

CURRICULUM VITAE

Akio KITO (appears as Akio KITO in the passport)

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(MRI is an auxiliary organ of the
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DATE OF BIRTH: 1 April 1953

PLACE OF BIRTH: Osaka, JAPAN

Gender: Male

Nationality: Japanese

EDUCATION

B.Sc.: Geophysics Kyoto University 1975
M.S.: Geophysics Kyoto University 1977
D.Sc.: Geophysics Kyoto University 1991

Thesis: "A Study of Low-Frequency Response of the Atmosphere to the Sea Surface Temperature Variations"

EMPLOYMENT RECORD

Technical Official, Osaka District Meteorological Observatory, Osaka, Japan, 1978-1980

Researcher, Third Research Laboratory, Forecast Research Department, Meteorological Research Institute, Tsukuba, Japan, 1980-1987

Staff Research Associate, Department of Atmospheric Science, University of California at Los Angeles, Los Angeles, U.S.A., 1983-1985

Senior Researcher, First Research Laboratory, Climate Research Department, Meteorological Research Institute, Tsukuba, Japan, 1987-1994

Head, First Research Laboratory, Climate Research Department, Meteorological Research Institute, Tsukuba, Japan, 1994-2007

Director, Climate Research Department, Meteorological Research Institute, Tsukuba, Japan, 2007-present

Visiting Professor, University of Tsukuba, Tsukuba, Japan, 1995-present

Visiting Professor, Kyoto University, Kyoto, Japan, 2009-present

Member, Science Council of Japan, 2011-present

PROFESSIONAL EXPERIENCE

Member, Meteorological Society of Japan (MSJ), 1978-

Member, American Meteorological Society (AMS), 1983-

Member, American Geophysical Union (AGU), 2005-

Member, Japan Geoscience Union (JpGU), 2006-

Lead Author, Chapter 5 "Climate Models - Evaluation", IPCC WGI Second Assessment Report (SAR), 1992-1995

Member, CLIVAR Working Group on Seasonal to Interannual Prediction (WGSIP), 1994-2000

Lead Author, Chapter 8 "Model Evaluation", IPCC WG1 Third Assessment Report (TAR), 1998-2001

Member, Scientific Advisory Committee, International Pacific Research Center (IPRC), 2002-2004

Lead Author, Chapter 10 "Global Climate Projections", IPCC WGI Fourth Assessment Report (AR4), 2004-2007

Lead Author, IPCC Technical Paper on Climate Change and Water, IPCC, 2007-2008

Member, CLIVAR Asian-Australian Monsoon Panel (AAMP), 2009-

Member, Scientific Advisory Committee, Beijing Climate Center (BCC), 2009-

Lead Author, Chapter 14 "Climate Phenomena and their Relevance for Future Regional Climate Change", IPCC AR5 Fifth Assessment Report (AR5), 2010-2013

Member, International Scientific Advisory Panel, Centre for Climate Research Singapore (CCRS), 2009-

AWARD

The Society Award, Meteorological Society of Japan, 1993

The Okada Award, Japan Weather Association, 2008

RESEARCH EXPERIENCE

Engaged in development of MRI AGCM/AOGCM/ESM since 1980 at MRI.

Performing numerical experiments and analyses on monsoons, ENSO, extremes, past (LGM and Mid-Holocene) and future climate.

Leading a national project on global warming projections.

PROJECTS

Research on Prediction of Climate and Environmental Change to Contribute to Mitigation Plan Decision Making Against Climate Change, funded by Japan Meteorological Agency (JMA) (FY2010-2014)

Projection of the Change in Future Weather Extremes Using Super-High Resolution Atmospheric Models (Innovative Program of Climate Change Projection for the 21st Century), funded by Ministry of Education, Culture, Sports, Science and Technology (MEXT) (FY2007-2011)

RESEARCH TOPICS

Climate modeling
Climate variability, extremes, monsoon and ENSO
Seasonal prediction
Global warming
Paleoclimate simulation

EDITORIAL BOARD

Journal of the Meteorological Society of Japan (JMSJ), 1992-1998
Advances in Atmospheric Sciences, 2000-
SOLA, Scientific Online Letters on the Atmosphere, Meteorological Society of Japan, 2004-
Asia-Pacific Journal of Atmospheric Sciences (APJAS) (former Journal of the Korean Meteorological Society), 2008-

JOURNAL REVIEWS

Journal of the Meteorological Society of Japan, Annals of Glaciology, Monthly Weather Review, Papers in Meteorology and Geophysics, Geophysical Research Letters, Theoretical and Applied Climatology, Climate Dynamics, Climate Research, Advances in Atmospheric Sciences, Journal of Climate, Paleoceanography, Meteorologische Zeitschrift, SOLA (Scientific Online Journal of the Atmosphere), Annales Geophysicae, Global Planetary Change, International Journal of Ecology & Development, Climate of the Past, Journal of Disaster Research, Science, Nature Climate Change

RECENT PUBLICATIONS (since 2006)

Raible, C.C., S. Kleppek, M. Wüest, D.N. Bresch, A. Kitoh, H. Murakami and T.F. Stocker, 2012: Atlantic hurricanes and associated insurance loss potentials in future climate scenarios: Limitations of high-resolved AGCM simulations. *Tellus A* (in press)

Murakami, H., Y. Wang, M. Sugi, H. Yoshimura, R. Mizuta, E. Shindo, Y. Adachi, S. Yukimoto, M. Hosaka, A. Kitoh, T. Ose and S. Kusunoki, 2012: Future changes in tropical cyclone activity projected by the new high-resolution MRI-AGCM. *J. Climate* (in press)

Mizuta, R., H. Yoshimura, H. Murakami, M. Matsueda, H. Endo, T. Ose, K. Kamiguchi, M. Hosaka, M. Sugi, S. Yukimoto, S. Kusunoki and A. Kitoh, 2012: Climate simulations using the improved MRI-AGCM with 20-km grid. *J. Meteor. Soc. Japan*, Special Issue (in press)

Arakawa, O. and A. Kitoh, 2012: Elevation dependency of summertime precipitation and its change by global warming over the Tibetan Plateau and the surroundings simulated by a 60-km-mesh atmospheric general circulation model. *J. Meteor. Soc. Japan*, Special Issue (in press)

Yukimoto, S., Y. Adachi, M. Hosaka, T. Sakami, H. Yoshimura, M. Hirabara, T.Y. Tanaka, E. Shindo, H. Tsujino, M. Deushi, R. Mizuta, S. Yabu, A. Obata, H. Nakano, T. Ose and A. Kitoh, 2012: A new global climate model of Meteorological Research Institute: MRI-CGCM3 - Model description and basic performance -. *J. Meteor. Soc. Japan*, Special Issue (in press)

Rahman, Md.M., N. Ferdousi, Y. Sato, S. Kusunoki and A. Kitoh: Rainfall and

- temperature scenario for Bangladesh using 20km mesh AGCM. *Int. J. Climate Change Strategies and Management (IJCCSM)*
- Rajendran, K., A. Kitoh and J. Srinivasan: Effect of SST variation on ITCZ in APE simulations. *JMSJ Special Issue on the Aqua-Planet Experiment Project and related researches.* (accepted)
- Kamae, Y., H. Ueda and A. Kitoh, 2011: Hadley and Walker circulations in Mid-Pliocene warm period simulated by an atmospheric general circulation model. *J. Meteor. Soc. Japan*, 89, 475-493.
- Wang, B., H.-J. Kim, K. Kikuchi and A. Kitoh, 2011: Diagnostic metrics for evaluation of annual and diurnal cycles. *Clim. Dyn.*, 37, 941-955.
- Jin, F., A. Kitoh and P. Alpert, 2011: Climatological relationships among the moisture budget components and rainfall amounts over the Mediterranean based on a super-high resolution climate model. *J. Geophys. Res.*, 116, D09102, doi:10.1029/2010JD014021.
- Kitoh, A., 2011: Impact of Climate Change on Asian Monsoon Characteristics. In: C.-P. Chang, Y. Ding, N.-C. Lau, R.H. Johnson, B. Wang and T. Yasunari (eds.) *The Global Monsoon System: Research and Forecast, 2nd Edition*, World Scientific Series on Asia-Pacific Weather and Climate - Vol. 5, World Scientific Publication Company, 557-568.
- Yukimoto, S., H. Yoshimura, M. Hosaka, T. Sakami, H. Tsujino, M. Hirabara, T.Y. Tanaka, M. Deushi, A. Obata, H. Nakano, Y. Adachi, E. Shindo, S. Yabu, T. Ose and A. Kitoh, 2011: Meteorological Research Institute-Earth System Model v1 (MRI-ESM1) - Model Description -. Technical Report of MRI, No. 64, 83 pp.
- Murakami, H., B. Wang and A. Kitoh, 2011: Future changes in the western North Pacific typhoons: Projection with a 20-km-mesh global atmospheric model. *J. Climate*, 24, 1154-1169.
- Kitoh, A., S. Kusunoki and T. Nakaegawa, 2011: Climate change projections over South America in the late twenty-first century with the 20-km and 60-km mesh MRI-AGCM. *J. Geophys. Res.*, 116, D06105, doi:10.1029/2010JD014920.
- Kitoh, A., S. Kusunoki, Y. Sato, N. Ferdousi, M. Rahman, E.E.S. Makmur, A.L.S. Solis, W. Chaowiwat and T.D. Trong, 2011: Climate Change Projections in Some Asian Countries. In: *Climate Change Adaptation and International Development*, (R. Fujikura and M. Kawanishi), Earthscan, London, 19-62.
- Kitoh, A., T. Motoi and O. Arakawa, 2010: Climate modelling study on mountain uplift and Asian monsoon evolution. In: *Monsoon Evolution and Tectonics - Climate Linkage in Asia*. [Clift, P.D., R. Tada and H. Zheng (eds.)], Geological Society, London, Special Publications, 342, 293-301.
- Jin, F., A. Kitoh and P. Alpert, 2010: Water cycle changes over the Mediterranean: a comparison study of a super-high-resolution global model with CMIP3. *Phil. Trans. R. Soc. A*, 368, 1-13.
- Xue, Y., F. De Sales, W.K.-M. Lau, A. Boone, J. Feng, P. Dirmeyer, Z. Guo, K.-M. Kim, A. Kitoh, V. Kumar, I. Pocard-Leclercq, N. Mahowald, W. Moufouma-Okia, P. Pegion, D.P. Rowell, J. Schemm, S.D. Schubert, A. Sealy, W.M. Thiaw, A. Vintzileos, S.F. Williams and M.-L.C. Wu, 2010: Intercomparison and analyses of the climatology of the West African Monsoon in the West African Monsoon Modeling and Evaluation project (WAMME) first model intercomparison experiment. *Clim. Dyn.*, 35, 3-27.
- Kamiguchi, K., O. Arakawa, A. Kitoh, A. Yatagai, A. Hamada and N. Yasutomi, 2010: Development of APHRO_JP, the first Japanese high-resolution daily precipitation product for more than 100 years. *Hydrological Research Letters*, 4, 60-64.
- Kitoh, A., T. Ose, K. Kurihara, S. Kusunoki, M. Sugi and KAKUSHIN Team-3

- Modeling Group, 2009: Projection of changes in future weather extremes using super-high-resolution global and regional atmospheric models in the KAKUSHIN Program: Results of preliminary experiments. *Hydrological Research Letters*, 3, 49-53.
- Kitoh, A. and T. Mukano, 2009: Changes in daily and monthly surface air temperature variability by multi-model global warming experiments. *J. Meteor. Soc. Japan*, 87, 513-524.
- Liu, P., Y. Kajikawa, B. Wang, A. Kitoh, T. Yasunari, T. Li, H. Annamalai, X. Fu, K. Kikuchi, R. Mizuta, K. Rajendran, D.E. Waliser and D. Kim, 2009: Tropical intraseasonal variability in the MRI-20km60L AGCM. *J. Climate*, 22, 2006-2022.
- Wohlfahrt, J., S.P. Harrison, P. Braconnot, C.D. Hewitt, A. Kitoh, U. Mikolajewicz, B.L. Otto-Bliesner and S.L. Weber, 2008: Evaluation of coupled ocean-atmosphere simulations of the mid-Holocene using palaeovegetation data from the northern hemisphere extratropics. *Clim. Dyn.*, 31, 871-890.
- Rajendran, K. and A. Kitoh, 2008: Indian summer monsoon in future climate projection by a super-high-resolution global model. *Current Science*, 95, 1560-1569.
- Kim, K.-Y., A. Kitoh and K.-J. Ha, 2008: The SST-forced predictability of the sub-seasonal mode over East Asia with an atmospheric general circulation model. *Int. J. Climatol.*, 28, 1599-1606.
- Kanada, S., M. Nakano, S. Hayashi, T. Kato, M. Nakamura, K. Kurihara and A. Kitoh, 2008: Reproducibility of maximum daily precipitation amount over Japan by a high-resolution non-hydrostatic model. *SOLA*, 4, 105-108.
- Kitoh, A., A. Yatagai and P. Alpert, 2008: Reply to comment by Ben-Zvi and Givati on 'First super-high-resolution model projection that the ancient "Fertile Crescent" will disappear in this century'. *Hydrological Research Letters*, 2, 46.
- Kitoh, A. and S. Kusunoki, 2007: East Asian summer monsoon simulation by a 20-km mesh AGCM. *Clim. Dyn.*, 31, 389-401.
- Yun, K.-S., S.-H. Shin, K.-J. Ha, A. Kitoh and S. Kusunoki, 2008: East Asian precipitation change in the global warming climate simulated by a 20-km mesh AGCM. *Asia-Pacific J. Atmos. Sci.*, 44, 233-247.
- Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof (Eds.), 2008: *Climate Change and Water*. Technical Paper of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva, 210 pp.
- Rajendran, K., A. Kitoh, R. Mizuta, S. Sajani and T. Nakazawa, 2008: High-resolution simulation of mean convection and its intraseasonal variability over the tropics in the MRI/JMA 20-km mesh AGCM. *J. Climate*, 21, 3722-3739.
- Kitoh, A., 2008: Climate change. In: *Asia-Pacific Coasts and Their Management: States of Environment*. [Mimura, N. (ed.)], Springer, The Netherlands, 18-25.
- Kitoh, A., A. Yatagai and P. Alpert, 2008: First super-high-resolution model projection that the ancient "Fertile Crescent" will disappear in this century. *Hydrological Research Letters*, 2, 1-4.
- Meehl, G.A., T.F. Stocker, W.D. Collins, P. Friedlingstein, A.T. Gaye, J.M. Gregory, A. Kitoh, R. Knutti, J.M. Murphy, A. Noda, S.C.B. Raper, I.G. Watterson, A.J. Weaver and Z.-C. Zhao, 2007: Global Climate Projections. 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 [Solomon S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 747-845.
- Takayabu, I., H. Kato, K. Nishizawa, Y.N. Takayabu, Y. Sato, H. Sasaki K. Kurihara and A. Kitoh, 2007: Future projections in precipitation over Asia simulated by two RCMs nested into MRI-CGCM2.2. *J. Meteor. Soc. Japan*, 85, 511-519.
- Kitoh, A., 2007: Variability of Indian monsoon-ENSO relationship in a 1000-year

- MRI-CGCM2.2 simulation. *Nat. Hazards*, 42, 261-272.
- Sajani, S., T. Nakazawa, A. Kitoh and K. Rajendran, 2007: Ensemble simulation of Indian summer monsoon rainfall by an atmospheric general circulation model. *J. Meteor. Soc. Japan*, 85, 213-231.
- Braconnot, P., B. Otto-Bliesner, S. Harrison, S. Joussaume, J.-Y. Peterchmitt, A. Abe-Ouchi, M. Crucifix, E. Driesschaert, Th. Fichefet, C.D. Hewitt, M. Kageyama, A. Kitoh, A. Laine, M.-F. Loutre, O. Marti, U. Merkel, G. Ramstein, P. Valdes, S.L. Weber, Y. Yu and Y. Zhao, 2007: Results of PMIP2 coupled simulations of the Mid-Holocene and Last Glacial Maximum - Part 1: experiments and large-scale features. *Clim. Past*, 3, 261-277.
- Braconnot, P., B. Otto-Bliesner, S. Harrison, S. Joussaume, J.-Y. Peterchmitt, A. Abe-Ouchi, M. Crucifix, E. Driesschaert, Th. Fichefet, C.D. Hewitt, M. Kageyama, A. Kitoh, M.-F. Loutre, O. Marti, U. Merkel, G. Ramstein, P. Valdes, S.L. Weber, Y. Yu and Y. Zhao, 2007: Results of PMIP2 coupled simulations of the Mid-Holocene and Last Glacial Maximum - Part 2: feedbacks with emphasis on the location of the ITCZ and mid- and high latitudes heat budget. *Clim. Past*, 3, 279-296.
- Kitoh, A., T. Motoi and S. Murakami, 2007: El Nino/Southern Oscillation simulated at 6,000 yrs B.P. with the MRI-CGCM2.3: Effect of flux adjustment. *J. Climate*, 20, 2484-2499.
- Kitoh, A., 2007: ENSO modulation by mountain uplift. *Clim. Dyn.*, 28, 781-796.
- Nakaegawa, T, S. Kusunoki, M. Sugi, A. Kitoh, C. Kobayashi and K. Takano, 2007: A study of dynamical seasonal prediction of potential water resources based on an atmospheric GCM experiment with prescribed sea-surface temperature. *Hydrol. Sci. J.*, 52, 152-165.
- Sato, T., F. Kimura and A. Kitoh, 2007: Projection of global warming onto regional precipitation over Mongolia using a regional climate model. *J. Hydrol.*, 333, 144-154.
- Nohara, D., A. Kitoh, M. Hosaka and T. Oki, 2006: Impact of climate change on river runoff using multi-model ensembles. *J. Hydrometeorol.*, 7, 1076-1089.
- Kageyama, M., A. Laine, A. Abe-Ouchi, P. Braconnot, E. Cortijo, M. Crucifix, A. de Vernal, J. Guiot, C.D. Hewitt, A. Kitoh, M. Kucera, O. Marti, R. Ohgaito, B. Otto-Bliesner, W.R. Peltier, A. Rosell-Mele, G. Vettoretti, S.L. Weber, Y. Yu and MARGO Project Members: Last Glacial Maximum temperatures over the North Atlantic, Europe and western Siberia: a comparison between PMIP models, MARGO sea-surface temperatures and pollen-based reconstructions. *Quaternary Science Reviews*, 25, 2082-2102.
- Yukimoto, S., A. Noda, T. Uchiyama, S. Kusunoki and A. Kitoh: Climate changes of the twentieth through twenty-first centuries simulated by the MRI-CGCM2.3. *Pap. Meteor. Geophys.*, 56, 9-24.
- Uchiyama, T., R. Mizuta, K. Kamiguchi, A. Kitoh and A. Noda, 2006: Changes in temperature-based extremes indices due to global warming projected by a global 20-km-mesh atmospheric model. *SOLA*, 2, 68-71.
- Kamiguchi, K., A. Kitoh, T. Uchiyama, R. Mizuta and A. Noda, 2006: Changes in precipitation-based extremes indices due to global warming projected by a global 20-km-mesh atmospheric model. *SOLA*, 2, 64-67.
- Yukimoto, S., A. Noda, A. Kitoh, M. Hosaka, H. Yoshimura, T. Uchiyama, K. Shibata, O. Arakawa and S. Kusunoki, 2006: The Meteorological Research Institute coupled GCM, Version 2.3 (MRI-CGCM2.3) - Control climate and climate sensitivity -. *J. Meteor. Soc. Japan*, 84, 333-363.
- Kitoh, A. and T. Uchiyama, 2006: Changes in onset and withdrawal of the East Asian summer rainy season by multi-model global warming experiments. *J. Meteor.*

- Soc. Japan, 84, 247-258.
- Masson-Delmotte, V., M. Kageyama, P. Braconnot, S. Charbit, G. Krinner, C. Ritz, E. Guilyardi, J. Jouzel, A. Abe-Ouchi, M. Crucifix, R.M. Gladstone, C.D. Hewitt, A. Kitoh, A. Legrande, O. Marti, U. Merkel, T. Motoi, R. Ohgaito, B. Otto-Bliesner, W.R. Peltier, I. Ross, P.J. Valdes, G. Vettoretti, S.L. Weber and F. Wolk, 2006: Past and future polar amplification of climate change: climate model intercomparisons and ice-core constraints. *Clim. Dyn.*, 26, 513-529.
- Rajendran, K. and A. Kitoh, 2006: Modulation of tropical intraseasonal oscillations by ocean-atmosphere coupling. *J. Climate*, 19, 366-391.
- Kitoh, A., 2006: Asian Monsoons in Future. Chapter 17 In: *The Asian Monsoon*, Bin Wang (Ed), Praxis Publishing, pp. 631-649.

[127 peer reviewed articles (46 first authored) + 15 Books chapters (co-authored)]