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## Global Sea Level Trend, Acceleration and Its Components over 1993-2016

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A 24-year global mean barystatic sea level change from January 1993 to December 2016 is derived by the joint use of Tongji-LEO2021 and Tongji-Grace2018 monthly gravity field solutions, with which the global sea level budget is investigated together with altimetry, steric and four mass elements (glaciers, Greenland, Antarctica and land water storage). The derived global mean sea level changes from altimetry, steric and two Tongji solutions generally agree well with each other with three correlation coefficients all higher than 0.90. The results show that the linear trend of global mean sterodynamic sea level change is  $2.85 \pm 0.30$  mm/year from altimetry, close to  $2.82 \pm 0.19$  mm/year of barystatic ( $1.55 \pm 0.15$  mm/year) plus steric ( $1.27 \pm 0.12$  mm/year) and  $2.94 \pm 0.13$  mm/year of the sum mass contributions ( $1.67 \pm 0.06$  mm/year) plus steric, whose misclosure ranges  $-0.09$  to  $0.03$  mm/year. The acceleration of global mean barystatic sea level change is  $0.139 \pm 0.019$  mm/year<sup>2</sup>, which is mainly caused by four factors,  $0.051 \pm 0.002$  mm/year<sup>2</sup> (~36.7%) by Greenland ice melting,  $0.027 \pm 0.002$  mm/year<sup>2</sup> (~19.4%) by Antarctica ice melting,  $0.027 \pm 0.001$  mm/year<sup>2</sup> (~19.4%) for other glaciers melting and  $0.032 \pm 0.010$  mm/year<sup>2</sup> (~23.0%) for land water storage, respectively. The findings in this study suggested that the global sea level budget was closed from 1993 to 2016 based on altimetry, steric, Tongji solutions and mass elements data.