

引用文献

テーマ 1

- Baldwin, M. P., and T. J. Dunkerton (1999), Propagation of the Arctic Oscillation from the stratosphere to the troposphere, *J. Geophys. Res.*, *104*, 30937-30946.
- Curry, J. A., W. B. Rossow, D. Randall, and J. L. Schramm (1996), Overview of Arctic cloud and radiation characteristics, *J. Climate*, *9*, 1731-1764.
- Derksen, C., and R. Brown (2012), Spring snow cover extent reductions in the 2008–2012 period exceeding climate model projections, *Geophys. Res. Lett.*, *39*, L19504, doi:10.1029/2012GL053387.
- Graversen, R. G., T. Mauritsen, M. Tjernström, E. Källén, and G. Svensson (2008), Vertical structure of recent Arctic warming, *Nature*, *451*, 53-56.
- Hall, A., and X. Qu (2006), Using the current seasonal cycle to constrain snow albedo feedback in future climate change, *Geophys. Res. Lett.*, *33*, doi:10.1029/2005GL025127.
- Hwang, Y.-T., D. M. W. Frierson, and J. E. Kay (2011), Coupling between Arctic feedback and changes in poleward energy transport, *Geophys. Res. Lett.*, *38*, L17704, doi: 10.1029/2011GL048546.
- Liu, Y., J. R. Key, Z. Liu, X. Wang, and S. J. Vavrus (2012), A cloudier Arctic expected with diminishing sea ice, *Geophys. Res. Lett.*, *39*, L050705, doi: 10.1029/ 2012GL051251.
- Manney, G. L., et al. (2011), Unprecedented Arctic ozone loss in 2011, *Nature*, *478*, 469-475.
- O'ishi, R. and A. Abe-Ouchi (2011), Polar amplification in the mid - Holocene derived from dynamical vegetation change with a GCM, *Geophys. Res. Lett.*, *38*, L14702.
- Oort, A. H. (1971), The Observed Annual Cycle in the Meridional Transport of Atmospheric Energy. *J. Atmos. Sci.*, *28*, 325–339.
- Perovich, D.K., B. Light, H. Eicken, K.F. Jones, K. Runciman, and S.V. Nghiem (2007), Increasing solar heating of the Arctic Ocean and adjacent seas, 1979-2005: Attribution and role in the ice-albedo feedback, *Geophys. Res. Lett.*, *34*, doi:10.1029/2007GL031480.
- Trenberth, K. E., and D. P. Stepaniak (2003a), Covariability of components of poleward atmospheric energy transports on seasonal and interannual timescales, *J. Clim.*, *16*, 3691–3705.
- Tucker, C. J., D. A. Slayback, J. E. Pinzon, S. O. Los, R. B. Myneni, and M. G. Taylor (2001), Higher northern latitude normalized difference vegetation index and growing season trends from 1982 to 1999, *Int. J. Biometeorol.*, *45*, 184-190.
- Yoshimori, M., A. Abe-Ouchi, M. Watanabe, A. Oka, and T. Ogura (2014), Robust seasonality of Arctic warming processes in two different versions of MIROC GCM. *J. Climate*, accepted.

テーマ 2

- Inoue, J., and M. Hori (2011), Arctic cyclogenesis at the marginal ice zone: A contributory mechanism for the temperature amplification?, *Geophys. Res. Lett.*, *38*, doi:10.1029/2011GL047696.
- Jackson, J. M., E. C. Carmack, F. A. McLaughlin, S. E. Allen, and R. G. Ingram (2010), Identification, characterization, and change of the near-surface temperature maximum in the Canada Basin, 1993–2008, *J. Geophys. Res.*, *115*, C05021, doi:10.1029/2009JC005265
- McPhee, M. G. (2013), Intensification of geostrophic currents in the Canada Basin, Arctic Ocean, *J. Clim.*, *26*, 3130-3138.
- Overland, J. E., and M. Wang (2013), When will the summer Arctic be nearly sea ice free?, *Geophys. Res. Lett.*, *40*, 2097-2101, doi:10/1002/grl.50316.
- Rampal, P., J. Weiss, C. Dubois, and J.-M. Campin (2011), IPCC climate models do not capture Arctic sea ice drift acceleration: Consequences in terms of projected sea ice thinning and decline, *J. Geophys. Res.*, *116*, doi:10.1029/2011JC007110.

テーマ 3

- Bates, N. R., and J. T. Mathis (2009), The Arctic Ocean marine carbon cycle: evaluation of air-sea CO₂ exchanges, ocean acidification impacts and potential feedbacks, *Biogeosciences*, *6*, 2433–2459.
- Frey, K. E., and J. W. McClelland (2009), Impacts of permafrost degradation on arctic river biogeochemistry, *Hydrol. Process.*, *23*, 169–182, doi: 10.1002/hyp.7196.
- Holmes, R. M., J. W. McClelland, B. J. Peterson, S. E. Tank, E. Bulygina, T. I. Eglinton, V. V. Gordeev, T. Y. Gurtovaya, P. A. Raymond, D. J. Repeta, R. Staples, R. G. Striegl, A. V. Zhulidov, and S. A. Zimov (2012), Seasonal and annual fluxes of nutrients and organic matter from large rivers to the Arctic Ocean and surrounding seas, *Estuaries and Coasts*, *35*, 369-382, doi: 10.1007/s12237-011-9386-6.

- Intergovernmental Panel on Climate Change (IPCC) (2013a), *Climate Change 2013: The Physical Science Basis*, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, edited by T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P. M. Midgley, Cambridge Univ. Press, Cambridge, U. K. and New York, NY, USA, 1535 pp.
- Intergovernmental Panel on Climate Change (IPCC) (2013b), Summary for Policymakers. In *Climate Change 2013: The Physical Science Basis*, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, edited by T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P. M. Midgley, Cambridge Univ. Press, Cambridge, U. K. and New York, NY, USA.
- Ise, T., A. L. Dunn, S. C. Wofsy, and P. R. Moorcroft (2008), High sensitivity of peat decomposition to climate change through water-table feedback, *Nature Geoscience*, *1*, 763-766.
- Kirchman, D. L., X. A. G. Morán, and H. Ducklow (2009), Microbial growth in the polar oceans — role of temperature and potential impact of climate change, *Nature Reviews in Microbiology*, *7*, 451- 459.
- Lubin and Vogelmann (2010), Observational quantification of a total aerosol indirect effect in the Arctic, *Tellus B*, *62*, 181–189.
- 森本真司、石戸谷重之、石島健太郎、八代 尚、梅澤 拓、橋田 元、菅原 敏、青木周司、中澤高清、山内 恭(2010), 南北両極域における大気中の温室効果気体と関連気体の変動, 南極資料, *54*, 374-409.
- Quinn, P. K., G. Shaw, E. Andrew, E. G. Dutton, T. Ruoho-Airola, and S. L. Going (2007), Arctic haze: current trends and knowledge gaps, *Tellus Series B-chemical and Physical Meteorology*, *59B*, 99–114.
- Shakhova, N., I. Semiletov, A. Salyuk, V. Joussupov, D. Kosmach, and Ö. Gustafsson (2010), Extensive Methane Venting to the Atmosphere from Sediments of the East Siberian Arctic Shelf, *Science*, *327*, 1246-1250, doi: 10.1126/science.1182221.
- Suzuki, R., Y. Kim, R. Ishii (2013), Sensitivity of the backscatter intensity of ALOS/PALSAR to the above-ground biomass and other biophysical parameters of boreal forest in Alaska, *Polar Science*, *7*, 100-112.
- Yamamoto-Kawai, M., F. McLaughlin, E. Carmack, S. Nishino, and K. Shimada (2009), Aragonite undersaturation in the Arctic Ocean: Effects of ocean acidification and sea ice melt, *Science*, *326*, 1098-1100.

テーマ 4

- Abe-Ouchi, A., et al. (2013), Insolation-driven 100,000-year glacial cycles and hysteresis of ice-sheet volume, *Nature*, *500*, 190-193.
- Brown, R.D. and P.W. Mote (2009), The response of northern hemisphere snow cover to a changing climate, *Journal of Climate*, *22*, 2124-2145.
- Brutsaert, W., and T. Hiyama (2012), The determination of permafrost thawing trends from long-term streamflow measurements with an application in eastern Siberia, *J. Geophys. Res.*, *117*, D22110, doi:10.1029/2012JD018344.
- Ekström, G., M. Nettles, and V. C. Tsai (2006), Seasonality and increasing frequency of Greenland glacial earthquakes. *Science*, *311*, 1756–1758.
- Gardner, A. S., et al. (2013), A reconciled estimate of glacier contributions to sea level rise: 2003 to 2009, *Science*, *340(6134)*, 852–857, doi: 10.1126/science.1234532
- Goodison, B. E., P. Y. T. Louie, and D. Yang (1998), WMO Solid Precipitation Measurement Intercomparison Final Report, *World Meteorological Organization Instruments and Observing Methods Report No. 67*, 212.
- Hiyama T., K. Asai, A. B. Kolesnikov, L. A. Gagarin, and V. V. Shepelev (2013), Estimation of the residence time of permafrost groundwater in the middle of the Lena River basin, eastern Siberia, *Environmental Research Letters*, *8*, 035034.
- Iijima, Y., A.N. Fedorov, H. Park, K. Suzuki, H. Yabuki, T.C. Maximov, and T. Ohata (2010), Abrupt increase in soil temperature under conditions of increased precipitation in a permafrost region, the central Lena River basin. *Permafrost and Periglacial Processes*, *21*, 30–41.
- Iijima, Y., T. Ohta, A. Kotani, A. N. Fedorov, Y. Kodama, and T. C. Maximov (2014), Sap flow changes in relation to permafrost degradation under increasing precipitation in an eastern Siberian larch forest, *Ecohydrology*, *7*, doi: 10.1002/eco.1366
- Jorgenson, M. T., Y. L. Shur, and E. R. Pullman (2006), Abrupt increase in permafrost degradation in Arctic Alaska, *Geophysical Research Letters*, *33*, L02503. doi: 1029/2005GL024960
- Landerer, F.W., J.O. Dickey, and A. Guentner (2010), Terrestrial water budget of the Eurasian pan - Arctic from GRACE satellite measurements during 2003–2009. *Journal of Geophysical Research: Atmospheres (1984–2012)* *115* (D23).
- Lemke, P., J. Ren, R.B. Alley, I. Allison, J. Carrasco, G. Flato, Y. Fujii, G. Kaser, P. Mote, R.H. Thomas, and T. Zhang (2007), Observations: Changes in Snow, Ice and Frozen Ground. In: *Climate Change 2007: The Physical Science Basis*, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, edited by S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H.L. Miller, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

- Matsumura, S., K. Yamazaki, and T. Tokioka (2010), Summertime land-atmosphere interactions in response to anomalous springtime snow cover in northern Eurasia, *J. Geophys. Res.*, *115*, D20107.
- Nitu R. (2013), Cold as SPICE, *Meteorological Technology International*, 148–150.
- 小川涼子, B. F. Chao, 日置幸介 (2010), シベリア永久凍土帯における重力の季節変化と経年変化, 月刊地球, 32, 234–238.
- Ohta, T., A. Kotani, Y. Iijima, T. C. Maximov, S. Ito, M. Hanamura, A. V. Kononov, and A. P. Maximov (2014), Effects of waterlogging on water and carbon dioxide fluxes and environmental variables in a Siberian larch forest, 1998 – 2011, *Agric. For. Meteorol.*, *188*, 64–75.
- Park H., J. Walsh, A. N. Fedorov, A. B. Sherstiukov, Y. Iijima, and T. Ohata (2013), The influence of climate and hydrological variables on opposite anomaly in active-layer thickness between Eurasian and North American watersheds, *Cryosphere*, *7*, 631–645, doi:10.5194/tc-7-631-2013.
- Rasmussen, R., and Coauthors (2012), How well are we measuring snow: The NOAA/FAA/NCAR winter precipitation test Bed. Bull, *Amer. Meteor. Soc.*, *93*, 811–829. doi: <http://dx.doi.org/10.1175/BAMS-D-11-00052.1>
- Romanovsky, V. E., D. S. Drozdov, N. G. Oberman, et al. (2010), Thermal state of permafrost in Russia, *Permafrost Periglac. Process.*, *21*(2), 136–155, doi:10.1002/ppp.683.
- Shepherd, A., et al. (2012), A reconciled estimate of ice-sheet mass balance. *Science*, *338* (6111), 1183–1189, doi:10.1126/science.1228102
- Shur, Y., K. M. Hinkel, and F. E. Nelson (2005), The Transient Layer: Implication for Geocryology and Climate-Change Science, *Permafrost and Periglacial Processes*, *16*, 5–17.
- Sugiura, K., and T. Ohata (2008), Large-scale characteristics of the distribution of blowing snow sublimation, *Annals of Glaciology*, *49*, 11–16.
- Suzuki, K., J. Kubota, Y. Zhang, T. Kadota, T. Ohata, and V. Vuglinsky (2006), Snow ablation in an open field and larch forest of the southern mountainous region of eastern Siberia, *Hydrol. Sci. J.*, *51*(3), 465–480, doi:10.1623/hysj.51.3.465.
- Takeuchi, N., S. Kohshima, and K. Seko (2001), Structure, formation, and darkening process of albedo-reducing material (cryoconite) on a Himalayan glacier: a granular algal mat growing on the glacier, *Arctic, Antarctic, and Alpine Research*, *33*, 115–122.
- Toyokuni, G., M. Kanao, Y. Tono, T. Himeno, S. Tsuboi, D. Childs, K. Anderson, and H. Takenaka (2014), Japanese Contribution to the Greenland Ice Sheet Monitoring Network (GLISN), *Antarctic Report*, in press.
- Yallop, M. L., A. M. Anesio, R. G. Perkins, J. Cook, J. Telling, D. Fagan, J. MacFarlane, M. Stibal, G. Barker, C. Bellas, A. Hodson, M. Tranter, J. Whadhan, and N. W. Roberts (2012), Photophysiology and albedo-changing potential of the ice algal community on the surface of the Greenland ice sheet, *The ISME journal*, *6*(12), 2302–2313.
- Yoshimori, M., and A. Abe-Ouchi (2012), Sources of spread in multi-model projections of the Greenland ice-sheet surface mass balance, *J. Climate*, *25*(4), 1157–1175.
- Zhang K., J. Kimball, Q. Mu, L. A. Jones, S. J. Goetz, and S. W. Running (2009), Satellite based analysis of northern ET trends and associated changes in the regional water balance from 1983 to 2005. *J. Hydrol.*, *379*, 92–110, doi:10.1016/j.jhydrol.2009.09.047.
- Zhang, X., J. He, J. Zhang, I. Polaykov, R. Gerdes, J. Inoue, and P. Wu (2013), Enhanced poleward moisture transport and amplified northern high-latitude wetting trend, *Nature Climate Change*, *3*, 47–51, doi:10.1038/NCLIMATE1631.

テーマ 5

- Beare, R.J., M. K. Macvean, A. A. M. Holtslag, J. Cuxart, I. Esau, J.-C. Gollatz, M. A. Jimenez, M. Khairoutdinov, B. Kosovic, D. Lewellen, T. S. Lund, J. K. Lundquist, A. McCabe, A. F. Moene, Y. Noh, S. Raasch, and P. Sullivan (2006), An intercomparison of large-eddy simulations of the stable boundary layer, *Boundary-Layer Meteorol.*, *118*, 247–272.
- Brown, R., C. Derksen, and L. Wang (2010), A multi-data set Analysis of Variability and Change in Arctic Spring snow Cover Extent, 1967–2008, *J. Geophys. Res.*, *115*, D16111, doi:10.1029/JD013975.
- Chapman, W.L., and J. E. Walsh (2007), Simulations of Arctic temperature and pressure by global coupled models, *J. Clim.*, *20*, 609–632, doi:10.1175/JCLI4026.1.
- Dickson, B., I. Yashayaev, J. Meincke, B. Turrel, S. Dye, and J. Holfort (2002), Rapid freshening of the deep North Atlantic Ocean over the past four decades. *Nature*, *416*, 832–837.
- Fereday, D., J. R. Knight, A. A. Scaife, C. K. Folland, and A. Philipp (2008), Cluster analysis of North Atlantic European weather types, *J. Clim.*, *21*, 3687–3703.
- Groisman P. Y., and T. D. Davies (2001), Snow cover and the Climate System, In *Snow Ecology: An Interdisciplinary Examination of Snow-Covered Ecosystems*, edited by H. G. Jones, et al., pp. 1–44, Cambridge University Press.

- Honda, M., J. Inoue, and S. Yamane (2009), Influence of low Arctic sea-ice minima on anomalously cold Eurasian winters, *Geophys. Res. Lett.*, *36*, L08707, doi:10.1029/2008GL037079.
- Hu, A., G. A. Meehl, W. Han, A. Timmermann, B. Otto-Bliesner, Z. Liu, W. M. Washington, W. Large, A. Abe-Ouchi, M. Kimoto, K. Lambeck, and B. Wu (2012), Role of the Bering Strait on the hysteresis of the ocean conveyor belt circulation and glacial climate stability, *PNAS*, *109*(17), 6417-6422.
- Ineson, S., and A. A. Scaife (2009), The role of the stratosphere in the European climate response to El Niño, *Nature Geoscience*, *2*, 32-36.
- Inoue, J., M. E. Hori, and K. Takaya (2012), The Role of Barents Sea Ice in the Wintertime Cyclone Track and Emergence of a Warm-Arctic Cold-Siberian Anomaly, *J. Climate*, *25*, 2561–2568. doi:http://dx.doi.org/10.1175/JCLI-D-11-00449.1.
- Liston, G.E. (2004), Representing Subgrid Snow Cover Heterogeneities in Regional and Global Models, *J. Clim.*, *17*, 1381-1397.
- Steele, M., and W. Ermold (2007), Steric sea level change in the Northern Seas, *J. Clim.*, *20*(3), 403–417.
- Tape, K., M. Sturm, and C. Racine (2006), The evidence for shrub expansion in Northern Alaska and the Pan-Arctic, *Global Change Biology*, *12*, 686-702.
- Zhang, T. (2005), Influence of the Seasonal Snow Cover on the Ground Thermal Regime: An Overview, *Rev. Geophys.*, *43*, RG4002. doi: 10.1029/2004RG000157.

テーマ 6

- Abe-Ouchi, A., F. Saito, K. Kawamura, M. E. Raymo, J. Okuno, K. Takahashi, and H. Blatter (2013), Insolation-driven 100,000-year glacial cycles and hysteresis of ice-sheet volume, *Nature*, *500*(7461), 190–193, doi:10.1038/nature12374.
- Bindschadler, R. A., S. Nowicki, A. Abe-Ouchi, A. Aschwanden, H. Choi, J. Fastook, G. Granzow, R. Greve, G. Gutowski, U. Herzfeld, C. Jackson, J. Johnson, C. Khroulev, A. Levermann, W. H. Lipscomb, M. A. Martin, M. Morlighem, B. R. Parizek, D. Pollard, S. F. Price, D. Ren, F. Saito, T. Sato, H. Seddik, H. Seroussi, K. Takahashi, R. Walker, and W. L. Wang (2013), Ice-sheet model sensitivities to environmental forcing and their use in projecting future sea level (the SeaRISE project), *J. Glaciol.*, *59*(214), 195–224, doi:10.3189/2013JoG12J125.
- de Vernal, A., C. Hillaire-Marcel, A. Rochon, B. Fréchette, M. Henry, S. Solignac, and S. Bonnet (2013), Dinocyst-based reconstructions of sea ice cover concentration during the Holocene in the Arctic Ocean, the northern North Atlantic Ocean and its adjacent seas, *Quat. Sci. Rev.*, *79*, 111–121, doi:10.1016/j.quascirev.2013.07.006.
- Harrison, S. P., and C. I. Prentice (2003), Climate and CO₂ controls on global vegetation distribution at the last glacial maximum: analysis based on palaeovegetation data, biome modelling and palaeoclimate simulations, *Global Change Biology*, *9*(7), 983–1004, doi:10.1046/j.1365-2486.2003.00640.x.
- Iizuka, Y., R. Uemura, H. Motoyama, T. Suzuki, T. Miyake, M. Hirabayashi, and T. Hondoh (2012), Sulphate–climate coupling over the past 300,000 years in inland Antarctica, *Nature*, *490*(7418), 81–84, doi:10.1038/nature11359.
- Intergovernmental Panel on Climate Change (IPCC) (2013), Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, edited by T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P. M. Midgley, Cambridge Univ. Press, Cambridge, U. K. and New York, NY, USA, 1535 pp.
- Joussaume, S., K. E. Taylor, P. Braconnot, J. F. B. Mitchell, J. E. Kutzbach, S. P. Harrison, I. C. Prentice, A. J. Broccoli, A. Abe-Ouchi, P. J. Bartlein, C. Bonfils, B. Dong, J. Guiot, K. Herterich, C. D. Hewitt, D. Jolly, J. W. Kim, A. Kislov, A. Kitoh, M. F. Loutre, V. Masson, B. McAvaney, N. McFarlane, N. de Noblet, W. R. Peltier, J. Y. Peterschmitt, D. Pollard, D. Rind, J. F. Royer, M. E. Schlesinger, J. Syktus, S. Thompson, P. Valdes, G. Vettoretti, R. S. Webb, and U. Wyputta (1999), Monsoon changes for 6000 years ago: Results of 18 simulations from the Paleoclimate Modeling Intercomparison Project (PMIP), *Geophys Res Lett*, *26*(7), 859–862, doi:10.1029/1999GL900126.
- Kobashi, T., D. T. Shindell, K. Kodera, J. E. Box, T. Nakaegawa, and K. Kawamura (2013), On the origin of multidecadal to centennial Greenland temperature anomalies over the past 800 yr, *Clim. Past*, *9*(2), 583–596, doi:10.5194/cp-9-583-2013.
- Lambert, F., J.-S. Kug, R. J. Park, N. Mahowald, G. Winckler, A. Abe-Ouchi, R. O’ishi, T. Takemura, and J.-H. Lee (2013), The role of mineral-dust aerosols in polar temperature amplification, *Nature Climate Change*, *3*(5), 487–491, doi:10.1038/nclimate1785.
- Meyer, H., L. Schirrmeyer, A. Andreev, D. Wagner, H.-W. Hubberten, K. Yoshikawa, A. Bobrov, S. Wetterich, T. Opel, E. Kandiano, and J. Brown (2010), Lateglacial and Holocene isotopic and environmental history of northern coastal Alaska – Results from a buried ice-wedge system at Barrow, *Quat. Sci. Rev.*, *29*(27-28), 3720–3735, doi:10.1016/j.quascirev.2010.08.005.

- Moran, K., J. Backman, H. Brinkhuis, S. C. Clemens, T. Cronin, G. R. Dickens, F. Eynaud, J. Gattacceca, M. Jakobsson, R. W. Jordan, M. Kaminski, J. King, N. Koç, A. Krylov, N. Martinez, J. Matthiessen, D. McInroy, T. C. Moore, J. Onodera, M. O'Regan, H. Palike, B. Rea, D. Rio, T. Sakamoto, D. C. Smith, R. Stein, K. St John, I. Suto, N. Suzuki, K. Takahashi, M. Watanabe, M. Yamamoto, J. Farrell, M. Frank, P. Kubik, W. Jokat, and Y. Kristoffersen (2006), The Cenozoic palaeoenvironment of the Arctic Ocean, *Nature*, *441*(7093), 601–605.
- NEEM community members (2013), Eemian interglacial reconstructed from a Greenland folded ice core, *Nature*, *493*(7433), 489–494, doi:10.1038/nature11789.
- O'ishi, R. and A. Abe-Ouchi (2011), Polar amplification in the mid-Holocene derived from dynamical vegetation change with a GCM, *Geophys Res Lett*, *38*, L14702, doi:10.1029/2011GL048001.
- PALAEOSSENS Project Members (2012), Making sense of palaeoclimate sensitivity, *Nature*, *491*(7426), 683–691, doi:doi:10.1038/nature11574.
- Pollack, H. N. (2003), Surface temperature trends in Russia over the past five centuries reconstructed from borehole temperatures, *J. Geophys. Res.*, *108*(B4), 2180, doi:10.1029/2002JB002154.
- Sigl. M., J. R. McConnell, M. Toohey, M. Curran, S.B. Das, R. Edwards, E. Isaksson, K. Kawamura, J. Kipfstuhl, K. Krüger, L. Layman, O. Maselli, Y. Motizuki, H. Motoyama, D. Pasteris, and M. Severi (2014), New insights from Antarctica on volcanic forcing during the Common Era, *Nature Clim. Change*, in press.
- Sueyoshi, T., R. Ohgaito, A. Yamamoto, M. O. Chikamoto, T. Hajima, H. Okajima, M. Yoshimori, M. Abe, R. O'ishi, F. Saito, S. Watanabe, M. Kawamiya, and A. Abe-Ouchi (2013), Set-up of the PMIP3 paleoclimate experiments conducted using an Earth system model, MIROC-ESM, *Geoscientific Model Development*, *6*(3), 819–836, doi:10.5194/gmd-6-819-2013.
- Uemura, R., V. Masson-Delmotte, J. Jouzel, A. Landais, H. Motoyama, and B. Stenni (2012), Ranges of moisture-source temperature estimated from Antarctic ice cores stable isotope records over glacial–interglacial cycles, *Clim. Past*, *8*(3), 1109–1125, doi:10.5194/cp-8-1109-2012.
- Yoshimura, K., T. Miyoshi, M. Kanamitsu (2014), Observation System Simulation Experiments using Water Vapor Isotope Information, *J. Geophys. Res. Atmos.*, in press, doi:10.1029/2014JD021662.
- Zachos, J., M. Pagani, L. Sloan, E. Thomas, and K. Billups (2001), Trends, Rhythms, and Aberrations in Global Climate 65 Ma to Present, *Science*, *292*(5), 686–693, doi:10.1126/science.1059412.

テーマ 7

地球電磁気学・地球惑星圏学会(2013), 地球電磁気学・地球惑星圏科学の現状と将来、地球電磁気学・地球惑星圏学会、2013年1月

- Kaeriyama, M., H. Seo, H. Kudo, and M. Nagata (2012), Perspectives on wild and hatchery salmon interactions at sea, potential climate effects on Japanese chum salmon, and the need for sustainable salmon fishery management reform in Japan, *Environ. Biol. Fish.*, *94*, 165–177.
- Kelly, R., M. L. Chipman, P. E. Higuera, I. Stefanova, L. B. Brubaker, and F. S. Hu (2013), Recent burning of boreal forests exceeds fire regime limits of the past 10,000 years, *PNAS*, *110*-32, 13055–13060.
- 北川弘光、小野延雄、山口一、泉山耕、亀崎一彦(2000), 北極海航路、シップ・アンド・オーシャン財団
- Koshino, Y., H. Kudo, and M. Kaeriyama (2013), Stable isotope evidence indicates the incorporation of marine-derived nutrients transported by spawning Pacific salmon to Japanese catchments. *Freshwater Biology*, *58*, 1864–1877.
- Post, E., U. S. Bhatt, C.M. Bitz, J. F. Brodie, T. L. Fulton, M. Hebblewhite, J. Kerby, S. J. Kutz, I. Stirling, D. A. Walker (2013), Ecological Consequences of Sea-Ice Decline, *Science*, *341*(6145), 519–524, doi:10.1126/science.1235225.
- SATREPS プロジェクト、http://www.jst.go.jp/global/kadai/h2004_indonesia.html.
- Steppuhn, H. (1981), Snow and Agriculture, *Handbook of Snow*, 60–125, Pergamon Press.
- Symon C., L. Arris, and B. Heal (Eds.) (2005), *Arctic climate impact assessment*, Cambridge Univ. Press, New York.
- 田中博(2008), 日本の異常気象と北極振動の関係, 2008年度雪氷防災研究講演会報文集, 防災科学技術研究所、雪氷防災研究センター. 1-6、<http://air.geo.tsukuba.ac.jp/~tanaka/papers/paper220.pdf>.
- Tsuboi, S., D. Komatitsch, C. Ji, and J. Tromp (2003), Broadband modeling of the 2002 Denali fault earthquake on the Earth Simulator, *Physics of The Earth and Planetary Interiors*, doi:10.1016/j.pepi.2003.09.012.
- Yamaguchi, H. (2013), Sea ice prediction and construction of an ice navigation support system for the Arctic sea routes, *Proc. 22nd Intern. Conf. on Port and Ocean Eng. under Arctic Conditions (POAC'13)*, Espoo, Finland, June 9–13, 2013.

テーマ 8

- Cardinale B. (2012), Impacts of Biodiversity Loss, *Science*, *336*, 552–553.
- Clymo R.S. (1983), Peat, In *Ecosystems of the world, 4A Mires: swamp bog, fen and moor, general studies*, edited by A. J. P. Gore, 159–224R, Elsevier, Amsterdam.

- Clymo, S., and P. M. Hayward (1982), The ecology of Sphagnum, In *Bryophyte Ecology*, edited by A. J. E. Smith, 229-289, Chapman and Hall, London, England.
- Elmqvist, T., C. Folke, M. Nyström, G. Peterson, J. Bengtsson, B. Walker, J. Norberg (2003), Response diversity, ecosystem change, and resilience, *Frontiers in Ecology and the Environment*, *1*, 488-494.
- Ganter, B., A. J. Gaston (2013), Birds, In *Arctic Biodiversity Assessment*, edited by H. Meltofte, 142-181, The Conservation of Arctic Flora and Fauna (CAFF), Akureyri, Iceland.
- Ise, T., H. Sato (2008), Representing subgrid-scale edaphic heterogeneity in a large-scale ecosystem model: A case study in the circumpolar boreal regions, *Geophysical Research Letters*, *35*, L20407, doi:10.1029/2008GL035701.
- Loreau, M., S. Naeem, P. Inchausti, J. Bengtsson, J. P. Grime, A. Hector, D. U. Hooper, M. A. Huston, D. Raffaelli, B. Schmid, D. Tilman, D. A. Wardle (2001), Biodiversity and Ecosystem Functioning: Current Knowledge and Future Challenges, *Science*, *294*, 804-808.
- Mäkilä, M., M. Saarnisto, T. Kankainen (2001), Aapa mires as a carbon sink and source during the Holocene, *Journal of Ecology*, *89*, 589-599.
- Mori, A. S., T. Furukawa, T. Sasaki (2013), Response diversity determines the resilience of ecosystems to environmental change, *Biological Reviews*, *88*, 349-364.
- Post, E., U. S. Bhatt, C. M. Bitz, J. F. Brodie, T. L. Fulton, M. Hebblewhite, J. Kerby, S. J. Kutz, I. Stirling, D. A. Walker (2013), Ecological Consequences of Sea-Ice Decline, *Science*, *341*, 519-524.
- Purves, D., J. P. W. Scharlemann, M. Harfoot, T. Newbold, D. P. Tittensor, J. Hutton, S. Emmott (2013), Ecosystems: Time to model all life on Earth, *Nature*, *493*, 295-297.
- Tsuyuzaki, S., K. Kushida, Y. Kodama (2009), Recovery of surface albedo and plant cover after wildfire in a *Picea mariana* forest in interior Alaska, *Climate Change*, *93*, 517-525.

テーマ 9

- Abdul-Aziz, O. I., N. J. Mantua, and K. W. Myers (2011), Potential climate change impacts on thermal habitats of Pacific salmon (*Oncorhynchus* spp.) in the North Pacific Ocean and adjacent seas, *Can. J. Fish. Aquat. Sci.*, *68*, 1660-1680.
- AMAP(2009), *Arctic Pollution 2009*, Arctic Monitoring and Assessment Programme, Oslo. xi+83pp.
- AMAP (2013), *AMAP Assessment 2013*, Arctic Ocean Acidification. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. viii + 99 pp.
- Bluhm, B. A., A. V. Gebbruk, R. Gradinger, R. R. Hopcroft, F. Huettmann, K. N. Kosobokova, B. I. Sirenko, and J. M. Weslawski (2011), Arctic marine biodiversity: An update of species richness and examples of biodiversity change, *Oceanography*, *24*, 232-248.
- Boetius, A., S. Albrecht, K. Bakker, C. Bienhold, J. Felden, and others (2013), Export of algal biomass from the melting Arctic sea ice, *Science*, *339*, 1430-1432.
- Buchholz, et al. (2012), First observation of krill spawning in the high Arctic Kongsfjorden, west Spitsbergen. *Polar Biol.*, *35*, 1273-1279.
- CAFF (2013), *Life Linked to Ice: A guide to sea-ice-associated biodiversity in this time of rapid change*, CAFF Assessment Series 10, p. 115.
- CoML (2010), *First Census of Marine Life 2010*, Highlights of a decade of discovery, edited by J. H. Ausubel, p. 64.
- Cooper et al. (2013), Linkages between sea-ice coverage, pelagic-benthic coupling, and the distribution of spectacled eiders: Observations in March 2008, 2009 and 2010, northern Bering Sea. *Deep-Sea Res. II*, *94*, 31-43.
- Grebmeier, J.M. et al. (2006) Ecosystem dynamics of the Pacific-influenced Northern Bering and Chukchi Seas, *Prog. Oceanogr.*, *71*, 331-361.
- Honjo, S., R. A. Krishfield, T. I. Eglinton, S. J. Manganini, J. N. Kemp, K. Doherty, J. Hwang, T. K. McKee, T. Takizawa (2010), Biological pump processes in the cryopelagic and hemipelagic Arctic Ocean: Canada Basin and Chukchi Rise, *Progress in Oceanography*, *85*, 137-170.
- Kaeriyama, M. (2008), Ecosystem-based sustainable conservation and management of Pacific salmon, In *Fisheries for Global Welfare and Environment*, edited by K. Tsukamoto, T. Kawamura, T. Takeuchi, T. D. Beard, Jr., and M. J. Kaiser, 371-380, TERRAPUB, Tokyo.
- Kaeriyama, M., H. Seo, H. Kudo, and M. Nagata (2012), Perspectives on wild and hatchery salmon interactions at sea, potential climate effects on Japanese chum salmon, and the need for sustainable salmon fishery management reform in Japan, *Environ. Biol. Fish.*, *94*, 165-177.
- Kaeriyama, M., H. Seo, and Y. Qin (2014), Effect of global warming on the life history and population dynamics of Japanese chum salmon, *Fisheries Sci.*, *80* (2), 251-260.
- Koshino, Y., H. Kudo, and M. Kaeriyama (2013), Stable isotope evidence indicates the incorporation of marine-derived nutrients transported by spawning Pacific salmon to Japanese catchments, *Freshwater Biology*, *58*, 1864-1877.
- McClelland, J. W., R. M. Holmes, K. H. Dunton, and R. W. Macdonald (2012), The Arctic Ocean Estuary, *Estuaries and Coasts*, *35*, 353-368.

- Mallory, and Braune (2012), Tracking contaminants in seabirds of Arctic Canada: temporal and spatial insights. *Mar. Pollut. Bull.*, *64*, 1475-1484.
- Matsuno, et al. (2011), Year-to-year changes of the mesozooplankton community in the Chukchi Sea during summers of 1991, 1992 and 2007, 2008. *Polar Biol.*, *34*, 1349-1360.
- Michelutti et al. (2009), Seabird-driven shifts in Arctic pond ecosystems. *Proc. R. Soc. B*, *276*, 591-596.
- Orr, J.C., et al. (2005), Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. *Nature*, *437*, 681-686.
- Pabi, et al. (2008), Primary production in the Arctic Ocean, 1998–2006. *J. Geophys. Res.*,
Doi:10.1029/2007JC004578.
- Tremblay, J.-É., and J. Gagnon (2009), The effects of irradiance and nutrient supply on the productivity of Arctic waters: a perspective on climate change, 73-92, In *Influence of Climate Change on the Changing Arctic and Sub-Arctic Conditions*, edited by J. C. J. Nihoul, and A. G. Kostianoy, Springer, Dordrecht, Netherlands.
- Uchimiya, M., H. Fukuda, S. Nishino, T. Kikuchi, H. Ogawa, T. Nagata (2011), Does freshening of surface water enhance heterotrophic prokaryote production in the western Arctic? Empirical evidence from the Canada Basin during September 2009, *Journal of Oceanography*, *67*, 589–599.
- Wassmann, P.(1998), Retention versus export food chains: processes controlling sinking loss from marine pelagic systems, *Hydrobiologia*, *36*, 29-57.
- Wassmann, P. (2011), Arctic marine ecosystems in an era of rapid climate change, *Progress in Oceanography*, *90*, 1-17

テーマ 10

- Baldwin, M. P., and T. J. Dunkerton (1999), Propagation of the Arctic Oscillation from the stratosphere to the troposphere, *J. Geophys. Res.*, *104*, 30937-30946.
- Chau, J. L., L. P. Goncharenko, B. G. Fejer, and H.L. Liu (2012), Equatorial and low latitude ionospheric effects during sudden stratospheric warming events, *Space Sci Rev*, *168*, 385–417, DOI 10.1007/s11214-011-9797-5.
- 地球電磁気・地球惑星圏学会将来構想検討ワーキンググループ編 (2013), 地球電磁気学・地球惑星圏科学の現状と将来, 地球電磁気・地球惑星圏学会.
- Gray, L. J., J. Beer, M. Geller, J. D. Haigh, M. Lockwood, K. Matthes, U. Cubasch, D. Fleitmann, G. Harrison, L. Hood, J. Luterbacher, G. A. Meehl, D. Shindell, B. van Geel, and W. White (2010), Solar Influences on Climate, *Reviews of Geophysics*, *48*, 1209/10/2009RG000282, 2010.
- Jackman, C. H., et al. (2001), Northern Hemisphere atmospheric effects due to the July 2000 solar proton event, *Geophys. Res. Lett.*, *28*, 2883-2886.
- Jin, H., Y. Miyoshi, H. Fujiwara, H. Shinagawa, K. Terada, N. Terada, M. Ishii, Y. Otsuka, and A. Saito (2011), Vertical connection from the tropospheric activities to the ionospheric longitudinal structure simulated by a new Earth's whole atmosphere - ionosphere coupled model, *J. Geophys. Res.*, *116*, A01316,
doi:10.1029/2010JA015925.
- Makela J. J., and Y. Otsuka (2012), Overview of Nighttime Ionospheric Instabilities at Low- and Mid-Latitudes: Coupling Aspects Resulting in Structuring at the Mesoscale, *Space Science Reviews*, *168*, 419-440.
- Manney, G. L., et al. (2011), Unprecedented Arctic ozone loss in 2011, *Nature*, *478*, 469-475.
- Plumb, R. A., and K. Semeniuk (2003), Downward migration of extratropical zonal wind anomalies, *J. Geophys. Res.*, *108*, 4223, doi:10.1029/2002JD002773.
- Randall, C. E., V. L. Harvey, C. S. Singleton, S. M. Bailey, P. F. Bernath, M. Codrescu, H. Nakajima, and J. M. Russell (2007), Energetic particle precipitation effects on the Southern Hemisphere stratosphere in 1992-2005, *J. Geophys. Res.*, *112*, D08308, doi:10.1029/2006JD007696.
- Rishbeth, H., and O. K. Garriott (1969), Introduction to ionospheric physics, *International Geophysics Series*, *14*, Academic Press, New York.
- Roble, R. G., and R. E. Dickinson (1989), How will changes in carbon dioxide and methane modify the mean structure of the mesosphere and thermosphere?, *Geophys. Res. Lett.*, *16*, 1441-1444.
- Rozanov, E., et al. (2005), Atmospheric response to NO_y source due to energetic electron precipitation, *Geophys. Res. Lett.*, *32*, L14811, doi:10.1029/2005GL023041.
- Shiota, D., S. Tsuneta, M. Shimojo, N. Sako, D. Orozco Suarez, and R. Ishikawa (2012), Polar Field Reversal as observed with Hinode, *The Astrophysical Journal*, arXiv:1205.2154 [astro-ph.SR].
- Schunk, R. W., and A. F. Nagy (2000), *Ionospheres: Physics, plasma physics, and chemistry*, Cambridge University Press.
- Tsugawa, T., et al. (2011), Ionospheric disturbances detected by GPS total electron content observation after the 2011 off the Pacific coast of Tohoku Earthquake, *Earth, Planets and Space*, *63*, 875-879.
- Turner, J., J. E. Overland, and J. E. Walsh (2007), An Arctic and Antarctic perspective on recent climate change, *Int. J. Climatol.*, *27*, 277-293.
- Vadas, S. L., and G. Crowley (2010), Sources of the traveling ionospheric disturbances observed by the ionospheric TIDBIT sounder near Wallops Island on 30 October 2007, *J. Geophys. Res.*, *115*, A07324,
doi:10.1029/2009JA015053.

テーマ 11

- Alvey, A., C. Gaina, N. J. Kuszniir, T. H. Torsvik (2008), Integrated crustal thickness mapping and plate reconstructions for the high Arctic, *Earth Planet. Sci. Lett.*, *274*, 310–321.
- Backman, J., K. Moran, L. A. Mayer, D. B. McInroy, and the Expedition 302 Scientists (2006), Proceedings IODP, 302, College Station TX (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.302.104.
- Barletta, V., and A. Bordoni (2009), Clearing observed PGR in GRACE data aimed at global viscosity inversion: Weighted Mass Trends technique, *Geophys. Res. Lett.*, *36*, L02305, doi:10.1029/2008GL036429.
- Barnett, T. P. (1984), The Estimation of "Global" Sea Level Change' A Problem of Uniqueness, *J. Geophys. Res.*, *89*, C5, 7980-7988.
- Bowring, S. A., I. S. Williams, W. Compston (1989), 3.96 Ga gneisses from the Slave province, Northwest Territories, Canada, *Geology*, *17*, 971-975.
- Carson, C. J., S. McLaren, A. L. Roberts, S. D. Boger, D. D. Blankenship (2014), Hot rocks in a cold place: high sub-glacial heat flow in East Antarctica, *Journal of Geological Society of London*, *171*, doi.org/10.1144/jgs2013-030.
- Edmonds, H. N. et al. (2003), Discovery of abundant hydrothermal venting on the ultraslow-spreading Gakkel ridge in the Arctic Ocean, *Nature*, *421*, 252-256.
- Ekman, M., and J. Mäkinen (1996), Recent postglacial rebound, gravity change and mantle flow in Fennoscandia, *Geophys. J. Int.*, *126*, 229–234.
- Glebovsky, V. Y., L. C. Kovacs, S. P. Maschenkov, J. M. Brozena (1998), Joint compilation of Russian and US Navy aeromagnetic data in the central Arctic seas, Roland, N., F. Tessesons (Eds.), ICAM III; Third International Conference on Arctic Margins, Polarforschungpp, 35–40.
- Jakobsson, M., R. Macnab, L. Mayer, R. Anderson, M. Edwards, J. Hatzky, H. W. Schenke, and P. Johnson (2008), An improved bathymetric portrayal of the Arctic Ocean: Implications for ocean modeling and geological, geophysical and oceanographic analyses, *Geophysical Research Letters*, doi:10.1029/2008GL033520.
- Jokat, W. (2003), Seismic investigations along the western sector of Alpha Ridge, Central Arctic Ocean, *Geophysical Journal International*, *152* (1), 185-201.
- Lebedeva-Ivanova, N. N., Y. Ya. Zamansky, A. E. Langinen, and M. Yu. Sorokin (2006), Seismic profiling across the Mendeleev Ridge at 82°N: evidence of continental crust, *Geophysical Journal International*, *165*, 527–544. doi: 10.1111/j.1365-246X.2006.02859.x
- Lorenz, H., D. G. Gee, A. N. Larionov, J. Majka (2012), The Grenville–Sveconorwegian orogen in the high Arctic, *Geological Magazine*, *149*, 875-891.
- Michael, P. J. et al. (2003), Magmatic and amagmatic seafloor generation at the ultraslow-spreading Gakkel ridge, Arctic Ocean, *Nature*, *423*, 956-961.
- Moran, K. et al. (2006), The Cenozoic palaeoenvironment of the Arctic Ocean, *Nature*, *441*(7093), 601–605.
- Nutman, A. P., V. C. Bennett, C. R. L. Friend, K. Horie, H. Hidaka (2007), ~3850 Ma tonalites in the Nuuk region, Greenland: geochemistry and their reworking within an Eoarchaean gneiss complex, *Contributions to Mineralogy and Petrology*, *154*, 385-408.
- Pedersen, R. B. et al. (2010), Discovery of a black smoker vent field and vent fauna at the Arctic mid-ocean ridge, *Nature Communications*, *1*, http://dx.doi.org/10.1038/ncomms1124.
- Peltier, W. R. (2004), Global glacial isostasy and the surface of the ice-age Earth: The ICE-5G (VM2) model and GRACE, *Annu. Rev. Earth Planet. Sci.*, *32*, 111-149.
- Sella, G., S. Stein, T. Dixon, M. Craymer, T. James, S. Mazzotti, and R. Dokka (2007), Observation of glacial isostatic adjustment in “stable” North America with GPS, *Geophys. Res. Lett.*, *34*, L02306, doi:10.1029/2006GL027081.
- Seton, M., R. D. Muller, S. Zahirovic, C. Gaina, T. Torsvik, G. Shephard, A. Talsma, M. Gurnis, M. Turner, S. Maus, M. Chandler (2012), Global continental and ocean basin reconstructions since 200 Ma, *Earth-Science Reviews*, *113*, 212-270.
- Shank, T., J. Bailey, H. Edmonds, P. Forte, E. Helmke, et al. (2007), Biological and geological characteristics of the Gakkel Ridge, *Eos Trans. AGU Fall Meeting Supplement*, OS41C-08, 88.
- Sohn, R.A., et al. (2008), Explosive volcanism on the ultraslow-spreading Gakkel ridge, Arctic Ocean, *Nature*, *453*, 1236-1238.
- Vernikovskiy, V. A., N. L. Dobretsov, D. V. Metelkin, N. Yu. Matushkin, I. Yu. Koukakov (2013), Concerning tectonics and the tectonic evolution of the Arctic, *Russian Geology and Geophysics*, *54*, 838-858.
- Verhoef, J., W. R. Roest, R. Macnab, J. Arkani-Hamed (1996), Magnetic anomalies of the Arctic and North Atlantic oceans and adjacent land areas.
- Vogt, P. R., P. T. Taylor, L. C. Kovacs, and G. L. Johnson (1982), The Canada Basin: aeromagnetic constraints on structure and evolution, *Tectonophysics*, *89*, 295–336.

テーマ 12

- Brown, J., O. J. Ferrians, Jr, J. A. Heginbottom, and E. S. Melnikov (1997), Circum-arctic map of permafrost and ground ice conditions. United States Geological Survey, published for the International Permafrost Association, Circum-Pacific Map Series, Map CP-45, scale 1:10,000,000.
- Brown, J., O. J. Ferrians, Jr., J. A. Heginbottom, and E. S. Melnikov (2002), *Circum-Arctic Map of Permafrost and Ground-Ice Conditions, Version 2*, National Snow and Ice Data Center, Boulder, Colorado USA.
- Francis, J. A., D. M. White, J. J. Cassano, W. J. Gutowski, Jr., L. D. Hinzman, M. M. Holland, M. A. Steele, and C. J. Vörösmarty (2009), An Arctic hydrologic system in transition: feedbacks and impacts on terrestrial, marine, and human life. *Journal of Geophysical Research*, *114*, G04019.
- Harris, C. et al. (2009), Permafrost and climate in Europe: Monitoring and modelling thermal, geomorphological and geotechnical responses, *Earth-Science Reviews*, *92* (3-4), 117-171
- 石川守, 斉藤和之 (2006), 気候・水循環に関わる凍土研究 -現状と展望-, 雪氷, 68, 639-656.
- Ishikawa, M., N. Sharkhuu, Y. Jambaljav, G. Davaa, K. Yoshikawa, and T. Ohata (2012), Thermal states of Mongolian permafrost, 173-178, Proc, 10th Int. Conf. Permafrost, Salehard.
- Koven, C. D., B. Ringeval, P. Friedlingstein, P. Ciais, P. Cadule, D. Khvorostyanov, G. Krinner, and C. Tarnocai (2011), Permafrost carbon-climate feedbacks accelerate global warming, *Proc. Natl Acad. Sci.*, *108*, 14769-74.
- Lachenbruch, A. H., and B. V. Marshall (1986), Changing climate: geothermal evidence from permafrost in the Alaskan Arctic, *Science*, *234*, 689-696.
- 松岡憲知・池田敦 (2012), 周氷河地形プロセス研究最前線, 地学雑誌, 121(2), 269-305.
- Romanovsky, V. E. et al. (2010), Thermal state of permafrost in Russia, *Permafrost and Periglacial Processes*, *21* (2), 136-155
- Saito, K., T. Zhang, D. Yang, S. Marchenko, R. G. Barry, V. Romanovsky, and L. Hinzman (2013), Influence of the physical terrestrial Arctic in the eco-climate system, *Ecological Applications*, *23*, 1778-1797.
- Schaefer, K., H. Lantuit, V. E. Romanovsky, and E. A. G. Schuur (2012), Policy Implications of Warming Permafrost, 31 pp., UNEP.
- Schirrmeister, L., D. Froese, V. Tumskoy, G. Grosse, and S. Wetterich (2013), Yedoma: Late Pleistocene Ice-Rich Syngenetic Permafrost of Beringia, in *Encyclopedia of Quaternary Science (Second Edition)*, edited by S. A. Elias, pp. 542-552, Elsevier.
- Schuur, E.A.G., and B. Abbott (2011), High risk of permafrost thaw, *Nature*, *480*(7375), 32-33.
- Shur, Y. L., and M. T. Jorgenson (2007), Patterns of permafrost formation and degradation in relation to climate and ecosystems, *Permafrost and Periglacial Processes* *18*, 7-19.
- Singh, V. P., P. Singh and U. K. Haritashya (Eds.) (2011), Encyclopedia of Snow, Ice and Glaciers, 844, *Springer*, doi: 10.1007/978-90-481-2642-2.
- Slater and Lawrence (2013), Diagnosing Present and Future Permafrost from Climate Models, *J. Clim.*, *26*(15), 5608-5623, doi: 10.1175/JCLI-D-12-00341.1.
- Tarnocai, C., J. G. Canadell, E. A. G. Schuur, P. Kuhry, G. Mazhitova and S. Zimov (2009), Soil organic carbon pools in the northern circumpolar permafrost region, *Global Biogeochemical Cycles*, *23*, GB2023, doi:10.1029/2008GB003327.
- United Nations Environment Programme (2012), Policy implications of warming permafrost.
- Vonk, J. E., P. J. Mann, K. L. Dowdy, A. Davydova, S. P. Davydov, N. Zimov, R. G. M. Spencer, E. B. Bulygina, T. I. Eglinton, and R. M. Holmes (2013), Dissolved organic carbon loss from Yedoma permafrost amplified by ice wedge thaw, *Environ. Res. Lett.*, *8*, 035023, doi:10.1088/1748-9326/8/3/035023.
- Zhang, T., R. G. Barry, K. Knowles, J. A. Heginbottom, and J. Brown (1999), Statistical and characteristics of permafrost and ground-ice distribution in the Northern Hemisphere, *Polar Geogr.*, *23*, 132-154.
- Zimov, S. A., E. A. G. Schuur, and F. S. Chapin III (2006), Permafrost and the global carbon budget, *Science*, *312*, 1612-1613.

テーマ A

- Bolch, T. et al. (2013), Mass loss of Greenland's glaciers and ice caps 2003-2008 revealed from ICESat data, *Geophysical Research Letters*, *40*, 875-881, doi:10.1002/grl.50270.
- Comiso, J. C., and F. Nishio (2008), Trends in the sea ice cover using enhanced and compatible AMSR-E, SSM/I, and SMMR data, *J. Geophys. Res.*, *113*, C02S07, doi:10.1029/2007JC004257.
- Fukuda, M. (1993), Genesis and occurrence of ice complex (Edoma) in lowland area along Arctic coast of east Siberia near Tiksi, In *Proceedings of the First Symposium on Joint Siberian Permafrost Studies between Japan and Russia in 1992*, 101-103.
- Grebmeier, J. M., Moore, S. E., Overland, J. E., Frey, K. E., and Gradinger, R. (2010), Biological Response to Recent Pacific Arctic Sea Ice Retreats, *EOS Trans. AGU*, *91*(18), doi:10.1029/2010EO180001.
- Hori, M., T. Aoki, K. Stamnes, and W. Li (2007), ADEOS-II/GLI snow/ice products - part III: Retrieved results, *Remote Sens. Environ.*, *111*, 274-319, doi:10.1016/j.rse.2007.01.025.

- Kawamiya, M., T. Hajima, and T. Tokioka (2012), Foreseeing the forests: vegetation dynamics in an Earth system model, In *Forest for people*, Tudor Rose, Leicester, England, 291-294.
- Keeling, C. D., R. B. Bacastow, A. E. Bainbridge, C. A. Ekdahl, Jr., P. R. Guenther, L. S. Waterman, and J. F. S. Chin (1976), Atmospheric Carbon Dioxide Variations at Mauna Loa Observatory, Hawaii, *Tellus*, *28*, 538-551.
- Key, J., M. Drinkwater, and J. Ukita (2007), Integrated Global Observing Strategy - Partnership (IGOS-P) Cryosphere Theme Report, *World Meteorological Organization*, *132 pp*, Geneva.
- Moon T. et al. (2012), 21st-century evolution of Greenland outlet glacier velocities, *Science* *336(6081)*, 576-578, doi: 10.1126/science.1219985.
- Morimoto, S., S. Aoki, T. Nakazawa and T. Yamanouchi (2006), Temporal variations of the carbon isotopic ratio of atmospheric methane observed at Ny Ålesund, Svalbard from 1996 to 2004, *Geophys. Res. Lett.*, *33*, L01807, doi:10.1029/2005GL024648.
- Quinn, P. et al. (2007), Arctic haze: current trends and knowledge gaps, *Tellus Series B-chemical and Physical Meteorology*, doi:10.1111/j.1600-0889.2006.00238.x
- Serreze, M. C., A. P. Barrett, A. G. Slater, M. Steele, J. Zhang, and K. E. Trenberth (2007), The large-scale energy budget of the Arctic, *J. Geophys. Res.*, *112*, D11122, doi:10.1029/2006JD008230.
- Steffen, K., and J. E. Box (2001), Surface climatology of the Greenland ice sheet: Greenland climate network 1995-1999, *J. Geophys. Res.*, *106 (D24)*, 33,951-33,964, doi:10.1029/2001JD900161.
- 鈴木力英 (2013), 北半球寒冷地域におけるリモートセンシングによる広域植生の最近の研究動向, 日本リモートセンシング学会誌, *33*, 48-55.
- Tape, K., M. Sturm, and C. Racine (2006), The evidence for shrub expansion in Northern Alaska and the Pan-Arctic, *Global Change Biology*, *12*, 686-702.
- Ueyama, M., H. Iwata, and Y. Harazono (2014), Autumn warming reduces the CO₂ sink of a black spruce forest in interior Alaska based on a nine-year eddy covariance measurement, *Global Change Biology*, *20*, 1161-1173.
- Vaughan, D. G., J. C. Comiso, I. Allison, J. Carrasco, G. Kaser, R. Kwok, P. Mote, T. Murray, F. Paul, J. Ren, E. Rignot, O. Solomina, K. Steffen, and T. Zhang (2013), Observations: Cryosphere, In *Climate Change 2013: The Physical Science Basis*, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, edited by T. F. Stocker, D. Qin, G.-K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P. M. Midgley, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Viereck, L. A., N. R. Werdin-Pfisterer, P. C. Adams, and K. Yoshikawa (2008), Effect of Wildfire and Fireline Construction on the Annual Depth of Thaw in a Black Spruce Permafrost Forest in Interior Alaska: A 36-Year Record of Recovery, In *Proceedings of the Ninth International Conference on Permafrost*, 1845-1850, Fairbanks, Alaska.
- Wang, X., and J. Key (2005), Arctic Surface, Cloud, and Radiation Properties Based on the AVHRR Polar Pathfinder Dataset, Part II: Recent Trends, *Journal of Climate*, *18(14)*, 2575-2593.
- Wientjes, I. G. M., R. S. W. Van de Wal, G. J. Reichert, A. Sluijs, and J. Oerlemans (2007), Dust from the dark region in the western ablation zone of the Greenland ice sheet, *The Cryosphere*, *5*, 589-601, doi:10.5194/tc-5-589-2011.
- Yamanouchi, T. (2011), Early 20th century warming in the Arctic: A review, *Polar Science*, doi:10.1016/j.polar.2010.10.002.

テーマ B

- Bindschadler, R., S. Nowicki, A. Abe-Ouchi, A. Aschwanden, H. Choi, J. Fastook, G. Granzow, R. Greve, G. Gutowski, U. Herzfeld, C. Jackson, J. Johnson, C. Khroulev, A. Levermann, W. Lipscomb, M. Martin, M. Morlighem, B. Parizek, D. Pollard, S. Price, D. Ren, F. Saito, T. Sato, H. Seddik, H. Seroussi, K. Takahashi, R. Walker and W. L. Wang (2013), Ice-sheet model sensitivities to environmental forcing and their use in projecting future sea level (the {SeaRISE} project), *J. Glaciol.*, *59*, 195-224.
- De Boer, G., M. D. Shupe, P. M. Caldwell, S. E. Bauer, O. Persson, J. S., Boyle, M. Kelley, S. A. Klein, and M. Tjernstrom (2014), Near-surface meteorology during the Arctic Summer Cloud Ocean Study (ASCOS): evaluation of reanalysis and global climate models, *Atmos. Chem Phys.*, *14*, 427-445, www.atmos-chem-phys.net/14/427/2014/, doi:10.5194/acp-14-427-2014.
- Ise, T., A. L. Dunn, S. C. Wofsy, and P. R. Moorcroft (2008), High sensitivity of peat decomposition to climate change through water-table feedback, *Nature Geoscience*, *1*, 763-766.
- Jahn et al. (2012), Late-twentieth-century simulation of Arctic sea ice and ocean properties in the CCSM4, *J. Climate*, *25*, 1431-1452.
- Jakobsson, M., L. A. Mayer, B. Coakley, J. A. Dowdeswell, S. Forbes, B. Fridman, H. Hodnesdal, R. Noormets, R. Pedersen, M. Rebecco, H.-W. Schenke, Y. Zarayskaya, A. D. Accettella, A. Armstrong, R. M. Anderson, P. Bienhoff, A. Camerlenghi, I. Church, M. Edwards, J. V. Gardner, J. K. Hall, B. Hell, O. B. Hestvik, Y. Kristoffersen, C. Marcussen, R. Mohammad, D. Mosher, S. V. Nghiem, M. T. Pedrosa, P. G. Travaglini, and P. Weatherall, (2012), The International Bathymetric Chart of the Arctic Ocean (IBCAO) Version 3.0, *Geophysical Research Letters*, doi: 10.1029/2012GL052219.

- O'ishi, R. and A. Abe-Ouchi (2009), Influence of dynamic vegetation on climate change arising from increasing CO₂, *Climate Dynamics*, *33*, 645-663.
- Proshutinsky, A., and Coauthors (2011), Recent advances in Arctic ocean studies employing models from the Arctic Ocean Model Intercomparison Project, *Oceanography*, *24*(3), 102-113.
- Proshutinsky, A., and Z. Kowalik (2007), Preface to special section on Arctic Ocean Model Intercomparison Project (AOMIP) Studies and Results, *J. Geophys. Res.*, *112*, C04S01, doi:10.1029/2006JC004017.
- Satoh, M., T. Matsuno, H. Tomita, H. Miura, and T. Nasuno (2008), Nonhydrostatic icosahedral atmospheric model (NICAM) for global cloud resolving simulation. *J. Comp. Phys.*, *227*, 3486-3514.
- Sueyoshi, T., R. Ohgaito, A. Yamamoto, M. O. Chikamoto, T. Hajima, H. Okajima, M. Yoshimori, M. Abe, R. O'ishi, F. Saito, S. Watanabe, M. Kawamiya and A. Abe-Ouchi (2013), Set-up of the PMIP3 paleoclimate experiments conducted using an Earth system model, MIROC-ESM, *Geosci. Model Dev.*, *6*, 819-836.
- Taylor, K. E., R. J. Stouffer, and G. a. Meehl (2012), An Overview of CMIP5 and the Experiment Design, *Bull. Am. Meteorol. Soc.*, *93*, 485-498.
- Watanabe, M., and Coauthors (2010), Improved climate simulation by MIROC5: Mean states, variability, and climate sensitivity, *J. Climate*, *23*, 6312-6355.
- Yi, S. H., M. K. Woo and M. A. Arain (2007), Impacts of peat and vegetation on permafrost degradation under climate warming. *Geophys. Res. Lett.*, *34*(16), L16504.

テーマ C

- 淡路敏之, 蒲池政文, 池田元美, 石川洋一編著 (2009), データ同化～観測・実験とモデルを融合するイノベーション～, 京都大学学術出版会, 284.
- Bourassa, et al. (2013), High-latitude ocean and sea-ice surface fluxes: Challenges for climate research, *Bull. Amer. Meteor. Soc.*, *94*(3), 403-423, doi:10.1175/BAMS-D-11-00244.1.
- Dameris, M. and P. Jöckel (2013), Numerical modelling of climate-chemistry connections: Recent developments and future challenges, *Atmosphere*, *4*, 132-156, doi: 10.3390/atmos4020132.
- Goldberg, D. N., and P. Heimbach (2013), Parameter and state estimation with a time-dependent adjoint marine ice sheet model, *The Cryosphere Discuss.*, *7*, 2845-2890, doi:10.5194/tcd-7-2845-2013.
- Heimbach, P., and V. Bugnion (2009), Greenland ice-sheet volume sensitivity to basal, surface and initial conditions derived from an adjoint model, *Ann. Glaciol.*, *50*, 67-80, doi:10.3189/172756409789624256.
- Inoue, J., T. Enomoto, and M. E. Hori (2013), The impact of radiosonde data over the ice-free Arctic Ocean on the atmosphere circulation in the Northern Hemisphere, *Geophys. Res. Lett.*, *40*, 864-869.
- Jakobson, E., T. Vihma, T. Palo, L. Jakobson, H. Keernik, and J. Jaagus (2012), Validation of atmospheric reanalyses over the central Arctic Ocean, *Geophys. Res. Lett.*, *39*, L10802, doi:10.1029/2012GL051591.
- Kimball, J. S., L. A. Jones, K. Zhang, F. A. Heinsch, K. C. McDonald, and W. C. Oechel (2009), A satellite approach to estimate land-atmosphere CO₂ exchange for Boreal and Arctic biomes using MODIS and AMSR-E, *IEEE Transactions on Geoscience and Remote Sensing*, *47*(2), 569-587, 10.1109/TGRS.2008.2003248.
- Lindsay, R., C. Haas, S. Hendricks, P. Hunkeler, N. Kurtz, J. Paden, B. Panzer, J. Sonntag, J. Yungel, and J. Zhang (2012), Seasonal forecasts of Arctic sea ice initialized with observations of ice thickness, *Geophys. Res. Lett.*, *39*, L21502, doi:10.1029/2012GL053576.
- Popova et al. (2012), What controls primary production in the Arctic Ocean? Results from an intercomparison of five general circulation models with biogeochemistry, *J. Geophys. Res.*, *117*, doi:10.1029/2011JC007112.
- Toyoda et al. (2011), Impact of the assimilation of sea ice concentration data on an atmosphere-ocean-sea ice coupled simulation of the Arctic ocean climate, *SOLA*, *7*, 37-40, doi:10.2151/sola.2011-010.
- Toyoda et al. (2013). Improved state estimations of lower trophic ecosystems in the global ocean based on a Green's function approach, *Prog. Oceanogr.*, *119*, 90-107.
- 碓氷典久, 今泉孝男, 辻野博之 (2010), MOVE/MRI.COM への海氷密度同化導入に向けてーオホーツク海を対象とした予備調査と簡易同化実験ー, 測候時報 第 77 卷 特別号.
- Valsala, K. V. and S. Maksyutov (2010), Simulation and assimilation of global ocean pCO₂ and air-sea CO₂ fluxes using ship observations of surface ocean pCO₂ in a simplified biogeochemical offline model, *Tellus*, *62B*, 821-840, doi:10.1111/j.1600-0889.2010.00495.x.