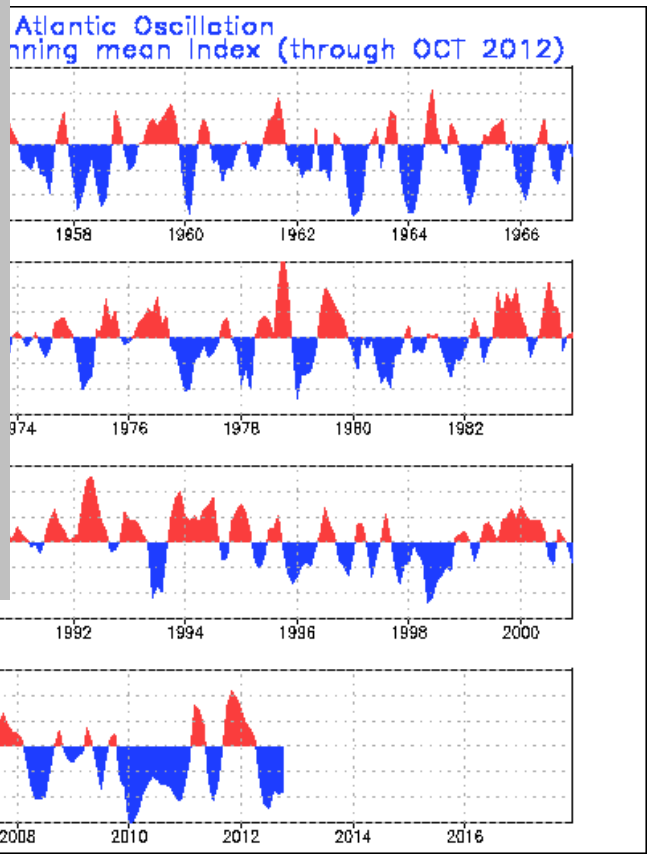

Atlantic Meridional Overturning Circulation
North Atlantic Current
Gulf Stream
North Atlantic Deep Water
US Dept of State Geographer
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

North Atlantic Oscillation

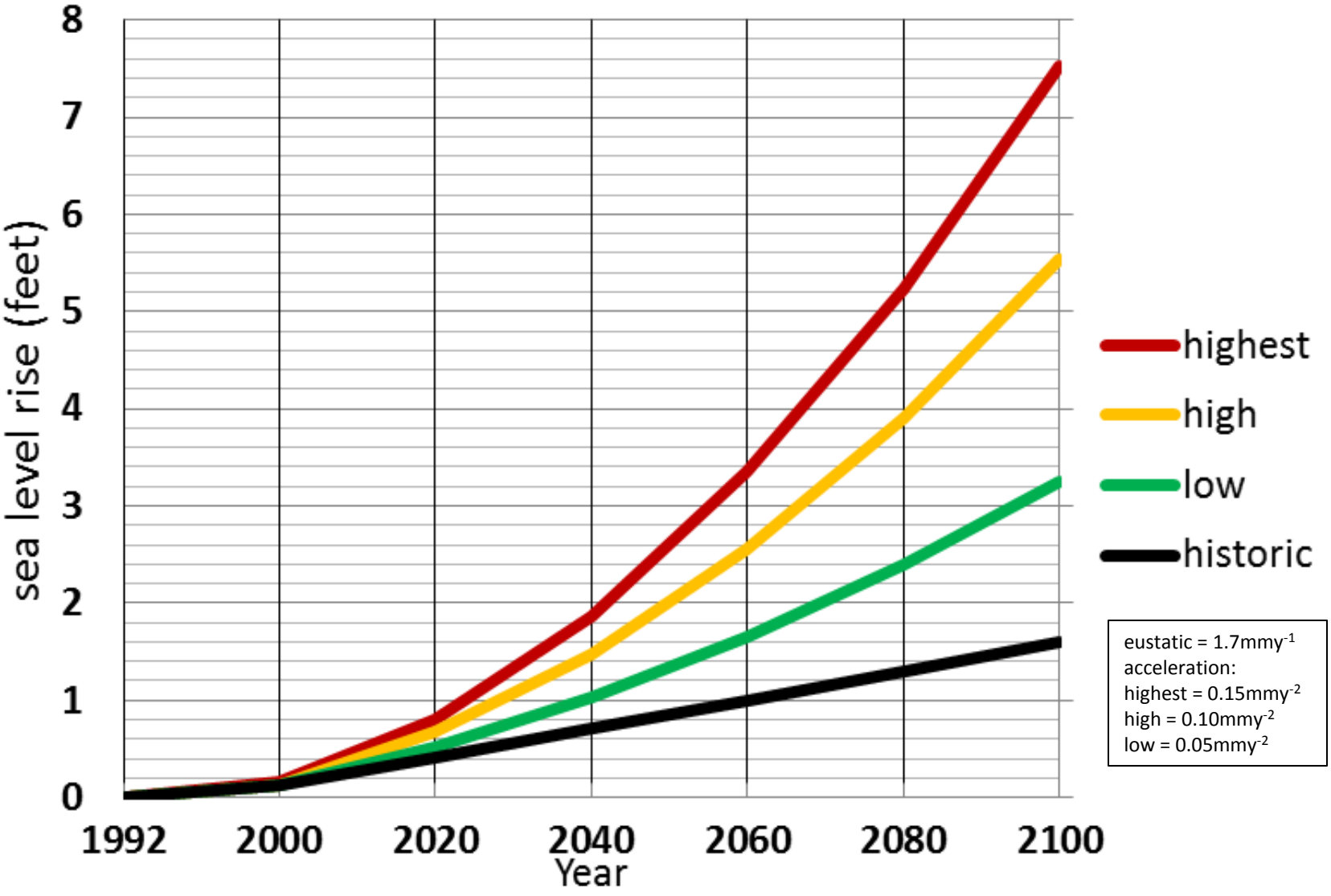
NOAA Climate Prediction Center

http://www.cpc.ncep.noaa.gov





SE Virginia sea level rise scenarios



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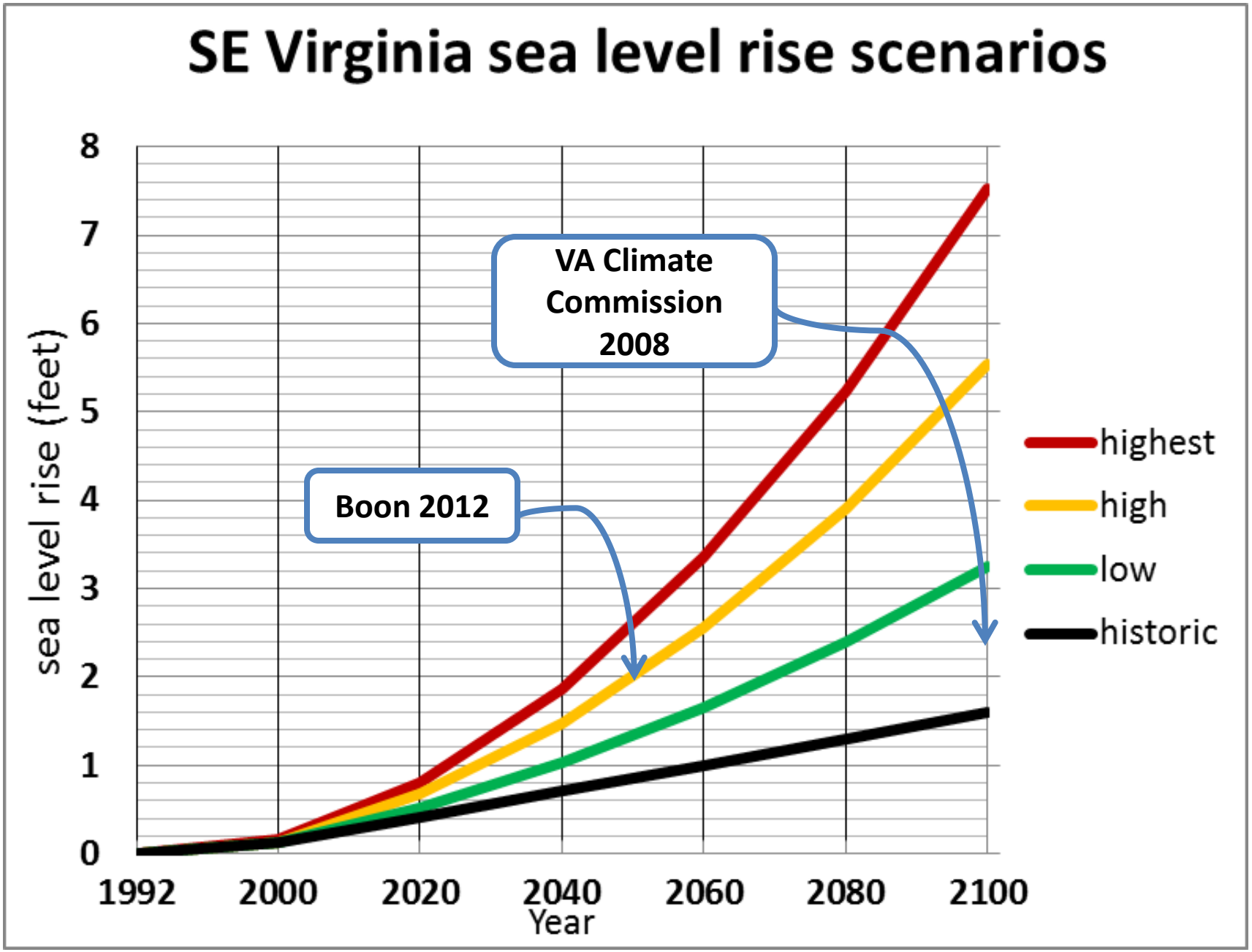
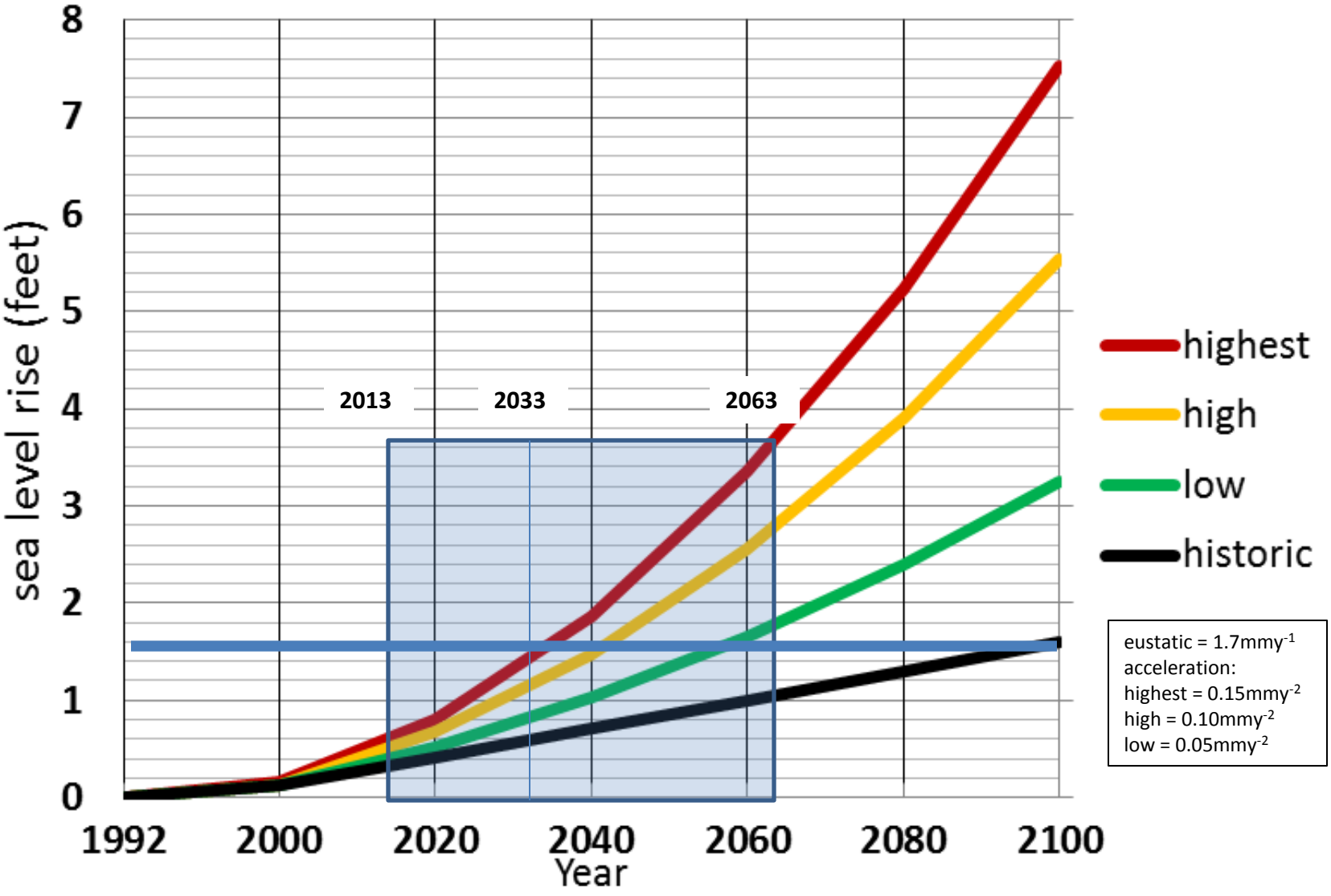
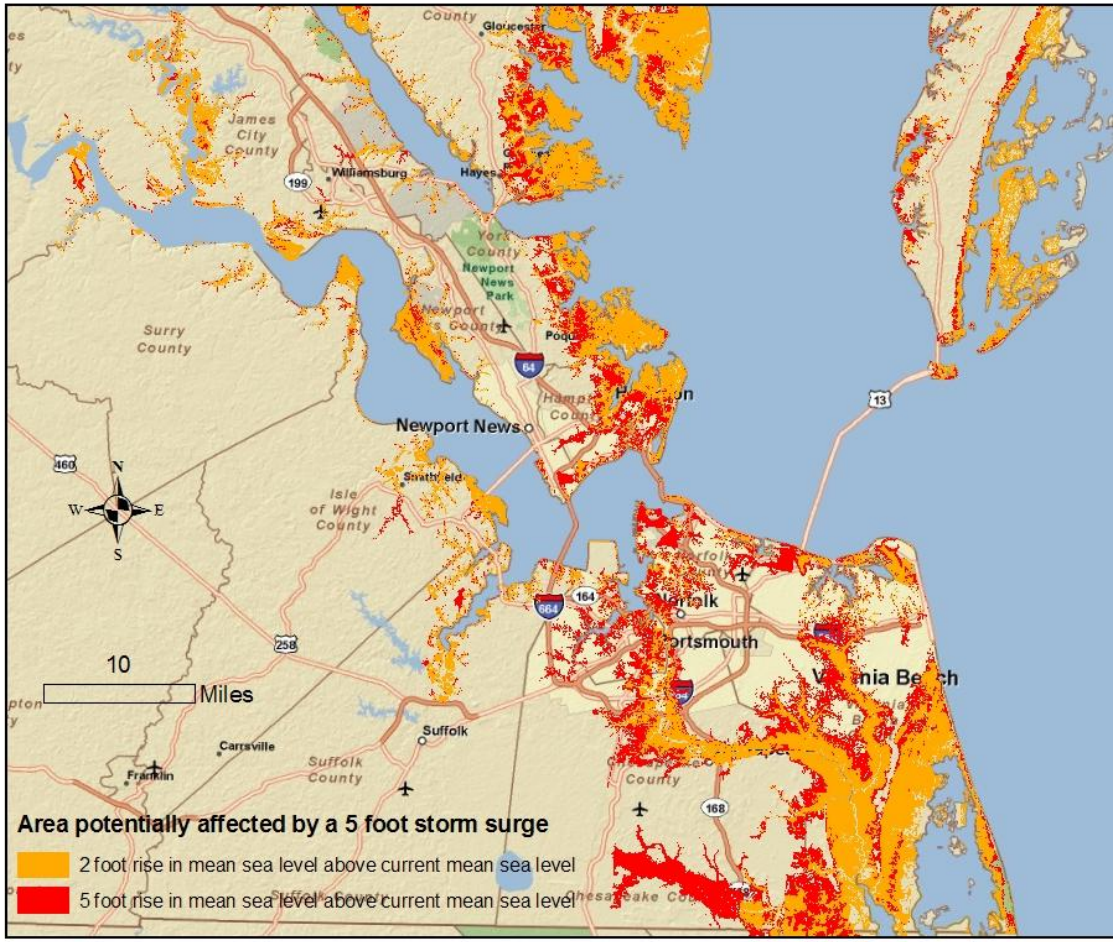


SE Virginia sea level rise scenarios



Recurrent Flooding Study FINDINGS

1. flooding is bad and becoming worse
2. risk varies
3. planning data is lacking
4. options require time for implementation



Recurrent Flooding Study RECOMMENDATIONS

- delayed action will only increase impacts and costs
- state should take a lead role because
  - flooding is a cross-jurisdictional issue
  - prioritization of efforts requires a standard assessment protocol
  - localities do not feel enables to address all issues

Recurrent Flooding Study RECOMMENDATIONS

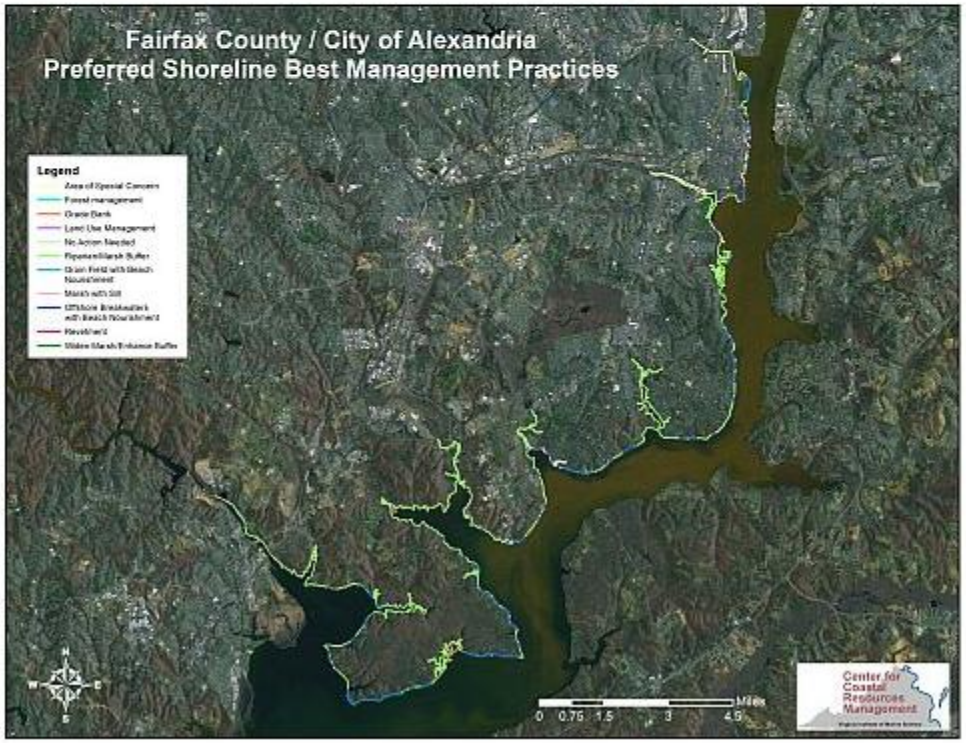
- state should quantify extent of flooding threats
- state should develop a comprehensive state strategy
- General Assembly should review/enable necessary authorities of local governments

Comprehensive Coastal Resource Management Plan (CCRMP): Fairfax County & City of Alexandria

Welcome to the Comprehensive Coastal Resource Management Plan (CCRMP) for Fairfax County & the City of Alexandria. This site has been prepared to assist with implementation of new policy established by the General Assembly in 2011. In 2011, the Virginia Assembly passed legislation to amend sections §28.2-1100 and §28.2-104.1 of the Code of Virginia. These amendments require that local governments incorporate the guidance prepared by the Virginia Institute of Marine Science's Center for Coastal Resources Management into local Comprehensive Plans when they come up for revision.

The addition of section §15.2-2223.2 establishes that ***Living Shorelines*** are now the Commonwealth's preference for tidal shoreline management wherever possible. The Comprehensive Coastal Resource Management Plan (CCRMP) provides guidance for adopting this policy into planning documents as well as where these best management practices are appropriate along the shoreline. The CCRMP also provides access to data and tools for additional guidance on shoreline management, regulatory review, and resource risk and vulnerability.

Select from one of the links below for more information and guidance or return to CCRMP HOME.



Comprehensive Plan Guidance

Shoreline Best Management Practices

Shoreline & Tidal Marsh Inventory Data

County Toolbox

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