



Meiji HONDA, Dr. Sci.

Associate Professor

Program: Environmental Science and Technology

Area: Natural Environmental Science

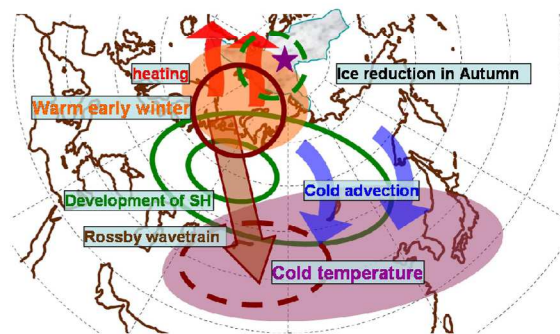
Undergraduate: Dept. of Environmental Science

Professional Expertise

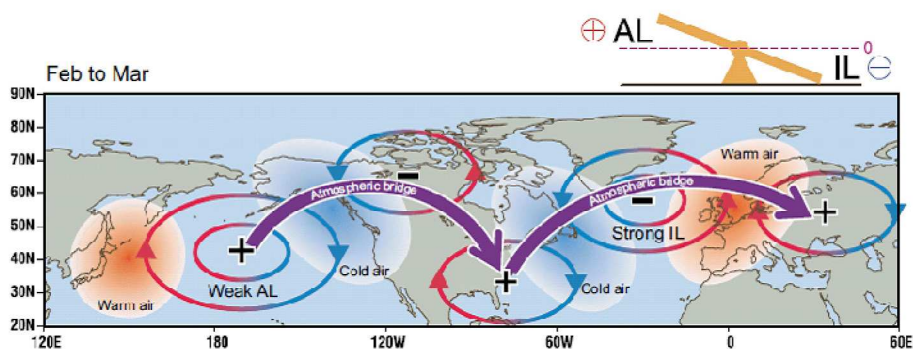
His professional expertise encompasses dynamics of large scale atmospheric circulation and its relationships with sea-ice and ocean variability. Recently, his research interest is directed toward relationships between “local” extreme weather events and “global” climate variability. His final object is to understand roles of cryosphere variability in the global climate system, through careful monitoring of weather and snow conditions of Niigata.

Research Fields of Interest

- Influence of sea-ice and ocean variability on the atmospheric circulation
- Variability of mid- and high-latitude atmospheric circulation fields in the Northern Hemisphere
- Influence of recent Arctic sea-ice reduction on the climate variability in the Northern Hemisphere
- Air-sea interaction in the Sea of Japan and Sea of Okhotsk
- Mechanisms of extreme weathers and their relationships with global atmospheric circulations



Influence of recent se-ice reduction of the Arctic on Eurasian climate during winter



Schematic of Aleutian-Icelandic low seesaw

Education

1996: D.S. (Ph.D.) in Geophysics, Graduate School of Science, Hokkaido University, Japan

1993: M.S. in Geophysics, Graduate School of Science, Hokkaido University, Japan

1991: B.S. in Geophysics, Faculty of Science, Hokkaido University, Japan

Professional Societies and Activities

1. Meteorological Society of Japan
2. American Meteorological Society
3. American Geophysical Union
4. Japan Geoscience Union
5. The Japanese Society of Snow and Ice

Major Publications

Papers

- [1] Tachibana, Y., M. Honda, and K. Takeuchi, "The abrupt decrease of the sea ice over the southern part of the Sea of Okhotsk in 1989 and its relation to the recent weakening of the Aleutian low". *J. Meteor. Soc. Japan*, vol. **74**, pp. 579-584, 1996.
- [2] Honda, M., K. Yamazaki, Y. Tachibana, and K. Takeuchi, "Influence of Okhotsk sea-ice extent on atmospheric circulation". *Geophys. Res. Lett.*, vol. 23, pp. 3595-3598, 1996.
- [3] Honda, M., K. Yamazaki, H. Nakamura, and K. Takeuchi, "Dynamic and thermodynamic characteristics of atmospheric response to anomalous sea-ice extent in the Sea of Okhotsk". *J. Climate*, vol. 12, pp. 3347-3358, 1999.
- [4] Honda, M., H. Nakamura, J. Ukita, I. Kousaka, and K. Takeuchi, "Interannual seesaw between the Aleutian and Icelandic lows. Part I: Seasonal dependence and life cycle. *J. Climate*, vol. 14, pp. 1029-1042, 2001.
- [5] Inoue, J., M. Honda, and M. Kawashima, "Air mass transformation processes over the southwestern region of the ice-covered Sea of Okhotsk during cold-air outbreaks". *J. Meteor. Soc. Japan*, vol. 79, pp. 657-670, 2001.
- [6] Iwamoto, K., K. Domon, M. Honda, Y. Tachibana, and K. Takeuchi, "Estimation of surface heat flux based on rawinsonde observation in the southwestern part of the Sea of Okhotsk under ice-covered condition". *J. Meteor. Soc. Japan*, vol. 79, pp. 687-694, 2001.
- [7] Honda, M., and H. Nakamura, "Interannual seesaw between the Aleutian and Icelandic lows. Part II: Its significance in the interannual variability over the wintertime Northern Hemisphere". *J. Climate*, vol. 14, pp. 4512-4529, 2001.
- [8] Nakamura, H., and M. Honda, "Interannual seesaw between the Aleutian and Icelandic lows. Part III: Its influence upon the stratospheric variability". *J. Meteor. Soc. Japan*, vol. 80, pp. 1051-1067, 2002.
- [9] Inoue, J., J. Ono, Y. Tachibana, M. Honda, K. Iwamoto, Y. Fujiyoshi, and K. Takeuchi, "Characteristics of heat transfer over the ice covered Sea of Okhotsk during cold-air outbreaks." *J. Meteor. Soc. Japan*, vol. 81, pp. 1057-1067, 2003.
- [10] Honda, M., Y. Kushnir, H. Nakamura, S. Yamane, and S. E. Zebiak, "Formation, mechanisms, and predictability of the Aleutian-Icelandic low seesaw in ensemble AGCM simulations." *J. Climate*, vol. 18, pp. 1423-1434, 2005.
- [11] Honda, M., S. Yamane, and H. Nakamura, "Impacts of the Aleutian-Icelandic low seesaw on surface climate during the twentieth century". *J. Climate*, vol. 18, pp. 2793-2802, 2005.
- [12] Mori, A., N. Kawasaki, K. Yamazaki, M. Honda, and H. Nakamura, "A reexamination of the Arctic Oscillation by the independent component analysis. *SOLA*, vol. 2, pp. 5-8, 2006.
- [13] Nakamura, T., Y. Tachibana, M. Honda, and S. Yamane, "Influence of the Northern Hemisphere annular mode on ENSO by modulating westerly wind bursts." *Geophys. Res. Lett.*, vol. 33, L07709, doi:10.1029/2005GL025432, 2006.
- [14] Yamamoto, K., Y. Tachibana, M. Honda, and J. Ukita, "Intra-seasonal relationship between the Northern Hemisphere sea ice variability and the North Atlantic Oscillation." *Geophys. Res. Lett.*, vol. 33, L14711, doi:10.1029/2006GL026286, 2006.
- [15] Ukita, J., M. Honda, H. Nakamura, Y. Tachibana, D. J. Cavalieri, C. L. Parkinson, H. Koide, and K. Yamamoto, "Northern Hemisphere sea ice variability: Lag and propagation". *Tellus*, vol 59A, pp. 261-272, 2007.
- [16] Honda, M., S. Yamane, and H. Nakamura, "Inter-basin link between the North Pacific and North Atlantic in the upper tropospheric circulation: Its dominance and seasonal dependence." *J. Meteor. Soc. Japan*, vol. 85, pp. 899-908, 2007.
- [17] Orsolini, Y. J., N. G. Kvamstø, I. T. Kindem, M. Honda, and H. Nakamura, "Influence of the Aleutian-Icelandic low seesaw and ENSO onto the stratosphere in ensemble winter hindcasts." *J. Meteor. Soc. Japan*, vol. 86, pp. 817-825, 2008.
- [18] Honda, M., J. Inoue and S. Yamane, "Influence of low Arctic sea-ice minima on anomalously cold Eurasian winters." *Geophys. Res. Lett.*, vol. 36, L08707, doi:10.1029/2008GL037079, 2009.
- [19] Hori, M. E., J. Inoue, T. Kikuchi, M. Honda, and Y. Tachibana, "Recurrence of Intraseasonal Cold Air Outbreak during the 2009/2010 Winter in Japan and its Ties to the Atmospheric Condition over the Barents-Kara Sea." *SOLA*, vol.7, pp. 25-28, 2011

Book Chapters

- [1]. Nakamura, H., T. Miyasaka, Y. Kosaka, K. Takaya, and M. Honda, 2010. "Northern Hemisphere extratropical tropospheric planetary waves and their low-frequency variability: Their vertical structure and interaction with transient eddies and surface thermal contrasts, Chap. 6", *Climate Dynamics: Why Does Climate Vary?*, American Geophysical Union, pp. 149-179.