

# ***Interactive comment on “Experimental and diagnostic protocol for the physical component of the CMIP6 Ocean Model Intercomparison Project (OMIP)” by Stephen M. Griffies et al.***

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Received and published: 20 May 2016

This paper documents the experimental protocol for the CMIP6 Ocean Model Intercomparison Project (OMIP); as well as a recommended suite of diagnostics to analyze the ocean component of OMIP and other CMIP6 simulations. This is a very thorough paper that provides excellent guidance for modeling centers participating in the CMIP6 experiments, as well as a reference for analysts. I found the paper very well-written and well-documented. I have only trivial comments and a few corrections, see below, and so I recommend the paper be accepted with only minor modifications.

p. 21, footnote 10: Should g not be added as part of the archive?

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p. 29, ll. 24-25, "...the first year...": Do you mean initial state instead?

Section 5.24: I often find the maximum mixed layer depth over a given averaging interval quite useful as well.

Section 6.7: So  $h_{fx}$  and  $h_{fy}$  will reflect total heat transport, not broken up in individual contributions?

Section 6.8: In the  $h_{fbc}$  diagnostics I don't see the contribution by the resolved flow called out. Is the idea that this can be calculated from the difference between the total and parameterized contributions?

p. 44, l. 12: ...should ALSO (?) compute...

p. 49, l. 6: componeNts

p. 51, l. 29: Goldsbrough

p. 68, l. 24: remove there

p. 79, l. 15: It is my understanding that Dukowicz & Smith's a free-surface formulation /does/ allow for changing surface layer thickness.

Appendix E: It's probably good to capitalize Kelvin and Celsius.

p. 105, l. 34: Leeuwen

p. 106, l. 8: Carson

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Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-77, 2016.

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