

Oceanic torques acting on the solid earth and their effects on the polar motion variation

Masayuki Fujita[1], Benjamin F. Chao[2]

[1] Hydrographic Dept. of Japan, [2] NASA, GSFC

Oceanic effects on the polar motion variation were examined based on the torque calculations. The result shows that the torque excitation for the polar motion has a strong correlation with the residual signal of the observed one after subtracting the atmospheric effect. It should be emphasized that the oceanic and atmospheric excitations have almost no correlation with each other, indicating that the ocean dynamics plays an independent role of that from the atmosphere in exciting the polar motion. Some prominent signals on longer than the seasonal timescales are found in both the oceanic and observed excitations, that do not appear in the atmospheric signals. This fact further emphasizes the oceanic role in the polar motion excitation.