



What Have We Learned About Sea Level Change from Satellite Gravity and Altimeter Measurements?

R. S. Nerem (1), D. P. Chambers (2), G. T. Mitchum (3), and J. Willis (4)

(1) University of Colorado, (2) University of Texas at Austin, (3) University of South Florida,
(4) Jet Propulsion Laboratory (nerem@colorado.edu, 303-492-2825)

The launch of TOPEX/Poseidon (T/P) in 1992 initiated a new era in sea level change studies. The continuation of the altimeter sea level time series by Jason, the initiation of precise satellite gravity measurements with the launch of GRACE in 2002, and the densification of in situ ocean temperature measurements (Argo, etc.) have all contributed to a vastly improved understanding of the magnitude and causes of sea level change. These datasets have also led to an improved understanding of the historical tide gauge record of sea level change over the last century. The results show that these datasets provide good estimates of the total amount of sea level change, the contribution of thermal expansion, and the contribution of water from the continents (ice melt, etc.). The results also show that the rate of sea level rise has likely accelerated for the last decade versus the 20th century average. However, a number of critical questions remain to be answered, particularly with regard to predicting the amount of sea level rise we will see in the next century.