Coastal Storm Modeling System (CoSMoS) for Southern California

What is CoSMoS?
CoSMoS stands for “Coastal Storm Modeling System.” It is a region-specific numerical modeling system that will project coastal flooding and erosion driven by climate change, not only from sea level rise (SLR) but from future storms as well.

- Takes into account various SLR scenarios and coastal storm factors (e.g., tides, storm surge/wind/atmospheric pressure, waves), plus shoreline change and river (fluvial) inputs.
- Produces hazard projections for the Southern California coastal region (Point Conception to the U.S.-Mexico border, including the Channel Islands, harbors, and coastal embayments) by downscaling global climate models and adding regional storm factors.
- Includes scenarios that feature the full spectrum of SLR (up to 5m) and coastal storms (daily to 100-year) to meet every possible management planning horizon and degree of risk tolerance.

Who should use CoSMoS, and why?
CoSMoS is meant to be used by local governments and communities to support coastal hazard and SLR vulnerability assessments, which in turn underpin planning and decision-making needs. Potential applications include:

- Vulnerability Assessments and Adaptation Plans
- Local Coastal Program (LCP) Updates
- Hazard Mitigation Plans.

Best available science
The US Geological Survey (USGS, Dr. Patrick Barnard) has been developing CoSMoS with a team of international experts for over five years. This effort will update the model for Southern California. Coastal Commission staff will also provide input to the development team.

User-support, trainings, and availability
USC Sea Grant will lead outreach, communication, and training to ensure the model meets user needs and effectively supports policy and planning decisions.

- Workshops and webinars to learn user needs and provide information about adaptation planning and climate science will occur in 2014.
- Model results will be available in early 2015, followed by a user interface, and refined modeling of shoreline change and river inputs (estimated delivery late 2015).

What will it cost?
The total cost of this effort is over $1M. The State Coastal Conservancy has coordinated model development and been its primary sponsor, with additional funds from the CA Department of Fish and Wildlife and the Tijuana River National Estuarine Research Reserve, and generous in-kind match from USGS and USC Sea Grant. Therefore, model results and training will be available free of charge.

Where can I get more information?
http://walrus.wr.usgs.gov/coastal_processes/cosmos/

- State Coastal Conservancy, Moira McEnespy (mmcenespy@scc.ca.gov, 510-286-4165)
- USGS, Dr. Patrick Barnard (pbarnard@usgs.gov, 831-460-7556)
- USC Sea Grant, Phyllis Grifman (grifman@usc.edu, 213-740-1963), Alyssa Newton Mann (agnewton@usc.edu, 213-740-8602)