A Global/Regional Science Perspective on Sea Level Rise and Climate Change

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Tools for Measuring Sea Level

- **Laser Altimeter**
- **Gravity**
- **ARGO**
- **Ice**
- **Melting Ice**
- **Heating**
- **Uplift/Subsidence GPS**
- **Thermal Expansion**

Diagram shows various tools and processes involved in measuring sea level changes, including laser altimetry, gravity measurements, and ocean heat. The diagram also illustrates the impact of melting ice and thermal expansion on sea level changes.
Projections of 21st-century GMSLR under RCPs

“Global mean sea level will continue to rise during the 21st century. Under all RCP scenarios the rate of sea level rise will very likely exceed that observed during 1971–2010 due to increased ocean warming and increased loss of mass from glaciers and ice sheets.”
Collaboratively develop recommendations for local governments and regional agencies as they respond to climate change and associated sea-level rise (SLR)
Invasive species
Take homes

• Greenhouse gas emissions are forcing climate change
• Sea level is rising and will continue to do so
• The problem goes far beyond sea level rise
• The problem is global, but the responses are local
Additonal slides, if needed
Descent to cruising depth
~10 cm/s (~6 hours)

6-12 hours at surface
to transmit data to satellite

Salinity & Temperature profile recorded during ascent
~10 cm/s (~6 hours)

Drift approx. 9 days
Total cycle time 10 days

Cruising depth,
2000 db (2000m)
The Argo Array

3260 Floats
2-Nov-2009
Gravity Recovery And Climate Experiment (GRACE)
-239 Gton/yr = 0.66 mm/yr sea level rise
-143 Gton/yr = 0.40 mm/yr sea level rise