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## ***Interactive comment on “Interannual variation in the epibenthic megafauna at the shallowest station of the HAUSGARTEN observatory (79° N, 6° E)” by K. S. Meyer et al.***

### **Anonymous Referee #2**

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This paper is a descriptive study of the megabenthic community at the shallowest station of the HAUSGARTEN observatory. After reading the objectives of the journal, which is to present manuscripts that showed the interactions between the biological, chemical and physical processes, I feel that the manuscript submitted is more related to the field of biodiversity only and do not really cut across disciplines (except the small section 3.6.) Furthermore, the objective of the manuscript is very clear but not original and no hypotheses are presented. It will be essential to have hypotheses. In other words, why is it special to compare these three dates? It is also important that the authors highlight the confounded factors between 2002-2007 and 2012. The fact that the altitudes used to take the pictures were not the same between the years could be prob-

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lematic in the interpretation, especially as the differences observed is between 2002-2007 (3.3-4.1 m altitude) and 2012 (1.3-1.5 m altitude). The authors should discuss that possibility. The ground-truthing was no performed the same years that the pictures were taken. Pictures were taken in 2002, 2007 and 2012 and the ground-truthing was performed in 2004, 2008 and 2012. What is the limitation of this? More importantly, the environmental parameters were obtained from sediment samples between 2001 and 2011 and not in 2012 when it is impossible to relate the data of 2012 with sediment parameters. The data collected during these expeditions are very valuable but a major revision is needed before this paper could be accepted.

Specifics - page 18047-18048- Why using Kruskal-Wallis and Mann-Whitney test instead of ANOVA ?

- Section 3.4. A long description of species that were not included in statistical analyses should be removed. This is a description that is informative but where no conclusion could be drawn. This section is also longer than the results section with the group that is used in statistical analyses.

- Section 3.5- remove the paragraph before section 3.5 which is too descriptive

- Section 3.5 is very interesting but we do not know how the Lebensspuren were measured (please add in the method section). Furthermore, these papers could help to develop the discussion around the temporal trend of the Lebensspuren. Bell, J.B., et al., Lebensspuren of the Bathyal Mid-Atlantic Ridge. *Deep-Sea Res. II* (2012), <http://dx.doi.org/10.1016/j.dsr2.2012.09.004> or, Belley R., et al. Effects of hypoxia on benthic macrofauna and bioturbation in the Estuary and Gulf of St. Lawrence, Canada. *Con. Shelf Res.* 30:1302-1313 (2010) or Hunter et al. (2011) Epi-benthic megafaunal zonation across an oxygen minimum zone at the Indian continental margin. *Deep-Sea Research I* 58 699–710.

- Section 3.6. In the method section it was mentioned that these parameters were measured in 2001 to 2011 , why 2012 was not included?

- Section 4.1 This section should be removed or an objective that the biogeographic range of the species recorded will be study and compare should be added.
- Page 18055, lines 20-23- An explanation should be added.
- Section 4.3. line 20- Remove the word suspect for we hypothesized.
- Section 4.4- It is mentioned that a slight decrease in detrital input was observed in 2004-2005. Please indicate where this result comes from. I cannot find it in the results section?
- Section 4.4, line 13- There is a differences in number presented between this section and the section 3.3. In section 3.3 it is mentioned 9-11 species and in section 4.4, it is 10-12 species. Please clarify.
- Section 4.5- line 20. In section 3.2, 6 of 11 species showed no significant differences in density but in section 4.5, it is 7 of 11 species. Please clarify.
- Section 4.6- this section is not related to the objective of the study.
- Figure 6 should be remove because it is not related to the results

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Interactive comment on Biogeosciences Discuss., 9, 18039, 2012.

**BGD**

9, C7999–C8001, 2013

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