

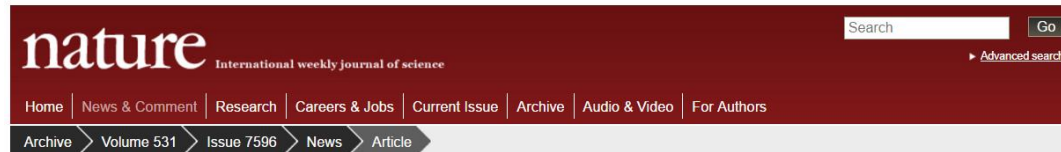
# Rising Seas in California: An Update to Sea-Level Rise Science



**Liz Whiteman, PhD**

Executive Director, California Ocean Science Trust

# New research shines a spotlight



NATURE | NEWS

عربي

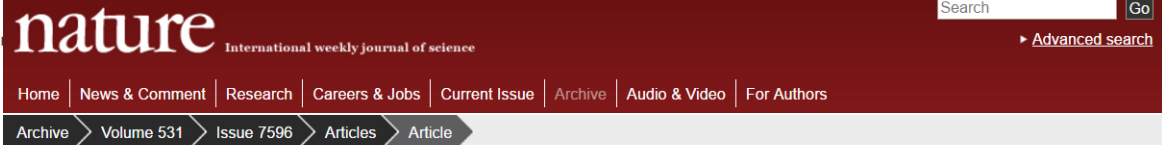
## Antarctic model raises prospect of unstoppable ice collapse

Sea levels could rise by more than 15 metres by 2500 if green...

Jeff Tollefson

30 March 2016

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NATURE | ARTICLE

日本語要約

## Contribution of Antarctica to past and future sea-level rise

Robert M. DeConto & David Pollard

Affiliations | Contributions | Corresponding author

Nature 531, 591–597 (31 March 2016) | doi:10.1038/nature17145

Received 27 May 2015 | Accepted 12 January 2016 | Published online 30 March 2016

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### Abstract

Abstract Change history References Author information Extended data figures and tables

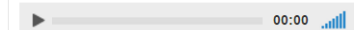
### Editor's summary

العربية

Robert DeConto and David Pollard use a newly improved numerical ice-sheet model calibrated to Pliocene and Last Interglacial sea-level estimates to develop projections of Antarctica's evolution over t...

### Related audio

Adam Levy explores why modelling Antarctica's ice sheets is so difficult.



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# Our Charge: Science informing policy

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- To develop a 'state of the science' summary of the drivers of sea-level rise
- To consider the implications of recent scientific advances to update sea-level rise projections for California

# Informed by stakeholder needs

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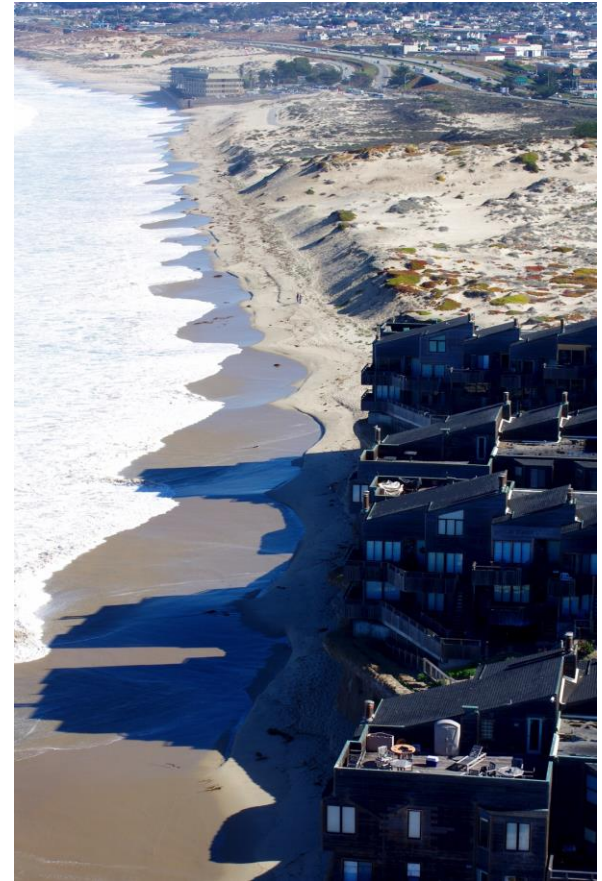
- 30+ stakeholder interviews
- 5 online listening sessions
  - Planning
  - Emergency mgmt/disaster preparedness
  - Water resource planning
  - Transportation
  - Habitat conservation/restoration
- Four regional workshops



# Guided by policy-relevant questions

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- What are sources of uncertainty in projections?
- How can policy guidance deal with incomplete understanding?
- How do emissions choices impact projected sea-level rise?
- How do projections translate into a risk assessment?



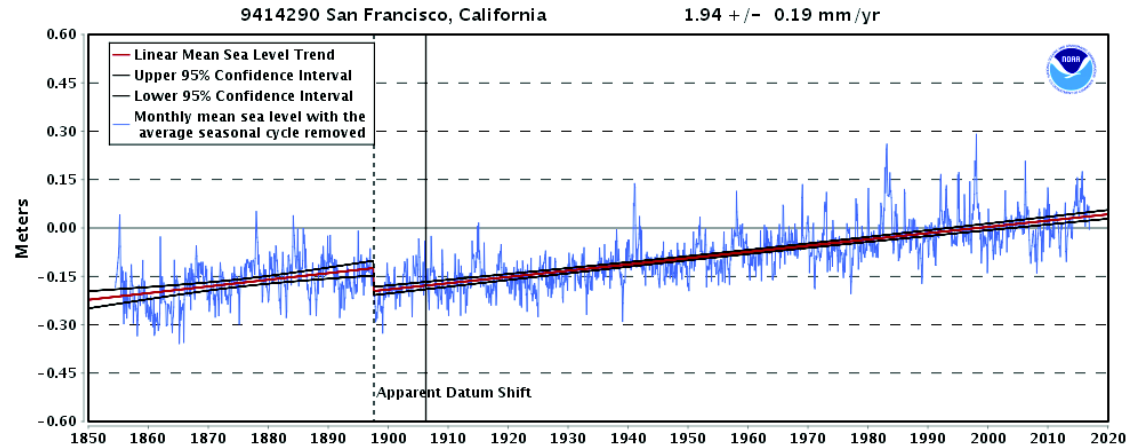
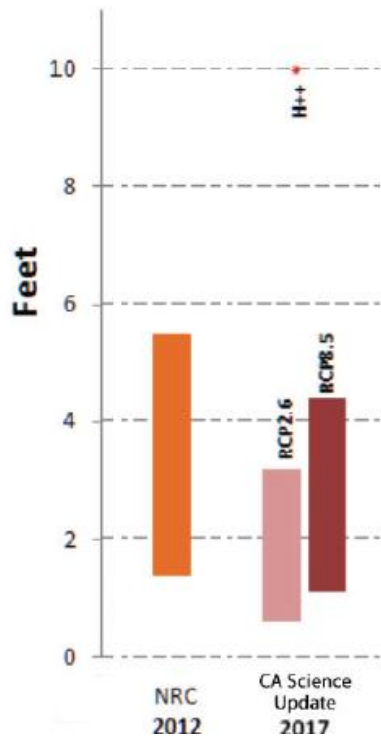
# An interdisciplinary expert panel

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- Gary Griggs *University of California Santa Cruz*
- Dan Cayan *Scripps Institution of Oceanography*
- Claudia Tebaldi *National Center for Atmospheric Research & Climate Central*
- Helen Amanda Fricker *Scripps Institution of Oceanography*
- Joseph Arvai *University of Michigan*
- Robert DeConto *University of Massachusetts*
- Robert E. Kopp *Rutgers University*

# Developing local probabilistic projections



Comprehensive probability distributions for SLR conditional on emissions scenarios (based on Kopp et al. 2014)

# Providing decision-relevant numbers

‘Exceedance probabilities’, San Francisco:

(a) RCP 8.5

	1 FT.	2 FT.	3 FT.	4 FT.	5 FT.	6 FT.	7 FT.	8 FT.	9 FT.	10 FT.
2020										
2030	0.1%									
2040	3.3%									
2050	31%	0.4%								
2060	65%	3%	0.2%	0.1%						
2070	84%	13%	1.2%	0.2%	0.1%					
2080	93%	34%	5%	0.9%	0.3%	0.1%	0.1%			
2090	96%	55%	14%	3%	0.9%	0.3%	0.2%	0.1%	0.1%	
2100	96%	70%	28%	8%	3%	1%	0.5%	0.3%	0.2%	0.1%
2150	100%	96%	79%	52%	28%	15%	8%	4%	3%	2%
2200	100%	97%	91%	80%	65%	50%	36%	25%	18%	13%



# Addressing uncertainty: H++ Scenario

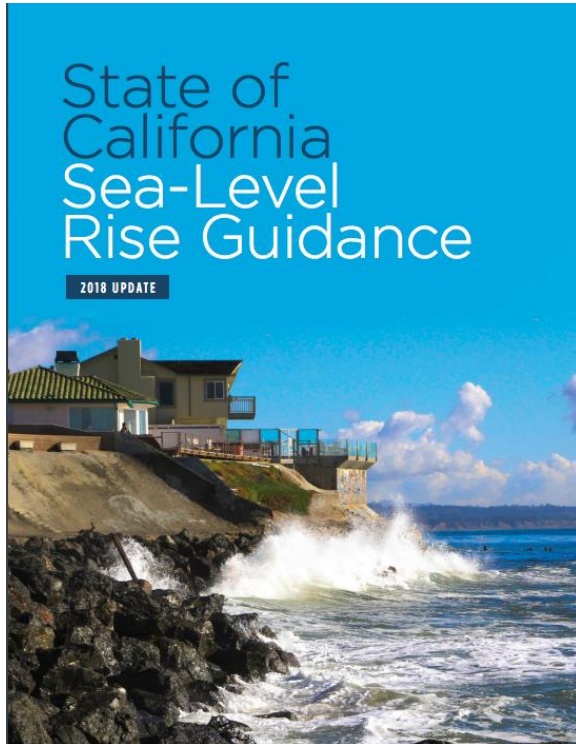
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- A future scenario; not a probabilistic projection
- ‘Extreme’ scenario of 8 ft global sea-level rise
- Incorporates the impacts of rapid Antarctic ice loss

# Supporting user-centric policy guidance

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- A framework for assessing risk
- Facilitating threshold/trigger-based decisions in adaptation pathways
- Recommended adaptation strategies and principles



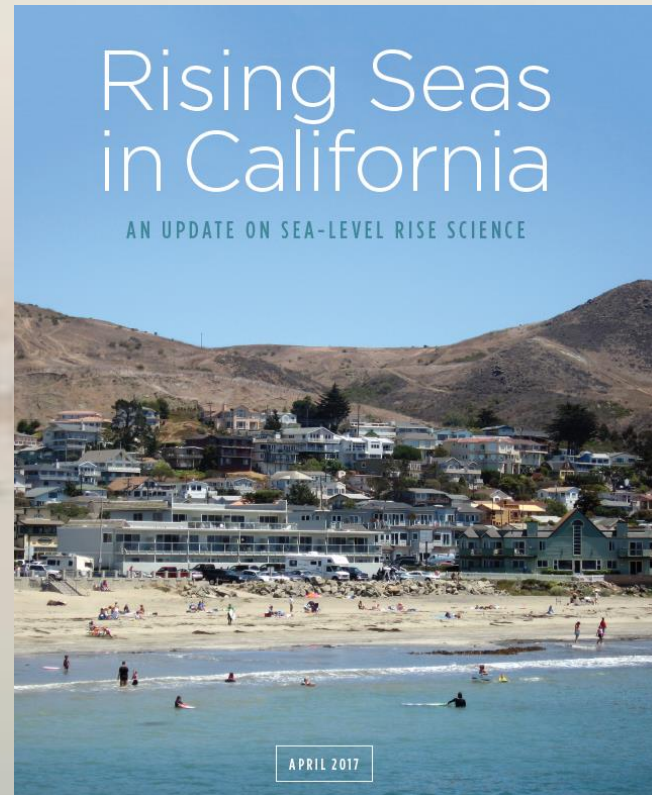
# Assessment as an adaptation process

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- Waiting for scientific certainty is neither safe nor prudent
- Current scientific understanding can support risk analyses and action now
- Updates to scientific projections should be anticipated

Thank you!



**Liz Whiteman, PhD**

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# Recent projections

