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Relation between sea-ice variation in the Sea of Okhotsk and Arctic Oscillation

18 mm

Title: Times New Roman, Bold-face, 14-point, and Center

Charlie F. BROWN¹, Taro AOKI² and Kai MOMBETSU³

Author(s): 12-point font and center

¹ *Geophysical Institute, University of Alaska, Alaska, USA*

² *Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan*

³ *Mombetsu Oceanography Institute, Mombetsu, Japan*

Affiliation(s): Affiliation, City, State or Province, Country using an italic 10.5-point font
(Left-justified with appropriate space, no postal code and no E-mail Address)

2 character-space

Abstract (Head:11 pt., bold; Body text: 10.5 pt.)

A short abstract (50 to 100 words) in a single paragraph should be included here. The paragraph needs the space of 4 characters at left and right sides. In this sample paper, we describe the formatting guidelines for submissions to the Proceedings of the International Symposium on Okhotsk Sea & Sea Ice. For a simple way, download a template from the web, and insert your information to the template. (10.5-point font)

Key words: sea ice, global warming, Arctic Oscillation (Head: 11 pt., words: 10.5-pt. font)

List up 3 to 5 keywords for library indexing and online searching.

1. Introduction

The body of the paper begins with the Introduction.

Following the Introduction, a typical text should be organized into sections that describe the **method**, the **observation data**, the **result and discussion**, and the **conclusions**. **Acknowledgments** (where applicable) and **references** follow the Conclusions.

A conference paper should not exceed 4 pages.

2. Formatting

2.1 Text Style

Text must be single-spaced using a Times New Roman font, or Time. The fonts are as follows:

Title: 14-point, Bold

Author (s): 12-point with affiliation number¹ (Superscript)
(See the example)

Affiliation(s): 10-point, Italic

Use a 14-point font for the Title, a 12-point font for Author Name(s), an italic 10-point font for Affiliation(s), a 11-point font for all Section and Subsection Heads, and a 10.5-point font for all body text. Text in the columns must be full justified.

2.2 Paper Title

The paper title with Times Roman or Times New Roman, bold-faced in 14-point font should be centered in upper and lower case at the location shown and two lines may be used.

2.3 Author Name(s)

Author names in 12 point font should consist of first name, middle name and the last name with superscript number of affiliation, and centered.

2.4 Affiliation(s)

The numbered Affiliation(s) should be left-justified with proper spaces (5-15) using an italic 10-point font. Do not include street address, postal code, email or fax numbers.

3. Chapter and section

Headings and subheadings appear throughout the text to divide the subject matter into logical parts and emphasize major elements. Numbering can be used for Chapter (1, 2, ..) and Section (1.1, 1.2, ...). Only initial of the title is in capital letter and others are in small letters except proper nouns (palace, human, some abbreviation like SAR etc.), as “**3. Observations in the Sea of Okhotsk**”.

3.1 Chapter Heads

Chapter heads should be in upright bold 11pt font, as “**1. Introduction**”.

3.2 Section heads

Section Heads should be in *italic* Bold 11pt font, as “***2.1 Observations in the Sea of Okhotsk***”.

3.3 Last page

The two columns on the last page should be as close to equal length as possible, which is usually done by MS-Word.

(No page number)

25 mm

4. Tables and figures

4.1 Tables

Table format is as shown here. Tables should be numbered consecutively. When referring to a table, use table numbers as Table 1, Tables 2~3,....

Table 1. Margins of pages. This instruction is in this form.

	Left Column	Right Column
Top margin	30 mm*	
Side margin	18 mm from left edge	18 mm from right edge
Column width	19.55 characters	19.55 characters
Space of columns	1.77 characters	
Bottom margin	25 mm	

*The unit should use SI unit in principle.

4.2 Equations

Equations are to be numbered. When referring in a sentence, refer them as “Eq. 1” or “Eqs. 5-7”. When referring at sentence head, refer as “Equation 1”.

$$Q_M = (1-a)I + Q_{RL} + Q_A + Q_E + Q_P + Q_G \quad (1)$$

$$Q_E = k_E V_1 (T_1 - T_0) \quad (2)$$

(The **variables** use *italic* type, and the **additional characters** and **figures** use **solid** type as Q_M .)

4.3 Figures

Number figures consecutively and use the figure number. When referring them in a text sentence, refer them as “Fig. 1” or “Figs. 2~3”. When referring at sentence head, refer as “Figure 1”. Figures must have a caption as below.

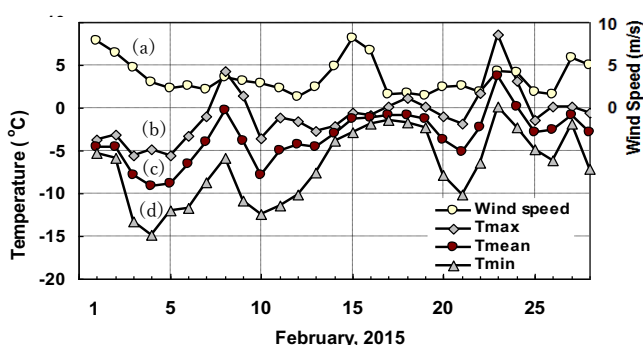


Fig. 1 Meteorological conditions of Mombetsu on February, 2015. (a) is daily mean wind speed. (b), (c) and (d) are daily maximum, mean, minimum temperatures respectively.

(10-point font)

In a printed Proceedings, graphics will be in **black and white**, but they will be in color on web site. Please be aware of the quality of your figures, illustrations, and photos.

5. Conclusions

A summary of your research results should be included in this section toward the end of the paper.

Acknowledgements

Acknowledgements may be made to those individuals or institutions that made an important contribution.

References

References to original (not secondary) sources for cited material is to be listed together at the end of the paper. References should be published materials accessible to the public. Internal technical reports may be cited only if they are easily accessible to the public. Private communications should be acknowledged within text, not referenced.

List of References shall be arranged in alphabetical order of family name of the first- author for articles with more than one author.

For more than 4 authors, the authors should be presented as “Vuille, M. and 6 others (2008)”, which should be referred as (Vuille and others, 2008).

Journals, conference proceedings and titles of books, should be in italics.

References (Examples are:)

- Aota, M. (1999): Long-term tendencies of sea ice concentration and air temperature in the Okhotsk Sea coast of Hokkaido. *PICES Sci. Rep.*, **12**, 1–2.
- Kim, CH (2008): *Nonlinear Waves and Offshore Structures*, World Scientific, 516 pp.
- Fukamachi, Y., G. Mizuta and 4 others (2004): Transport and modification processes of dense shelf water revealed by long-term moorings off Sakhalin in the Sea of Okhotsk. *J. Geophys. Res.* **109**: C09S10, doi:10.1029/2003/JC001906.
- Kawamura, K., F. Parrenin and 16 others (2007): Northern hemisphere forcing of climatic cycles in Antarctica over the past 360,000 years. *Nature*, **448**, 912-916.
- Ohshima, K.I., T. Watanabe and S. Nihashi (2003): Surface heat budget of the Sea of Okhotsk during 1987–2001 and the role of sea ice on it. *J. Meteorol. Soc. Jpn.*, **81**, 653-677.
- Okubo, A (2007): “A Comparative Study of Application of Ecosystem Approach to Marine Living Resource Management and its Implications for Japan”, *J. Ocean Policy Studies*, Ocean Policy Research Foundation, Tokyo, 1-19.
- Takahashi, S., T. Kosugi and A. Hori (2010): Sea-ice extent variations along the Okhotsk coast of Hokkaido and Shiretoko Peninsula’s ‘Dam Effect’ against sea ice flow. *Proc. 25th Internat. Symp. on Okhotsk Sea & Sea Ice, Mombetsu, Japan*, **25**, 25–28.
- Taniguchi, A (2013): “Why marine mammals are abundant in the northern cold waters; Marine ecological basis of the sustainability of the northern Hunter-Gatherer”. *Proc. 28th Internat. Symp. on Okhotsk Sea & Sea Ice, Mombetsu, Japan*, **28**, 83-85.

The Japanese Society of Snow and Ice (2005): “*Encyclopedia of snow and ice* (in Japanese)”, Asakura Publishing, Tokyo, 760pp.

Vuille, M. and 6 others (2008): Climate change and tropical Andean glaciers: past, present and future. *Earth-Sci. Rev.*, **89** (3-4), 79-96.

Weeks, W. F., and S. F. Ackley (1982): The growth, structure, and properties of sea ice. *CRREL Monograph*, **82-1**, U. S. Army Cold Research and Engineering Laboratory, Hanover, N. H., 129 pp.

(For many authors, use “and 16 others” to shorten and to know authors number. Journal name is in italics.)

Summary in Japanese

Japanese author(s) is better to add a summary in Japanese at the end of the paper as following example.

(If possible)

Summary in Japanese

1760 年前後のオランダ捕鯨船による北極域の
気象学的・地理学的観測

Gaston R. DEMARÉE¹, 田上善夫²,
Pascal MAILIER¹, Astrid E. J. OGILVIE^{3,4},
三上岳彦⁵

¹ベルギー王立気象研究所, ²富山大学,
³ステファンソン北極研究所, ⁴コロラド大学ボルダー校,
⁵首都大学東京

捕鯨とニシン漁業は、オランダ黄金時代(1600-1800 年)の主要な経済活動の・・・ことがわかった。

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Snowstorm countermeasures for highways in Hokkaido - Snowbreak forest in Okhotsk Area -

Toshikazu SAWAMATSU¹, Hiroki YUASA¹, Hideki HONDA², Yoshinori KAWASHIMA³,
Masaru MATSUZAWA⁴ and Shuhei TAKAHASHI⁵

¹Abashiri Development and Construction Department, Hokkaido Regional Development Bureau, MLIT, Abashiri, Japan

²Koken Engineering Co., Ltd., Sapporo, Japan

³Docon Co., Ltd., Sapporo, Hokkaido, Japan

⁴Civil Engineering Research Institute for Cold Region, Sapporo, Japan

⁵Okhotsk Sea Ice Museum of Hokkaido, Mombetsu, Japan

Abstract

Recently, snowstorms have become extremely severe in the Okhotsk Area of Hokkaido, Japan. They have
..... and by the Civil Engineering Research Institute for Cold Region.

Key words: road, snowstorm countermeasure, snowbreak forest, snowstorm, traffic hindrance

1. Introduction

Hokkaido is designated as a snowy cold region, and the Okhotsk Area has particularly severe weather in winter. In recent years, snowstorm frequency has been increasing, as have snowstorm disruptions. During snowstorms, many cars become stranded,

2. Snowstorm damage in the Okhotsk area

2.1 Storm paths over Hokkaido

Low-pressure systems that bring heavy snowfall and snowstorms to Hokkaido have various characteristics, depending on their paths (Fukamachi and others, 2004).

There are three major types of low-pressure systems:
1) a low-pressure system over the Pacific Ocean as shown in Fig. 1.

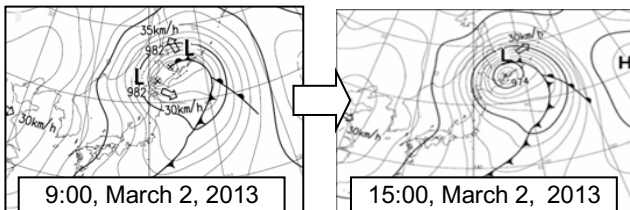


Fig. 1 Low-pressure system with two centers near the Okhotsk District

2.2 Snowstorms and road traffic hindrances in Okhotsk area

Roads in Eastern Hokkaido are frequently closed due to blowing snow. on national highways in Hokkaido (Kawamura and others, 2007; Takahashi and Kosugi, 2010).

5. Conclusion

This paper has explained road traffic disruption in the Okhotsk Area, which has particularly.....

References

Fukamachi, Y., G. Mizuta and 4 others (2004): Transport and modification processes of dense shelf water revealed by long-term moorings off Sakhalin in the Sea of Okhotsk. *J. Geophys. Res.* **109**: C09S10, doi:10.1029/2003/JC001906.
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(If possible)

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.....(Author¹, Author², Author³).....
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Toshikazu SAWAMATSU¹, Hiroki YUASA¹, Hideki HONDA², Yoshinori KAWASHIMA³,
Masaru MATSUZAWA⁴ and Shuhei TAKAHASHI⁵

¹Abashiri Development and Construction Department, Hokkaido Regional Development Bureau, MLIT, Abashiri, Japan

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³Docon Co., Ltd., Sapporo, Hokkaido, Japan

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Key words: road, snowstorm countermeasure, snowbreak forest, snowstorm, traffic hindrance

Introduction

Hokkaido is designated as a snowy cold region, and the Okhotsk Area has particularly severe weather in winter. In recent years, snowstorm frequency has been increasing, as have snowstorm disruptions. During snowstorms, many cars become stranded.

Snowstorm damage in the Okhotsk area

a) Storm paths over Hokkaido

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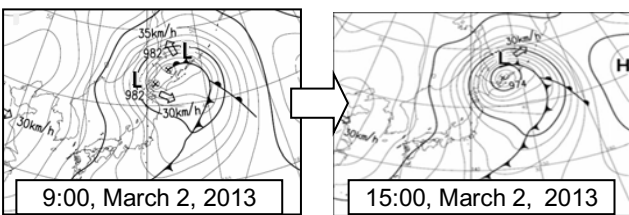


Fig. 1 Low-pressure system with two centers near the Okhotsk District

b) Snowstorms and road traffic hindrances in Okhotsk area

Roads in Eastern Hokkaido are frequently closed due to blowing snow. on national highways in Hokkaido (Kawamura and others, 2007; Takahashi and Kosugi, 2010).....
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Conclusion

This paper has explained road traffic disruption in the Okhotsk Area, which has particularly..... ..

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Summary in Japanese

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³Docon Co., Ltd., Sapporo, Hokkaido, Japan

⁴Civil Engineering Research Institute for Cold Region, Sapporo, Japan

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ABSTRACT

Introduction

Hokkaido is designated as a snowy cold region, and the Okhotsk Area has particularly severe weather in winter. In recent years,

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Observation method

Low-pressure systems that bring heavy snowfall and snowstorms to Hokkaido have various characteristics, depending on their paths (Kawamura and others, 2007).

There are three major types of low-pressure systems: 1) a low-pressure system

Observation area is shown in Fig. 1 (Takahashi and Kosugi, 2010).

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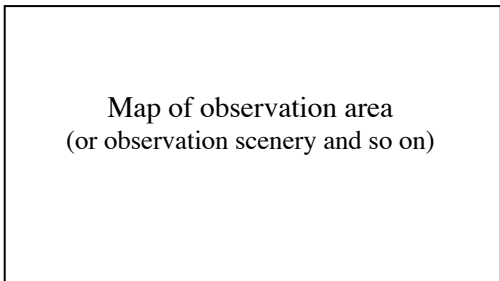


Fig. 1 Map of observation area.

Results

This paper has explained road traffic disruption in the Okhotsk Area, which has particularly.....

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References

Kawamura, K., F. Parenin and 16 others (2007): Northern hemisphere forcing of climatic cycles in Antarctica over the past 360,000 years. *Nature*, **448**, 912-916.
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