

Abstract: Storm surges such as those from Hurricane Sandy are amplified by sea level rise. Estimates of sea level rise have increased over the past two decades as polar climates warm and land ice is lost to an expanding ocean. The source of melting ice is shifting from alpine glaciers to the polar ice sheets. Many of the vulnerable areas of the polar ice sheets have an active basal hydrology that has the contraposed dynamic effects of being able to either enhance or reduce flow of the ice sheet. These effects have a dependence on the small scale features of the plumbing system but have large potential impacts on ice discharge to the oceans. Here, I draw on data and models to clarify the role hydrology plays ice sheet behavior and how these can affect long-term ice sheet changes.