

Annual Report 2008

Geography

Department of Geography
Graduate School and Faculty of Urban Environmental Sciences
Tokyo Metropolitan University

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1. Laboratory of Quaternary Geology and Geomorphology

1) Staff

Haruo YAMAZAKI Professor / D.Sc.
Geomorphology, Quaternary Science, Seismotectonics

Takehiko SUZUKI Associate Professor / PhD (D.Sc.)
Geomorphology, Quaternary Science, Volcanology

2) Overview of Research Activities

Our laboratory aims to study the various earth scientific phenomena and processes on the solid earth surface. Especially, main object of our research is to prospect the futuristic view of our environment changes through the understanding of the history and process of landform development during the Quaternary period. The followings are some examples of our studies.

Tephra study: Tephra means a generic term on the volcanic ejecta excluding lava-flow and related explosive deposits. We are trying to identify the source volcano, age of the eruption and the distribution of widespread tephra that have covered the Japanese Islands through the Pliocene, Pleistocene and Holocene.

Reconstruction of paleo-environment and land forming process: Using tephra deposits as key time markers, we are reconstructing the paleo-environment and land forming process since the late Pliocene in Japan.

Paleo-sea-level change: We are trying to reconstruct the universal Quaternary sea-level changes through the modeling of crustal deformation based on the geological and geomorphological data along the coastal region.

Plate tectonics: The Quaternary tectonics including the historical process of seismic and volcanic activity are our special interest along the plate collision zone in central Japan.

Natural hazards: We study the historical process of topographic changes caused by mass movement, volcanic eruption and fault activity to prevent and mitigate the future natural hazards.

3) List of Research Activities in FY2008

Peer-reviewed Articles

- Suzuki, T., and Murata, M. 2008. An early Pleistocene tephra associated with Kumado pyroclastic flow derived from Aizu area, northeast Japan. *The Quaternary Research* 47: 339-348. (in Japanese with English abstract)
- Suzuki, T., Murata, M., Masayuki, O., Yamazaki, H., Nakayama, T., Kawashima, S., and Kawai, M. 2008. Tephrochronological study on the long-term activity of Tachikawa fault, Tokyo metropolitan area, central Japan. *The Quaternary Research* 47: 103-119. (in Japanese with English abstract)
- Ueki, T., and Kondo R. 2008. Eruption age of the Kutsugata lava flow, Rishiri Volcano, off northern Hokkaido, Japan, based on AMS ¹⁴C dating of charred fossil wood immediately beneath the lava flow. *The Quaternary Research* 47: 349-353. (in Japanese with English abstract)
- Ueki, T., Aoki, H., Kondo, R., and Suzuki, T. 2008. Methods for the preparation of peel specimen of sediments and educational application. *Education of Earth Science* 61: 187-195. (in Japanese)
- Ueki, T. 2008. Plio-Pleistocene behavior of the Itoigawa-Shizuoka tectonic line in northern Nagano Prefecture, central Japan: Paleomagnetism of the Omine-SK110 tephra. *Bulletin of the Earthquake Research Institute, Tokyo University* 83: 163-173. (in Japanese with English abstract)
- Matsuura, T., and Ueki, T. 2008. Emplacement temperature and cooling process of the AD915 pyroclastic flow deposits of Towada Volcano. *Journal of Geography (Japan)* 117: 889-893. (in Japanese with English abstract)
- Shirai, M., Tsukamoto, S., and Kondo, R. 2008. Transport-depositional processes of the present fluvial deposits estimated from OSL intensity of sand-sized grains. *The Quaternary Research* 47: 377-389. (in Japanese with English abstract)
- Tamura, I. 2008. A situation and problems on the Earth Science education in high school of Japan. *The Journal of the Geological Society of Japan* 114 : 157-162. (in Japanese)

Other Articles

- Suzuki, T. 2008. Kazusa Group in Tama area. In the Geological Society of Japan (ed.) *Regional geology in Japan 3 Kanto region*, 292-299. Tokyo: Asakura Shoten. (in Japanese)
- Suzuki, T. 2008. Terraces in upper and middle reaches of Kinu and Naka Rivers. In the Geological Society of Japan (ed.) *Regional geology in Japan 3 Kanto region*, 347-352. Tokyo: Asakura Shoten. (in Japanese)

- Suzuki, T. 2008. Chichibu Basin. In the Geological Society of Japan (ed.) *Regional geology in Japan 3 Kanto region*, 365-367. Tokyo: Asakura Shoten. (in Japanese)
- Suzuki, T. 2008. Pyroclastic flow, Volcanic mudflow, Lahar, Volcanic activity, Holocene, Kanto loam, Interglacial, Last glacial, Dating. In the Japan Scientists' Association (ed.) *Encyclopedia of environment*. Tokyo: Asakura Shoten. (in Japanese)
- Suzuki, T. 2008. Landform and greenery in Meguro. In Shinji I., and Yamazaki K. (eds.) *Meguro City College Sosho 10 Invitation to Meguro greenery: Construction and development of region*. 36-45. Tokyo: Ninomiya Shoten. (in Japanese)
- Suzuki, T. 2008. Tephra. *Sekki-Bunka Kenkyu*, 12: 75-76. (in Japanese)
- Suzuki, T. 2009. III. Reports on International Commissions and Focus Groups: International Focus Group on Tephrochronology and Volcanology (INTAV). Report on International Union for Quaternary Research, XVII International Congress, July 28 to August 3, 2007, Cairns Convention Center, Queensland, Australia. *The Quaternary Research* 48: 25. (in Japanese)
- Shiraishi, T., Shirai, M., Nishikawa, O., Suzuki, H., Furuhashi, K., and Hoshi, T. 2008. Geomorphology and Quaternary geology of the Oga-Noshiro area, Akita Prefecture. *The Journal of the Geological Society of Japan* 114 (supplement): 33-50. (in Japanese)
- Tamura, I. 2008. The teaching materials designed to formulate the key concept "Earth" at secondary school. *Science Education Monthly*, 58 : 822-824.(in Japanese)
- Tamura, I. 2008. The report of the Science Partner Project (No.A-81219) "The change of the earth environment learnt from ancient order". *Tokyo Metropolitan Wakaba Synthesis High School Research Bulletin in 2008* 4: 58-61. (in Japanese)
- Kaji,T., Nemoto, K., Yamazaki, H., Shono, S., and Matsuda, T. 2008. Geological structure of the continental shelf in the northern part of Suruga Bay. *Journal of the School of Marine Science and Technology, Tokai University* 6: 1-14.

Reports

- Yamazaki, H., Suzuki, T., Tamura, I., Ohishi, M., and Shimogama, K. 2009. Upgrade studies on the analysis of volcanic materials for the safety of nuclear power facilities. Report of the 2008 Funded Research of Japan Nuclear Energy Safety Organization (JNES), Tokyo Metropolitan University, 107p. (in Japanese)
- Shirai, M. 2009. Influences of human-activity on supply of terrigenous grain and organic-carbon to deep sea. *Annual Report of Studies on Greenhouse Gas with Research Vessels* 16: 75-84. (in

Japanese)

Book Reviews

- Suzuki, T. 2008. Book review of Manuals of reading topographical maps for engineers by Inoue, K and Mukaiyama, S. *The Quaternary Research* 47: 433-435. (in Japanese)
- Suzuki, T. 2008. Book review of Geology of the Ome District by Ueki T. and Sakai, A. *Journal of Geography (Japan)* 117 : 821-822. (in Japanese)
- Ueki, T. 2008. Book review of Palaeolithic Age along No River by Meiji Univ. Investigation Group for Archaeological Site. *The Quaternary Research* 47: 139. (in Japanese)

Miscellaneous Reports

- Ueki, T. 2008. Publication of Geology of the Ome District. *Sanso-ken Today* 8: 20. (in Japanese)

Presentations

- Yamazaki, H. 2008. Migration of fault activity in the southwestern Kanto Plain, central Japan. Abstracts of 33rd IGC Oslo 2008: STP03410L, August, Oslo, Norway.
- Yamazaki, H. 2008. Recent issues on the earthquake and the active fault. Planning Session of the Division of Nuclear Fuel Cycle and Environment (NUCE), Atomic Energy Society of Japan (AESJ), September, Kochi. (in Japanese)
- Yamazaki, H. 2008. Active fault and earthquake hazard mitigation. Lecture for the Leader of Crime and Hazard Prevention Program in Shinjuku-ku, central Tokyo, December, Shinjuku. (in Japanese)
- Yamazaki, H. 2008. Ground condition and earthquake hazards mitigation for Akiruno City in western Tokyo. Lecture for the Hazard Prevention of Akiruno City, September, Akiruno. (in Japanese)
- Yamazaki, H. 2009. Geological and geomorphological conditions of Hino City in western Tokyo and its natural hazards. Lecture for the Hazard Prevention of Hino City, February, Hino. (in Japanese)
- Suzuki, T., Koarai, M., and Nakayama, D. 2008. Development of tephra GIS and its application for hazard mapping. Abstracts of Japan Geoscience Union Meeting 2008: X156-P004(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Suzuki, T. 2008. Oshima Islands: Its volcano and sediments. Open Forum of Tokyo Metropolitan

- University: Attraction of Tokyo: Islands, Sea and Volcanoes. Meeting of Educational Developing Projects, June, Tokyo. (in Japanese)
- Suzuki, T. 2008. Correlation of tephra and precise age determination during last 0.5Ma. Workshop for Joint Studies on Palaeoclimate and Environmental Information, July, Tokyo. (in Japanese)
- Suzuki, T. 2008. Quest for mystery of Japanese mountains: Changing mountains. Suginoki college by NPO Suginoki college, October, Suginami. (in Japanese)
- Suzuki, T. 2008. Tama and Musashino: Landform development of Tama and Musashino, and Tachikawa Fault. Asahi Culture Center Tachikawa, November, Tachikawa. (in Japanese)
- Suzuki, T. 2009. Map reading: How to read topographical map, and fundamental of landform and geology. Lecture for Green Volunteer Leader by Bureau of Environment, Tokyo Metropolitan Government, January, Shinjuku. (in Japanese)
- Suzuki, T. 2009. Field observation and geological excursion on Hachioji City. Training Lecture for Leader of Hachioji City Environmental Learning, February, Hachioji. (in Japanese)
- Suzuki, T. 2009. Tama and Musashino: Nature of Tama River and Musashino. Asahi Culture Center Tachikawa, February, Tachikawa. (in Japanese)
- Suzuki, T. 2009. Edo and Tokyo: Landform development and ground strength. Kogakuin University and Asahi Culture Center, February, Tachikawa. (in Japanese)
- Suzuki, T., Ueki, T., Aoki, H., Aono, M., and Students for 2007 SPP (Earth science) in Mito 1st Senior High School 2009. Recognition of Hakone-TAu11 tephra deposited at the transgression to MIS 5.5 in the lower reach of the Naka River, northeast Kanto, central Japan. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 154, March, Hachioji. (in Japanese)
- Yamada, M., and Suzuki, T. 2008. Estimation of late Quaternary uplift using marine isotope stage 6 fluvial terraces, in Okuaizu and Okukinu areas, northeast Japan. Abstracts of Japan Geoscience Union Meeting 2008: Q139-011(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Ishikawa, S., Suzuki, T., and Nakayama, T. 2008. Reconstruction of marine transgression and regression processes presumed by diatom analysis at the Paleo-Tokyo Bay. Abstracts of Japan Geoscience Union Meeting 2008: Q139-P009(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Ishikawa, S., Suzuki, T., Nakayama, T., and Kashima, K. 2008. Reconstruction of marine transgression and regression processes presumed by diatom analysis at the Paleo-Tokyo Bay,

- Japan. The Geological Society of Japan Kanto Branch, June, Tokyo. (in Japanese)
- Koarai, M., Suzuki, T., Nakayama, D., and Ooi, S. 2008. Development of tephra GIS and its application for hazard mapping. The 31st International Geographical Congress, August, Tunis, Tunisia.
- Yamada, M., and Suzuki, T. 2008. Geomorphic development in upper stream of the Kinu river and estimation of late Quaternary uplift. Japan Association for Quaternary Research, Programme and Abstracts 38: 32-33, August, Tokyo. (in Japanese)
- Koarai, M., Suzuki, T., Nakayama, D., Ooi, S., and Sato, H. P. 2008. Development of tephra GIS and its application for hazard mapping. Japan Association for Quaternary Research, Programme and Abstracts 38: 116-117, August, Tokyo. (in Japanese)
- Kamijo, T., and Suzuki, T. 2008. Estimation of uplift rates in inland area and crustal movement over a wide area using fluvial terraces : Fluvial terraces of Ikarashi and Kariyata Rivers in Niigata prefecture, central Japan. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74: 131, October, Morioka. (in Japanese)
- Koarai, M., Suzuki, T., and Nakayama, D. 2008. Volcanic hazard map in Tohoku district using tephra GIS. CSIS DAYS 2008, December, Kashiwa. (in Japanese)
- Ueki, T. 2008. Magnetostratigraphy of Plio-Pleistocene overlain by west Tama hills in the Kanto Plain, central Japan. Abstracts : Annual Meeting of the Geological Society of Japan 115: 80, September, Akita.
- Aoki, H., Ueki, T., Suzuki, T., and Aono, M. 2008. SPP in Mito First High School of Ibaraki prefecture; The theme of the late Quaternary history of the Naka Upland. Abstracts of Japan Geoscience Union Meeting 2008: A003-007(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Shirai, M., Liu, H., Takagawa, T., Kishimoto, S., and Sato, S. 2008. Bleaching percentage distribution estimated from OSL approach on sand grains around the Tenryu River mouth. Abstracts for 2008 Annual Meeting of Sedimentological Society of Japan: 13-14, April, Hirosaki. (in Japanese)
- Shirai, M., Omura, A., Ogami, T., and Wakabayashi, T. 2008. Relicts of flood hazard during the Meiji Era obtained from western margin of the Kumano Trough. Abstracts of Japan Geoscience Union Meeting 2008: J164-P004(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Shirai, M. 2008. Sand grains movement off the Kumano area, Kii Peninsula: Estimation from OSL

- measurement technique. Abstracts of Japan Geoscience Union Meeting 2008: G120-007(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Shirai, M. 2008. An attempt to evaluate sand grain transport in coastal region using a new measurement technique: An application to Tenryu-Enshu watershed. Abstracts for the 3rd Symposium of Ocean Alliance in the University of Tokyo: 6-39, July, Tokyo. (in Japanese)
- Shirai, M. 2008. Travel of sand grains from land to deep marine. Abstracts for 2008 Annual Meeting of Japan Association for Quaternary Research: 38-39, August, Tokyo. (in Japanese)
- Shirai, M., Liu, H., Takagawa, T., Kishimoto, S., and Sato, S. 2008. Sand grains transport process in the Tenryu River—Enshu Coast watershed, central Japan revealed by OSL measurement technique. Abstracts of 6th International Conference on Asian Marine Geology: 105, August, Kochi.
- Shirai, M., Liu, H., Takagawa, T., Kishimoto, S., and Sato, S. 2008. Sand grains transport along the Tenryu River-Enshu Coast system based on bleaching percentage distribution. Abstracts for the 115th Annual Meeting of Geological Society of Japan: 209, September, Akita. (in Japanese)
- Shirai, M. 2009. Sand grains transport around the Tenryu River mouth revealed by luminescence of the sand grains. The 3rd Symposium of the Enshu Project, January, Hamamatsu. (in Japanese)
- Shirai, M., Liu, H., and Sato, S. 2009. Sand grain transport process in the Tenryu-Enshu watershed: An application of OSL. *Advances in ESR Applications* 25: 30, March, Hamamatsu. (in Japanese)
- Shirai, M., Liu, H. and Sato, S. 2009. Wave base level of the Enshu Coast estimated from bleaching percentage (BLP) distribution of sand-sized feldspar grains. Abstracts for 2009 Annual Meeting of Sedimentological Society of Japan: 5-6, March, Osaka. (in Japanese)
- Tamura, I., Takagi, H., Hayashi, H., and Yamazaki, H. 2008. Correlation of Pliocene garnet tephra from the Koto deep observatory well, Tokyo, Japan. Abstracts of Japan Geoscience Union Meeting 2008: Q139-001(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Tamura, I., Okada, M., Shoda, K., and Yamazaki, H. 2008. Stratigraphy and correlation of Pliocene tephra of the Chikura Group distributed in the southern Boso Peninsula, central Japan. *Proceedings of the Kanto Branch, Geological Society of Japan*, 39-40, June, Tokyo. (in Japanese)
- Tamura, I., Yamazaki, H., and Mizuno, K. 2008. Plio-Pleistocene tephrochronology in central Japan. *The 33rd International Geological Congress Abstract: HPS07-424P (CD-ROM)*, August, Oslo, Norway.
- Ooi, S., Yamaga, S., Kitamura, K., Tamura, I., and Ando, S. 2008. The Quaternary pyroclastic event

- deposits in the uppermost part of the Urizura Hills, Ibaraki prefecture. Abstracts of Japan Geoscience Union Meeting 2008: Q139-P017(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Takagi, H., Tamura, I., and Kabayama, N. 2008. Evidence of 2.5Ma volcanic activity in Tanzawa area: From mineralogical analyses of garnet-amphibole-bearing tephtras in Kanto. Proceedings of the Kanto Branch, Geological Society of Japan: 4-5, June, Tokyo. (in Japanese)
- Oishi, M. 2008. Examination of validity of correlation method for tephtras using refractive index of plagioclase phenocrysts. Japan Association for Quaternary Research, Programme and Abstracts 38: 110-111, August, Tokyo. (in Japanese)
- Oishi, M. 2008. An attempt of identification of tephtras distributed around northern Kanto region using refractive index of plagioclase phenocrysts. Proceedings of the 2nd annual meeting of the Kanto Branch, Geological Society of Japan: 48-51, June, Tokyo. (in Japanese)
- Muragishi, J. 2008. Subsequent influence of the Genroku Kanto earthquake in Boso peninsula, central Japan. Japan Association for Quaternary Research, Programme and Abstracts 38: 22-23, August, Tokyo. (in Japanese)
- Muragishi, J. 2008. Crustal deformation in the Boso peninsula at the 1703 Genroku-Kanto earthquake and following subsidence. The 25th Annual Meeting of the Society of Historical Earthquake Studies, September, Tsukuba. (in Japanese)
- Ando, K., Yamazaki, H., and Nakamura, T. 2008. Elucidation for fault flexure and fault parameters by computer simulation—Example of Tachikawa fault—. Japan Association for Quaternary Research Meeting 2008 38 : 94-95, August, Tokyo. (in Japanese)
- Ando, K., Yamazaki, H., and Nakamura, T. 2008. Elucidation for fault flexure and fault parameter by computer simulation—Example of Tachikawa fault—. The 7th General Assembly of Asian Seismological Commission and the 2008 Fall meeting of Seismological Society of Japan: 72, November, Tsukuba. (in Japanese)
- Yahata, K., and Yamazaki, H. 2008. House damage by the Kanto Earthquake in Sunami-mura, Chiba prefecture. Abstracts of Japan Geoscience Union Meeting 2008: S141-001(CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Yahata, K., and Yamazaki, H. 2008. Detailed distribution and the topographical and geological factors of house damage caused by the Noto Hanto Earthquake in 2007, the Niigataken Chuetsu-oki Earthquake in 2007, and the Iwate-Miyagi Nairiku Earthquake in 2008. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74:133,

October, Morioka. (in Japanese)

Yahata, K., and Yamazaki, H. 2008. Detailed distribution and the topographical and geological factors of building damage caused by the earthquake: Case study of the Noto Hanto Earthquake in 2007 and the Niigataken Chuetsu-oki Earthquake in 2007. Abstracts of AGU Fall Meeting 2008: S13C-1818, December, San Francisco, USA.

Kaji, T., Yamazaki, H., and Kato, Y. 2008. The morphological features of submarine landslides—Oshima-Oshima, off Kaimon volcano—. Abstracts of Japan Geoscience Union Meeting 2008: Z159-012(CD-ROM), May, Makuhari. (in Japanese with English abstract)

Kaji, T., Yamazaki, H., and Kato, Y. 2008. Feature of the submarine landslides in the world. Abstracts of International Geological Congress 2008: GHZ06106L, p.84, August, Oslo, Norway.

Kaji, T., Yamazaki, H., Kato, Y. 2008. Relationship between morphological feature of submarine landslides and geological condition—focus on Oshima-Oshima, Kaimon and Hawaii regions—, Abstracts of AGU Fall Meeting 2008: OS53A-1301, December, San Francisco, USA.

2. Laboratory of Climatology

1) Staff

Jun MATSUMOTO Professor / D. Sc
Monsoon Climatology

Hideo TAKAHASHI Professor / D.Sc.
Urban Climatology

Tomoko NAKANO Assistant Professor / PhD (D.Sc.)
Land-atmosphere Interaction, Carbon Cycle, Biogeoscience

2) Overview of Research Activities

Our studies cover various scales of climate from urban to global phenomena, aiming at understanding their climatic processes and mechanisms. We use a wide variety of techniques such as field observation, data collection in historical climate, and statistical analysis of global scale dataset. Our research topics are as follows:

- Urban climate (observation and analysis for heat island and cool island)
- Climate change (historical and observational period)
- Compiling database for paleoclimatic record measured by meteorological instruments
- Seasonal march of Asian monsoon and its variation
- Carbon dioxide exchanges between grassland and the atmosphere in a semi-arid region

3) List of Research Activities in FY2008

Peer-reviewed Articles

Asada, H., Matsumoto, J., Lin, Z., and Oguchi, T. 2008. Relationship between distribution of residential areas and topographic features in the Sagarmatha zone, eastern Nepal. *Journal of Geography (Japan)* 117: 561-567. (in Japanese with English abstract)

Murata, F., Terao, T., Hayashi, T., Asada, H., and Matsumoto, J. 2008. Relationship between atmospheric conditions at Dhaka, Bangladesh, and rainfall at Cherrapunjee, India. *Natural*

Hazards 44: 399-410.

- Wu, P., Yamanaka, M. D., and Matsumoto, J. 2008. The formation of nocturnal rainfall offshore from convection over western Kalimantan (Borneo) Island. *Journal of the Meteorological Society of Japan* 86A: 187-203.
- Wu, P., Mori, S., Hamada, J.I., Yamanaka, M. D., Matsumoto, J., and Kimura, F. 2008. Diurnal variation of rainfall and precipitable water over Siberut Island off the western coast of Sumatra Island. *SOLA* 4: 125-128.
- Wu, P., Hamada, J.I., Yamanaka, M. D., Matsumoto, J., and Hara, M. 2009. The impact of orographically-induced gravity wave on the diurnal cycle of rainfall over Southeast Kalimantan Island. *AOSL* 1: 35-39.
- Yokoi, S., and Matsumoto, J. 2008. Collaborative effects of cold surge and tropical depression-type disturbance on heavy rainfall in central Vietnam. *Monthly Weather Review* 136: 3275-3288.
- Suzuki, H., and Takahashi, H. 2008. Spatial scale of heavy precipitation in Kanto Plain: Statistical analysis based on precipitation data of railway observational stations and meteorological stations. *Journal of Japan Society for Natural Disaster Sciences* 27: 161-173. (in Japanese with English abstract)
- Suzuki, H., Nakakita, E., and Takahashi, H. 2009. Spatial representativeness of precipitation based on data observed by rain gauges. *Annual Journal of Hydraulic Engineering* 53 (CD-ROM). (in Japanese with English abstract)
- Nakano, T., Nemoto, M., and Shinoda, M. 2008. Environmental controls on photosynthetic production and ecosystem respiration in semi-arid grasslands of Mongolia. *Agricultural and Forest Meteorology* 148: 1456-1466.
- Grossman, M.J., and Zaiki, M. 2008. Reconstructing typhoon landfalls in Japan in the 19th century using GIS. *Papers of the Applied Geography Conferences*. ed. L.M.B. Harrington and J. A. Harrington, Jr. 31:152-161.
- Zaiki, M., Können G.P., Kimura, K., Mikami, T., and Tsukahara, T. 2009. Reconstruction of historical pressure patterns over Japan using two-point pressure-temperature datasets since the nineteenth century. *Climatic Change* doi: 10.1007/s10584-009-9563-9.
- Grossman, M., and Zaiki, M. 2009. Reconstructing typhoons in Japan in the 1880s from documentary records. *Weather* doi: 10.1002/wea.401.
- Watanabe, J., Ishii, M., and Matsuda, Y. 2008. Variations in the ionosphere during an aurora substorm as observed by an ionosonde. *Antarctic Record* 52: 409-420. (in Japanese with

English abstract)

Other articles

Hayashi, T., and Matsumoto, J. 2008. Cyclone Nirgis in the Bay of Bengal. *Science Journal Kagaku* 78: 698-700. (in Japanese)

Fujibe, F., Matsumoto, J., and Kobayashi, K. 2008. Digitization of daily precipitation data on a mid-20th-century high resolution network in central Japan. *Tenki* 55: 283-287. (in Japanese)

Yamakawa, S., Matsumoto, J., Maruyama, S., and Kasahara, J. 2008. Introduction to the Special Issue on “Global Climate Variations (Part II)”. *Journal of Geography (Japan)* 117: 1011-1014. (in Japanese)

Matsumoto, J., and Yamamoto, S. 2009. Rainy seasons in the Nansei-shotou (Southwest Islands) of Japan. *Geographical Reports of Tokyo Metropolitan University* 44: 71-78.

Takahashi, H. 2008. Long-term variability in the summertime rainfall intensity in Japan: Regional difference and decadal scale variation. *Proceedings of 18th International Congress of Biometeorology (ICB2008). Symposium on Climate Variation “Climate variations and weather disasters”*: Clim Variat-S05(CD-ROM).

Nakano, T., Nemoto, M., and Shinoda, M. 2008. Soil moisture and ecosystem respiration in semi-arid grasslands of Mongolia. *Proceedings of Soil Moisture Workshop 2008*: 35-38. (in Japanese with English abstract)

Reports

Matsumoto, J. 2008. Development of rainfall observation system in Southeast Asia. Research Report FY2008, The University of Tokyo, MEXT, 112p. (in Japanese)

Takahashi, H., and Suzuki, H. 2009. Researches on the spatial representativeness of observed value at rain gauge stations and its dependency on rainfall disturbances. 2008 Joint Research Report of Tokyo Metropolitan University and Research & Development Center of JR East Group, 45p+ii. (in Japanese)

Book Reviews

Matsumoto, J. 2008. Yoshino, M.M. “History of climatology”. *Journal of Geography (Japan)* 117: 1096-1098. (in Japanese)

Nakano, T. 2009. Matsuyama, H., and Tanimoto, Y. “How to analyze climatological data 2nd ed.”.

Journal of the Japanese Society of Snow and Ice 71: 28. (in Japanese)

Zaiki, M. 2008. Book review (Murakoshi, S. and Wakabayashi, Y. GIS and spatial cognition: Evolution of map science). *Chizu Joho* 28(2): 28. (in Japanese)

Presentations

Sakurai, N., Mori, S., Kawashima, M., Fujiyoshi, Y., Hamada, J.-I., Fudeyasu, H., Tabata, Y., Fadli Syamsudin, Emrizal, Yamanaka, M.D., and Matsumoto, J. 2008. Case study on internal structure of westward migratory cloud systems with diurnal cycle observed in the west Sumatera during HARIMAU2006 campaign. 28th Conference on Hurricanes and Tropical Meteorology, April, Orlando, Florida, USA.

Wu, P., Hamada, J.-I., Yamanaka, M. D., Matsumoto, J., and Hara, M. 2008. The impact of orographically induced gravity wave on the diurnal cycle of rainfall over Southeast Kalimantan Island. Abstracts of the Meteorological Society of Japan 2008 Spring Meeting 93: 239, May, Tokyo.

Ichianagi, K., Yoshimura, K., Matsumoto, J., and Yamanaka, M.D. 2008. Seasonal variability of stable isotopes in precipitation over Thailand. The 4th International Symposium on Isotopomers (ISI2008), October, Tokyo.

Matsumoto, J., Higuchi, A., Yamanaka, M.D., Mori, S., Wu P.-M., Ogino, S., Koike, T., and Yokoi, S. 2008. Asian Monsoon Years. Abstracts of Japan Geoscience Union Meeting 2008: J249-001 (CD-ROM), May, Makuhari. (in Japanese with English abstract)

Ichianagi, K., Yoshimura, K., Yamanaka, M.D., and Matsumoto, J. 2008. Simulation of water origins over the Asian monsoon regions by using Colored Moisture Analysis (CMA) with JRA25 reanalysis. Abstracts of Japan Geoscience Union Meeting 2008: J249-P001 (CD-ROM), May, Makuhari. (in Japanese with English abstract)

Matsumoto, J., Sato, S., Takahashi, H., Yasunari, T., Fujinami, H., and Yokoi, S. 2008. Rainfall observations in Southeast Asia—from the space and from the ground—. The Second Global Precipitation Measurement (GPM) Asia Workshop, June, Hamamatsu.

Matsumoto, J., Wang, B., Wu, G.-X., Li, J.-P., Wang, D.-X., Lee, D.-I., Ailikun, Koike, T., Wu, P., Mori, S., Ogino, S., Yamanaka, M.D., Higuchi, A., and Yokoi, S. 2008. AMY (Asian Monsoon Years) coordinated observations. The 5th Asian Oceania Geosciences Society Annual Meeting: AS16-A015 (CD-ROM), June, Busan, Korea.

Ichianagi, K., Yoshimura, K., Matsumoto, J., and Yamanaka, M.D. 2008. Daily variability of stable

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Matsumoto, J., Kanamori, H., and Yokoi, S. 2008. Heavy rainfalls in central Vietnam. Extended Abstracts of the Third International Symposium for the East Asian Monsoon Experiment and MAHASRI: 30-31, September, Chung-Li, Taiwan.

- Yamanaka, M.D., Mori, S., Wu, P.M., Hamada, J.I., Endo, N., Tachibana, Y., Matsumoto, J., and Fadli Syamsudin 2008. Long coastlines of maritime continent governing the global climate. Extended Abstracts of the Third International Symposium for the East Asian Monsoon Experiment and MAHASRI: 38-46, September, Chung-Li, Taiwan.
- Wu, P.M., Hara, H., Yamanaka, M.D., and Matsumoto, J. 2008. Torrential rains over Java Island caused by the interaction of the trans-equatorial Asian winter monsoon with local circulations. Extended Abstracts of the Third International Symposium for the East Asian Monsoon Experiment and MAHASRI: 47-48, September, Chung-Li, Taiwan.
- Matsumoto, J., Zaiki, M., Hirano, J., Ohtsuka, M., and Mikami, T. 2008. Climatic changes in monsoon Asia based on historical documents and old observation data. The Third Korea-China-Japan Joint Conference on Geography, October, Cheongju, Korea.
- Zhou, T.J., Hsu, H.H., and Matsumoto, J. 2008. East Asian, Indochina and western North Pacific summer monsoon. WMO 4th International Workshop on Monsoon (IWM-IV), October, Beijing, China.
- Matsumoto, J. 2009. MAHASRI, AMY 2007-2012, MAIRS, and impact of land-use changes on Indian summer monsoon. The First SELIS International Workshop Eco-Climate Dynamics in Eurasia/Monsoon Asia, January, Nagoya.
- Satoh, S., Kubota, T., Kuraji, K., and Matsumoto, J. 2008. Comparison of over-land rainfall from GSMaP, TRMM/PR, and gauges in Southeast Asia. The 4th International Workshop on Precipitation Retrieval Algorithms Using Satellite Microwave Radiometer, Radar and IR Data, February, Tokyo.
- Yamanaka, M.D., and Matsumoto, J. 2009. GEOSS-WCRP collaboration in MAHASRI and HARIMAU. The 3rd Asia-Pacific GEOSS Symposium, February, Kyoto.
- Matsumoto, J. 2009. Current status of MAHASRI and AMY. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
- Mori, S., Sakurai, N., Hamada J.I., Matsumoto, J., and Yamanaka, M.D. 2009. Nocturnal re-development of coastal convections propagated from western Sumatra Island, Indonesia, observed with JEPP/HARIMAU radars. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
- Wu, P., Hara, M., Yamanaka M.D., and Matsumoto, J. 2009. The favorable atmospheric conditions for occurrence of repeated torrential rains over Jakarta in Java Island. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.

- Endo, N., Wu, P., Yamanaka M.D., Matsumoto, J., and Fadli Syamsudin 2009. Inter-comparison of precipitable water observed by GPS and AIRS in the Maritime Continent. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
- Ogino, S.Y., Fujiwara, M., Shiotani, M., Hasebe, F., Matsumoto, J., Hhuy Ha Hoang, and Nguyen Thi Tan Thanh 2009. Ozone variations over the Northern subtropical region revealed by ozonesonde observations in Hanoi. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
- Kamimera, H., Masuda, K., and Matsumoto, J. 2009. Radar-raingauge data integration in Southeast Asia. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
- Ichiyanagi, K., Yoshimura, K., Yamanaka, M.D., and Matsumoto, J. 2009. Stable isotopes in precipitation at Danang, Vietnam. The International MAHASRI/HyARC Workshop, March, Danang, Vietnam.
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- Takahashi, H. 2008. Long-term variability in the summertime rainfall intensity in Japan: Regional difference and decadal scale variation. 18th International Congress of Biometeorology (ICB2008). Symposium on Climate Variation "Climate variations and weather disasters", Abstract: 83, September, Tokyo.
- Takahashi, H., Nakamura, Y., and Suzuki, H. 2008. Relation between the distribution of summertime intense rainfall frequency and the highrise buildings in Tokyo Metropolitan area. Abstracts of Japan Geoscience Union Meeting 2008: X156-002 (CD-ROM), May, Makuhari. (in Japanese with English Abstract)
- Takahashi, H., Nakamura, Y., Suzuki, H., and Akatsuka, S. 2008. Difference in the distribution of summertime intense rainfall frequency by wind speed in the Tokyo Metropolitan area. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74:45, October, Morioka. (in Japanese)

- Takahashi, H., Uchiyama, S., Yamato, H., Okubo, S., Takahashi, K., and Suzuki, H. 2009. Short duration intense rainfall occurred in Tokyo ward area on August 5, 2008 (1) Behavior of intense rainfall area and surface wind system. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75:169, March, Hachioji. (in Japanese)
- Takahashi, H. 2009. Comments on reports by Kusaka et al. and Fukuoka et al. 'Symposium on local circulation and urban climate', Association of Japanese Geographers 2009 Spring Meeting, March, Hachioji. (in Japanese)
- Nakano, T., Nemoto, M., and Shinoda, M. 2008. Variation in ecosystem respiration and its controlling factors in Mongolian semi-arid grassland. Abstracts of the Annual Meeting, Japanese Society of Soil Science and Plant Nutrition 54: 12, September, Nagoya. (in Japanese)
- Nakano, T., and Shinoda, M. 2008. Controlling factors of ecosystem respiration in semi-arid grasslands of Mongolia. E-journal of Kanto Branch of the Society of Agricultural Meteorology of Japan 5: 13, November, Tsukuba. (in Japanese)
- Nakano, T., and Shinoda, M. 2008. Dependence of ecosystem respiration on soil temperature, moisture and plant biomass in a semi-arid grassland. AGU Fall Meeting 2008: B11A-0338 (CD-ROM), December, San Francisco, USA.
- Zaiki, M., Grossman, M., Tsukahara, T., and Mikami, T. 2008. Instrumental records in Japan in the 19th century and their climatological significance. The Association of American Geographers 2008 Annual Meeting Abstracts: 775, April, Boston, USA.
- Grossman, M., Zaiki, M., and Mikami, T. 2008. Reconstructing typhoon landfalls in Japan in the 19th century using data from historical documents. The Association of American Geographers 2008 Annual Meeting Abstracts: 271, April, Boston, USA.
- Mikami, T., Hirano, J., and Zaiki, M. 2008. Climate reconstruction in Japan based on the historical weather records. The Association of American Geographers 2008 Annual Meeting Abstracts: 476, April, Boston, USA.
- Zaiki, M. 2008. Japanese climate reconstructions based on historical documents and their climatological significance. Abstracts of Japan Geoscience Union Meeting 2008: L133-001 (CD-ROM), May, Makuhari. (in Japanese with English abstract)
- Grossman, M.J., and Zaiki, M. 2008. Reconstructing typhoon landfalls in Japan in the 19th century using GIS. Papers of the Applied Geography Conferences 31: 152-161, October, Delaware, USA.
- Masuda, K., Ichino, M., Kubota, H., Akasaka, I., Zaiki, M., and Matsumoto, J. 2008. Recovering meteorological data of pre-World War II Philippines. the 4th PMS Convention Abstracts: 16-17,

- November, Manila, Philippines.
- Zaiki, M. 2009. Historical climatology and environmental GIS — An overview of personal research —. ISIG Séminaire: Geomatics in Historical and Geographical Studies, Contrasted Examples from Japan and France, February, Lyon, France.
- Zaiki, M., Isoda, M., Hatta, K., Akita, K., Mikami, T., and Tsukahara, T. 2009. Homogenization of the 19th century (1852-1868) temperature records in Mito. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 234, March, Hachioji. (in Japanese)
- Kanamori, H., Kamimera, H., Agata, Y., and Matsumoto, J. 2009. Time-space characteristics of heavy rainfall event in central Vietnam from mid-October to mid-November 2007. International MAHASRI/HyARC Workshop on Asian Monsoon and Water Cycle: 23, March, 2009, Da Nang, Viet Nam.
- Fukushima, A., Takahashi, H., and Matsumoto, J. 2008. The transition of the circulation during the pre-monsoon season related to the rainfall phenomena in Nepal. 31st International Geographical Congress, Abstract: 138-139, August, Tunis, Tunisia.
- Okubo, S., and Takahashi, H. 2009. Spatial and long-term trend of suspended particulate matter in Japan using air monitoring data. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 236, March, Hachioji. (in Japanese)
- Yamato, H., Takahashi, H., and Mikami, T. 2009. Urban heat island phenomenon in Tokyo Metropolis: Using extended METROS data. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 35, March, Hachioji. (in Japanese)
- Hoque, R., Nakayama, D., Matsuyama, H., and Matsumoto, J. 2008. Delineation of precipitation and inundation area in Bangladesh using remote sensing, GIS and ground data. Environmental Forum of International Students, November, Tokyo.
- Hoque, R., Takahashi, H., and Matsumoto, J. 2009. Long term variability of intense precipitation and occurrences of flood in Bangladesh and surrounding area. The seminar of “Sustainability of human activity”, January, Kyoto.
- Hoque, R., Nakayama, D., Matsuyama, H., and Matsumoto, J. 2009. Development of the flood inundation map, flood hazard map and assessment using microwave remote sensing and GIS. The 2nd International Conference on Water and Flood Management-ICWFM 2: 749-756, March, Dhaka, Bangladesh.

- Takahashi, K., Mikami, T., and Takahashi, H. 2008. Relationship between wind system and urban heat island phenomenon in Tokyo ward area in summer (Part1) —Statistical analysis of the relationship between land and sea breezes and air temperature distribution—. Abstracts of the Meteorological Society of Japan 2008 Spring Meeting 93: 461, May, Yokohama. (in Japanese)
- Takahashi, K., Mikami, T., and Takahashi, H. 2008. Relationship between wind system and urban heat island phenomenon in Tokyo ward area in summer (Part2) —Existence of the calm zone due to urban heat island—. Abstracts of the Meteorological Society of Japan 2008 Spring Meeting 93: 294, May, Yokohama. (in Japanese)
- Otsuka, M., Matsumoto, J., Fujibe, F., and Kobayashi, K. 2008. Analysis of long-term changes in precipitation over Kanto area by utilizing daily precipitation series from the former *Kunai* local observation network. Abstracts of the Meteorological Society of Japan 2008 Fall Meeting 94: 245, November, Sendai. (in Japanese)
- Konno, S., and Takahashi, H. 2008. Researches on nocturnal inversion layer of air temperature in winter at Hatoyama town, Saitama prefecture. Abstracts of the Meteorological Society of Japan 2008 Fall Meeting 94: 72, November, Sendai. (in Japanese)
- Hirano, J. 2009. Climate variation in the warm season during the latter half of the little ice age in Japan. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 232, March, Hachioji. (in Japanese)
- Seto, Y. 2008. Adjustment technique of observed wind by roughness parameter for analysis of the wind systems over the Kanto plain. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74:120, October, Morioka. (in Japanese)
- Seto, Y. 2008. Analysis of the wind systems over the Kanto plain by using the adjustment technique of observed wind by roughness parameter. Abstracts of the Symposium, Japanese Study Group for Climate Impact and Application 49: 14, November, Tokyo. (in Japanese)
- Seto, Y., and Takahashi, H. 2009. Analysis of the wind systems over the Kanto plain by using the adjustment technique of observed wind by roughness parameter. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 162, March, Hachioji. (in Japanese)
- Shimizu, S., Takahashi, H., Mikami, T., and Izumi, T. 2009. Seasonal variation of cool island intensity in urban green space. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 171, March, Hachioji. (in Japanese)
- Yamashima, R., Matsumoto, J., and Takata, K. 2008. Impacts of historical land use changes on the

atmospheric circulation. Abstracts of the Meteorological Society of Japan 2008 Fall Meeting 94: 259, November, Sendai. (in Japanese)

Yoshikawa, S., and Takahashi, H. 2009. Relationship between winter extratropical cyclone tracks and the atmospheric circulation over the Far East. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 174, March, Hachioji. (in Japanese)

Oka, A., Mikami, T., Izumi, T., Shimizu, S., and Narita, K. 2008. The cool island effect of the Imperial Garden—The cold air flowing and seeping out to urban area—. Abstracts of the Meteorological Society of Japan 2008 Spring Meeting 93: 297, May, Yokohama. (in Japanese)

3. Laboratory of Environmental Geography

1) Staff

Makiko WATANABE Professor/ PhD
Soil Science

Shuichi OKA Associate Professor / D. Sc.
Vegetation Geography, Landscape Ecology

Shuichi OYAMA Associate Professor / PhD (D. Human and Environment)
Regional Studies (Africa, South America), Biogeography, Ecological Anthropology

2) Overview of Research Activities

Our laboratory focuses on the relations between human and natural environment. For understanding processes enacted upon environment in local and regional scales, we try to integrate subdivisions of both physical and human geography together with interdisciplinary aspects of environmental sciences, such as botanical science, forest ecology, zoology, soil science, landscape design, political ecology, folklore, anthropology and so on. Research methods are in primary based on fieldworks, including weather observation, land survey, soil and vegetation surveys, and interview survey and in participative on laboratory analyses on soil-water analyses and interpretations of aerial photo and satellite imagery as well. Overseas field studies are carried out in Asia, Africa, Europe and South America. We are engaged in long-term fieldwork on (1) environmental changes and human responses in Africa, (2) cultural ecology of slash-and-burn cultivators in Africa, (3) domestication process of livestock and crops, and (4) vegetation and climatic landscape in North and South America and Siberia.

Recent research subjects are as follows;

- 1) Interrelation between environmental change and human response in savanna area of Africa
- 2) Cultural geography of slash-and-burn cultivators and development of cultivation system in miombo woodland zone of Africa
- 3) Applied ecological study to combat desertification in Sahel zone, Africa
- 4) Domestication of Camelidae animals and *Solanum* crops in Andes, South America

- 5) Geo-ecological research on landscape and the change in alpine and sub-alpine, Mt. Fuji
- 6) Climatic landscape in view of vegetation, land use and culture in Oki Island and Iiyama, Japan
- 7) Characterization of sclerotium grains as soil organic component in subalpine forests in Japan and Central Europe
- 8) Soil and water conservation of river basins in Central Luzon, Philippines
- 9) Land recovery scenario in the upper Mt. Pinatubo, Philippines
- 10) Dynamics of water environment surrounding ancient temples in Kharga Oasis, Western Desert, Egypt
- 11) Evaluation of urban soils on basis of soil genesis

3) List of Research Activities in FY2008

Peer-reviewed Articles

- Sato, M., and Oka, S. 2009. Regeneration patterns from perspective of site factor conditions in the subalpine coniferous forests of Mt. Maekake-yama, northern Mts. Yatsu-ga-take, central Japan. *Geographical Review of Japan* 82: 144-160. (in Japanese with English abstract)
- Oyama, S., Yamamoto, N., and Kondo, F. 2009. Potato domestication: Considering the relationship with Camelidae animals. *Bulletin of National Museum of Ethnology* 84: 177-203. (in Japanese)
- Oyama, S. 2009. Soil nutrients and nitrogen absorption of plants in Andean mountains: Relating with domestication of wild potato species. *Himalayan Study Monographs* 10: 86-102. (in Japanese with English abstract)
- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of residents and the conservation activities for the river basin environment: A case study of Sakawa River, Japan. *Papers on Environmental Information Science* 22: 369-374. (in Japanese with English abstract)

Other Articles

- Souri, B., Morishima, W., Rondal, J. D., and Watanabe, M. 2008. Contribution of moisture and organic matter on crystallinity of iron oxide minerals among Yellow Brown Forest soils in a tropical region. *Proceedings of the 15th Symposium of Society of Crystallography and Mineralogy of Iran, Mashhad*: 160-164. (in Persian with English abstract)

- Tonozaki, K., Matsuzaki, H., Inoue, Y., Fujitake, N., and Watanabe, M. 2008. Carbon loss rate of sclerotium grains by AMS ^{14}C dating. University of Tokyo, MALT, *Proceedings of the 10th symposium of Japanese AMS Society*: 226-229. (in Japanese)
- Oka, S. 2008. Larch scrub and tree-line as an environmental monitor on Mount Fuji. *Japanese Study Group for Climate Impact and Application Newsletter* 25: 11-15. (in Japanese)
- Oyama, S. 2009. Ecological knowledge of Hausa cultivators for the land degradation process in Sahel, West Africa. *Geographical Reports of Tokyo Metropolitan University* 44: 103-112.

Books

- Aoyama, T., Ogawa, H., Oka, S., and Umemoto, T. 2009. *Climatic landscape in Japan (enlarged edition)*. Tokyo: Kokon Shoin. (in Japanese)

Reports

- Sakagami, N., and Watanabe, M. 2009. Soil properties of the disturbed layers at Shikiryou Ruin (Kusuda site). In *report of excavation at Shikiryou Ruin, Ibusuki, Kagoshima*, The Grant-in-Aid for Scientific Research from Japan Society for the Promotion of Science (Project Leader Takano, M.). (in Japanese)
- Oka, S. 2008. *Research on the tree-line dynamics and environmental change on Mount Fuji*. Report of Grant-in-Aid for Scientific Research (C) Project No. 17500702. (in Japanese)

Miscellaneous reports

- Oka, S. 2008. Short trip around the *Yato* valley in the Tama-hill (2). *Chiri* 53(5): 108-116. (in Japanese)
- Oka, S. 2008. Short trip around the *Yato* valley in the Tama-hill (3). *Chiri* 53(6): 96-101. (in Japanese)
- Oka, S. 2008. Short trip around the *Yato* valley in the Tama-hill (4). *Chiri* 53(8): 76-83. (in Japanese)
- Oyama, S. 2007. Reports of 47th meeting of ethnological natural history: Reconsidering the origin of the pastoralism in the Andean mountains. *Ecosophia* 20: 106. (in Japanese)
- Oyama, S. 2008. The Land Act of 1995 and social confusion of shifting cultivators in northern Zambia. *Research for Tropical Agriculture* 1(Extra Issue 2): 77-78. (in Japanese)
- Oyama, S. 2008. The vitality of world desert !? A Great Adventure in Sahara Desert. (supervision) *Weekly Magazine of Scientific Adventure* 25: 1-10. Asahi Shimbun Publications Inc. (in Japanese)

Nakayama, E. 2009. The role and utilization of a unique snow melting system, *tane*, in a heavy snow region of central Japan. *Chiri* 54(2): 54-63. (in Japanese)

Presentations

Watanabe, M., and Nonoyama, Y. 2008. Utilization of sclerotium grains as carrier of toxic substances degrading bacteria — Possibility of a new soil remediation technology — . JST Innovation Bridge of Research Seeds in Tokyo Metropolitan University, November, Akihabara. (in Japanese)

Murata, T., Dela Cruz, B., Rondal, J. D., Palijon, A., Taniguchi, S., Morishima, W., and Watanabe, M. 2008. Accumulation and dynamics of soil organic carbon and nitrogen in comparison of forest and grassland in Central Luzon, the Philippines. Japanese Association of Soil Science and Plant Nutrition, September, Nagoya. (in Japanese)

Oka, S. 2008. Methods based on environmental science to understand town. Meguro City College in 2008, History and climate of region from perspective of understanding town, May, Tokyo. (in Japanese)

Oyama, S. 2008. Land degradation problem and economical differential between agrarian households in Sahel of West Africa. Joint Research of National Museum of Ethnology, Osaka, Japan, “Reconsidering the relation of Subsistence and Production”, May, Hirosaki. (in Japanese)

Oyama, S. 2008. Economical differential between households and causes of food shortage in villages of Republic of Niger. 18th Annual Meeting of the Japan Society of Tropical Ecology, June, Tokyo. (in Japanese)

Oyama, S. 2008. Where is the original growing places of wild potato species in Andean mountains? : Reconsidering the potato domestication with Camelidae animals. Joint Research for Highland Civilization, Research Institute for Humanity and Nature, October, Kyoto. (in Japanese)

Oyama, S. 2008. The Land Act of 1995 and social confusion of shifting cultivators in northern Zambia. 104th Annual Meeting of Japanese Society for Tropical Agriculture, October, Kagoshima. (in Japanese)

Oyama, S. 2008. Land degradation problem in Sahel of West Africa part 1: Investigation of land degradation process. Seminar of Environmental Conservation and Development: A viewpoint from Anthropology and Area Study, Hosei University, December, Tokyo. (in Japanese)

Oyama, S. 2008. Land degradation problem in Sahel of West Africa part 2: A trial to combat desertification. Seminar of Environmental Conservation and Development: A viewpoint from

- Anthropology and Area Study, Hosei University, December, Tokyo. (in Japanese)
- Oyama, S. 2008. Land Act 1995 and social confusion of shifting cultivators in Republic of Zambia. Joint Research of Institute of Developing Economics, Japanese External Trade Organization “Social Organization and Civil Society in Agrarian Villages of Africa”, December, Tokyo. (in Japanese)
- Sakagami, N., and Watanabe, M. 2009. Distributional variance of sclerotia of *Cenococcum* species in surface soils of *Fagus* forest slope and their contribution as soil organic component. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 252, March, Hachioji. (in Japanese)
- Sakagami, N., and Watanabe, M. 2008. Distributional aspects of sclerotia, resting bodies of *Cenococcum* species as organic component in forest soils. The 19th International Geographical Congress, August, Tunis, Tunisia.
- Myoga, S. 2008. A case study of Aogashima Island in consideration from disaster and recovery of land function. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74: 138, October, Morioka. (in Japanese)
- Myoga, S. 2009. Consideration about the recovery process of land function around Rokurigahara, northeastern foot area of Mt. Asama. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 50, March, Hachioji. (in Japanese)
- Nonoyama, N., Narisawa, K., Ohta, H., and Watanabe, M. 2008. Function of sclerotium grains found from soils as microbial career. 24th Assembly of Japanese Association of Microbial Ecology, November, Sapporo. (in Japanese)
- Nakayama, E. 2008. Role of the TANE pond as a snow melting system in a heavy snow region: A case study of Iiyama city, Nagano prefecture. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74:141, October, Morioka. (in Japanese)
- Nakayama, E. 2009. The role and utilization of a unique snow melting system, *tane*, in a heavy snow region of central Japan: From the perspective of the climatic landscape. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 110, March, Hachioji. (in Japanese)
- Nakayama, E. 2009. Living in a heavy snow region: The role and utilization of a unique snow melting system, *tane*. Salon of Geography No.88, March, Tokyo. (in Japanese)
- Uoi, N., Watanabe, M., Sakagami, N., and Murata, T. 2009. A study on evaluation of urban soils focusing on land creation history of urban parks. Proceedings of the General Meeting of the

Association of Japanese Geographers 2009 Spring Meeting 75: 253, March, Hachioji. (in Japanese)

Shirayanagi, K. 2009. Stock dung disposal and compost use in Sagamihara city, Kanagawa prefecture: For proper circulation of organic resources. The Seminar of Researches in Sagamihara City Museum, March, Sagamihara. (in Japanese)

4. Laboratory of Geographical Information Sciences

1) Staff

Hiroshi MATSUYAMA Associate Professor / PhD (D.Sc.)

Hydrometeorology, Geographical Information Sciences

Takeki IZUMI Assistant Professor / PhD (D.Eng.)

Urban Climatology, Geographical Information Sciences, Computational Meteorological Model

Daichi NAKAYAMA Assistant Professor / PhD (D.Sc.)

Geographical Information Sciences, Remote Sensing, Computational Geomorphology

2) Overview of Research Activities

This laboratory is going to study the natural environment as a whole which is composed of geomorphology, climate, hydrology, vegetation, and so on. Concretely, deductive approach and inductive approach are combined for conducting studies. The former approach is going to explain results from causes by physical laws such as mass balance, energy balance, equation of motion, and so on. The latter approach is going to explain facts demonstratively based on field surveys and *in situ* observations. Therefore, collection of quantitative data, digital mapping, statistical analyses and numerical modeling are main methods used in this laboratory.

The main study themes in this laboratory are listed as follows.

- Energy and water cycle in the atmosphere and hydrosphere
- Capturing snow distribution and snow water resources, along with snowmelt-runoff based on remote sensing techniques and field surveys
- Quantitative evaluation of spectral reflectance characteristics of coniferous forests and their leaf area indices
- Water environment around Mt. Aso and Tokyo Metropolis
- Numerical simulation of urban climate
- Capturing surface conditions of cities
- Monitoring and modeling natural environment and natural hazards

3) List of Research Activities in FY2008

Peer-reviewed Articles

- Nakayama, D., Morinaga, D., and Matsuyama, H. 2008. Evaluation of the evacuation route availability based on an inundation flow simulation. *Journal of Geography (Japan)* 117: 424-438. (in Japanese with English abstract)
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- Inamura, T., Iwasaki, K., Saito, H., Nakayama, D., Izumi, T., and Matsuyama, H. 2009. Numerical simulation investigating how local wind "Matsubori-kaze" is affected by unique topography of Mt. Aso. *Tenki* 56: 123-138. (in Japanese)
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- Kodera, K., Kato, A., Nakayama, Y., Shimizu, Y., and Onodera, S. 2008. Research on pollutional load of river basin using the unit basin value method and GIS—Mainly the comparison between the Saba river and the Ashida river—. Annual Meeting of the Japanese Society of Limnology: 141, October, Sapporo. (in Japanese)
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5 Laboratory of Urban and Human Geography

1) Staff

Yoshio SUGIURA Professor / PhD (D.Sc.)

Human Geography

Yoshiki WAKABAYASHI Professor / PhD (D.Sc.)

Urban Geography, Behavioral Geography, Geographic Information Science

Akihiro TAKINAMI Associate Professor / PhD (D.Lit.)

Cultural Geography, Tourism Study

Yuko TAKEDA Assistant Professor / Ph. D.

GIS, Urban Geography

Hiroyuki TSUBOMOTO Assistant Professor / PhD (D.Sc.)

Urban Geography, Office Study

Michiko HARAYAMA Assistant Professor

Bibliometrics

(Concurrent staff)

Toshio KIKUCHI Associate Professor / D.Sc.

Agricultural and Rural Geography, Regional Geography of Oceania, Nature Based Tourism

2) Overview of Research Activities

This research unit specializes in human geography, with special emphasis on the city and its environs. Our research interests center on the structural explanation of the relationship between human activities and geographic environment by employing approaches of social sciences and humanities. Methodologically, the emphasis lies largely on positivistic (viz., quantitative or mathematical); fieldwork is also encouraged. The research interests cover quantitative,

socioeconomic, urban and behavioral geography. The main themes of our current research are as follows:

1. Mathematical modeling of human geographic phenomena
2. Regional analysis of human geographic phenomena
 - 1) Relationship between human activities and geographic environment
 - 2) Land use change in the city and its suburbs
 - 3) Spatial organization of the society
 - 4) Transformation of human activities brought about by environmental change
3. Geographical studies of urban systems
 - 1) Spatial structures of intra-urban system
 - 2) System of cities
4. Geographical thought
 - 1) History of modern geography
 - 2) Bibliometric research of geographical studies

3) List of Research Activities in FY2008

Peer-reviewed Articles

Suzuki, K., and Wakabayashi, Y. 2008. Spatial analysis of attractions listed in Japanese and English guidebooks to Tokyo. *Journal of Geography (Japan)* 117: 522-533. (in Japanese with English abstract)

Wakabayashi, Y. 2008. Cartographic literacy and skills in reading thematic maps: How to read "Gender atlas of Japan". "Map", *Journal of the Japanese Cartographers Association* 46(2): 24-27. (in Japanese)

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Kinpara, S., Sugiura, Y., and Harayama, M. 2008. The present situation and problems of *Joyful Minowa* Shopping Street with the symbol of Metropolitan tramcar. *Notes on Theoretical Geography* 16: 34-52. (in Japanese)

Sugiura, Y. 2008. On book reviews on Christaller's *Central Places in Southern Germany*. *Notes on Theoretical Geography* 16: 53-58. (in Japanese)

- Wakabayashi, Y. 2008. Cognition of geographic space and ontologies. In *Series GIS 1. Theories of GIS*. ed. Y. Murayama and R. Shibasaki, 17-31. Tokyo: Asakura Shoten. (in Japanese)
- Wakabayashi, Y. 2009. Geography of crime: Its genealogy and issues. In *Nature, Society, and Human: Studying geography*. ed. Department of Geography, Kanazawa University, 281-298. Tokyo: Kokon Shoin. (in Japanese)
- Liang, H., and Wakabayashi, Y. 2009. Regional analysis of land use change between 2000 and 2005 in Inner Mongolia, China. *Geographical Reports of Tokyo Metropolitan University* 43: 133-121.
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- Wakabayashi, Y. 2008. Murayama, Y., and Shibasaki, R. eds: Series GIS 4. GIS for business and administration. *Journal of Geography (Japan)* 117: 686-688. (in Japanese)

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life of young people in Tokyo Metropolitan area. *Annals of the Japan Association of Economic Geographers* 54: 247-248. (in Japanese).

Presetations

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Wakabayashi, Y. 2008. Gender-related differences in the map use of in-vehicle navigation systems. 17th Annual Conference of GIS Association of Japan, October, Tokyo. (in Japanese)

Liang, H., and Wakabayashi, Y. 2009. Environment policy and land use change in Chinese Inner Mongolia. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75:225, March, Hachioji. (in Japanese)

Nagami, Y., and Wakabayashi, Y. 2009. Acquisition of geographic knowledge and spatial cognition of taxi drivers in Tokyo. Proceedings of the General Meeting of the Association of Japanese Geographers 2009 Spring Meeting 75: 59, March, Hachioji. (in Japanese)

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Koizumi, R. 2008. Changing socio-economic structure since the 1990s and its effect on the work and life of young people in Tokyo Metropolitan Area. The 23rd Meeting for Reading Master's Thesis in the Japan Association of Economic Geographers Kanto-branch, April, Tokyo. (in Japanese)

Wada, E. 2008. OTAKU in modern society. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Fall Meeting 74:72, October, Morioka. (in Japanese)

Kito, M. 2009. Study on the construction of a removal system in suburban Tokyo by the Tokyu Corporation. General Meeting for Graduation Theses of Geography, March, Tokyo. (in Japanese)