

Interactive comment on “Can seafloor voltage cables be used to study large-scale circulation? An investigation in the Pacific Ocean” by Neesha R. Schnepf et al.

Anonymous Referee #2

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To go along with my review above, what would actually be a very good contribution to understanding these 4 cables would be to delve into the oceanic flow that causes the voltages. Within the ECCO "perfect model" framework, how does variability and spatial structure of the oceanic flow field give rise to the cable voltages? This would provide a way to quantify the paper's unsubstantiated comments about the relative impact of coherent or incoherent flow. As cable voltage depends on the water transport above it, you could break the cables voltage calculation from the ECCO model into shorter segments, and compare the multivariate segment-induced voltage against the transport over the segment. An EOF or Principal Component analysis seems best for explaining the voltages, and then coherence between the different segments can be

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calculated to quantify the degree of coherent cross-cable flow or not. Kudos if you look at variable segment lengths, especially calling out the spacing typical of telecom repeaters (see SMART cable material).

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