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Interactive comment on "The transient distributions of nuclear weapon-generated tritium and its decay product ^{3}He in the Mediterranean Sea, 1952–2011, and their oceanographic potential" *by* W. Roether et al.

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We appreciate the favorable judgement of our work by the reviewer. To his comments we answer as follows: #1, place methodology of Section 4 into an Appendix? We prefer to leave Section 4 within the text, because it is not just formal but also gives specific results (quantifies a sizeable correction; deduces uncertainty of terrigenic 3He) that are highly relevant for the paper. #2: Problems with label readability in figures, larger figures. We shall use larger font for isolines labels. Additionally however, as the Journal has open access web presentation, size problems can be solved by magnifying figures

on the screen. #3, p. 651, l.13 (tritium input) and 19 (both what?). Tritium input is primarily by exchange of water molecules between atmosphere and ocean surface, at a rate which is about 3-fold that of evaporation. The higher tritium concentration arises because the continental lower troposphere has distinctly higher tritium than the oceanic one. Alpha decay occurs in both "sediment and crust". We shall reword to better explain both these items #4 p. 652 last line, delete repeated work. Thanks for pointing this out. #5, p. 654, l. 1-8, unclear. ok, will be reworded #6, p. 659, l.18-23, refer to water mass ages? The subject here is changes in the tritium distribution with time, ages are introduced only later in the paper. We shall reword to clarify the upstream argument. #7, p. 661 l.1-8 and 13-14, effect of the WMT. Our text is somewhat unclear here and will be amended. #8, p.671, l. 20 and 27, a repeat from Section 7.3. We shall attempt to concentrate the argumentation, although the named lines are in the Conclusions section and we regard the matter in question an important result of our work.

Interactive comment on Ocean Sci. Discuss., 10, 649, 2013.