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Steric contribution to sea level (2003-2008) at global and regional scales

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Over the past five years (2003-2008), ocean thermal expansion based on the newly deployed Argo system shows a much lower increase than during the 1993-2003 decade ($\tilde{0}$.3 mm/yr compared to $\tilde{1}$.5 mm/yr). The cause of the recent pause in thermal expansion is not yet understood. However, during the 2003-2008 time span, altimetry-based sea level was still rising, although at a reduced rate ($\tilde{2}$.5 mm/yr compared to 3.1 mm/yr over 1993-2003), likely a result of accelerated ice mass loss from mountain glaciers and ice sheets. In this study, we analyze steric sea level over the 2003-2008 period using Argo data at a regional scale in order to estimate the steric contribution by region to the observed sea level rise. We also study the spatial patterns in steric sea level and compare them to spatial patterns derived from altimetry-based sea level minus GRACE ocean mass.