National Aeronautics and Space Administration

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NASA Sea Level Change Team

Introduction and Overview of Recent Stakeholder Workshop

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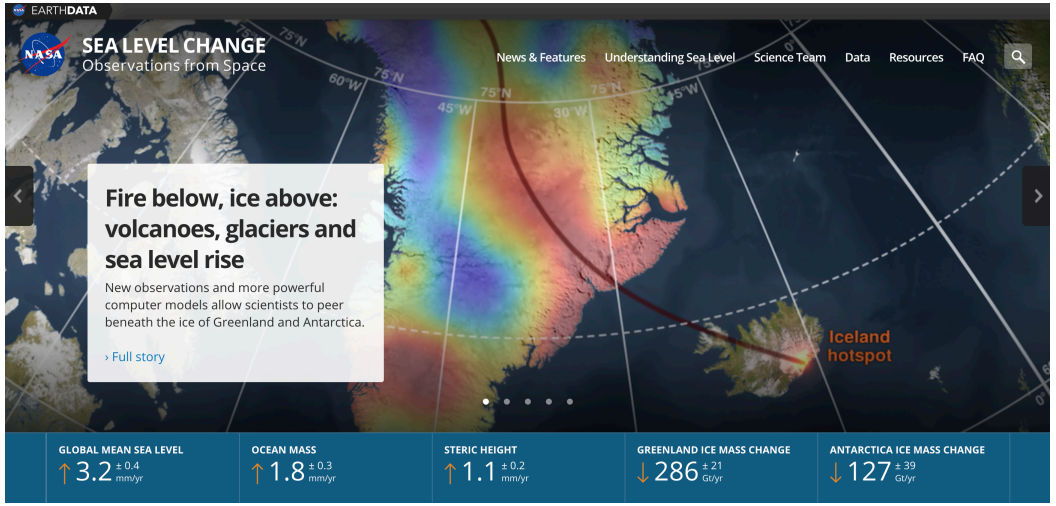
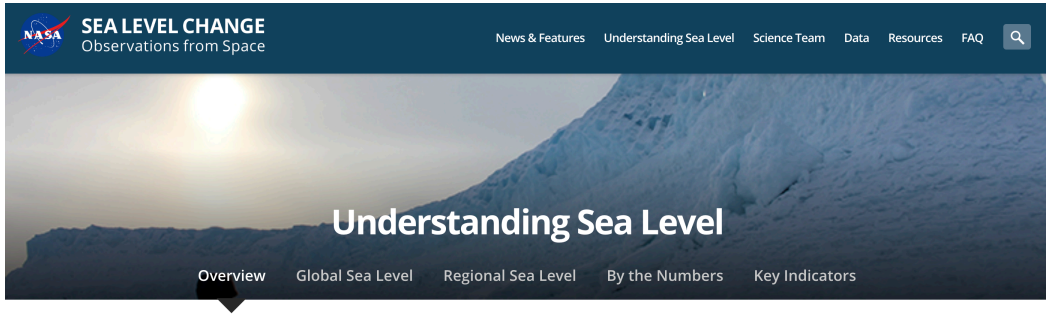
NASA Sea Level Change Team - Brief History

- 1st iteration of NASA Sea Level Change Science Team (N-SLCT) was formed in 2014.
  - Focus on fostering the interdisciplinary research required to improve the accuracy and spatial resolution of current and future sea level change estimates.
  - Web portal at sealevel.nasa.gov was created as part of this effort (PI: Carmen Boening).
  - Steve Nerem (University of Colorado) was first team lead.
- The team was re-competed in 2016, and we are currently on the second iteration of the team.
  - Eight total teams funded for three years, 70+ PIs, Co-Is, Collaborators.





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NASA Sea Level Change Team: 2017-2020

- Two areas of focus for the current team:

  First Focus Area - Science: Advance the understanding of regional sea level change through interdisciplinary research.

  - **Characterizing current changes in sea level: Global and regional sea level projections that extrapolate from satellite and contemporary observations**
  - **Characterizing underlying processes and improving predictions of regional variations in sea level.**
  - **Improving knowledge of ice mass change that specifically improves estimates of current and future sea level rise**
  - **Integrating these results into better forecasts of sea level rise.**

  Required the formation of interdisciplinary proposing teams, with each team addressing one or more of the above areas.

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N-SLCT Science Focus

Broken down into the drivers of global and regional sea level, the team is working to improve the understanding of the following:

1) Contributions from Ice Sheets (PI: Ivins, Nowicki, Velicogna)

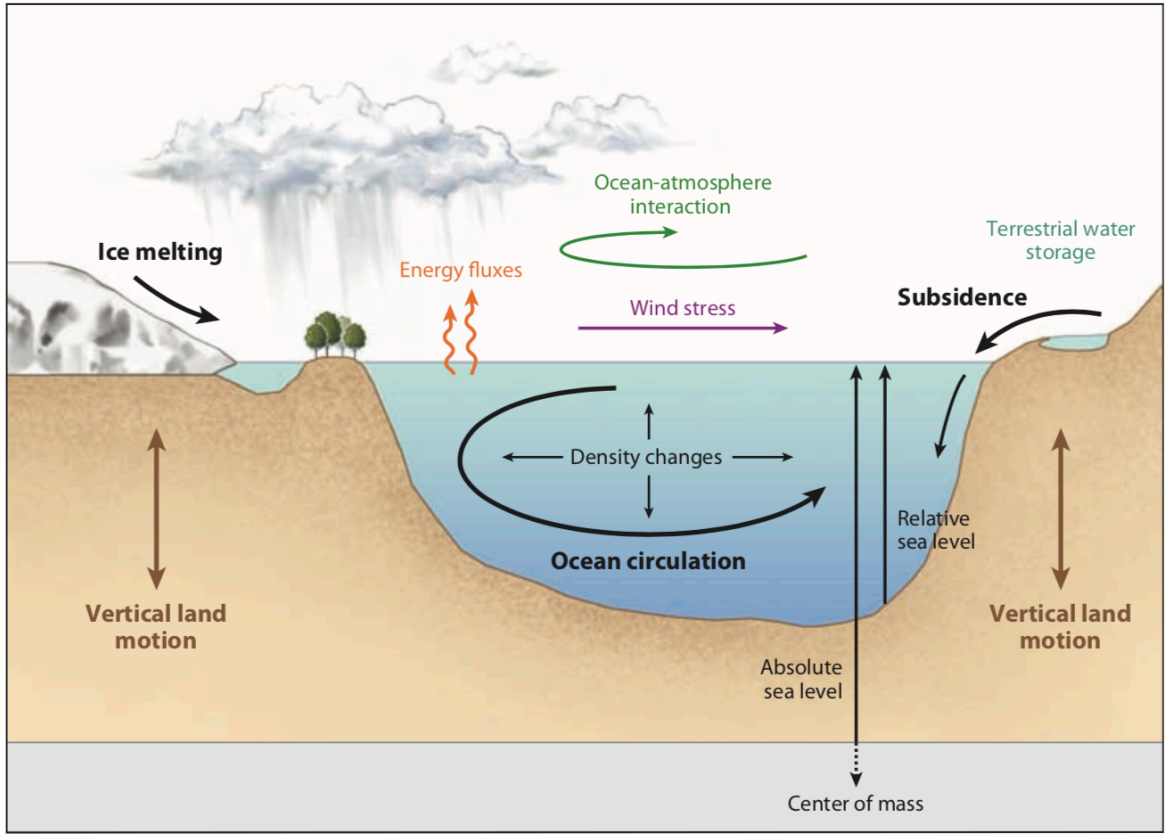
2) Contributions from Mountain Glaciers and Small Ice Caps (PI: Hock, Ivins)

3) Contributions of Solid Earth Deformation and Vertical Land Motion (PI: Hamlington, Hock, Ivins, Nerem, Nowicki, Shirzaei, Velicogna)

4) Contributions from Changes in Ocean Dynamics (PI: Hamlington, Nerem, Nowicki, Shirzaei, Velicogna)

5) Contributions from Terrestrial Water Storage Variability (PI: Hamlington, Nerem, Nowicki)

6) Contributions from Higher-Frequency Variability (Extremes, tides, seasonal-to-decadal): (PI: Hamlington, Nerem, Shirzaei)



(Stammer et al., 2013)

N-SLCT Workshop

Second Focus Area - Outreach: Provide ”useful information” regarding ongoing and future regional sea level change.

- What is “useful” sea level information?
  - Based on previous team discussions, it turns out we didn’t really know.
  - Clear need to engage those translating science into action across a range of applications → organized a workshop as part of the annual team meeting in March, 2019 in Annapolis.
  - ~80 attendees, half from the science team, the other half stakeholders/planners/decision-makers.
  - Attendees from USACE, Naval Facilities and Command, states of Georgia, Maryland, Delaware, and Virginia, and city of Annapolis (among others).

N-SLCT Workshop

- **Workshop Objectives**

1. Identify gaps in scientific knowledge or understanding that are presently limiting the ability to plan for future sea level rise.
2. Identify what scientific information is being used to make plans, how this information is obtained, and where improvements are needed.
3. Discuss the information pathway from scientist to decision-maker, and provide guidance to scientists to provide more useful sea level information.
4. Discuss the role of the scientist in the decision-making process.

N-SLCT Workshop

- **From the perspective of the scientists on the team:**

  (1) Are there areas where sea level scientists may think they are being useful, but are actually largely following their own curiosity?

  (2) Are there areas that would be useful that sea-level scientists aren't giving enough attention to?

N-SLCT Workshop

- **Key Takeaways (General)**

  (1) The feedback from the stakeholders was overwhelmingly positive.

  (2) Strong desire to continue the dialogue and hold additional workshops.

  (3) The views and opinions of the attendees varied significantly. Some were very aware of underlying scientific issues, while others were real “end-users” and simply working with output.

  (4) There is no “one size fits all” approach to providing information to stakeholders.

N-SLCT Workshop

- **Key Takeaways (for the scientist)**

  (1) No one is desperately asking for another set of projections.

  (2) Make sure your “tool” has an audience/user.

  (3) The time and space scales of interest span a wide range and include shorter timescales than available projections have typically dealt with.

  (4) Need improved guidance on new science, projections, and past and present sea level change (e.g. drivers, rates, understanding).

  (5) There is a need for ongoing and regular communication from scientists to support the guidance in (4).

  (6) Scientists should be working with “boundary organizations” to disseminate new results and information.

- **Outstanding Issues:**
  - Little discussion on gaps in knowledge:
    - What information is missing that scientists can already provide?
    - What information is missing that scientists can work to provide?
  - How can we establish regular communication between scientists and stakeholders (through boundary organizations?)
  - Is it possible to create general, best practices for translating science into action?