

# Supporting Information for "Asymmetric Decadal Sea Level Trends in the Subtropical Pacific"

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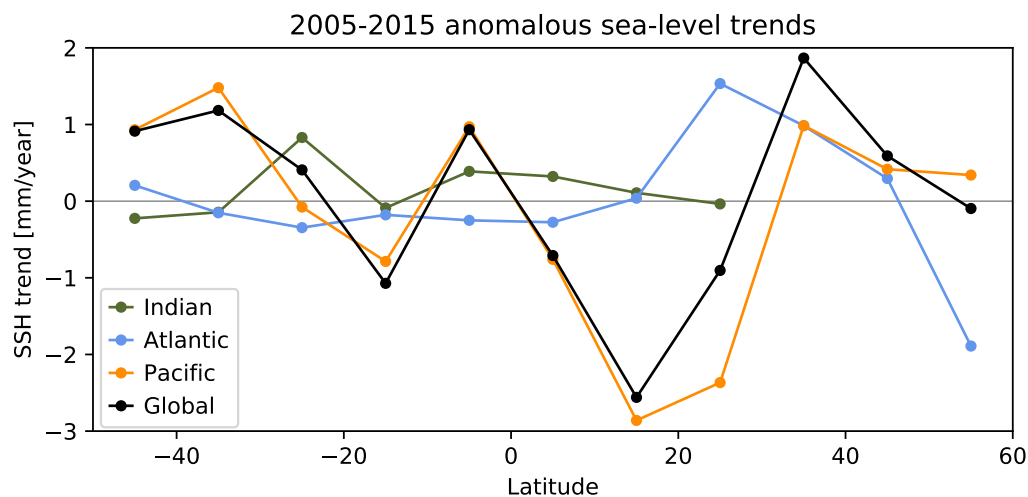
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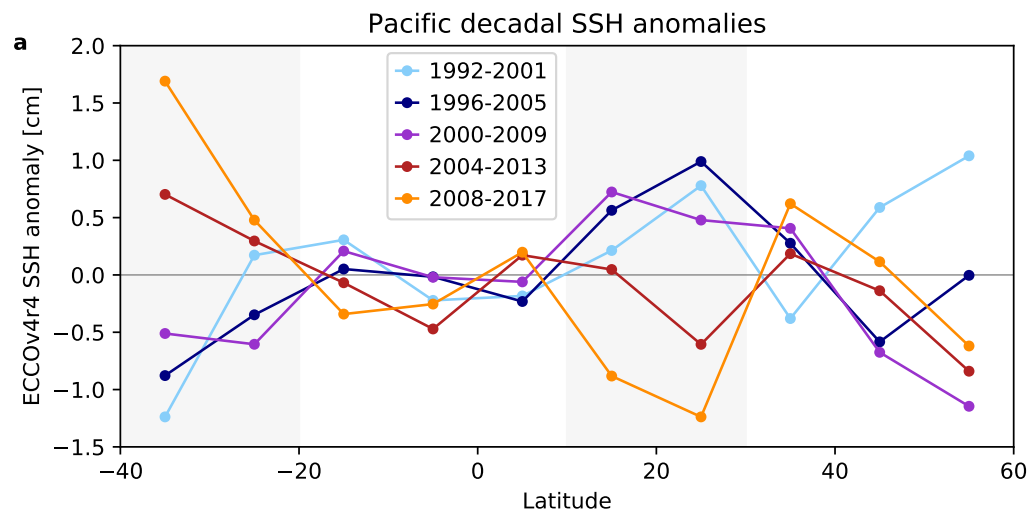
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1. Figures S1-S6

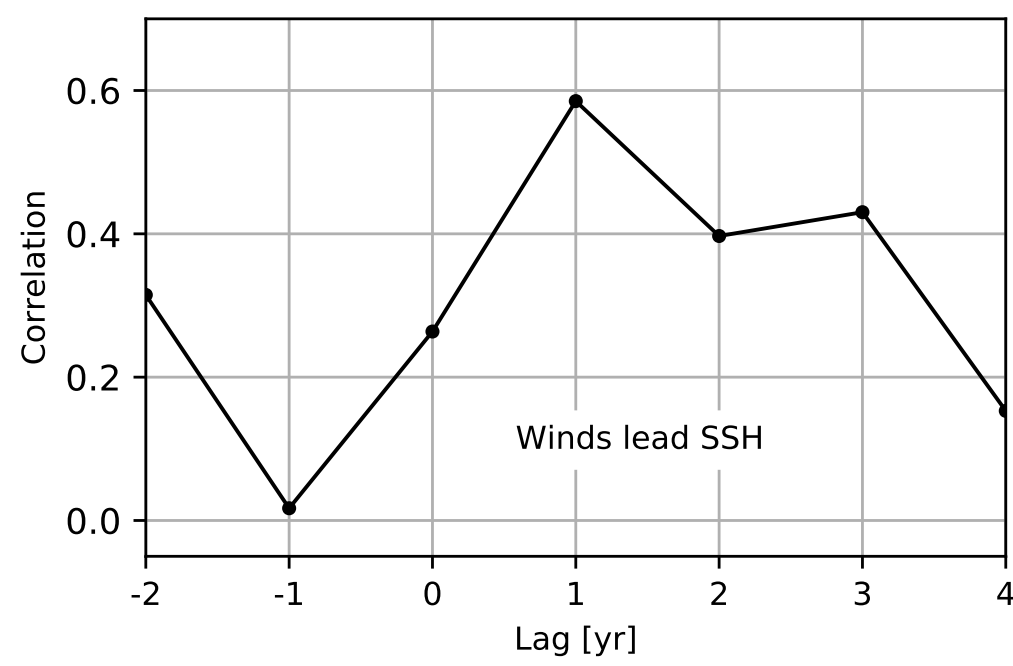
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**Figure S1.** ECCOV4r4 2005-2015 sea-level trends averaged over 10-degree latitude windows extending from 50°S to 60°N for the Pacific, Atlantic, Indian and global ocean. All trends are calculated relative to the 50°S to 60°N global ocean mean trend, and are scaled by the basin area fraction of the global ocean area in the corresponding latitude band.



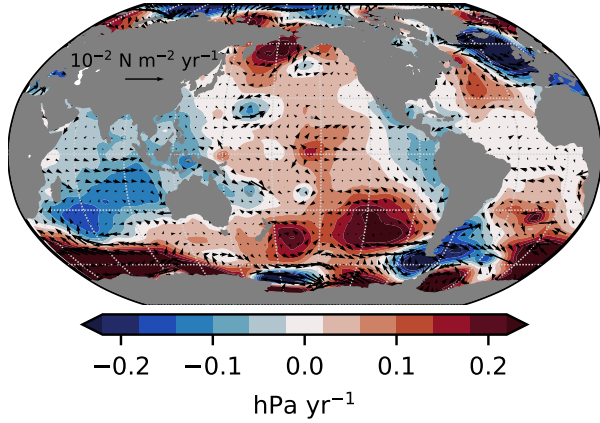
**Figure S2.** 10-year mean Pacific sea level anomalies in ECCOV4r4 averaged over 10-degree latitude windows.



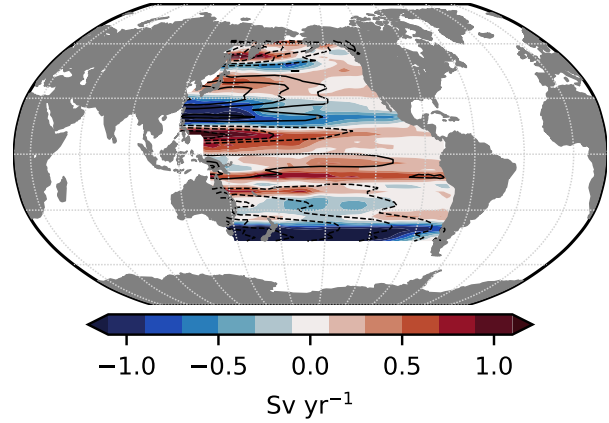
**Figure S3.** Lag-correlation of annual mean 10°–30°N Pacific sea level anomalies of ECCOv4r4 and reduced gravity model steady-state solutions forced by ERA-Interim annual mean wind stress.

## NCEP forcing and reduced gravity model

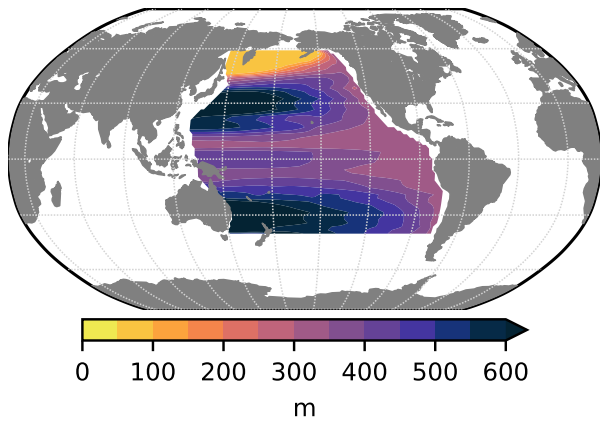
**a** Sea level pressure and wind stress



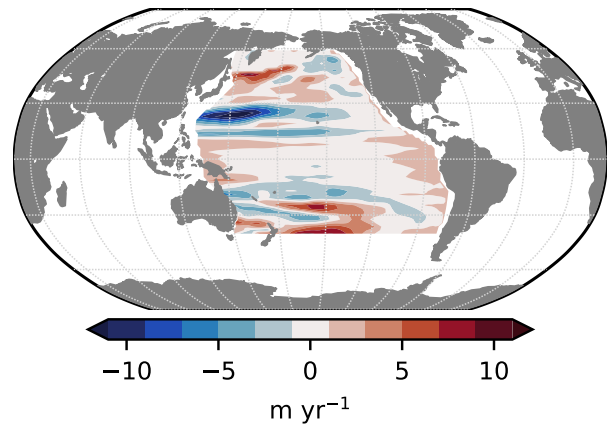
**b** Sverdrup transport



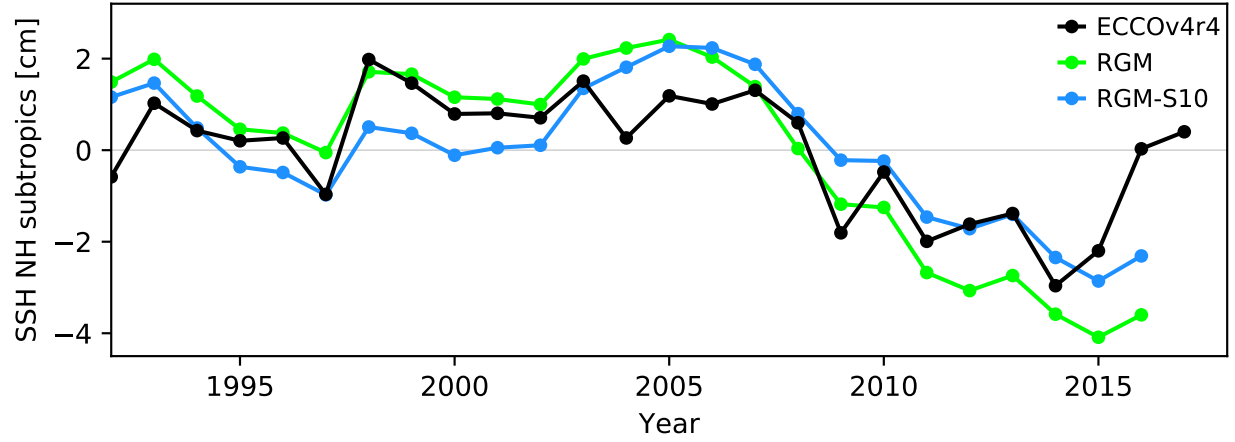
**c** RGM mean layer thickness



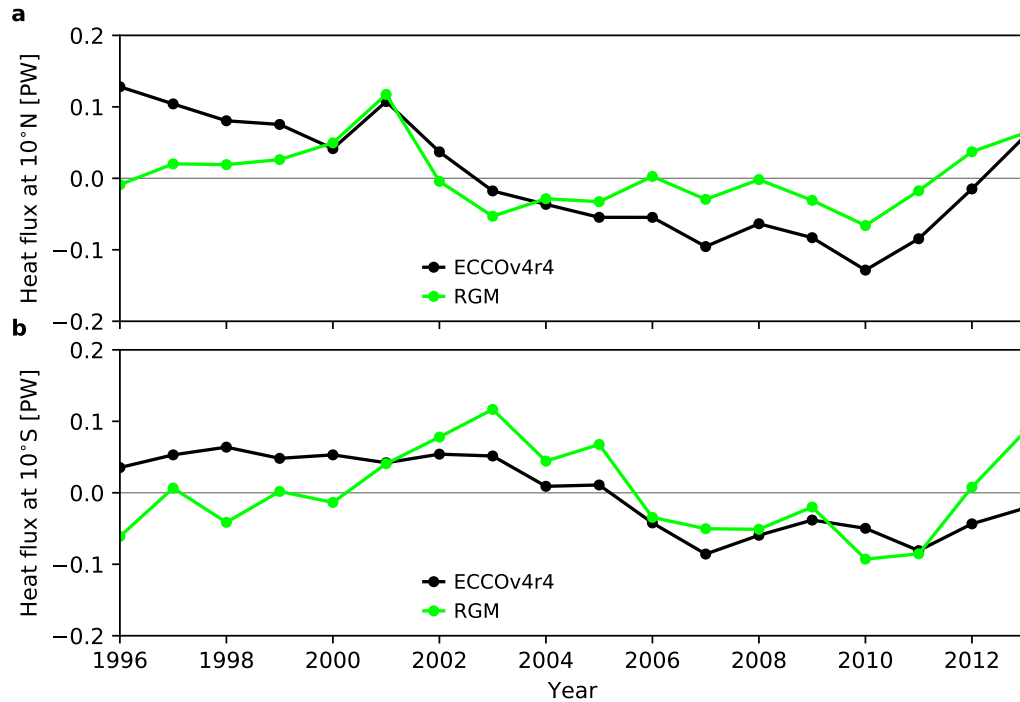
**d** RGM layer thickness trend



**Figure S4.** Horizontal maps (a) 2004–2014 trends of NCEP sea-level pressure (shading) and wind stress (arrows), (b) trends in Sverdrup transport in the Pacific (shading) and stream function of the mean circulation (contour interval 10 Sv). (c) Mean layer thickness in the reduced gravity model (RGM) with NCEP winds and (d) RGM layer thickness trends over years 2005–2015.



**Figure S5.** Time series of SSH averaged in the Northern Hemisphere subtropical Pacific,  $10^{\circ}\text{N} < y < 30^{\circ}\text{N}$ , for ECCOv4r4 (black curve), the reduced gravity model with ERA-Interim winds (RGM, green curve), and the RGM with climatologic forcing south of  $10^{\circ}\text{S}$  (RGM-S10, blue curve).



**Figure S6.** 9-year running mean of ECCOv4r4 and reduced gravity model (with ERA-Interim forcing) heat fluxes across (a)  $10^{\circ}\text{N}$  and (b)  $10^{\circ}\text{S}$ .