Reply on CC1
Anonymous Referee #1

Referee comment on "Extension of Ekman (1905) wind-driven transport theory to the β-plane" by Nathan Paldor and Lazar Friedland, EGUsphere, https://doi.org/10.5194/egushere-2022-831-RC1, 2022

The authors discuss the extension of Ekman’s classical wind-drift solution to the beta-plane.

Of particular interest is the equatorial case. The authors use a mixture of the analytical and numerical approaches to show, among other results, that the averaged motion in the zonal direction is highly dependent on the meridional oscillations and for some initial conditions can be as large as the meridional mean motion. The paper is well-written and definitely of great interest. I strongly recommend acceptance after a minor revision. The author should also point out that extensions of the classical Ekman approach are also available in the papers A. Constantin and R. S. Johnson,

Ekman-type solutions for shallow-water flows on a rotating sphere: A new perspective

M. F. Cronin and W. S. Kessler, Near-Surface Shear Flow in the Tropical Pacific Cold Tongue Front,