



Global sea level change signatures observed by GRACE satellite gravimetry

Taehwan Jeon (1), Ki-Weon Seo (1), Kookhyoun Youm (1), Jianli Chen (2), Clark Wilson (2,3)

(1) Department of Earth Science Education, Seoul National University, Seoul, Korea, Republic Of (naiad123@snu.ac.kr), (2) Center for Space Research, University of Texas at Austin, Austin, USA (chen@csr.utexas.edu), (3) Department of Geological Sciences, Jackson School of Geosciences, University of Texas at Austin, Austin, USA (crwilson@jsg.utexas.edu)

Ice mass loss on land results in sea level rise, but its rate varies regionally due to gravitational self-attraction effects. Observing regional sea level rates by ocean mass change using the Gravity Recovery and Climate Experiment (GRACE) gravity solutions is difficult due to GRACE's spatial resolution and other limitations. Here we estimate regional sea level mass change (without contributions from thermal expansion and salinity) by addressing these limitations: restoring spatially spread and attenuated signals in post-processed GRACE data; constraining ocean mass distribution to conform to the changing geoid; and judging specific corrections applied to GRACE data including a new geocenter estimate. Estimated sea level mass trends differ considerably among ocean basins, ranging from -0.5 mm/yr in the Arctic to about 2.4 mm/yr in the Indian and South Atlantic Oceans.