

Interactive comment on “A Comparison of Ocean Model Results with Satellite Observations during the Development of the strong 1997–98 El Niño” by David J. Webb et al.

David J. Webb et al.

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I would like to thank the reviewer for taking the trouble with this paper and for his helpful comments, including those on the typos which always cause me problems.

Unfortunately I am about to be away for three weeks so I do not have time to give a detailed response soon but I would like to respond to a few points here, comments which might be of interest to other reviewers.

The reviewer states that he is not familiar with my previous paper on the 1982-83 and 1997-98 El Niños, but I would encourage the reviewer to read it for, although he or she

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may strongly disagree with some or many of the conclusions, the paper answers many of the questions posed in the review.

For example the reviewer questions the emphasis on the annual Rossby wave, but the model results indicate that this is a significant feature of the tropical Pacific and that the resulting strengthening of the NECC, at the start of the strong El Niños, is sufficient to carry warm water from the western Pacific into the eastern Pacific. The results also indicate that this warm water is sufficient to trigger deep atmospheric convection at the latitude of the ITCZ.

The model results discussed in the earlier paper support the interpretation of the signal at 5N as an annual Rossby wave. There is also a section on the Kelvin waves which show that they have little or no effect on ocean surface temperatures - especially the temperatures need to trigger deep atmospheric convection. The equatorial Kelvin waves are there but they only thicken the surface layer. They may increase the upper ocean heat content but they do not result in any significant increase in SST.

The main weakness of the original paper is that it is based only on model results - and models can be (often are?) wrong. For this reason I thought it important to check the model further against observations - the result being this paper.

I could go all through the original arguments again but this would greatly lengthen the present paper and, given the potential for controversy, would if done properly move the paper away from its main focus - which is the agreement between the model and the observations.

This includes for example the development of high SST in the central Pacific during the strong 1997-98 El Niño. Despite what the reviewer states, this was also seen in the model results during the strong 1982-83 El Niño.

Anyway - many thanks for your interest, I'll provide a more detailed response later.

David Webb.

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