

MAR17-2017-020951

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Challenges of projecting local sea-level changes and their uncertainties

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In the global mean, sea-level rise is driven by two main factors – land-ice mass changes and ocean thermal expansion – with a minor contribution for changes in the storage of liquid water on land. At a local scale, there are many complicating effects, among them those due to: the gravitational, rotational and flexural consequences of land-ice mass redistributions; changes in atmosphere and ocean circulation; the Earth's mantle's ongoing response to the last deglaciation; tectonics; and sediment compaction. Projecting local sea-level changes requires consideration of all these contributing factors. Recent efforts have focused on combining these factors in a way that accounts for their uncertainties in a probabilistic manner. This talk will discuss approaches to projecting probabilities of future sea-level change, as well as the limits to such approaches posed by deep uncertainty regarding Antarctic ice sheet physics.