

## CURRICULUM VITAE

- Name: Shoshiro Minobe
- Affiliation: Professor,  
Department of Earth and Planetary Sciences, Faculty of Science, Hokkaido University,
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- Phone: +81-11-706-2644
- Nationality: Japanese
- Research Interest: Interaction between the ocean and atmosphere  
Variability and change of the ocean and atmosphere  
Biophysical interaction in the ocean
- Education: Received a Ph.D. (Doctor of Science) in March, 1994 from Hokkaido University for a thesis entitled: "Annual Variabilities caused by Equatorial Waves in the Pacific Ocean and Accompanying Responses of the Atmosphere".  
Doctoral course of Department of Geophysics, Graduate School of Science, Hokkaido University, April 1988 - March 1989.  
Master course of Department of Geophysics, Graduate School of Science, Hokkaido University, April 1985 - March 1987. (Master of Science, March 1987)  
Geophysics, School of Science, Hokkaido University. April 1981 - March 1985. (Bachelor of Science, March 1985)
- Occupation: Professor, Earth and Planetary Dynamics, Natural History Science, Graduate School of Science, Hokkaido University, April 2006 to present.  
Professor, Department of Earth and Planetary Sciences, Graduate School of Science, Hokkaido University, April 2005 to March 2006.  
Associate Professor, Department of Earth and Planetary Sciences, Graduate School of Science, Hokkaido University, May 1997 to March 2005.  
Adjunct researcher, Japan Agency for Marine-Earth Science and Technology, for International Arctic Research Center, University of Alaska, Fairbanks, USA. April 1998 to March 2004.  
Assistant Professor, Department of Earth and Planetary Sciences, Graduate School of Science, Hokkaido University, April 1995 to April 1997.  
Assistant Professor, Department of Earth and Planetary Sciences, Graduate School of Science, Hokkaido University, April 1989 to March 1995.  
Visiting Researcher, Joint Institute of Atmosphere and Ocean Studies, University of Washington, June 1994 to September 1994.  
Researcher, Hardware Design Laboratory, B U G Corporation, April 1987 to March 1988.

Award:                   **The Ninth National Maritime Awards (Prime Minister Awards)** in the category of Excellent Contribution to Maritime Affairs, Science and Technology Promotion in relation to the Ocean, for “Study on physical interaction between the ocean and the atmosphere”. August 2016.

**The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology**, Prizes for Science and Technology, Research Category, for studies of “Ocean–Atmosphere Interaction and Variability”, April, 2014.

**The Japan Oceanographic Society Award** from the Oceanographic Society of Japan for “Analytical studies from processes to decadal variations in the ocean and atmosphere”, March 2013.

**The Horiuchi Award** from the Meteorological Society of Japan for “Studies of decadal-scale variability over the North Pacific Ocean”, October 2006.

**The Best Paper Award** from North Pacific Marine Science Organization, for “A 50-70 year climatic oscillation over the North Pacific and North America”, October 1996.

Membership:           The Oceanographic Society of Japan (Since 1989)  
                                  The Meteorological Society of Japan (Since 1989)  
                                  American Geophysical Union (Since 1998)  
                                  American Meteorological Society (Since 1999)  
                                  Japan Geoscience Union (Since 2012)

International Activities:

Member, US CLIVAR working group on “Large ‘Initial-Condition’ Earth System Model Ensembles (Les)”, 2018-present

Co-chair representing CLIVAR, working group of “Climate and Ecosystem Predictability”, PICES (North Pacific Marine Science Organization), 2017-present

Member, study group on “Climate and Ecosystem Predictability”, PICES (North Pacific Marine Science Organization), 2015-2016

Co-chair, Climate Dynamics Panel of CLIVAR, 2015-present.

Co-chair, working group of “North Pacific Climate Variability and Change”, PICES (North Pacific Marine Science Organization), 2011-2015

Science Plan Writing Team Member for Project FUTURE (**F**orecasting and **U**nderstanding **T**rends, **U**ncertainty and **R**esponses of North Pacific Marine Ecosystems) of PICES, 2007-2008.

Associate Editor of “Journal of Climate” (2006-2007)

Editor, Journal of the Meteorological Society of Japan (2002-2006)

Guest Editor, Progress in Oceanography, special issue for “North Pacific Climate Regime Shift” (2000)

## Selected publications

- (1) Roberts, M. J., P. L. Vidale, C. Senior, H. T. Hewitt, C. Bates, S. Berthou, P. Chang, H. M. Christensen, S. Danilov, M.-E. Demory, S. M. Griffies, R. Haarsma, T. Jung, G. Martin, S. Minobe, T. Ringler, M. Satoh, R. Schiemann, E. Scoccimarro, G. Stephens, and M. F. Wehner, 2018: The Benefits of Global High Resolution for Climate Simulation: Process Understanding and the Enabling of Stakeholder Decisions at the Regional Scale. *Bulletin of the American Meteorological Society*, 99, 2341-2359, DOI: 10.1175/bams-d-15-00320.1
- (2) Na, H., K. Y. Kim, S. Minobe, and Y. N. Sasaki: Interannual to Decadal Variability of the Upper-Ocean Heat Content in the Western North Pacific and Its Relationship to Oceanic and Atmospheric Variability. *Journal of Climate*, 31, 5107-5125, 2018. doi:10.1175/jcli-d-17-0506.1
- (3) Terada, M. and S. Minobe: Projected sea level rise, gyre circulation and water mass formation in the western North Pacific: CMIP5 inter-model analysis. *Climate Dynamics*, 50, 4767-4782, 2018. doi:10.1007/s00382-017-3902-8
- (4) Collins, M., S. Minobe, M. Barreiro, S. Bordoni, Y. Kaspi, A. Kuwano-Yoshida, N. Keenlyside, E. Manzini, C. H. O'Reilly, R. Sutton, S.-P. Xie & O. Zolina, 2018: Challenges and opportunities for improved understanding of regional climate dynamics. *Nature Climate Change*, 8, 101–108. doi:10.1038/s41558-017-0059-8
- (5) Sasaki, Y. N., R. Washizu, T. Yasuda, and S. Minobe, 2017: Sea level variability around Japan during the 20th century simulated by a regional ocean model. *Journal of Climate*, 14, 5585-5595, doi: 10.1175/JCLI-D-16-0497.1.
- (6) Ito, T., S. Minobe, M. C. Long, and C. Deutsch, 2017: Upper ocean O<sub>2</sub> trends: 1958-2015. *Geophysical Research Letters*, 44, Doi: 10.1002/2017GL073613.
- (7) Minobe, S., M. Terada, B. Qiu, N. Schneider, 2017: Western Boundary Sea Level: A Theory, Rule of Thumb, and Application to Climate Models. *Journal of Physical Oceanography*, 47, 957-977, doi: 10.1175/JPO-D-16-0144.1
- (8) O'Reilly, C. H., S. Minobe, A. Akira Kuwano-Yoshida and T. Woollings, 2017: The Gulf Stream influence on wintertime North Atlantic jet variability. *Quarterly Journal of the Royal Meteorological Society*, 143, 173-183, doi: 10.1002/qj.2907.
- (9) Kuwano-Yoshida A. and S. Minobe, 2017: Storm-Track Response to SST Fronts in the Northwestern Pacific Region in an AGCM. *Journal of Climate*, 30, 1081-1102, doi: 10.1175/JCLI-D-16-0331.1.
- (10) O'Reilly, C. H., S. Minobe, A. Kuwano-Yoshida, 2016: The influence of the Gulf Stream on wintertime European blocking. *Climate Dynamics*, 47, 1545-1567, doi: 10.1007/s00382-015-2919-0.
- (11) Parfitt, R., A. Czaja, S. Minobe, A. Kuwano-Yoshida, 2016: The atmospheric frontal response

- to SST perturbations in the Gulf Stream region. **Geophysical Research Letters**, 43, 2299–2306.
- (12) Newman, M., M. A. Alexander, T. R. Ault, K. M. Cobb, C. Deser, E. Di Lorenzo, Nathan J. Mantua, A. J. Miller, S. Minobe, H. Nakamura, N. Schneider, D. J. Vimont, A. S. Phillips, J. D. Scott, and C. A. Smith, 2016: The Pacific Decadal Oscillation, Revisited. *Journal of Climate*, 29, 4399–4427, doi: 10.1175/JCLI-D-15-0508.1. (top 1% citation paper)
- (13) Liu Z.-J., S. Minobe, Y. N. Sasaki, and M. Terada, 2016: Dynamical downscaling of future sea-level change in the western North Pacific using ROMS. *Journal of Oceanography*, 72, 905–922, doi: 10.1007/s10872-016-0390-0.
- (14) Nakamura, H., A. Isobe, S. Minobe, H. Mitsudera, M. Nonaka, and T. Suga, 2015: "Hot Spots" in the climate system-new developments in the extratropical ocean-atmosphere interaction research: a short review and an introduction. *Journal of Oceanography*, 71, 463–467.
- (15) Sasaki Y. N., and S. Minobe, 2015: Climatological mean features and interannual to decadal variability of ring formations in the Kuroshio Extension region. *Journal of Oceanography*, 71, 499–509.
- (16) Minobe, S. and S. Takebayashi, 2015: Diurnal precipitation and high cloud frequency variability over the Gulf Stream and over the Kuroshio. *Climate Dynamics*, 44, 2079–2095.
- (17) Kunoki, S, A. Manda, Y. M. Kodama, S. Iizuka, K. Sato, I. Fathrio, T. Mitsui, H. Seko, Q. Moteki, S. Minobe, and Y. Tachibana, 2015: Oceanic influence on the Baiu frontal zone in the East China Sea, *Journal of Geophysical Research-Atmosphere*, 120, 449–463, doi:10.1002/2014JD022234.
- (18) Takatama, K., S. Minobe, M. Inatsu, and R. J. Small, 2015: Diagnostics for near-surface wind response to the Gulf Stream in a regional atmospheric model. *Journal of Climate*, 28, 238–255, doi: 10.1175/JCLI-D-13-00668.1.
- (19) Kasamo, K., A. Isobe, S. Minobe, A. Manda, H. Nakamura, K. Ogata, H. Nishikawa, Y. Tachibana, and S. Kako, 2014: Transient and local weakening of surface winds observed above the Kuroshio front in the winter East China Sea, *Journal of Geophysical Research-Atmosphere*, 119, 1277–1291, doi:10.1002/2013JD020610.
- (20) Sasaki, Y. N., S. Minobe, and Y. Miura, 2014: Decadal sea-level variability along the coast of Japan in response to ocean circulation changes. *Journal of Geophysical Research-Oceans*. 119, 266–275.
- (21) Aoki K., S. Minobe, Y. Tanimoto, and Y. Sasai, 2013: Southward eddy heat transport occurring along southern flanks of the Kuroshio Extension and the Gulf Stream in a 1/10° global Ocean General Circulation Model. *Journal of Physical Oceanography*, 43, 1899–1910.
- (22) Sasaki, Y. N., S. Minobe and N. Schneider, 2012: Decadal response of the Kuroshio Extension jet to Rossby waves: Observation and thin-jet theory. *Journal of Physical Oceanography*, 43, 442–456.

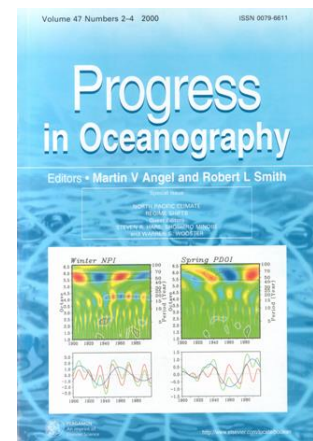
- (23) Sasaki, Y. N., S. Minobe, T. Asai, and M. Inatsu, 2012: Influence of the Kuroshio in the East China Sea on the early summer (Baiu) rain. *Journal of Climate*, 25 (19), 6627-6645.
- (24) Nakamura, H., A. Nishina, and S. Minobe, 2012: Response of storm tracks to bimodal Kuroshio path states south of Japan, *Journal of Climate*, 25, 7772-7779.
- (25) Takatama, K., S. Minobe, M. Inatsu, and R. J. Small, 2012: Diagnostics for near-surface wind convergence/divergence response to the Gulf Stream in a regional atmospheric model. *Atmospheric Science Letters*, 13, 16-21.
- (26) Na, H., K.-Y. Kim, K.-I. Chang, J. J. Park, K. Kim, and S. Minobe 2012: Decadal variability of the upper ocean heat content in the East/Japan Sea and its possible relationship to northwestern Pacific variability, *Journal of Geophysical Research (Ocean)*, 117, C02017, doi:10.1029/2011JC007369.
- (27) Bond A. L., I. J. Jones, W. J. Sydeman, H. L. Major, S. Minobe, J. C. Williams and G. V. Byrd, 2011: Reproductive success of planktivorous seabirds in the North Pacific is related to ocean climate on decadal scales. *Marine Ecology Progress Series*, 424, 205-218.
- (28) Watanabe, T., A. Suzuki, S. Minobe, T. Kawashima, K. Kameo, K. Minoshima, Y. M. Aguilar, R. Wani, H. Kawahata, K. Sowa, T. Nagai and T. Kase, 2011: Permanent El Niño during the Pliocene warm period. *Nature*, 471. 209-211.
- (29) Shimada T. and S. Minobe, 2011: Global analysis of the pressure adjustment mechanism over sea surface temperature fronts using AIRS/Aqua data. *Geophysical Research Letters*, 38, doi:10.1029/2010GL046625.
- (30) Sumata, H., S. Minobe, T. Motoi and W. L. Chan, 2010: A semi-analytical model of barotropic and baroclinic flows for an open Panama Gateway. *Dynamics of Atmospheres and Oceans*, 50, 55-77.
- (31) Wu, L., Y. Sun, L. Zhang, J. Zhang, and S. Minobe, 2010: Coupled ocean-atmosphere response to idealized freshwater forcing over the western tropical Pacific. *Journal of Climate*, 23, 1945–1954.
- (32) Kuwano-Yoshida, A., S. Minobe, and S.-P. Xie, 2010: Precipitation response to the Gulf Stream in an atmospheric GCM. *Journal of Climate*, 23, 3676–3698.
- (33) Minobe, S., M. Miyashita, A. Kuwano-Yoshida, H. Tokinaga, and S.-P. Xie, 2010: Atmospheric response to the Gulf Stream: Seasonal variations, *Journal of Climate*, 23, 3699–3719.
- (34) Na, H., K.-Y. Kim, K.-I. Chang, K. Kim, J.-Y. Yun, and S. Minobe, 2010: Interannual variability of the Korea Strait Bottom Cold Water and its relationship with the upper water temperatures and atmospheric forcing in the Sea of Japan (East Sea), *Journal of Geophysical Research (Ocean)*, 115, C09031, doi:10.1029/2010JC006347.

- (35) Watanuki Y, Ito M, Deguchi T, and S. Minobe, 2009: Climate-forced seasonal mismatch between the hatching of Rhinoceros Auklets and the availability of anchovy, *Marine Ecology Progress Series*, 393, 259-271.
- (36) Minobe, S., A. Kuwano-Yoshida, N. Komori, S.-P. Xie, and R. J. Small, 2008: Influence of the Gulf Stream on the troposphere. *Nature*, 452, 206-209, doi:10.1038/nature06690. (Nature 表紙論文, トムソン・ロイター上位 1%引用論文)
- (37) Overland, J., S. Rodionov, S. Minobe, and N. Bond, 2008: North Pacific regime shifts: Definitions and recent indicators, *Progress in Oceanography*, 77, 92–102.
- (38) Byrd G. V., Sydeman, W. J., Rennera, H. M., and S. Minobe, 2008: Responses of piscivorous seabirds at the Pribilof Islands to ocean climate, *Deep Sea Research II*, 55 1856– 1867.
- (39) Small, R.J., S.P. deSzoeko, S.P. Xie, L. O’Neill, H. Seo, Q. Song, P. Cornillon, M. Spall, and S. Minobe: 2008, Air–sea interaction over ocean fronts and eddies. *Dynamics of Atmospheres and Oceans*, 45, 274–319. (トムソン・ロイター上位 1%引用論文)
- (40) Sasaki, Y. N., S. Minobe, N. Schneider, T. Kagimoto, M. Nonaka, and H. Sasaki, 2008: Decadal sea level variability in the South Pacific in a global eddy-resolving ocean model hindcast. *Journal of Physical Oceanography*, 38, 1731-1747.
- (41) Sasaki Y. N., Y. Katagiri, S. Minobe, and I. G. Rigor, 2007: Autumn atmospheric preconditioning for interannual variability of wintertime sea-ice in the Okhotsk Sea. *Journal of Oceanography*, 63, 255-265.
- (42) Baba K., S. Minobe, N. Kimura, M. Wakatsuchi 2006: Intraseasonal variability of sea-ice concentration in the Antarctic with particular emphasis on wind effect, *Journal of Geophysical Research (Oceans)*, 111, C12023, doi:10.1029/2005JC003052.
- (43) Minobe, S., and A. Maeda, 2005: 1-degree SST dataset compiled from ICOADS from 1850 to 2002 and Northern Hemisphere frontal variability. *International Journal of Climatology*. 25, 881-894.
- (44) Sasaki, Y. N., and S. Minobe, 2005: Seasonally dependent interannual variability of sea ice in the Bering Sea and its relation to atmospheric fluctuations, *Journal of Geophysical Research (Oceans)*, 110, C05011, doi:10.1029/2004JC002486.
- (45) Motoi T., W.-L. Chan, S. Minobe, H. Sumata (2005), North Pacific halocline and cold climate induced by Panamanian Gateway closure in a coupled ocean-atmosphere GCM, *Geophysical Research Letters*, 32, L10618, doi:10.1029/2005GL022844.
- (46) Nakanowatari, T. and S. Minobe, 2005: Moisture balance for bidecadal variability of wintertime precipitation in the North Pacific Using NCEP/NCAR reanalysis. *Journal of the*



*Meteorological Society Japan*, 83, 453-469.

- (47) Minobe, S., and M. Nakamura, 2004: Interannual to decadal variability in the southern Okhotsk Sea based on a new gridded upper water temperature dataset. *Journal of Geophysical Research*, 109, C09S05, doi:10.1029/2003JC001916.
- (48) Minobe S., and F.-F. Jin, 2004: Generation of interannual and interdecadal climate oscillations through nonlinear subharmonic resonance in delayed oscillators, *Geophysical Research Letters*, 31, L16206, 10.1029/2004GL019776.
- (49) Minobe, S., A. Sako, and M. Nakamura, 2004: Interannual to interdecadal variability in the Japan Sea based on a new gridded upper water temperature dataset. *Journal of Physical Oceanography*, 34, 2382-2397
- (50) Okada, N., M. Ikeda and S. Minobe, 2004: Numerical experiments of isolated convection under polynya. *Journal of Oceanography*, 60, 927-943.
- (51) Minobe, S., T. Manabe, and A. Shouji, 2002: Maximal wavelet filter and its application to Bi-Decadal Oscillation over the Northern Hemisphere through the 20th century. *Journal of Climate*, 15, 1064-1075.
- (52) Minobe, S. and T. Nakanowatari, 2002: Global structure of bidecadal precipitation variability in boreal winter, *Geophysical Research Letters*, 29, 1396, doi 10.1029/2001GL014447, 22 May 2002.
- (53) Minobe, S. 2002: Interannual to interdecadal changes in the Bering Sea and concurrent 1998/99 changes over the North Pacific. *Progress in Oceanography*, 55, 45–64.
- (54) Minobe, S., 2000: Spatio-temporal structure of the pentadecadal variability over the North Pacific. *Progress in Oceanography*, 47, 381–408. (表紙論文)
- (55) Nishino, S., and S. Minobe, 2000: Thermohaline- and wind-driven circulation in an extended model of potential vorticity homogenization. *Journal of Physical Oceanography*, 30, 2391-2403.
- (56) Hare, S. R., S. Minobe, W. S. Wooster, and S. McKinnell 2000: An introduction to the PICES symposium on the nature and impacts of North Pacific climate regime shifts. *Progress in Oceanography*, 47, 99-102.
- (57) Minobe, S., 1999: Resonance in bidecadal and pentadecadal climate oscillations over the North Pacific: Role in climatic regime shifts. *Geophysical Research Letters*, 26, 855–858.
- (58) Minobe, S., and N. Mantua, 1999: Interdecadal modulation of interannual atmospheric and oceanic variability over the North Pacific. *Progress in Oceanography*, 43, 163–192.



- (59) Yasuda, I., H. Sugusaki, Y. Watanabe, S. Minobe and Y. Oozeki, 1999: Interdecadal variations in Japanese sardine and ocean/climate. *Fisheries Oceanography*, 8, 18-24.
- (60) Minobe, S., 1997: A 50-70 year climatic oscillation over the North Pacific and North America. *Geophysical Research Letters*, 24, 683-686. 10.1029/97GL00504
- (61) Minobe, S., 1996: Detection of an annual westward propagating signal in the meridional wind component along 8°N in the Pacific. *Journal of Climate*, 9, 1661-1668.
- (62) Minobe, S., and K. Takeuchi, 1995: Annual period equatorial waves in the Pacific Ocean. *Journal of Geophysical Research.*, 100, 18,379-18,392.