

Interactive comment on “First year of the new Arctic AWIPEV-COSYNA cabled Underwater Observatory in Kongsfjorden, Spitsbergen” by Philipp Fischer et al.

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Dear editor, please find attached the revised version of the ms according to the recommendations of the reviewers. We were able to fulfill all reviewers recommendations and comments and have made all changes available in the ms in a tracking version. Additionally we have added a clean version. In the attached zip-file, you will find the three files (1) COSYNA_special_issue_ms_the new Arctic_AWIPEV_Observatory_revised_Jan_2017_with_changes.docx (2) COSYNA_special_issue_ms_the new Arctic_AWIPEV_Observatory_revised_Jan_2017_with_changes_clean.docx (3) COSYNA_special_issue_ms_the new Arctic_AWIPEV_Observatory_figures_and_tables_revised_jan_2017.docx

The following changes according to the reviewers recommendations were made in the

revised version:

Comments of reviewer 1 and the authors responses:

I recommend to accept this manuscript as final paper in OS after minor revision. I recommend the following changes: Title: Change into “First year practical experiences. . .”

Authors comment: Changed in the revised version

Page 2, lines 24, 25: cite: Paar M, Voronkov A, Hop H, Brey T, Bartsch I, Schwanitz M, Wiencke C, Lebreton B, Asmus R, Asmus H (in press) Temporal shift in biomass and production of macrozoobenthos in the macroalgal belt at Hansneset, Kongsfjorden, after 15 years. Polar Biol. doi 10.1007/s00300-015-1760-6

Authors comment: cited in the revised version

Page 14, lines 110, 11: Cite: MuñLler R, Bartsch I, Laepple, T, Wiencke C (2011) Impact of oceanic warming on the distribution of seaweeds in polar and cold-temperate waters. In: Wiencke C (ed): Biology of Polar benthic algae, de Gruyter, p. 237-270

Authors comment: cited in the revised version

P14 line 23: This is not only the first data set from Kongsfjorden but for the whole Arctic. Do not hide your light under a bushel. This is a point you should stress!

Authors comment: changed in the revised version

Authors comment: All following typos and spelling errors have been corrected in the revised version: There are numerous typing errors. Please change! The first letter in “Arctic” is always a capital letter! “Appendicularia” are spelled with a “double p”! Use either the term “Kongsfjord” or “Kongsfjorden”! The upperpanel of Fig. 5 is not necessary! In the following I list the typos in correct spelling. Page 1, line 19: system Page 1, line 25: underwater Page 3, line 4: zooplankton Page 3, line 24: seasonally Page 3, line 25: Jørgensen and Gulliksen Page 4, line 7: remotely Page 4, line 18:

trophic Page 5, line 18: Saccharina, algal, Phycodrys Page 8, line 2: cover Page 8, line 3: litho-pelagic Page 8, line 9: depth Page 8, line 11: allows Page 8, line 14, provides Page 10, line 10: oculata Page 13, line 24: insufficient Page 14, line 27: reveal Page 14 line 30: show Page 15, line 1: chaetognaths Page 15, line 11: sunlight Page 15, line 14: column Page 14, line 22: show Page 14, line 24: seaspiders Page 15, line 9: appendicularia page 17, line 31: shows page 18, line 18: loosing page 18, line 28: operation page 18, line 29: site page 21, line 20: Jørgensen page 25, line 27: reveal legend Fig. 8: seasonal Further changes: Page 1, line 32: delete “the” before “polar systems” Page 5, line 17: change “Alaria esculenta” into italics Page 7, lines 26-28: Put “(Bartsch et al., 2016)” at the end of the sentence. Page 9, line 3: Insert “also” after “shows”. Page 9, line 11: Exchange “individuals” by “individual organisms” Page 13, line 1: Insert “fish” after “water”. Page 13, line 20: Delete “the” after “that”. Page 13, line 25: exchange “lead to” by “result in”. Page 14, line 13: Exchange “did” by “do”. Page 15, line 29: Exchange “this” by “these”. Page 15, line 30: Change the order of words into: “may also”. Page 16, line 21: Make a full stop after (Pihl, 1982). Delete “and assumed” by “This has been regarded as” Page 17, line 17: Change “Myoxocephalus scorpius” into italics. Page 17, line 30: Exchange “those” by “fish with these characteristics”. Page 23, line 21: The paper appeared in “Polar Biol. 24, 2001, 113-121.” Page 23, line 22: Change “Calanus” into italics. Page 23, line 13: The correct citation for this issue is: “Ber. Polarforsch. Meeresforsch. 492, 2004, 1-244”

Comments of reviewer 2 and the authors responses:

I fully agreed with the comments of the other referee. I would just add the following. This manuscript is valuable to be published because, in addition to its quality, it demonstrates how observatories are highly relevant to lead new researches when there are based on the deployment of several kinds of platforms together, with a multidisciplinary approach integrating biology with the understanding of the physical environment. It demonstrates how the technical challenge to deploy a cabled observatory with profiling systems including video profiler systems can be successfully addressed. I consider

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our research and our society would benefit a lot of this type of research and that our responsibility is to promote it and to express a strategy for its future use. Consequently i would recommend to add a specific paragraph at the end of the conclusion: next steps and needs.

Authors comment: We have added a "Next steps and needs" parapraph to the end of the discission section and tried to include all recommendations from reviewer 2 in this passage.

New paragraph on page 18 - 19:

Next steps and needs Besides the here presented ecological and hydrographical results from the Kongsfjorden ecosystem, the study demonstrates the advantages of permanently operated cabled observatory technology - especially when combined with other research methods in a multidisciplinary approach integrating biology with the understanding of the physical environment. Cabled observatories with continuous power supply and network access allow the use of state of the art IT-technology and smart-monitoring approaches under water. These are often not applicable in mooring based sensor technology because no feedback to the operator is possible and thereby the researcher itself cannot react on specific environmental situations during the measuring process. Furthermore, complex sensor systems like profiling video or stereo-imaging systems often cannot be operated unsupervised for longer times because the controlling software is either too complex, the power consumption is too high, or the required test and development phases for an unsupervised operation of such systems are too long and therefore too expensive. Cabled observatories with permanent access, power supply and systems control allow even complex sensor systems to be operated for longer periods because in case failures, the system can give an alert to an operator elsewhere to request remote control and if necessary sensor reset. Based on our experiences with the cabled observatory in Svalbard, we assume that such underwater research facilities, if operated within an international and well focused research strategy, may significantly promote our knowledge especially in

remote and sensitive areas like the polar regions.

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/os-2016-52/os-2016-52-AC1-supplement.zip>

Interactive comment on Ocean Sci. Discuss., doi:10.5194/os-2016-52, 2016.

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