

Data Paper

Shota Masumoto, Ryo Kitagawa, Keita Nishizawa, Ryo Kaneko, Takashi Osono, Motohiro Hasegawa, Yasuo Iimura, Akira S. Mori and Masaki Uchida. Plant species and biomass, soil respiration, soil environment data on Whapmagoostui-Kuujuarapik, Quebec, Canada. Polar Data Journal. 2021, 5, p. 80–88.

<https://doi.org/10.20575/00000029>.

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1st submission

Editor Start Date: 4/4/2021

Editor Stop Date: 4/23/2021

Reviewer #1 (4/9/2021–4/22/2021)

Reviewer #2 (4/13/2021–4/22/2021)

Reviewer #1: Naoya Wada

This report provides data set of vegetation and soil property in the subarctic Canada, where climate change will have a strong impact on the ecosystem located in the tundra-forest ecotone. Published data will be, therefore, helpful for scientists who have interests on the relationship between vegetation and soil at the present and in the future. Please consider the following points to improve data availability for users.

- 1) Add information on a study of Masumoto et al (2021) in Polar Science to clarify already obtained knowledges and to facilitate usage of these data for further studies.
- 2) In the beginning of Methods section, please indicate actual date (month) of the first period in 2016, and second period too as well as year.
- 3) In the vegetation survey section, please indicate that the authors measured percentage cover of plants by visual estimation.
- 4) I wonder no explanation of figure 2 and 3 in the text but referring these figures in the background and summary section. The authors have to explain these figures in the text of this report; ex., at the end of Data Records section (?)
- 5) In Figure 1, it is not desirable that the uppercase alphabet, which is the subdivision of the small figures from A to D, and the uppercase alphabet, which indicates the transects and plots shown in Figure C, be the same. Is it better to change from uppercase to lowercase alphabet for subdivision of the small figures?
- 6) No explanation in the text for data of DNA in the DOC folder.

Reviewer #2: Anonymous

This manuscript contains valuable data which can be used in future studies of vegetation change in the study area. For the benefit of readers, however, several points need clarifying and editing. These are given below.

- 1) The word "ecosystem function" is not appropriate to describe the data properties (biomass is not a function). I suggest the authors to use the words such as "biomass" and "soil respiration".
- 2) Species name should be written in *Italic* throughout the text, figures and data files.
- 3) The description of the method of the soil respiration measurement is rather poor. At least, the size and shape of the respiration chamber should be shown.

Data file in No1a-KW\_vegetation.xlsx:

- 4) "E\_name" should be "Species name". Each name should be written in *Italic*.
- 5) "cornus\_canadensis" -> "Cornus canadensis", and so on.
- 6) What does "N" mean?

Data file in No1b-KW\_abiotic-biotic\_properties.xlsx:

- 7) Significant digits (effective figures) of some values seem to be too large (e.g. NH<sub>4</sub><sup>+</sup> and soil respiration data). Please reconsider them based on the accuracy of the measurements.
- 8) NO<sub>3</sub><sup>-</sup> (mg/Kg): Please show the detectable limit instead of "LOW."
- 9) Soil ATP: The procedure of soil ATP measurement is not shown in the text.
- 10) I could not find the explanations for "hight plant", "X" and "Y" in the data file Tundra Line.
- 11) Information of some soil properties is poor (e.g. soil depth\_1, 2, 3). It was quite difficult for me to understand the meaning of them. I suggest the authors to add more information so that readers easily understand the data properties.

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Authors Response:

Response to Reviewer #1;

This report provides data set of vegetation and soil property in the subarctic Canada, where climate change will have a strong impact on the ecosystem located in the tundra-forest ecotone. Published data will be, therefore, helpful for scientists who have interests on the relationship between vegetation and soil at the present and in the future. Please consider the following points to improve data availability for users.

Thanks for your careful review and useful comments. We corrected our paper according to your comments as the following.

- 1) Add information on a study of Masumoto et al (2021) in Polar Science to clarify already obtained knowledges and to facilitate usage of these data for further studies.

We add the information about Masumoto et al. and Kitagawa et al. which are publications established by the parts of this data.

2) In the beginning of Methods section, please indicate actual date (month) of the first period in 2016, and second period too as well as year.

We add the information about the data of survey period (see Methods).

3) In the vegetation survey section, please indicate that the authors measured percentage cover of plants by visual estimation.

We correct the manuscript “measured the percentage cover (%)” to “measured the percentage cover (%) by visual estimation”

4) I wonder no explanation of figure 2 and 3 in the text but referring these figures in the background and summary section. The authors have to explain these figures in the text of this report; ex., at the end of Data Records section (?)

Figure 2 and 3 are established by the data files which was deposited on ADS as A20191225-005. In those figures, we just show the trend of frequency of plant or soil properties briefly, to summarize the vegetation and soil properties data. We added the information in “Data Records”. (see Data Records)

5) In Figure 1, it is not desirable that the uppercase alphabet, which is the subdivision of the small figures from A to D, and the uppercase alphabet, which indicates the transects and plots shown in Figure C, be the same. Is it better to change from uppercase to lowercase alphabet for subdivision of the small figures?

We corrected Figure 1 (form Figure 1A-D to Figure 1a-d)

6) No explanation in the text for data of DNA in the DOC folder.

The DNA data is not included in this paper intently, because the data have already deposited in another Database (DDBJ).

Response to Reviewer #2;

This manuscript contains valuable data which can be used in future studies of vegetation change in the study area. For the benefit of readers, however, several points need clarifying and editing. These are given below.

Thanks for your careful review and useful comments. We corrected our paper according to your comments as the following. Data files were also corrected according to your comments, and the files were resubmitted on ADS database (see <https://ads.nipr.ac.jp/data/meta/A20191225-005>).

1) The word "ecosystem function" is not appropriate to describe the data properties (biomass is not a function). I suggest the authors to use the words such as "biomass" and "soil respiration".

We replaced the word, "ecosystem function", with "biomass" and "soil respiration", excepting Introduction.

2) Species name should be written in *Italic* throughout the text, figures, and data files.

We corrected all species names.

3) The description of the method of the soil respiration measurement is rather poor. At least, the size and shape of the respiration chamber should be shown.

We added the chamber information (in the Methods)

Data file in No1a-KW\_vegetation.xlsx:

4) "E\_name" should be "Species name". Each name should be written in *Italic*.

5) "cornus\_canadensis" -> "Cornus canadensis", and so on.

We corrected all species names.

6) What does "N" mean?

Sorry, the column was used as plot number when I edit the sheet, but no mean had already. We deleted the column.

Data file in No1b-KW\_abiotic-biotic\_properties.xlsx:

7) Significant digits (effective figures) of some values seem to be too large (e.g., NH<sub>4</sub><sup>+</sup> and soil respiration data). Please reconsider them based on the accuracy of the measurements.

We corrected those values.

8) NO<sub>3</sub><sup>-</sup> (mg/Kg): Please show the detectable limit instead of "LOW"

We added the information of detectable range of NH<sub>4</sub><sup>+</sup> and NO<sub>3</sub><sup>-</sup> in the text (see Method).

9) Soil ATP: The procedure of soil ATP measurement is not shown in the text.

We added the procedure for ATP in the text (in method).

10) I could not find the explanations for "hight plant", "X" and "Y" in the data file Tundra Line

"hight plant", "X" and "Y" is additional information which we used on other analyses, but that is not useful generally.

So, we deleted the columns.

11) Information of some soil properties is poor (e.g., soil depth\_1, 2, 3). It was quite difficult for me to understand the meaning of them. I suggest the authors to add more information so that readers easily understand the data properties.

We added the information about measured properties into top row of the data sheet.

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2nd submission

Editor Start Date: 5/13/2021

Editor Stop Date: 5/27/2021

Reviewer #1 (5/16/2021–5/18/2021)

Reviewer #2 (5/16/2021–5/27/2021)

Reviewer #1:

None

Reviewer #2:

This revised manuscript is much clearer than the previous version.

The authors have addressed the comments well.

There is a spelling error in the Background & Summary section:

L5: avobeground -> aboveground

Corrected accordingly.

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Editorial Office's note

Calculate checksum date: 6/3/2021

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