A Full-Depth Sea Level Rise Budget in the Southwest Pacific Basin using Deep Argo

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Additional Figures S1-S5 and Table S1 supplementing the figures in the main text are displayed in this supplementary material.

References

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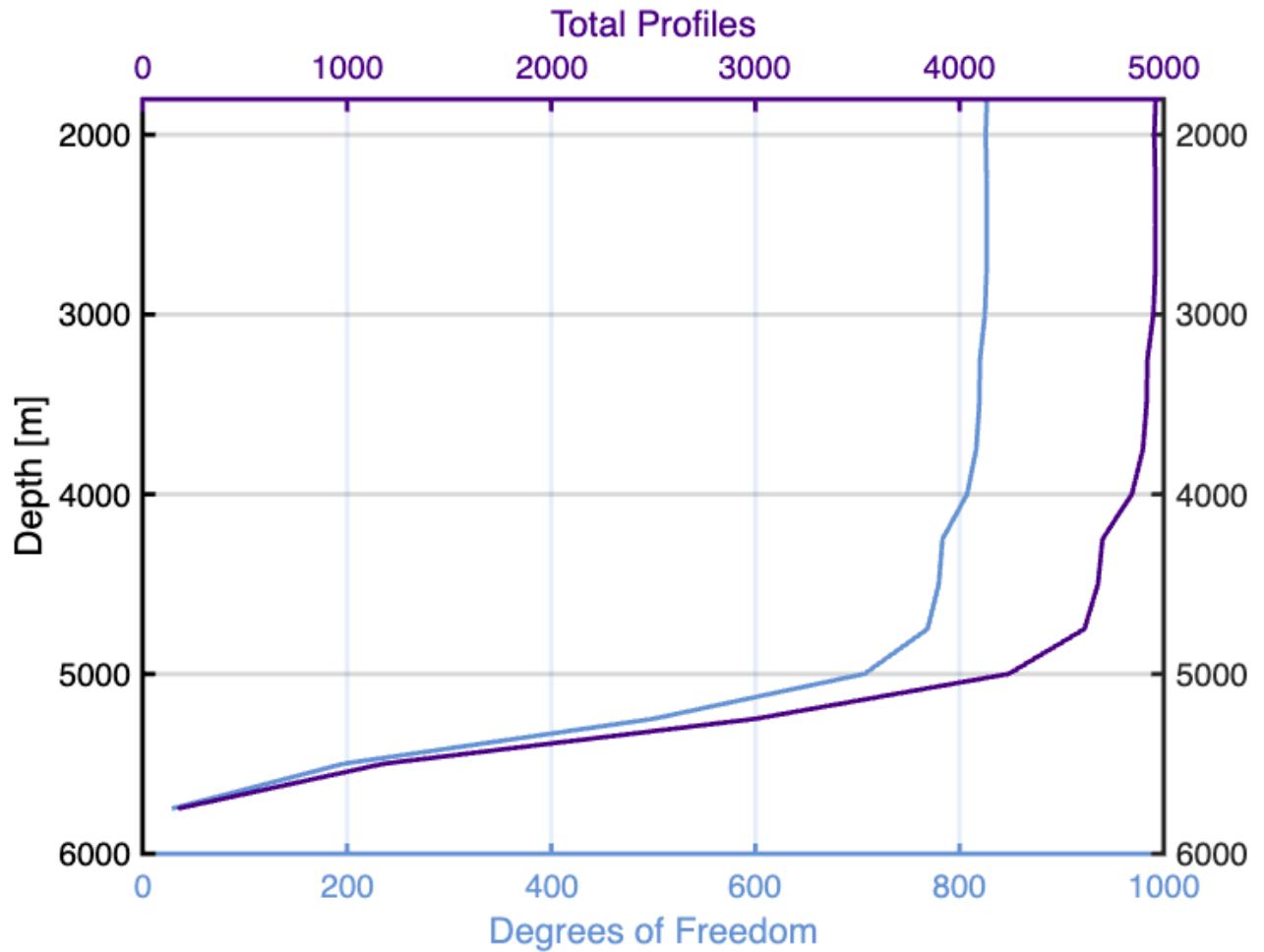
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Figure S1.   Degrees of freedom (blue) and total number of profiles (purple) as a function of depth used for calculating linear fits versus time as a function of depth (e.g. Figure S2, 3b)
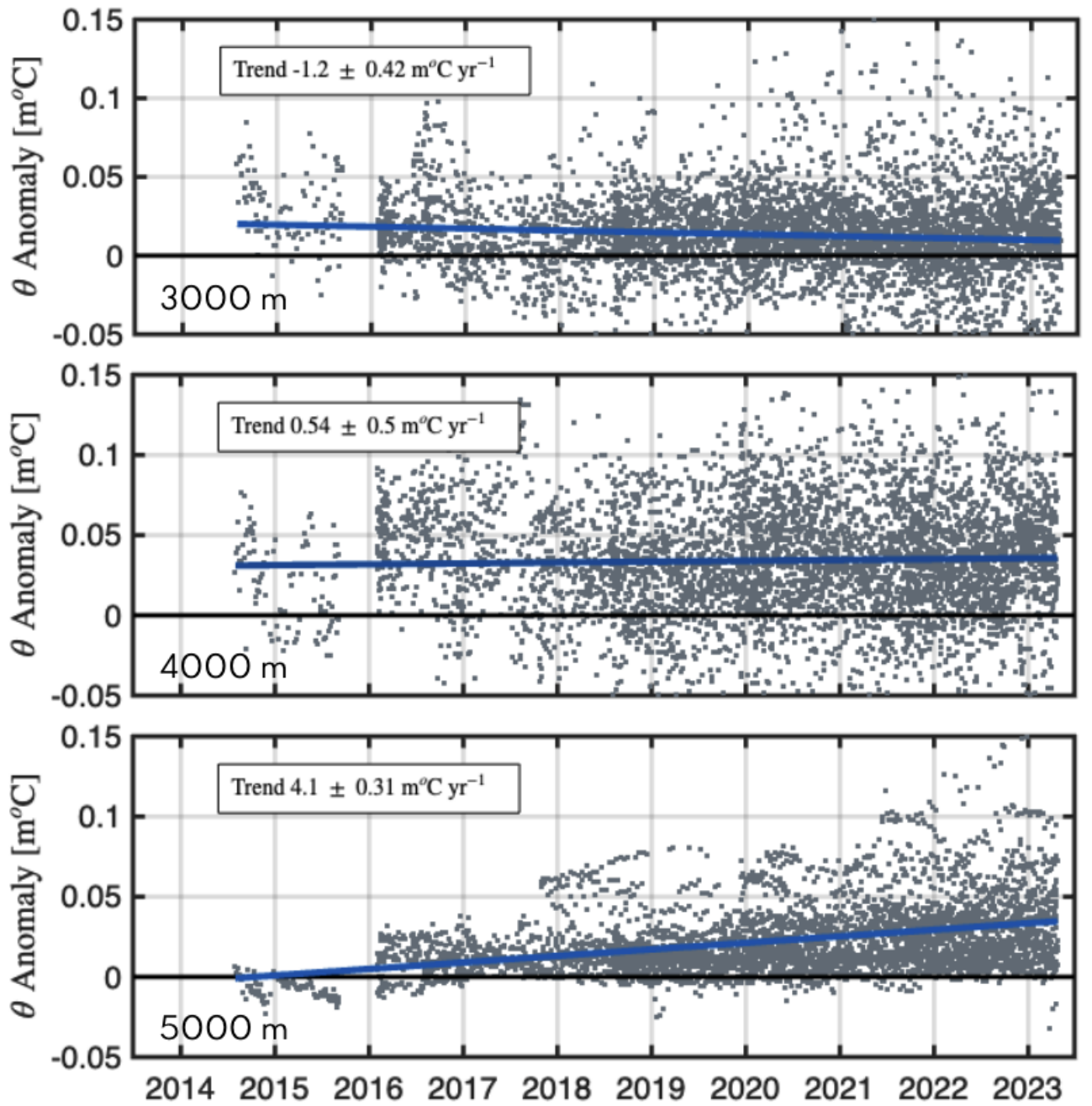
Figure S2. Θ anomaly trend [m^{o}C yr^{-1}] computed at 3000 m, 4000 m and 5000 m using all available Deep Argo profiles in the basin. The anomaly trend and confidence intervals are the same as in Table S1 and Figure 3b (main text).
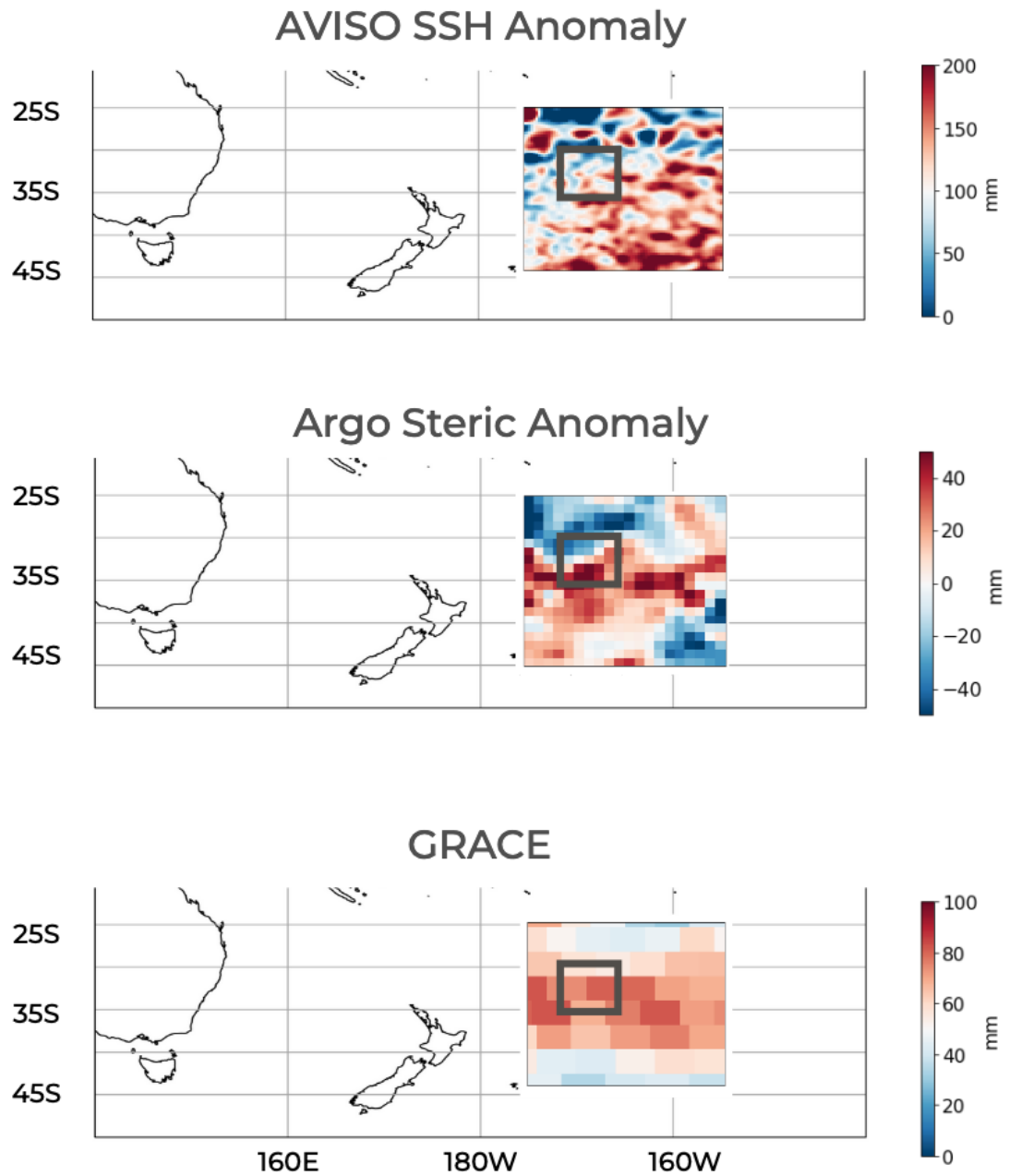
Figure S3.   Components of the sea level budget in the Southwest Pacific Basin, a) Sea surface height (SSH) anomalies b) Steric anomalies (0-2000 m) derived from Argo climatology and c) mass anomalies from NASA GRACE JPL RL06M mascon solutions. The $5^o \times 5^o$ region considered for the sea level budget in the study is shown in the grey 5° x 5° box, between 30-35°S and 170-165°W.
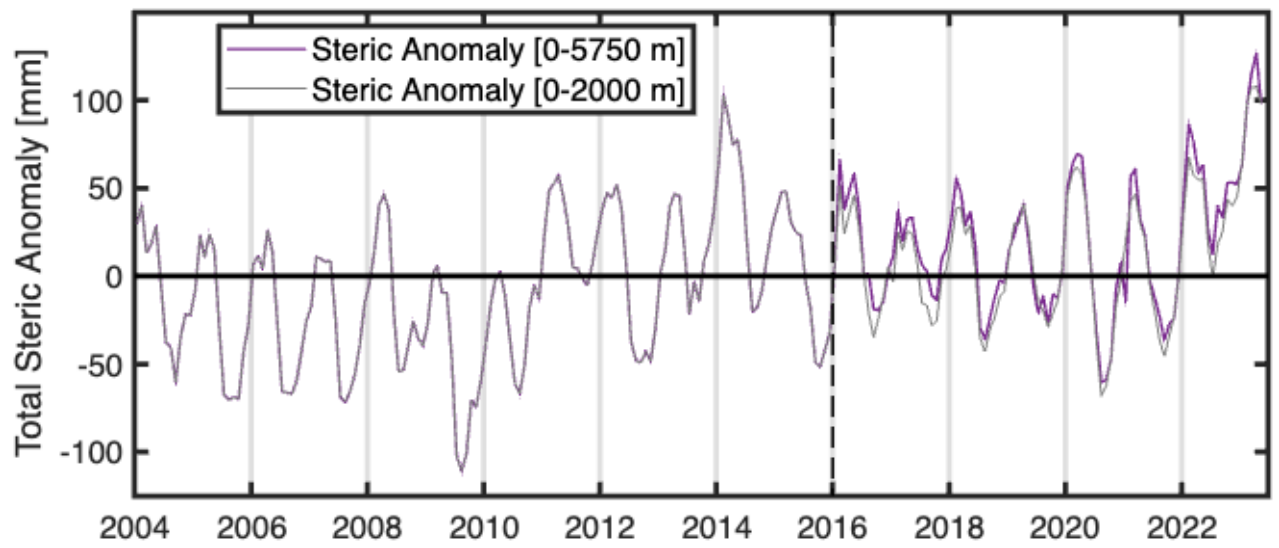
Figure S4.   Steric Anomaly between 0-2000 m calculated from Argo Climatology. We add

the deep steric component using 3 deep Argo floats in the 5x5 region considered in the sea level

budget (Figure S3, grey box)
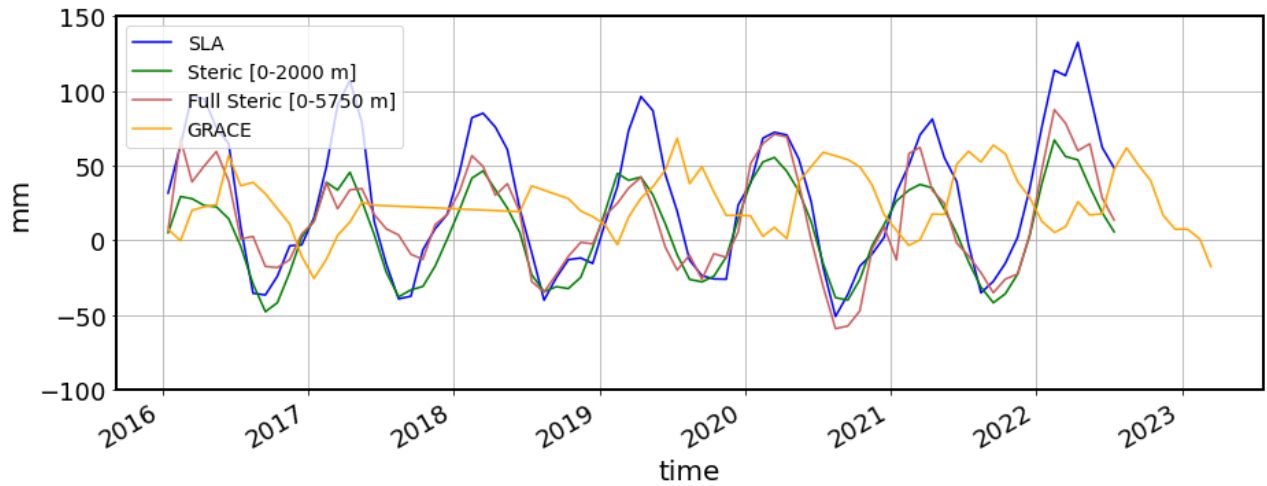
Figure S5.   Raw time series (without removing annual and sub-annual harmonics) of the components in the sea level budget (Sea Surface Height Anomaly [SLA], Upper Ocean Steric Anomaly from Argo Climatology [same as Figure S3, gray] , Full Steric Anomaly [same as Figure S3 purple], GRACE mass anomaly) considered in the study in the 5^ox5^o degree region of the Southwest Pacific Basin.

Depth [m]	Θ trend [m^{o}C yr^{-1}]
2000	-0.31 ± 0.52
2250	-0.35 ± 0.46
2500	-1.96 ± 0.46
2750	-1.76 ± 0.42
3000	-1.20 ± 0.42
3250	-0.78 ± 0.43
3500	-0.72 ± 0.49
3750	-0.75 ± 0.53
4000	0.54 ± 0.50
4250	1.74 ± 0.43
4500	2.48 ± 0.34
4750	3.50 ± 0.30
5000	4.07 ± 0.31
5250	3.00 ± 0.27
5500	2.33 ± 0.31
5750	2.40 ± 0.51

Table S1. Θ anomaly trend [m^{o}C yr^{-1}] computed at various depth levels using all available Deep Argo profiles in the basin. The anomaly and confidence intervals are the same as in Figure 3b (main text).