

Ocean Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/os-2021-63-RC2>, 2021
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Comment on os-2021-63

Anonymous Referee #2

Referee comment on "Decadal sea-level variability in the Australasian Mediterranean Sea"
by Patrick Wagner and Claus W. Böning, Ocean Sci. Discuss.,
<https://doi.org/10.5194/os-2021-63-RC2>, 2021

This is a nice modeling study of the decadal variations of the sea-level variability in the Australasian Mediterranean Sea. The study identified ENSO and PDO as the dominant climate drivers of the sea level variability in the marginal seas in this complex region, predominantly due to wind forcing and planetary wave propagations. The study also pointed out that buoyancy forcing are important in certain regions in the AMS. The manuscript is well structured so I suggest publications after some revisions.

I wonder if it is necessary to use the PDO index, as suggested by the authors, there are little differences in the result when just using the ENSO index. Maybe just use two frequency bands of the ENSO index.

As I understand both the ENSO and PDO indices are derived from the model results. Maybe it is necessary to show how the modeled indices compare with observations. It is not explained how the PDO index is derived.

Do different flavors of ENSO have an influence? Such as the so-called central Pacific ENSO.

Does the Indian Ocean have a decadal mode that could influence the region through oceanic Kelvin wave propagation or some teleconnection?

In Results, the first paragraph refers to Fig. 3, which in fact should be Fig. 1.

Line 198: "off the northwest coast of Australia" - it is not clear what the authors refer to in the figure.

Line 236: fix the sentence.

Fig.7: the legend doesn't match the caption.

Line 251: explain the meaning of the "advective nature".