# What can GRACE gravimetry and altimetry tell us about sea level contributors?

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In order to fully understand present and future sea level rise a separation of different sea level contributors is a necessity. Major ice sheets and smaller glaciers contribute to sea level rise, while steric expansion due to thermal and salinity changes play an equally important role. On top of that, the ongoing visco-elastic adjustment of the Earth to former ice loads, may not be neglected. Ocean modeling provides valuable information on the ocean response to melting. While on the other hand, absolute quantification and monitoring of sea level changes require actual observations.

In this study, we take complementary data from GRACE gravimetry data and Jason-1 altimetry and estimate time varying scales associated with predefined sea level patterns. The patterns represent non-uniform gravitationally sea level responses to melting and hydrological loading. Additionally, the steric sea level patterns are obtained from the Finite element Sea-Ice model. We discuss accuracy and separability of the estimation method and provide results in the spatial and time domain.