

Data Paper

Takeshige Ishiwa, Yuki Tokuda, Satoshi Sasaki, Takuya Itaki, Yusuke Suganuma, Kota Katsuki, and Minoru Ikehara.  
Non-destructive analysis and lithological descriptions of sediment cores from Lake Nurume, Langhovde in Lützow-Holm Bay. Polar Data Journal. 2022, 6, p.80–89. <https://doi.org/10.20575/00000043>.

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1st submission

Editor Start Date: 6/16/2022

Editor Stop Date: 8/31/2022

Reviewer #1 (7/19/2022–7/20/2022)

Reviewer #2 (8/8/2022–8/29/2022)

Editor comments to the Author: Akira Yamaguchi

Dear Dr. Ishiwa,

Your manuscript has been reviewed by two reviewers. They recommend that your manuscript is accepted after minor revisions. I agree. Please revise your manuscript. In your response letter, please be sure to indicate how you have addressed each of the comments.

Sincerely,

Akira Yamaguchi

Reviewer #1: Dominic A Hodgson

L.28: change “as” to “of”

L.34: add “the potential of these cores for” before “paleoenvironmental”

L.42: change “variations of” to “measurements of the”

add “in the instrumental period” before “AIS”

L.46: change “paleoclimatic reconstructions” to “paleoclimate”

L.47–49: remove two sentences from “These sediments are...” to “...research in Antarctica.”

L.51: add “and discuss how future analyses of these sediments will contribute to paleoenvironmental research in Antarctica” at the end of the sentence.

L.55: replace “saline and marine relict lake” with “16 m deep and the water column is stratified with an upper layer of

saline, and a lower layer of hypersaline water”

L.56: replace “and isolated from the sea by a” with “. It was formed by late Holocene isostatic uplift which isolated the basin from the sea. The sill height is”

L.60: upon the water - Was this from a ‘raft’ or a ‘boat’?

depth - Refer to the bathymetry here (Fig. 1d) - and outline the rationale for core site selection.

L.120: replace “Depth” with “Sediment depth”

L.125: results - I suggest an additional paragraph on 'potential applications' of this core to palaeoenvironmental, sea level and climate research, together with biological applications. This will help guide future users of the data.

For example:

Sea level: test the hypothesis that with a 1 m sill height the lake was isolated in the last 500 years (see Verleyen et al. 2017).

Palaeoenvt: characteristics of the near shore marine environment prior to isolation. Sea ice vs. open water.

Radiocarbon dating etc.

Biology: Sea ice species assemblages, post isolation assemblages, establishment of communities in the stratified water column (see Kurosawa et al 2010); noting that you have collected cores from above and below the chemocline. Biogeography.

#### Reviewer #2: Anonymous

Ishiwa et al. present a data paper with a number of datasets derived from the multiproxy analysis of multiple sediment cores from lake Nurume in Langhovde, Lützow-Holm Bay, East Antarctica. The methods are appropriately described and the figures are clear. The datasets are stored in an online database. I only have some minor suggestions regarding the text as detailed below.

L.47: unclear what is meant with 'it has been challenging to take the second one.'

L.55: add 'a' between 'and' and 'marine relict'

L.56: full stop and new sentence should start after 'sill'

L.60: what do you mean with 'upon the water'? From a coring raft?

L.67: replace 'were taking' with 'included'

L.70: replace 'with ...' with 'into four parts'

L.94: replace 'develops' with 'is present'

L.95: replace 'by human eyes' with 'the naked eye'

L.101: replace 'have been' with 'are'

L.112: unclear what is meant with 'RGB values of gray were corrected to be the same' please clarify.

L.113: also this is unclear: 'In this case, a\* value shifts regardless of no change of color by human eyes.

L.116: 'of its depth' should be 'for its depth'

L.128-129: delete 'in writing'

L.141: 'A sampling' should be 'The sampling'

Table 1: Last column should be 'Total core length (cm)'

In Table 2 the sum of the core lengths of JARE61\_NRM08 is not equal to the total core length in Table 1. Please correct

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Authors Response:

*We appreciate giving valuable comments and are pleased to resubmit this manuscript. The comments are in black text and our responses in red and italic text. We have revised the manuscript, "Ishiwa+MS\_v1.docx" and also attached the manuscript with track changes.*

Response to reviewer #1;

L.28: as -> of

*Done*

L.34: add "the potential of these cores for"

*Done*

L.42: variations of AIS -> measurements of the AIS in the instrumental period

*Done.*

L.46: paleoclimatic reconstructions -> paleoclimate

*Done.*

L.47: Remove these two sentences.

*Done.*

L.49: add "and discuss how future analyses of these sediments will contribute to paleoenvironmental research in Antarctica."

*Done.*

L.55: "saline and marine relict lake" -> "16 m deep and the water column is stratified with an upper layer of saline, and a lower layer of hypersaline water"

*Done.*

L.56: "and isolated from the sea by a ~1 m sill and a perennial snow patch is in the southeast of the lake." -> "It was formed by the late Holocene isostatic uplift which isolated the basin from the sea. The sill height is a ~1 m sill and a perennial snow patch is in the southeast of the lake."

*Done.*

L.60: Was this from a 'raft' or a 'boat'?

*We have added "using boat".*

L.60: Refer to the bathymetry here (Fig. 1d) - and outline the rational for core site selection

*We have changed the sentence as follows:*

*"The four cores were collected at various depths (Figure 1d; Table 1): one is from the deepest depth of the lake, the other one is from the southeastern depression, and the last two are from ~6 and 8 m depths."*

L.120: Depth -> Sediment depth

*Done.*

L.125: I suggest an additional paragraph on 'potential applications' of this core to paleoenvironmental, sea level and climate research, together with biological applications. This will help guide future users of the data.

For example:

Sea level: test the hypothesis that with a 1 m sill height the lake was isolated in the last 500 years (see Verleyen et al. 2017).

Palaeoenvt: characteristics of the near shore marine environment prior to isolation. Sea ice vs. open water.

Radiocarbon dating etc.

Biology: Sea ice species assemblages, post isolation assemblages, establishment of communities in the stratified water column (see Kurosawa et al 2010); noting that you have collected cores from above and below the chemocline. Biogeography.

*We have added the paragraph as follows.*

*"Further analysis of the cores improves our understanding of how lake environments change in response to sea level changes. As these cores were collected above and below the chemocline, the stratigraphic structure observed in Lake Nurume will better understand when it was formed and how it changed. Moreover, the results of these analyses will progress the understanding of biological communities' change in response to these environmental changes."*

Reponse to reviewer #2;

Ishiwa et al. present a data paper with a number of datasets derived from the multiproxy analysis of multiple sediment cores from lake Nurume in Langhovde, Lützow-Holm Bay, East Antarctica. The methods are appropriately described and the figures are clear. The datasets are stored in an online database. I only have some minor suggestions regarding the text as detailed below.

L.47: unclear what is meant with 'it has been challenging to take the second one.'

*We have removed this sentence.*

L.55: add 'a' between 'and' and 'marine relict'

*We have rewritten this sentence as follows.*

*“The lake is 16 m deep and the water column is stratified with an upper layer of saline, and a lower layer of hypersaline water (Sano et al., 1977; Kurosawa et al., 2010; Kudoh and Tanabe, 2014).”*

L.56: full stop and new sentence should start after 'sill'

*We have rewritten this sentence as follows.*

*“It was formed by the late Holocene isostatic uplift which isolated the basin from the sea. The sill height is a ~1 m sill and a perennial snow patch is in the southeast of the lake.”*

L.60: what do you mean with 'upon the water'? From a coring raft?

*We have added “using a boat”.*

L.67: replace 'were taking' with 'included'

*Done.*

L.70: replace 'with ...' with 'into four parts'

*Done.*

L.94: replace 'develops' with 'is present'

*Done.*

L.95: replace 'by human'

*Done.*

L.101: replace 'have been' with 'are'

*Done.*

L.112: unclear what is meant with 'RGB values of gray were corrected to be the same' please clarify.

*We have revised the sentence as follows.*

*“The gray color palette was referenced and the RGB values of gray were modified so that the red, green, and blue values were the same.”*

L.113: also this is unclear: 'In this case, a\* value shifts regardless of no change of color by human eyes.

*We have revised the sentence as follows.*

*“a\* value shifts, although there appears to be no change when the core images are viewed with the naked eye (Figure 3).”*

L.116: 'of its depth' should be 'for its depth'

*Done.*

L.128-129: delete 'in writing'

*Done.*

L.141: 'A sampling' should be 'The sampling'

*Done.*

Table 1: Last column should be 'Total core length (cm)'

In Table 2 the sum of the core lengths of JARE61\_NRM08 is not equal to the total core length in Table 1. Please correct.

*Done.*

*We wish to thank the reviewers and editor again for the valuable and helpful comments.*

*Sincerely,*

*Dr. Takeshige Ishiwa*

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2nd submission

Editor Start Date: 9/14/2022

Editor Stop Date: 10/14/2022

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Editorial Office's note

Calculate checksum date: 10/18/2022

Algorithm: SHA256

Hash link: <http://id.nii.ac.jp/1434/00000043> > hash list