

Future Impacts from Storms and Sea Level Rise

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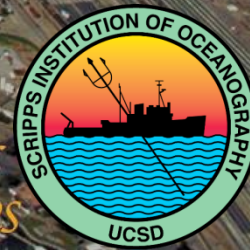
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U.S. Geological Survey

Collaborators and funders:



How Big is the Problem?

- Over 1 billion people are expected to live in the coastal zone by 2050
- 26 million people presently live in CA coastal counties
- Over 600,000 people in CA exposed to flooding by the end of the century, in addition to over \$150 billion in property at risk (~6% of GDP)
 - 500,000 employees
 - 5,400 km (3,400 mi) of roads
 - 177 schools
 - 87 fire and police stations
 - 126 medical facilities (incl. 3 hospitals)
- Socioeconomic exposure can increase up to a factor of seven when storms are considered

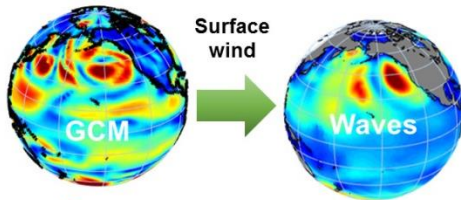




CoSMoS Framework

Global Scale

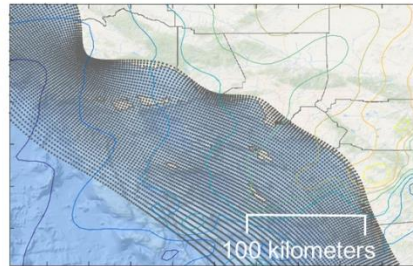
Deep water wave generation and propagation using climate change influenced future winds.



Downscaled winds and atmospheric pressures

Regional Scale

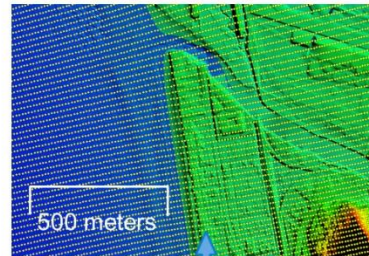
Swell propagation, wave generation, storm surge, and astronomic tides.



Long-term cliff recession and shoreline change

Local Scale

High-resolution hydrodynamics: nearshore waves, wave setup and runup, storm surge, tides, overland flow, fluvial discharge.

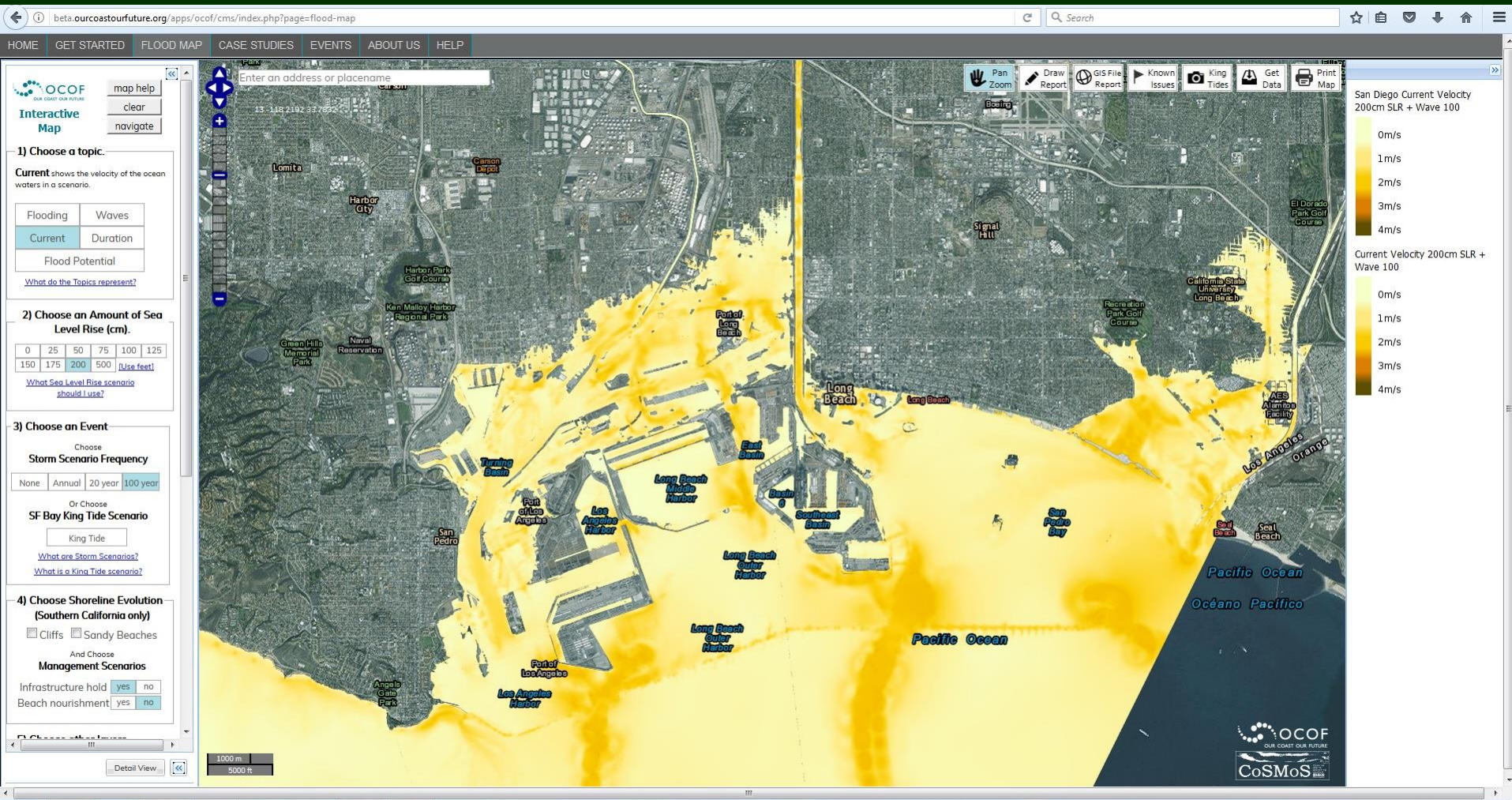


Web-based tools for data visualization and analysis



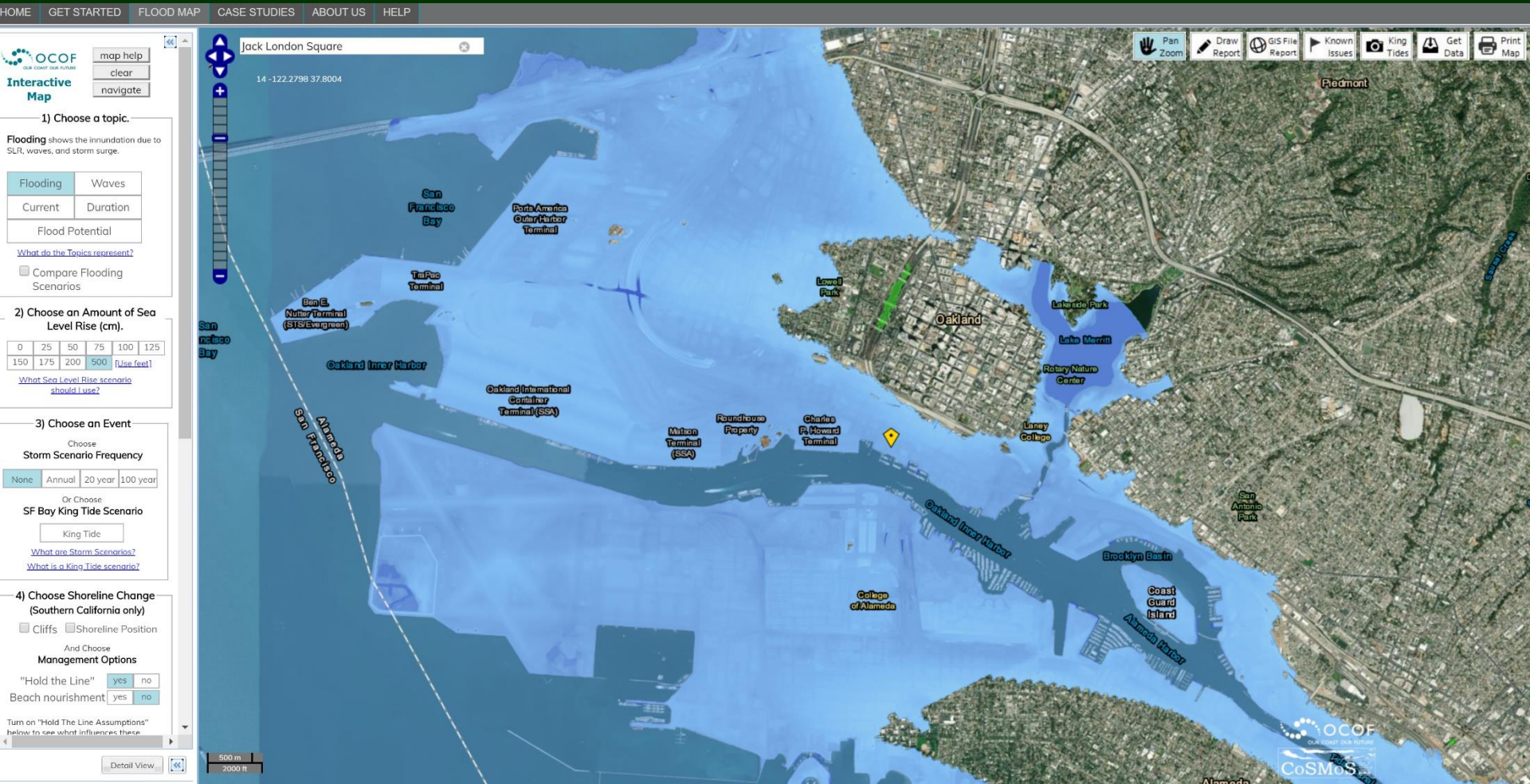
Socioeconomic impacts

Visualizing the Data



Our Coast, Our Future tool: www.ourcoastourfuture.org

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CoSMoS website: www.usgs.gov/cosmos

Our Coast - Our Future tool: www.ourcoastourfuture.org

HERA tool: www.usgs.gov/apps/hera

