

Supplementary information for

Northward shift of the Kuroshio Extension during 1993–2021

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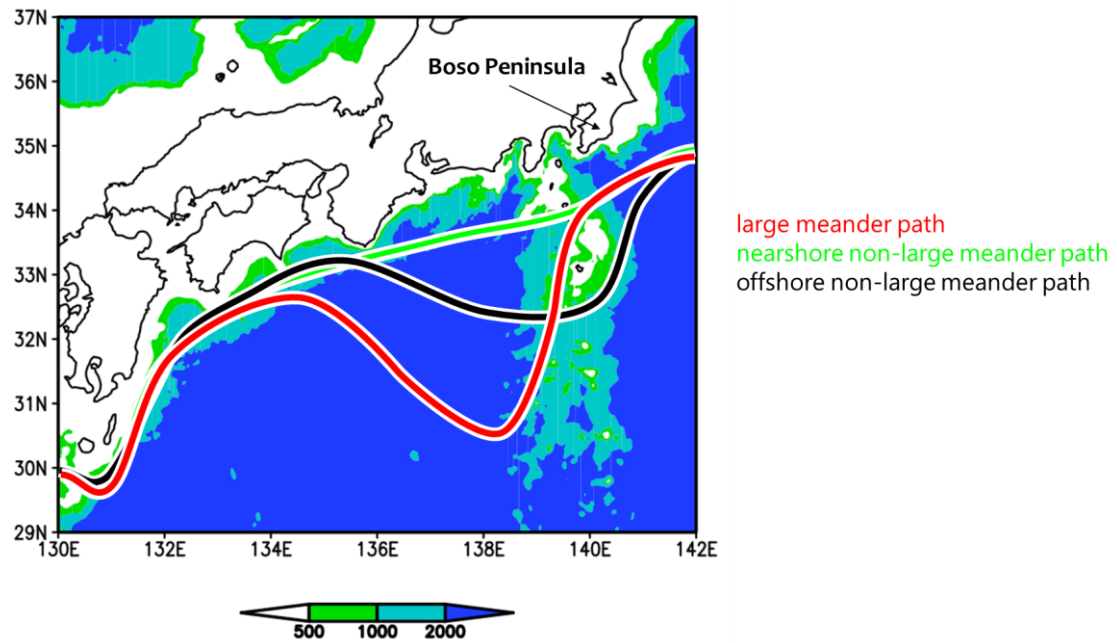


Figure S1

Typical Kuroshio paths south of Japan. The red, green, and black lines indicate schematic illustrations of the large meander path, nearshore non-large meander path, and offshore non-large meander path, respectively, based on Kawabe⁴. Color shading indicates bottom topography (m). The plot was generated with GrADS v2.0.2 (<http://cola.gmu.edu/grads/grads.php>).

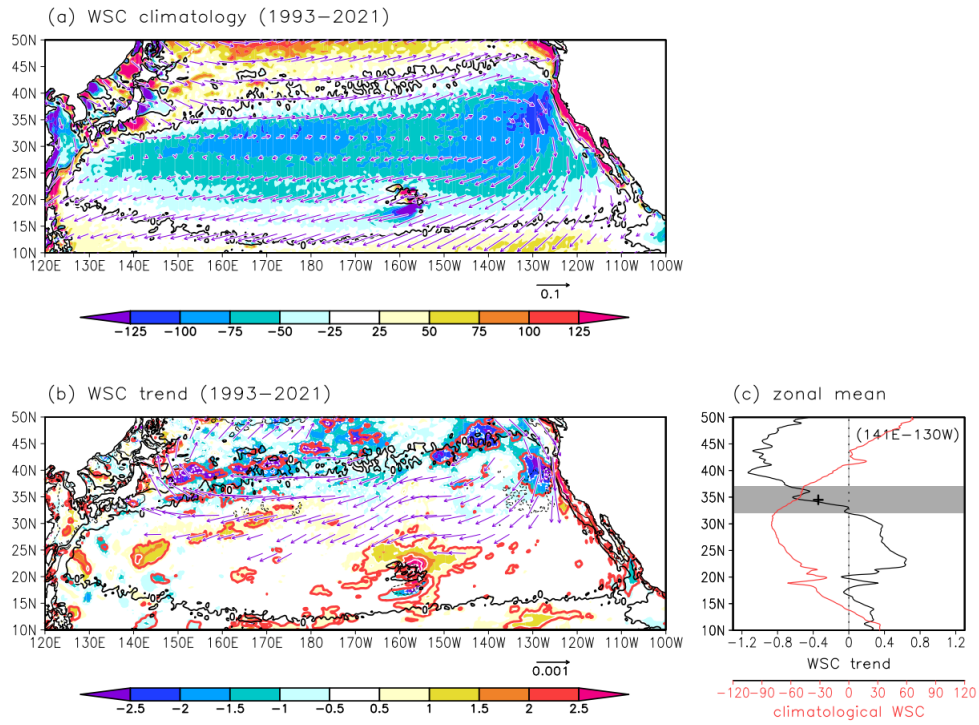


Figure S2

Long-term WSC changes over the North Pacific from the CTRL run. Same as Figure 4, but from the CTRL run. All plots were generated with GrADS v2.0.2 (<http://cola.gmu.edu/grads/grads.php>).

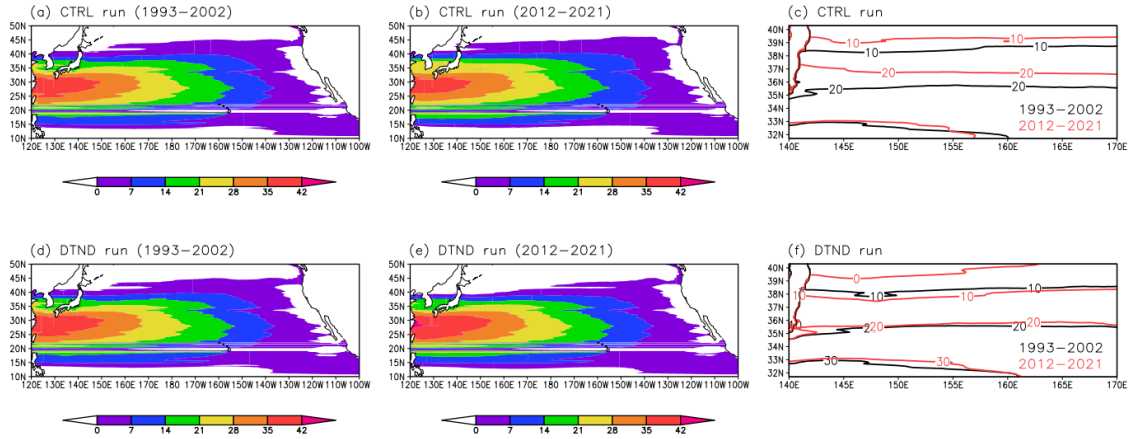


Figure S3

Long-term changes in Sverdrup stream function from NP model simulations. Sverdrup stream function (Sv) averaged for (a) 1993–2002 and (b) 2012–2021 from the CTRL run. (c) Enlarged figure of the KE region in panels (a) and (b). The black and red lines indicate the average for 1993–2002 and 2012–2021, respectively. (d)–(f) Same as (a)–(c), but from the DTND run. All plots were generated with GrADS v2.0.2 (<http://cola.gmu.edu/grads/grads.php>).