

Supporting Information

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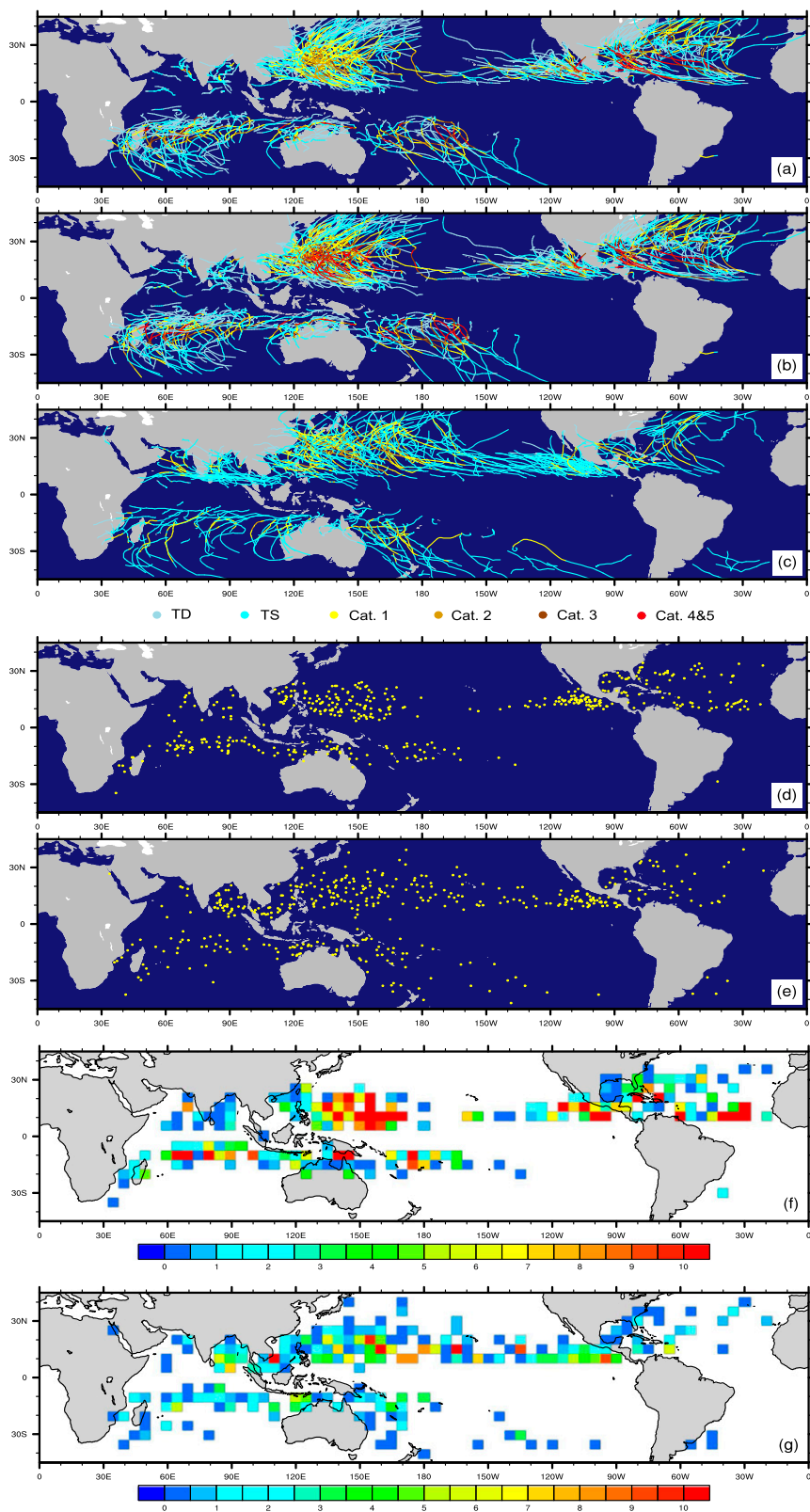


Fig. S1. Observed (A, B, D, and F) and modeled (C, E, and G) TC trajectories (A–C), genesis (D and E), and cumulative PDI ($10^{10} \text{ m}^3/\text{s}^2$; F and G) in the present-day climate. Observations are based on the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (A, D, and F) from World Meteorological Organization (WMO)-sanctioned forecast agencies and (B) from all agencies and dataset sources. Because the last 5 y of CAM4 results are used here, we just draw observations during a 5-y interval (2001–2005). Selection of different intervals in the observational dataset does not affect the qualitative comparison reported here.

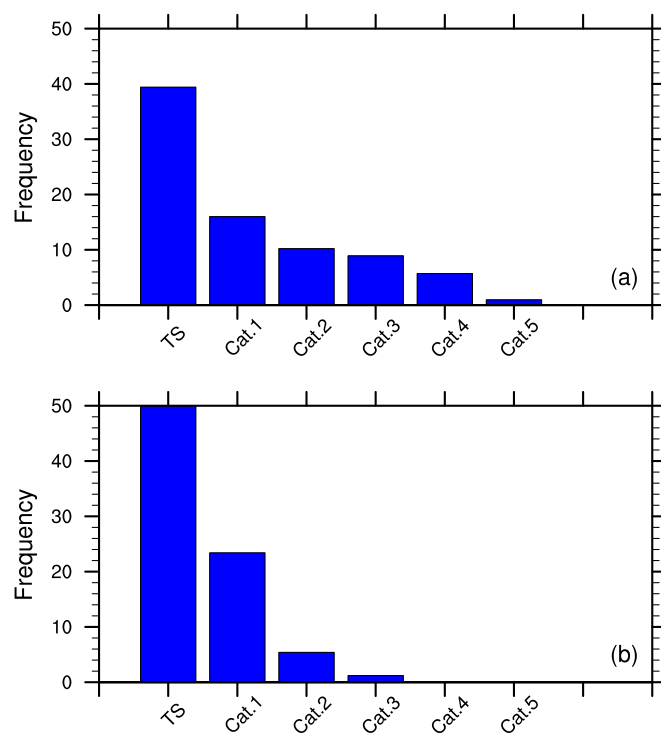


Fig. S2. Observed (*A*) and modeled (*B*) mean frequency of each TC category in the present-day climate. Observations are based on the IBTrACS-WMO dataset from 1991 to 2014.

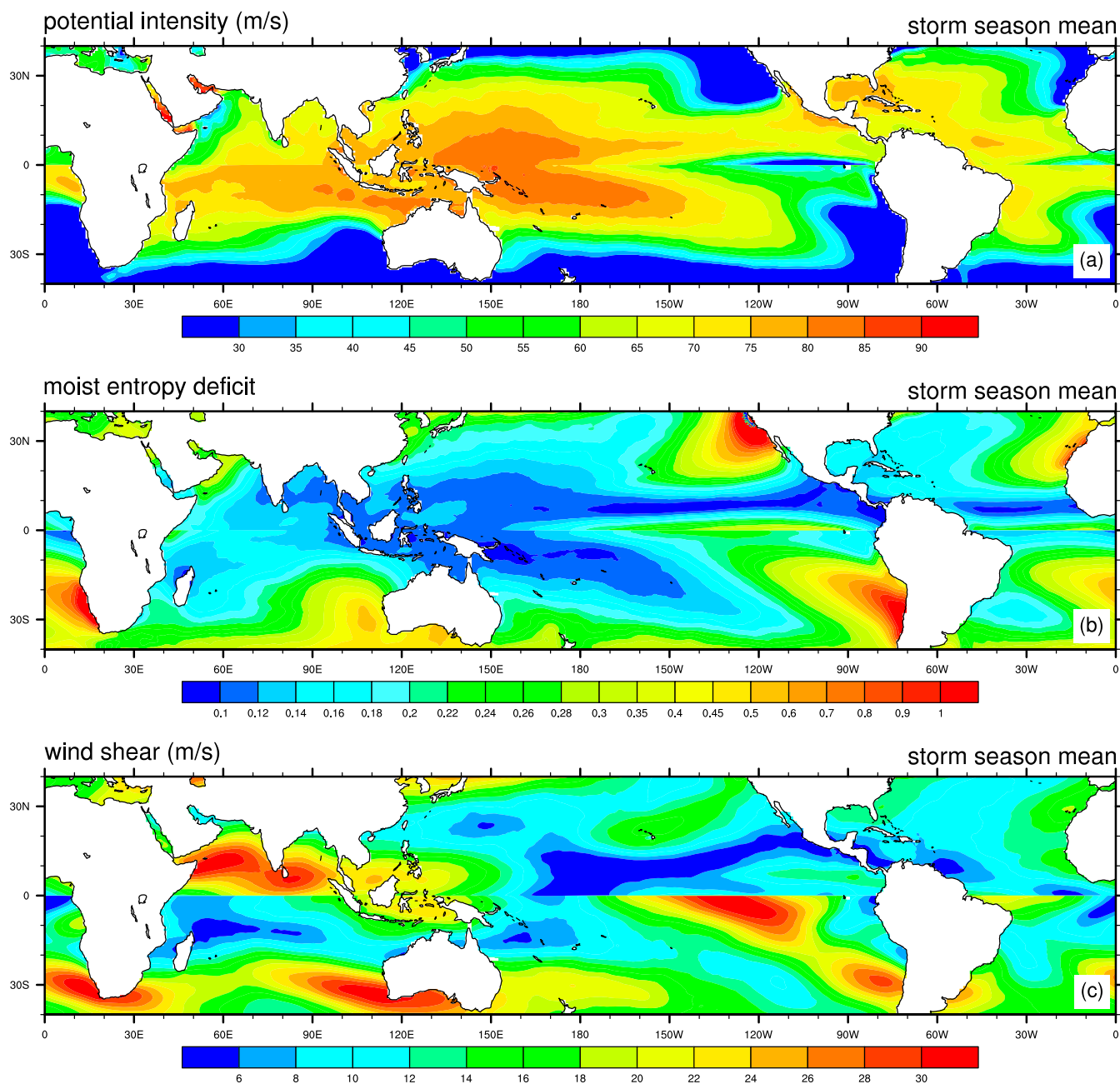


Fig. S3. Modeled storm season mean large-scale environmental conditions in the preindustrial experiment: potential intensity (*A*, meters per second), moist entropy deficit (*B*), and vertical wind shear (*C*, meters per second).

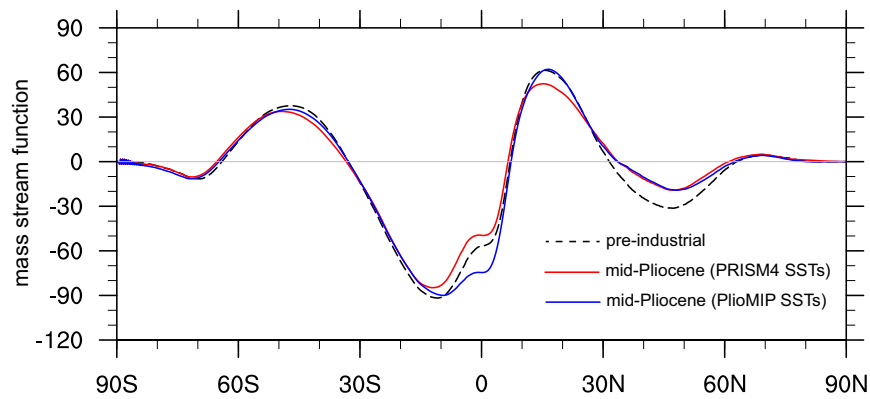


Fig. 54. Latitudinal cross-section of the annual mass stream function (10^9 kg s^{-1}) at 500 hPa in the preindustrial and two mid-Pliocene experiments. Hadley cell edges are defined as the latitudes where the mass stream function of the mean meridional circulation in the troposphere (at 500 hPa) becomes zero poleward of the subtropical maxima. It can be observed that Hadley cell expands poleward in both mid-Pliocene experiments, especially in the Northern Hemisphere.

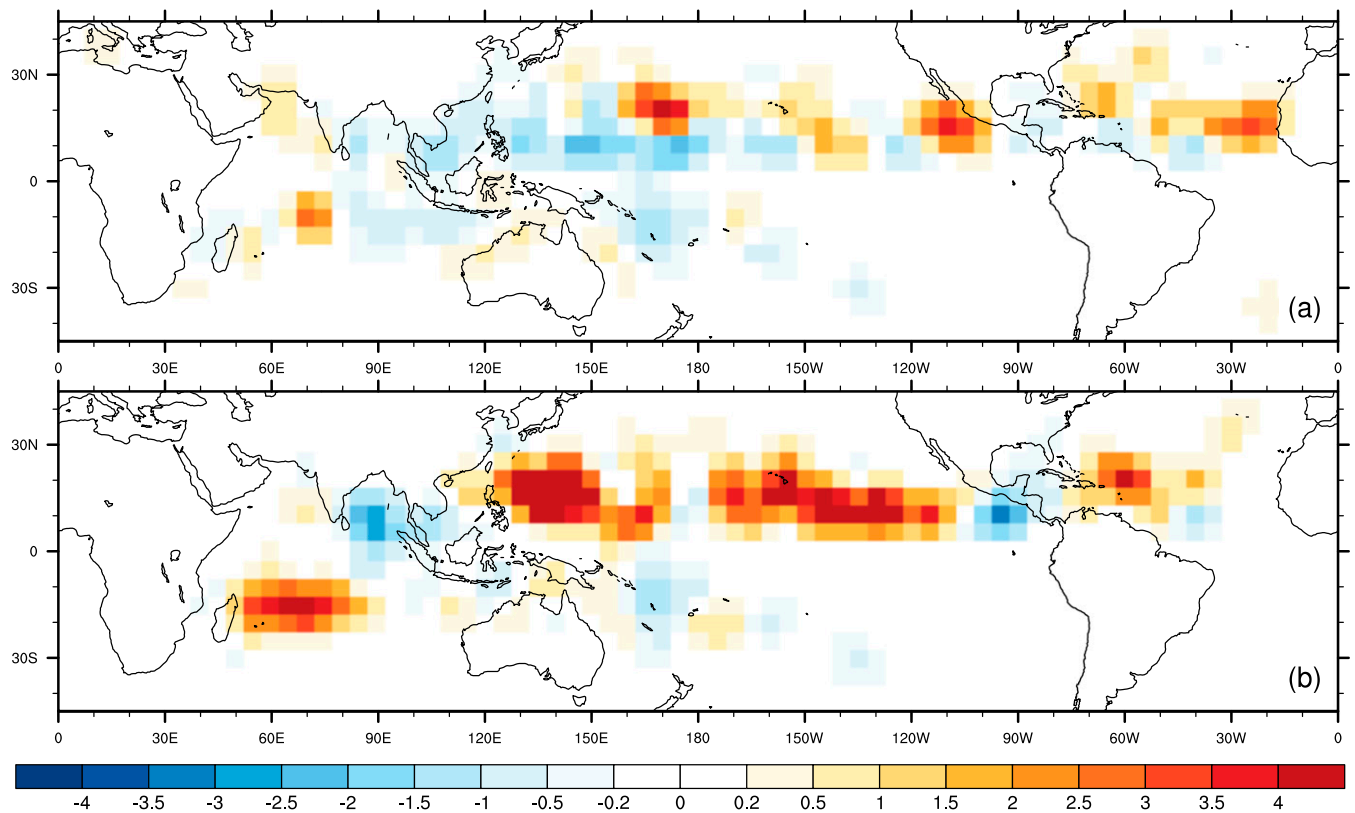


Fig. 55. Annual cumulative PDI anomalies (smoothed) between the mid-Pliocene forced by the PRISM4/PlioMIP SSTs (A and B) and present-day experiments; units are $10^{10} \text{ m}^3 \text{ s}^{-2}$ per $5^\circ \times 5^\circ$ gridbox.

