

# **Annual Report 2007**

**Geographic Environmental Sciences**

**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 / Dr.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 2007

### *Peer-reviewed Articles*

Suzuki, T. 2008. Analysis of titanomagnetite within weathered middle Pleistocene KMT tephra and its application for fluvial terrace chronology, Kanto Plain, central Japan. *Quaternary International* 178: 119-127.

Suzuki, T. 2007. Tephra studies on Quaternary explosive eruptions in the Japanese Islands. *The*

Quaternary Research 46: 283-292.

- Ogawa, T and Suzuki, T. 2007. Amendment of Building Retrofitting Promotion Act and Policy Development (Report). Journal of Geography 116: 516-523. (in Japanese with English abstract)
- Kawakami, T and Suzuki, T. 2007 . A Local Campaign for Retrofitting Buildings by Sumida Quakeproof Reinforcement Promotion Conference, Sumida City, Tokyo (Report). Journal of Geography 116: 536-541. (in Japanese with English abstract)
- Murata, M., Suzuki, T., Nakayama, T., Kawashima, S. and Kawai, M. 2007 . Tephrochronological Study on the Kazusa Group in the Southeast Part of Musashino Upland, Tokyo Metropolitan Area, Central Japan . Journal of Geography 116: 243-259. (in Japanese with English abstract)
- Ueki, U. 2007. AMS 14C age of a fossil wood in the dammed up deposits of the Kanagi Landslide, southeast Shikoku Island, Southwest Japan. Journal of the Japan Landslide Society, 44: 41-43. (in Japanese with English abstract)
- Ueki, U. 2007. Terrace Chronology along the Upper Reach of Naka River, Southwest Japan. Geographical review of Japan, 81A: 25-40. (in Japanese with English abstract)
- Ueki, U. 2007. Visualization of rock magnetization using a lava sample acquired with saturated isothermal remanent magnetization (SIRM): Introduction to paleomagnetism and plate tectonics. Education of earth science, 60: 187-188. (in Japanese with English abstract)
- Fujiwara, H., Sato, S., Shirai, M. and Tajima, Y. 2007. A Field Study on the Sediment Movement in the Tenryu-Enshunada Watershed. Annual Journal of Coastal Engineering : 54, 591-595, November, Miyazaki. (in Japanese)
- Tamura, I., Yamazaki, H. and Mizuno, K. 2008. Characteristics for the recognition of Pliocene and early Pleistocene marker tephras in central Japan. Quaternary International, 178: 85-99.

#### ***Other Articles***

- Yamazaki, H. 2007. What is the long-term stability of the geological environment for the HLW geological disposal? , Materials science and technology, 77: 1121-1125 (in Japanese)
- Yamazaki, H. and Sasaki, T. 2007. Uplift and Erosion: Potential impact on the geological environment. OECD NEA Web page. <http://www.nea.fr/download/manchester/>
- Suzuki, T. 2007. Landforms Formed by River: Introduction of Fluvial Geomorphology. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp. 69-76, Nonomiya-shoten. (in Japanese).
- Suzuki, T. 2007. River and Mitigating Disaster: Fluvial Landforms and Life of People. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp. 77-86, Nonomiya-shoten. (in Japanese).
- Suzuki, T. 2007. Coffee Break: Walking and Watching the Landforms of Tama River. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp.

87-90, Nonomiya-shoten. (in Japanese).

- Ueki, U. 2007. Description and age estimate of the Nariki Landslide, eastern margin of the Kanto Mountains, Ome city, central Japan. Bulletin of the Geological Survey of Japan, 58: 253-259. (in Japanese with English abstract) Shirai, M., Nishimura, M. and Yasuda, H. 2007. Descriptive evaluation of consolidated sedimentary rock structures with X-ray imaging: Examples from Site 1276 core. Proceedings of ODP, Scientific Results, Leg. 210 chapter111: 1-11.
- Tamura, I. 2007. A situation and problems about the field work of earth science in high school in Japan (in Japanese). Chishitsu News, 640: 20-24 .
- Tamura, I. 2008. A lesson of 「Environmental 1」 that attached great importance to the field work(in Japanese). Report of Tokyo Metropolitan Wakaba Sogo Senior High School, 3:37-42.

### ***Reports***

- Suzuki, T. 2007. Tephra Survey. Archaeological Excavation Report of Yaita City 6 "Report of Archaeological Excavation at Takahara-san Obsidian Kengamine Site in 2006" : 14-16 , Tochigi Prefecture Yaita Education Committee.
- Ueki, U. and Sakai, A. 2007. Geology of the ome District. Quadrangle series, 1: 50,000, Geological Survey of Japan, AIST, 189p. (in Japanese with English abstract) Shirai, M. 2008. Supply of terrestrial organic-carbon to deep sea. Annual Report of Studies on Greenhouse Gas with Research Vessels, 14: (in press, in Japanese)

### ***Book reviews***

- Suzuki, T. 2007. Book review of Cartographical Thinking of Earth Men by Nishikawa, O. Journal of Geography, 116: 215. (in Japanese)

### ***Miscellaneous articles***

- Suzuki, T., Nakabayashi, I., Eguchi, T., Kasahara, J., Obara, K., Seno, T. and Shimokawa, K. 2007 . Preface for the Special Issue on "Geosciences and Impacts of Future Earthquakes Occurring below the Tokyo Capital Region, and Countermeasures" Journal of Geography 116: 309-312.
- Suzuki, T. 2007. Pictorials 1: Future Earthquakes Occurring below the Tokyo Capital Region and its Disaster Simulation Journal of Geography 116
- Takagi, H. and Tamura, I. 2007. Will it be really good in this? In the high school, the earth science is becoming extinct. The Science News Paper, April 13.

### ***Presentations***

- Yamazaki, H. and Sasaki, T. 2007. Uplift and Erosion: Potential impact on the geological

- environment. Integration Group for Safety Case (IGSC) Workshop “Geosphere Stability”, OECD/Nuclear Energy Agency(NEA). 2007.11. UK, Manchester.
- Yamazaki, H. 2007. Quaternary tectonics in and around the onshore plate convergence boundary in central Japan. International Symposium on Quaternary Environmental Changes and Humans in Asia and the Western Pacific. Geological Survey of Japan Interim Report, No.42, 111-112. 2007.11. Ibaraki, Tsukuba.
- Yamazaki, H. 2007. What is the long-term stability of the geological environment for the HLW geological disposal? , 2007 Joint Symposium of 16th IMRAM Research Panel of Tohoku University, Research Station of Base Metal, and Research Center of Resource Conversion and Reproduction, 99-103. 2007.11. Sendai (in Japanese)
- Yamazaki, H. 2007. History of the global environmental changes deduced from the geology and geomorphology of the Musashino upland. Lecture of the Open University of TMU. 2007. 5 - 6 . Iidabashi (in Japanese)
- Yamazaki, H. 2007. Natural history of the Musashino Upland II. MEXT Science partnership program in the Saitama Prefectural Tokorozawa Senior High School , 2007. 6. Tokorozawa (in Japanese)
- Yamazaki, H. 2007. Landform development of the Kanto Plain. MEXT Science partnership program in the Tokyo Metropolitan Wakaba Sogo Senior High School . 2007.10. Inagi (in Japanese)
- Yamazaki, H. 2007. Nature and Hazard Potential in Kanagawa Prefecture. MEXT Super Science High School program “ Hazard Mitigation ” in the Kanagawa Prefectural Seisho Senior High School , 2007.5. Odawara (in Japanese)
- Yamazaki, H. 2008. Natural History of the Musashino Upland .Training association for Science class improvement in the Tokyo Metropolitan Hino Senior High School, 2008.1. Hino (in Japanese)
- Yamazaki, H. 2007. Active fault and Seismic hazards mitigation. Shinjuku Ward sponsoring disaster prevention lecture meeting, 2007.12. Shinjuku (in Japanese)
- Yamazaki, H. 2007. Earthquake mechanism and regional correspondence for the hazard prevention. Open lecture of the Akishima citizens college forum. 2008.1. Akishima (in Japanese)
- Yamazaki, H. 2008. The ground condition and earthquake disaster prevention of Kodaira-shi. Kodaira city sponsoring disaster prevention lecture meeting, 2008.1. Kodaira (in Japanese)
- Yamazaki, H. 2007. Active faults in the Oiso Hills and their relation to the seismotctonics. Special Seminar in the Hiratsuka City Musium, 2007.8. Hitratsuka (in Japanese)
- Suzuki, T. 2007. Reading of Landform and its Landscape on Map. Meguro City College “Map and Landscape: Map, landscape and their inner world part 2”, April, Tokyo. (in Japanese)
- Suzuki, T. and Murata, M. 2007. An early Pleistocene tephra associated with Shirakawa-Kumado pyroclastic flow derived from Aizu area, northeast Japan. Abstracts of Japan Geoscience Union 2007 Meeting, Q139-002 (CD-ROM), May, Chiba. (in Japanese with English Abstract)

- Suzuki, T. 2007. Natural history in Musashino part 2: quest for landform and geology in neighborhood (field exercise). Science Partnership Project at Tokorozawa High School, July, Saitama. (in Japanese)
- Suzuki, T. 2007. Tephros in marine isotope 3. Committee on Archaeology of Marine Isotope 3, Japan Association for Quaternary Research, July, Tokyo. (in Japanese)
- Suzuki, T., Murata, M., Oishi, M., Yamazaki, H., Nakayama, T., Kawashima, S. and Kawai, M. 2007. A study on the activity history of an active fault by geological survey of underground: Tachikawa Fault in west part of Tokyo Metropolitan. Minami-osawa Campus Industry-university Corporation Meeting 2007 "aiming to an improvement of urban environment and life", July, Tokyo. (in Japanese)
- Suzuki, T., Murata, M., Nakayama, T. Kawashima, S. and Kawai, M. 2007. Tephrochronological Study on Underground Quaternary Marine Strata in Tokyo Metropolitan Area, Japan. Quaternary International, 167-168 Supplement: p. 406, August, Cairns.
- Suzuki, T. 2007. How to read nature: Basic of understanding environment. Training Lecture for Support Ranger, Tokyo Metropolitan University Open University, August, Tokyo. (in Japanese)
- Suzuki, T. 2007. Tephra in Ibaraki : Development of Naka Upland, quest for landform development of an upland where Mito 1st Senior High School stands. Science Partnership Project (SPP) at Mito 1st Senior High School, October, Ibaraki. (in Japanese)
- Suzuki, T. Geoscience of Okutama: A mountains in Japan. Field lecture for Tokyo Support Ranger, November, Tokyo. (in Japanese)
- Suzuki, T. and Murata, M. 2007. Studies on early Quaternary widespread tephros derived from large calderas located in the Northeast Japan Arc. International Symposium on Quaternary Environmental Changes and Humans in Asia and the Western Pacific Abstracts Volume, 146, November, Tsukuba.
- Suzuki, T., Nakabayashi, T., Ogawa, N. 2007. Field lecture Izu-oshima Volcano: Eruption and its History. Tokyo Metropolitan University Open University, Izu-Oshima, November, Izu-oshima. (in Japanese)
- Terada, K. and Suzuki, T. 2007. Examination of the method of the tephra correlation using chemical compositions of hornblende. Programme and abstracts, Japan Association for the Quaternary Research, 37: 118-119, August, Kobe. (in Japanese)
- Kaji, T. Yamazaki, H. Tokuyama, H. Kato, Y. 2007. Topography and geology of the submarine landslide deposit by sector collapse of Oshima-Oshima island in the northern part of Japan. Abstracts of Japan Geoscience Union Meeting 2007, Q139-001,(CD-ROM), May, Japan. (in Japanese with English Abstract)
- Kaji, T. Shono, S. Nemoto, K. Yamazaki, H. 2007. Geological structure of the continental shelves in the northern part of Suruga Bay. Abstracts of Japan Geoscience Union Meeting 2007,

- Q139-P009 (CD-ROM), May, Japan. ( in Japanese with English Abstract)
- Kaji, T. Yamazaki, H. Tokuyama, H. Kato, Y. 2007. Topography and geology of the submarine landslide deposits by sector collapse of Oshima-Oshima island in the northern part of Japan. Abstracts of The Journal of the International Union for Quaternary Research Vol167-168, p199, July, Australia.
- Kaji, T. Yamazaki, H. Kato, Y. 2007. 2007. Comparison of the submarine landslide by the sector collapse of Oshima-Oshima island in the northern part of Japan with the submarine landslide of off Kaimon volcano in the southern part of Japan. Abstracts of AGU Fall Meeting 2007, NG41B-0517, p19, December, USA.
- Kaji, T. Yamazaki, H. Tokuyama, H. Kato, Y. 2007. Comparison of the submarine landslide off Kaimon volcano with the debris avalanche off Oshima-Oshima island with generated the tsunami in Japan. Abstracts of Ocean Sciences Meeting 2008,p ,March, USA.
- Murata, M. and Suzuki, T. 2007. Re-examination on correlation of Early Pleistocene tephra in Inubo Group at Byobugaura in Choshi Area, Northeast Japan. Abstracts of Japan Geoscience Union 2007 Meeting, Q139-007 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Murata, M. and Suzuki, T. 2007 . Study on tephra and geological structure of the early Quaternary underground geology at the Suginami, Setagaya and Ota Wards, Tokyo Metropolitan, Central Japan. Proceedings of the 1st Annual Meeting of the Kanto Branch, Geological Society of Japan, 54-57, June, Tokyo. (in Japanese)
- Yahata, K., Kamijo, T., Hatakeyama, H., and Yamazaki, H. 2007. Distribution of house-damage by the Niigataken Chuetsu-oki Earthquake in Kashiwazaki City, Niigata Prefecture. Programme and Abstracts of Japan Association for Quaternary Research 2007 Meeting. the separate volume of 37: 20-21. (in Japanese)
- Yahata, K., Kamijo, T., Hatakeyama, H., Nakamura, Y. and Yamazaki, H. 2007. Distribution and Cause of House Damage Explained from the Topographical Standpoint by the Niigataken Chuetsu-oki Earthquake in 2007 : Case Study of Kashiwazaki City, Niigata Prefecture. the Association of Japanese Geographers Fall Meeting 2007, October, Kumamoto.(in Japanese)
- Ueki, U. 2007. Plio-Pleistocene history of the tachikawa fault, southwest Kanto Plain, central Japan. Abstracts of Japan Geoscience Union 2007 Meeting, Q139-006 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Ueki, U. 2007. Magnetostratigraphy of the Plio-Pleistocene in the western margin hills of Kanto Plain, central Japan. Abstracts of Japan Geoscience Union 2007 Meeting, Q139-P003 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Ueki, U. 2007. Outline of the geology of Ome District and post-Pliocene history of the Tachikawa fault. Proceedings of the 1st Annual Meeting of the Kanto Branch, Geological Society of Japan, 58, June, Tokyo. (in Japanese)



- Ueki, U. 2007. Magnetostratigraphy of the Plio-Pleistocene Nakatsu Group, southwestern side of the Kanto Plain, central Japan. Programme and abstracts, Japan Association for the Quaternary Research, 37: 66-67, August, Kobe. (in Japanese)
- Shirai, M. and Omura, A. 2007. Genesis of turbidite in surface deposit from the Kumano Trough, off the Kii Peninsula. Abstracts of Japan Geoscience Union 2007 Meeting, G120-004 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Ikehara, K., Ashi, J., Irino, T. and Shirai, M. 2007. Correlation and recurrence intervals of turbidite deposition in the Ryuyo Submarine Canyon, off Tokai, Japan . Abstracts of Japan Geoscience Union 2007 Meeting, G120-P003 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Shirai, M. and Omura, A. 2007. Sand grains transport from river to deep marine revealed by OSL measurement technique. Quaternary International, 167/168 (supplement): 381, August, Cairns.
- Shirai, M., Liu, H., Tajima, Y. and Sato, S. 2007. Sand grains transport around river mouth revealed by OSL measurement technique. Quaternary International, 167/168 (supplement): 381, August, Cairns.
- Shirai, M., Liu, H., Takagawa, T., Tajima, Y. and Sato, S. 2007. Movement of sand grains around the Tenryu River–mouth based on bleaching percentage distribution .Abstracts for the 114th Annual Meeting: p. 209. September, Sapporo. (in Japanese)
- Shirai, M. 2008 . Another possibility of OSL: Sand grain movement in present deposits. Advances in ESR Applications, 24 : p. 35, March, Nara. (in Japanese)
- Tamura, I., Takagi, H. and Yamazaki, H. 2007. Garnet-bearing tephra layer Na-G in the Inubou Group, Choshi area, Chiba Prefecture, central Japan. Abstracts of Japan Geoscience Union 2007 Meeting, Q139-P05 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Tamura, I., Yamazaki, H. and Mizuno, K. 2007. The stratigraphy and age of Inubou Group in the Choshi district Chiba Pref. in Japan. Abstracts of Japan Association for Quaternary Research 2007 Meeting, p.38-39, August, Kobe. (in Japanese)
- Tamura, I., Takagi, H. and Yamazaki, H. 2007. The correlation of Pliocene garnet tephtras in the southern Kanto area and the volcanic activity in the Tanzawa area at about 2.5Ma. Abstracts of Geological Society of Japan 2007 Meeting, p.73, September, Sapporo. (in Japanese)
- Mizuno, K. and Tamura, I. 2007. Key tephtras in the Upper Pliocene to Lower Pleistocene sediments of Kanto Plain, with reference to identification of vitric tephtras erupted from the Chubu-Sangaku areas. Abstracts of Kanto branch office of Geological Society of Japan 2007 Meeting, p.52-53 June, Tokyo. (in Japanese)
- Oishi, M. 2007. Volcanic history of northern area of Yatsugatake Volcano based on the tephrochronology. Proceedings of the 1st annual meeting of the Kanto Branch, Geological Society of Japan “Geology in the Kanto District”, 14-17, June, Tokyo. (in Japanese)
- Oishi, M. 2007. Reexamination of distribution, stratigraphy, and eruptive style of the products in

pumice flow stage from Asama Volcano, central Japan. Programme and Abstracts, Japan Association for Quaternary Research, 114-115, August, Kobe. (in Japanese)

Toshida, K., Tajima, Y., and Oishi, M. 2007. Correlation between Changes in Long Term Eruption Rate and Edifice Collapse, Magma Temperature, and Magma Geochemistry. Abstracts Volume, Cities on Volcanoes 5 Conference, p.126, November, Shimabara.

## 2 Laboratory of Climatology

### 1) Staff

Takehiko MIKAMI            Professor / PhD(D.Sc.)

Urban climatology, Climatic variation

Jun MATSUMOTO            Professor / D. Sc

Monsoon climatology

Hideo TAKAHASHI            Professor / PhD (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
- \* Climatological studies by using remote-sensing data
- \* Carbon dioxide exchanges between grassland and the atmosphere in a semiarid region
- \* Heat and water budget in a semiarid ecosystem

### 3) List of Research Activities in 2007

#### *Peer-reviewed Articles*

Malmgren,B.A., Hullugalla,R., Lindeberg,G. Inoue,Y., Hayashi,Y. and Mikami,T. 2007. Oscillatory behavior of monsoon rainfall over Sri Lanka during the late 19th and 20th centuries and its relationships to SSTs in the Indian Ocean and ENSO. *Theoretical and Applied Climatology* 89: 115-125.

- Inoue T. and Matsumoto, J. 2007. Abrupt climate changes observed in late August over central Japan between 1983 and 1984. *Journal of Climate* 20: 4957-4967.
- He, J.-H., Sun, C.-H., Liu, Y.-Y., Matsumoto, J. and Li, W.-J. 2007. Seasonal Transition Features of Large-Scale Moisture Transport in the Asian-Australian Monsoon Region. *Advances in Atmospheric Sciences* 24: 1-14.
- Murata, F., Hayashi, T., Matsumoto, J. and Asada, H. 2007. Rainfall on the Meghalaya plateau in northeastern India – one of the rainiest places in the world. *Natural Hazards* 42: 391-399.
- 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.
- Yokoi, S., Satomura, T. and Matsumoto, J. 2007. Climatological characteristics of the intraseasonal variation of precipitation over the Indochina Peninsula. *Journal of Climate* 20: 5301-5315.
- Wu, P., Hara, M., Fudeyasu, H., Yamanaka, M. D., Matsumoto, J., Syamsudin, F., Sulistyowati, R. and Yusuf S. Djajadihardja, Y.S. 2007. The impact of trans-equatorial monsoon flow on the formation of repeated torrential rains over Java Island. *SOLA* 3: 93-96.
- Endo, N., Matsumoto, J., Yamamoto, N., Fukushima, A. and Akasaka, I. 2007. Recent changes of precipitation amount and its characteristics in the world. *Journal of Geography* 116: 824-825. (in Japanese with English Abstract)
- Suzuki, H., Nakakita, E. and Takahashi, H. 2008. Spatial representativeness of rainfall: Analysis using data observed at railway stations and meteorological stations. *Annual Journal of Hydraulic Engineering* 52: 187-192. (in Japanese with English abstract)
- Nakano, T., Nemoto, M. and Shinoda, M. 2007. Measurements of nighttime water vapor flux using a closed chamber technique. *Journal of Agricultural Meteorology* 63: 103-107. (in Japanese with English abstract)
- Zaiki, M. and Tsukahara, T. 2008. Meteorology on the Southern Frontier of Japan's Empire: Ogasawara Kazuo at Taihoku Imperial University. *East Asian Science, Technology and Society: An International Journal* doi: 10.1007/s12280-007-9010-9.
- Grossman, M. and Zaiki, M. 2007. Reconstructing typhoon landfalls in Japan using historical documents: 1801-1830. *Papers of the applied geography conference* 30: 334-343.
- Akasaka I., Morishima W. and Mikami T. 2007. Seasonal march and its spatial difference of rainfall in the Philippines. *International Journal of Climatology* 27: 715-725.
- Hirano, J. and Mikami, T. 2007. Reconstruction of winter climate variations during the 19th century in Japan. *International Journal of Climatology* DOI: 10.1002/joc.1632.

#### *Other articles*

- Mikami, T. 2007. Urban heat island phenomenon in Tokyo Metropolitan Area. In *Proceedings of 17<sup>th</sup>*

Convention of the International Council of Academies of Engineering and Technological Sciences. 75-78. Tokyo.

- Mikami, T. 2007. Urban heat island phenomena in Tokyo. In Proceedings of the International Symposium on Sustainable Urban Environment 2007, 22-26. Tokyo: TMU.
- Matsumoto, J. and Yamamoto, N. 2007. Characteristics of recent precipitation in the world. *Tenki (Weather)*, 54, 612-616 (in Japanese)
- Matsumoto, J. 2007. Meteorological disasters in the world. Urushibara, K., Fujizuka, Y., Matsuyama, H. and Ohnishi, H. ed. *Regional Issues in the World*. Nakanishiya-Shuppan 10-11. (in Japanese)
- Takahashi, H. 2007. Methods of investigating India from the viewpoint of the monsoon. Yagasaki, N. and Tsubaki, M. ed. *Methods of investigating various countries of the world*. Kokon-Shoin 58-63. (in Japanese)
- Nakano, T. 2008. Meteorological observations at Tokyo Metropolitan University since 2001. *Geographical Reports of Tokyo Metropolitan University* 43: 131-136.
- Zaiki M., Jones P.D. and Tsukahara T. 2008. The nineteenth century 1841-1883 temperature records in Beijing, China. *Geographical Reports of Tokyo Metropolitan University* 43: 69-76.
- Nagata, R. and Zaiki, M. 2008. Trends in total and daily precipitation indices in Japan from 1901 to 2000. *Geographical Reports of Tokyo Metropolitan University* 43: 11-16.
- Morishima, W. and Akasaka, I. 2008. Dependence of rice production on the interannual variation of rainfall in the Philippines. *Geographical Reports of Tokyo Metropolitan University* 43: 107-114.
- Akasaka I., Morishima W. and Mikami T. 2007. Seasonal march of rainfall and its interannual variation in the Philippines. *Extended Proceedings of IGU commission on climatology session Brisbane 2006 (CD-ROM)*.

### ***Books***

- Ueno, K. and Takahashi, H. 2007. *Methods of investigating various regions of Japan*. Kokon-Shoin 150p. (in Japanese)
- Takahashi, H. and Koizumi, T. 2008. *Introduction to physical geography*. Asakura Publishing Co., Ltd. 170p. (in Japanese)

### ***Reports***

- Matsumoto, J. 2008. Development of Rainfall observation System in Southeast Asia. *Research Report FY2007*, University of Tokyo, MEXT, 112p. (in Japanese)
- Takahashi, H. and Suzuki, H. 2008. Researches on the spatial representativeness of observed value at rain gauge and the concentration structure of intense rainfall. 2007 Joint research report of Tokyo Metropolitan University and Research & Development Center of JR East Group 50p. (in

Japanese)

- Nakano, T. 2007. Observation of carbon dioxide flux and vapor flux. Report for Grant-Aid for Scientific research (B) 2004-2006, Experimental study on self-remediation to drought event in Mongolian grassland, 42-48. (in Japanese)
- Zaiki, M., Oguchi, T., Kagawa, Y., Takahashi, A., Koike, S. and Yamauchi, M. 2007. Relationships between distribution of Japanese residential areas and Topography. Report for Grant-Aid for Scientific research (B) 2004-2006, GIS analysis of interaction between residential area and natural environment, 7-19. (in Japanese)
- Zaiki, M., Oguchi, T., Koike, S. Yamauchi, M. and Esaki, Y. 2007. Time series analysis of relationship between population growth and topography -based on municipal datasets from 1920 to 2000-. Report for Grant-Aid for Scientific research (B) 2004-2006, GIS analysis of interaction between residential area and natural environment, 21-24. (in Japanese)
- Zaiki, M., Oguchi, T., Lin, Z., Jarvie, H. and Neal, C. 2007. Statistical and GIS analyses of river water quality data across the Humber catchment, UK. Report for Grant-Aid for Scientific research (B) 2004-2006, GIS analysis of interaction between residential area and natural environment, 161-168. (in Japanese)
- Kagawa, Y., Oguchi, T., Zaiki, M., Koike, S., Yamauchi, M. and Esaki, Y. 2007. The analysis of the distribution about passengers getting on and off at the stations in the Tokyo and Keihanshin Metropolitan Area. Report for Grant-Aid for Scientific research (B) 2004-2006, GIS analysis of interaction between residential area and natural environment, 121-138. (in Japanese)

#### ***Miscellaneous reports***

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- Okubo, S. and Mikami, T. 2007. Long-term trend in SPM spatial distribution in the Kanto region. Proceedings of the 48<sup>th</sup> Annual Meeting of Japan Society for Atmospheric Environment, p.319. September, Okayama. (in Japanese)
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Oka, A., Mikami, T., Izumi, T., Shimizu, S., Narita, K. 2008. The evaluation for the cool air flowing out and influencing to built-up area from the Imperial Garden green space. Research Group Meeting for Urban Climatic Environment at Annual Meeting of the Association of Japanese Geographers 2008 spring Meeting, March, Soka.

### 3 Laboratory of Environmental Geography

#### 1) Staff

Shuichi OKA Associate Professor / D.Sci.

Vegetation Geography, Landscape Ecology

Shuichi OYAMA Assistant Professor / PhD (D. Human and Environment)

Area Study(Africa, South America), Environmental Geography, Ecological Anthropology

#### 2) Overview of Research Activities

Our laboratory focuses on the relations between human and natural environment. Especially we attach great importance on the structure and its changes of the relationships in the local and global scales. Therefore we are trying to apply inter-disciplinary approach flexibly, with not only physical and human geography but also other environmental sciences, such as botanical science, forest ecology, zoology, soil science, landscape design, political ecology, folklore, anthropology and so on. Research methods are primarily based on fieldwork, including weather observation, land survey, interview survey and participatory research as well as analysis of aerial photos and satellite images. Study fields are all over the world, especially Japan, Asia, Africa and 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 themes are as follows;

- 1) Interrelation between environmental change and human response in savanna area of Africa
- 2) Process of land degradation in environment
- 3) Coral reef formation and interrelation between coral and reef topography
- 4) Geo-ecological research on landscape and the change in alpine and sub-alpine
- 5) Hydro-climatic environment based on the water balance in the Bonin Islands, Japan
- 6) Climatic landscape in view of vegetation and land use
- 7) Cultural geography of slash-and-burn cultivators and development of cultivation system in miombo woodland zone of Africa
- 8) Applied ecological study to combat desertification in Sahel zone, Africa.
- 9) Domestication of Camelidae animals and *Solanum* crops in Andes, South America

#### 3) List of Research Activities in 2007

### **Peer-reviewed Articles**

- Kobashi, S., Fujii, N. and Oka, S. 2007. A review of the studies on geographical variation in *Fagus crenata* and the future prospects. *Bulletin of Botanical Society of Nagano*, 40, 207-213. (in Japanese)
- Oyama, S. 2007. Combating desertification of rural areas and improving the sanitary conditions of urban areas by applying indigenous ecological knowledge of Hausa cultivators in southern Niger- Contributing to Human Security based on field research. *Journal of African Studies* 71, 85-99. (in Japanese with English Abstract)

### **Other Articles**

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- Oka, S. 2007. Change of forest zone on the southern slope of Mt. Fuji based on a view of the old trail of Murayama. *Abstract of the 9th Mt. Fuji Seminar*, 15. (in Japanese)
- Oka, S., Shirakawa, A. and Kanno, H. 2008. Why is larch scrub community kept around Oniwa on the northern slope of Mount Fuji? *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 199. (in Japanese)
- Oyama, S. 2007. The difference of crop production among households in Hausa village and the contract for livestock settlement to the Fulani and Tuareg pastoral people in Niger. *Abstract of the 44<sup>th</sup> academic meeting of African Studies*, 110. (in Japanese)
- Oyama, S. 2007. Coping strategy and ecological knowledge of Hausa cultivators to land degradation in Sahel zone of West Africa. *Proceedings of the General Meeting of the Association of Japanese Geographers*, 72, 148. (in Japanese)
- Yakabe, Y. and Oka, S. 2008. The *Pinus lutchuensis* population dynamics and the physical environments in the subtropical dry scrub on the Ogasawara (Bonin) Islands. *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 240. (in Japanese)
- Kawahira, N., 2008. Changes in the Middle Reaches of the Tenryu River Valley Area As Seen from the Land Use. T *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 257. (in Japanese).
- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of the residents and the conservation activities for the river basin environment: a case study of Sakawa River in Kanagawa Prefecture, Japan. T *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 254. (in Japanese).

### **Reports**

Oyama, S. 2008. Land reform in Republic of Zambia- Building civil society based on modern law and social confusion of shifting cultivators. Kodama, Y. ed. *Reports of Community Based Organizations and Civil Society in Rural Africa*. Institute of Developing Economics. 128-161. Japan External Trade Organization. Tokyo. (in Japanese)

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Oyama, S. 2008. Book Reviews- African Farmers who live on possibilities written by S. Shimada. *Geographical Reviews of Japan* 81(3): 128-130. (in Japanese)

Tsuchiya, T. 2008. The environmental conservation and the residents in the river basin: a case study of Sakawa River, Japan. *The reports of 14th meeting of citizens' environmental activities in Kanagawa Prefecture*. 39-42. (in Japanese)

Oyama, S. 2007. Natural History of Life- Conservation of vicuña and rural development in Peruvian Andes. *Monthly Magazine of National Museum of Ethnology* **30** (6): 20-21. (in Japanese)

#### ***Presentations***

Oka, S. 2007. Ogasawara Islands-the so-called Galapagos in the Orient. Meguro City College in 2007, World Islands-marine station, the evidences of nature and culture in island, Tokyo, April. (in Japanese)

Oka, S. 2007. Understanding vegetation landscape and climatic landscape on the maps. Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, May. (in Japanese)

Oka, S. 2007. Search various climatic landscapes in map and field. Guidance of the excursion in Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, June. (in Japanese)

Oka, S. 2007. Landscape of the drainage basin and the management of *Satoyama*-cases of the *Yato* valley in the Tama-hill. Landscape Seminar in Kyushu Sangyo University, Fukuoka, June. (in Japanese)

Oka, S. 2007. How to understand the nature?-fundamental of understanding the environments. The training course of support ranger, Open University of Tokyo Metropolitan University, Tokyo, August. (in Japanese)

Kikuchi, T., Oka, S., Suzuki, T. and Oyama, S. 2007. obserbation and consideration of nature of mountain. Guidance of excursion in the training course of support ranger, Open University of Tokyo Metropolitan University, Tokyo, September. (in Japanese)

Kazmer, M., Sho, K., Oka, S., Sugimoto, O., Asami, R., Yamada, T., and Iryu, Y. 2007. Annual record of environmental history in corals and tree-rings—a land-sea correlation at Ogasawara



- Islands, Japan. The First Asian Dendrochronology Conference and Workshop, Thailand, September.
- Oka, S. and Kawahira, N. 2008. Change of forest use in the Hinode region, western part of Tokyo. Forum to learn from the nature of Satoyama in Tama region, Tokyo, March. (in Japanese)
- Oyama, S. 2007. The ecology of Andean indigenous Camelidae- *Vicugna vicugna*. 47<sup>th</sup> Academic Meeting of Ecosophia (Ethno-Nature Sciences) “Rethinking Hunting and Pastoral Activities from the Andean Mountains.”. Kyoto, April. (in Japanese)
- Oyama, S. 2007. The difference of crop production among households in Hausa village and the contract for livestock settlement to the Fulani and Tuareg pastoral people in Niger. The 44<sup>th</sup> academic meeting of African Studies, Nagasaki, May. (in Japanese)
- Oyama, S. 2007. African nature, land, history and ethnic culture. Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, June. (in Japanese)
- Oyama, S. 2007. Coping strategy and ecological knowledge of Hausa cultivators to land degradation in Sahel zone of West Africa. The General Meeting of the Association of Japanese Geographers in 2007 Autumn, Kumamoto, October. (in Japanese)
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- Kawahira, N., 2008. Changes in the Middle Reaches of the Tenryu River Valley Area As Seen from the Land Use. Annual meeting 2008. The General Meeting of the Association of Japanese Geographers, Saitama, March.
- Tsuchiya, T. 2008. The environmental conservation and the residents in the river basin: a case study of Sakawa River, Japan. 14th meeting of citizens’ environmental activities in Kanagawa Prefecture, Yokohama. February. (in Japanese)
- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of the residents and the conservation activities for the river basin environment: a case study of Sakawa River, Japan. The seminar of researches in Sagami-hara City Museum, Sagami-hara. March. (in Japanese)

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- Yakabe, Y. 2008. The *Pinus lutchuensis* population dynamics and the physical environments in the subtropical dry scrub on the Ogasawara (Bonin) Islands. The seminar of researches in Sagami-hara City Museum, Sagami-hara. March. (in Japanese)
- Takishima, K. 2007. The altitudinal change of patch colony and establishment of *Larix kaempferi* on tree limit of northwest slope of Mt. Fuji. *9th Mt. Fuji Seminar*
- Yoshida, Y. 2008. Flood disturbance caused by the typhoon and plant communities in the sandbank at Akigawa River, Japan. 56<sup>th</sup> Study Meeting for the Presentations of the Undergraduate Students, Koganei, March.

## 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 the remote sensing techniques
- Quantitative evaluation of spectral reflectance characteristics of coniferous forests, along with the quantitative evaluation of their leaf area indices.
- Hydrological cycle around Mt. Aso and Tokyo Metropolis
- Numerical simulation of the urban heat island
- Capturing surface conditions of cities such as albedo, roughness length, and evaporative fraction
- Estimating landslides based on digital elevation model, remote sensing, and data mining techniques
- Flood monitoring in Bangladesh based on remote sensing and geographical information systems
- Monitoring urban environment and natural environment by using synthetic aperture radar
- Precise geometric correction of satellite images

### 3) List of Research Activities in 2007

### ***Peer-reviewed Articles***

- Shimamura, Y., Izumi, T., and Matsuyama, H. 2007. Configuration of rapid digital mapping system using tablet PC and its application to obtaining ground truth data: A case study of a snow survey in Chuetsu district, Niigata prefecture. *Journal of Geography (Japan)* 116: 749-758. (in Japanese with English abstract)
- Saito, H., Nakayama, D., and Matsuyama, H. 2007. Estimation and evaluation of drainage basins with landslides using decision tree technique and ASTER data. *Landslides - Journal of the Japan Landslide Society* 44: 1-14. (in Japanese with English abstract)
- Zhang, H., Sato, N., Izumi, T., Hanaki, K. and Aramaki, T. 2008. Modified RAMS-Urban canopy model for heat island simulation in Chongqing, China. *Journal of Applied Meteorology and Climatology* 47: 509-524.

### ***Other Articles***

- Matsuyama, H. 2007. Subtropical convergence zone formed in Brazil: Simultaneous appearance of wild fire and heavy rainfall. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 56-57. Kyoto: Nakanishiya. (in Japanese)
- Matsuyama, H. 2007. Water problems of the Lake Balkhash basin in Central Asia. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 104-105. Kyoto: Nakanishiya. (in Japanese)
- Matsuyama, H. 2008. Estimation of snow water resources in the mountainous region: A case study around Mt. Makihata, Niigata prefecture. *Electric Power Civil Engineering* No. 333: 6-11. (in Japanese)
- Narumiya, H., Nakayama, D., and Matsuyama, H. 2007. Classification of springwaters in Tokyo based on a mathematical statistical method. *Water Science* No. 295: 43-56. (in Japanese)
- Urushibara-Yoshino, K., Fujitsuka, Y., Matsuyama, H., and Ohnishi, K. 2007. Regional problems in the world. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 2-3. Kyoto: Nakanishiya. (in Japanese)

### ***Books***

- Urushibara-Yoshino, K., Fujitsuka, Y., Matsuyama, H., and Ohnishi, K. 2007. *Regional problems in the world*. Kyoto: Nakanishiya. (in Japanese)

### ***Reports***

- Matsuyama, H. 2007. GIS Day in Tokyo 2006: Safety of region as depicted by GIS. Annual Report of the Research Grant for History and Geography 2006, 168-169. Tama: Fukutake Science and

Culture Foundation. (in Japanese)

***Book review***

- Matsuyama, H. 2007. Book review (Nishina, J. Fundamental climatology - Enlarged edition). Chiri 52(5): 121. (in Japanese)
- Matsuyama, H. 2007. Book review (Tadokoro, K. Clima e literatura do nordeste Brasileiro). Chiri 52(6): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Heibonsha ed. Junior national flags 3rd, rev. ed.). Chiri 52(7): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Hidaka, T., and Akimichi, T. Whose are forests ? - Future of forests and human in Asia - ). Chiri 52(8): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Nishikawa, D. Diary of a Japanese emigrant for agriculture - General image of Japanese emigrants for agriculture in Brazil - ). Chiri 52(9): 115. (in Japanese)
- Matsuyama, H. 2007. Book review (Hoffman-Wellenhof, B., Lichtenegger, H., and Collins, J., translated by S. Nishi. Global positioning system, 5th, rev. ed.). Chiri 52(10): 107. (in Japanese)
- Matsuyama, H. 2007. Book review (Yoshino, M. History of climatology: From ancient to contemporary times). Chiri 52(11): 114. (in Japanese)
- Matsuyama, H. 2007. Book review (Hirakawa, K. How to write compositions in 600 words). Chiri 52(12): 111. (in Japanese)

***Miscellaneous reports***

- Matsuyama, H. (Read by K. Hasegawa) 2007. Configuration of the observing system for multi-angular reflectance of forest canopy by using observing tower at the foot of Mt. Yatsugatake. Proceedings of the 9th CEReS Symposium on Environmental Remote Sensing: 40-43. (in Japanese)
- Matsuyama, H. 2007. Shiga highland where it has passed 17 years since the last visit. Annual Report of Old Boys/Girls of Wandervogel Club in Tokyo University: 97-99. (in Japanese)
- Matsuyama, H. 2008. Estimation of the recharge area of springwater and the mechanism for its gushing out based on water temperature, discharge and concentration of silica - A case study of Hino city, Tokyo Metropolis. Tamagawa No. 117: 9. (in Japanese)
- Maruyama, S., Eguchi, T., Kasahara, J., Geshi, N., Matsumoto, J., Matsuyama, H., and Yamakawa, S. 2007. Preface for the special issue on "Water; from the Earth's core to planetary space". Journal of Geography (Japan) 116: 1-6. (in Japanese)
- Izumi, T. 2007. How the meteorological observation of Fukiage garden in the imperial palace is realized ? Very profound network of old boys/girls of wandervogel club in Tokyo University

- . Annual Report of Old Boys/Girls of Wandervogel Club in Tokyo University: 100-101. (in Japanese)
- Narumiya, H. 2007. A spring where gas bubbles were gashing out - Serigaya park in Machida city, Tokyo Metropolis. *Chiri* 52(6): 81-83. (in Japanese)
- Iwasaki, K. 2007. Prediction of Rausu Dashi gap wind using regional atmospheric modeling system (RAMS). Record of General Meeting for Graduation Theses of Geography, 2006. *The New Geography (The Shin-Chiri)* 55(1): 62. (in Japanese)

### ***Presentations***

- Matsuyama, H. 2007. Scene of hydrological cycle recalled by map. Meguro City Collage 2007 (Map and scene - Searching for their close relationship - ), May, Tokyo. (in Japanese)
- Izumi, T. 2007. Regional planning and regulations for preparing good conditions in a city - Report of the scene from redevelopment of Asagaya houses - . 5th Meeting, Forum of My Town, August, Tokyo. (in Japanese)
- Izumi, T. 2007. Overview of the regional planning system. 6th Meeting, Seminar for Preparing Good Conditions in Narita Region, August, Tokyo. (in Japanese)
- Izumi, T., Hasegawa, K., Matsuyama, H., Kajiwara, K., and Honda, Y. 2007. A seasonal change of bidirectional reflectance distribution function (BRDF) in *larix leptolepis*. Abstracts of Meteorological Society of Japan 2007 Fall Meeting, p. 418, October, Sapporo. (in Japanese)
- Izumi, T., Mikami, T., Shimizu, S., and Oka, A. 2008. The cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 2) Observation result of cool-island phenomena in the Imperial Palace, Tokyo, in the summer of 2006 and 2007. Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
- Nakayama, D., Sakamoto, K., and Matsuyama, H. 2008. New topographic correction method of satellite image in the season of low solar elevation. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 260, March, Soka. (in Japanese)
- Hasegawa, K., Matsuyama, H., Tsuzuki, H., and Sweda, T. 2007. Normalized hotspot-signature vegetation index - A new index linearly correlated with leaf area index. Proceedings of the General Meeting of the Japanese Forest Society, A02 (CD-ROM), April, Fukuoka. (in Japanese)
- Hasegawa, K. 2008. Seasonal/diurnal variations of the multi-angular reflectance characteristics in *larix leptolepis* - Toward estimating parameters of canopy structure necessary for photosynthesis model - . The 10th CERE S Symposium on Environmental Remote Sensing, February, Chiba. (in Japanese)
- Saito, H., Nakayama, D., and Matsuyama, H. 2007. Estimation of drainage basins with landslides in the wide area using data mining techniques and time series analysis. Research Abstracts on

- Spatial Information Science CSIS Days 2007, p. 8, November, Kashiwa. (in Japanese)
- Saito, H., Nakayama, D., and Matsuyama, H. 2007. Quantitative analysis of landslide susceptibility and occurrence of landslides at catchment scale using data mining techniques. Proceedings of the General Meeting of the Japanese Geomorphological Union 2007 Fall Meeting (Transactions, Japanese Geomorphological Union 29, p.76.), November, Tsukuba. (in Japanese)
- Saito, H., Nakayama, D., and Matsuyama, H. 2007. Quantitative analysis of landslide susceptibility and occurrence of landslides at catchment scale using data mining techniques. Colloquium of Cold Region Geomorphology, December, Tokyo. (in Japanese)
- Saito, H. 2008. Quantitative analysis of occurrence of landslides using GIS and remote sensing techniques - Case study in Akaishi mountains - . Workshop by Young Scientists of the Japan Landslide Society, March, Matsumoto. (in Japanese)
- Saito, H., Nakayama, D., and Matsuyama, H. 2008. Quantitative analysis of landslide susceptibility and occurrence of landslides at catchment scale using data mining technique. Abstract Volume of the Taiwan and Japan Joint Symposium on Geomorphological Hazards and Management, p. 46, March, Taipei, Taiwan.
- Saito, H., Nakayama, D., and Matsuyama, H. 2008. Quantitative analysis of landslide susceptibility and occurrence of landslides at catchment scale using decision tree techniques. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 178, March, Soka. (in Japanese)
- Narumiya, H., Nakayama, D., and Matsuyama, H. 2008. Estimation of recharge area of springwater based on the hydrochemical technique along with the change of springwater and environment - A case study of Hino city, Tokyo Metropolis. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 204, March, Soka. (in Japanese)
- Hoque, R., Nakayama, D., and Matsuyama, H. 2008. Monitoring the 2004 flood in the Meghna river basin in Bangladesh using ground data, RADARSAT imagery and GIS. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 259, March, Soka.
- Watanabe, T., Nakayama, D., and Matsuyama, H. 2007. Relationship between typhoon courses and rainfall distribution characteristics in Yamanashi prefecture. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p. 409, May, Tokyo. (in Japanese)
- Inamura, T., Sakamoto, K., Iwasaki, K., Watanabe, T., Saito, H., Izumi, T., Nakayama, D., and Matsuyama, H. 2007. Numerical simulation of Matsubori wind by using actual topography and virtual topography. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p. 377, May, Tokyo. (in Japanese)
- Inamura, T., Sakamoto, K., Iwasaki, K., Watanabe, T., Saito, H., Izumi, T., Nakayama, D., and Matsuyama, H. 2007. Effects of central cone of Mt. Aso and a gorge at the west rim of the

- caldera on Matsubori wind. Proceedings of the General Meeting of the Association of Japanese Geographers 2007 Fall Meeting, p. 94, October, Kumamoto. (in Japanese)
- Inamura, T. 2008. Effects of large cities on wind systems over the Kanto plain when heavy rainfall occurred in Tokyo. General Meeting for Graduation Theses of Geography, 2007, March, Koganei. (in Japanese)
- Inamura, T., Sakamoto, K., Iwasaki, K., Watanabe, T., Saito, H., Nakayama, D., Izumi, T., and Matsuyama, H. 2008. Effects of central cone of Mt. Aso and a gorge at the west rim of the caldera on Matsubori wind. International Symposium on Agricultural Meteorology (ISAM2008), March, Shimonoseki.
- Iwasaki, K., Izumi, T., and Matsuyama, H. 2007. Prediction of Rausu Dashi gap wind using regional atmospheric modeling system (RAMS). Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p. 376, May, Tokyo. (in Japanese)
- Mikami, T., Izumi, T., Shimizu, S., and Oka, A. 2008. The cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 1) Summary of cool-island phenomena observation in the Imperial Palace, Tokyo. Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
- Narita, K., Mikami, T., Izumi, T., Shimizu, S., and Oka, A. 2008. The cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 3) Cold-air-seeping phenomena around the garden of the Imperial Palace, Tokyo. Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
- Oka, A., Mikami, T., Izumi, T., and Shimizu, S. 2008. The cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 4) Cool-island phenomena in a large urban green space - Effect of the Imperial Palace Garden on the surrounding built-up area - . Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
- Teshirogi, K. Kuroda, S., Kezer, K., Koyama, T., and Iwata, S. 2008. Factors of vegetation distribution in front of glacier number one at the headwater of the Urumqi river, the Tianshan mountains. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 226, March, Soka. (in Japanese)



## 5 Laboratory of Urban and Human Geography

### 1) Staff

Yosio SUGIURA Professor / PhD (D.Sc.)

Human geography

Yoshiki WAKABAYASHI Associate Professor / PhD (D.Sc.)

Urban geography, Behavioral geography, Geographic information science

Yuko TAKEDA Assistant Professor / Ph. D.

GIS, Urban geography

Hiroyuki TSUBOMOTO Assistant Professor /

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 2007**

#### ***Peer-reviewed Articles***

- Yui, Y, Wakabayashi, Y., Nakazawa, T. and Kamiya, H. 2007. Residential choices of working women in urban space. *E-journal GEO* 2(3): 139-152. (in Japanese with English abstract)
- Wakabayashi, Y. 2008. The role of maps in the cognition of geographic space. *Cognitive Studies* 15(1): 38-50. (in Japanese with English abstract)
- Tsubomoto, H. 2007. Restructuring Business Spaces in Tokyo after the 1990s. *Annals of the Japan Association of Economic Geographers*, 54: 461-477.
- Tsubomoto, H. 2008. Construction of a new office style by a foreign management consulting firm in central Tokyo: The case of Company A since the 1990s. *Urban Geography of Japan*, 3: 18-32. (in Japanese with English abstract)
- Yabe, N. 2007. Spatially varying NEET factors in the Tokyo metropolitan area: a moving window path analysis. *Japanese Journal of Human Geography*, 59(4): 348-362. (in Japanese with English abstract)

#### ***Other Articles***

- Sugiura, Y. 2007. On book reviews of Central Place System in Southern Germany. *Notes on Theoretical Geography* 16 (in press).
- Kinpara, S., Sugiura, S. and Harayama, M. 2007. The present conditions of "Joyful Minowa" shopping mall in Arakawa Ward, Tokyo with reference to Metropolitan streetcar as a symbol. *Notes on Theoretical Geography* 16 (in press).
- Wakabayashi, Y. 2007. Cities and their functions in Hokuriku region. In Fujita, M. and Tabayashi, A. eds.: *Regional Geography of Japan vol.7: Chubu region*. 473-482, Asakura Shoten: Tokyo. (in Japanese)
- Wakabayashi, Y. 2007. Geography of perception. Ueno, K., Tsubaki, M., and Nakamura, Y. eds.: *Fundamental geography series vol. 1: An introduction to geography*. 89-94, Asakura Shoten: Tokyo. (in Japanese)

- Wakabayashi, Y. 2007. The world looked through maps. Kobayashi, K. ed.: *Practical issues of geography education*. 78-194, Nakanishiya: Kyoto. (in Japanese)
- Arima, T. 2008. Urban Tourism in Tokyo. In Kikuchi, T. eds., *Introduction of Tourism studies*, Ninomiya Publisher, Tokyo, 133-143.(in Japanese)
- Arima, T. 2008. (coffee break)Alternative Form of Urban Tourism in Tokyo: a case study of Odaiba. In Kikuchi, T. eds., *Introduction of Tourism studies*, Ninomiya Publisher, Tokyo, 144-151.(in Japanese)

### **Books**

- Kobayashi, S. and Sugiura, Y. 2008. *Human Geography. 2nd Edition*. Hoso-Daigaku Kyoikushinnko-kai: Tokyo. (in Japanese)
- OECD ed., translated into Japanese by Kamiya, H., Yui, Y., Kukimoto, M, Takeda, Y., Wakabayashi, Y. and Nakazawa, T. 2008. *OECD regions at a glance 2007*. Akashi Shoten: Tokyo. (in Japanese)

### **Reports**

- Tsubomoto, H. 2007. *Distribution and preservation of urban forests in Sagami-hara city*. Report of Sagami-hara Urban Research Institute. 16p (in Japanese).

### **Presentations**

- Wakabayashi, Y. 2007. Gender-related differences in the map use of in-vehicle navigation systems. August 4-10, 2007, 23rd International Cartographic Conference, Moscow.
- Wakabayashi, Y. 2007. Geographical studies on crime and the role of crime maps.. September 2, 2007, 45th Annual Meeting of Japanese Association of Criminal Psychology, Kohriyama.
- Wakabayashi, Y. 2007. Notes on the world geographic knowledge of students from the viewpoint of spatial cognition. October 7, 2007, The Study Meeting of the Association of Japanese Geographers Autumn 2007, Kumamoto.
- Wakabayashi, Y. 2007. Cartographic literacy and map reading of thematic maps: the case of Women's Atlas of Japan. October 20, 2007, 41st Regional Meeting of Japan Cartographers Association, Toyama.
- Wakabayashi, Y. 2008. GIS and spatial cognition: evolution of maps and geographic information science. March 10, 2008, GIS seminar of Chugoku division of GISA, Hiroshima.
- Liang, H. S. 2007. Environment change and progress of urbanization in Chinese inner Mongolia. Proceedings of the General Meeting of the Association of Japanese Geographers . 73:141 (in Japanese).
- Arima, T. 2007. The space uses and experiences of guests in Ueno Zoological Garden. Proceedings of the General Meeting of the Association of Japanese Geographers 72:155 (in Japanese).

Arima. T. 2008. Mobility patterns and their geographical characteristics of visitors in Ueno Zoological Garden, Tokyo. Proceedings of the General Meeting of the Association of Japanese Geographers 73:65 (in Japanese).

# 1 Laboratory of Quaternary Geology and Geomorphology

## 1) Staff

Haruo YAMAZAKI                                      Professor / Dr.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 2006

### *Peer-reviewed Articles*

Suzuki, T. 2008. Analysis of titanomagnetite within weathered middle Pleistocene KMT tephra and its application for fluvial terrace chronology, Kanto Plain, central Japan. *Quaternary International* 178: 119-127.

Suzuki, T. 2007. Tephra studies on Quaternary explosive eruptions in the Japanese Islands. *The*

Quaternary Research 46: 283-292.

- Ogawa, T and Suzuki, T. 2007. Amendment of Building Retrofitting Promotion Act and Policy Development (Report). Journal of Geography 116: 516-523. (in Japanese with English abstract)
- Kawakami, T and Suzuki, T. 2007 . A Local Campaign for Retrofitting Buildings by Sumida Quakeproof Reinforcement Promotion Conference, Sumida City, Tokyo (Report). Journal of Geography 116: 536-541. (in Japanese with English abstract)
- Murata, M., Suzuki, T., Nakayama, T., Kawashima, S. and Kawai, M. 2007 . Tephrochronological Study on the Kazusa Group in the Southeast Part of Musashino Upland, Tokyo Metropolitan Area, Central Japan . Journal of Geography 116: 243-259. (in Japanese with English abstract)
- Ueki, U. 2007. AMS 14C age of a fossil wood in the dammed up deposits of the Kanagi Landslide, southeast Shikoku Island, Southwest Japan. Journal of the Japan Landslide Society, 44: 41-43. (in Japanese with English abstract)
- Ueki, U. 2007. Terrace Chronology along the Upper Reach of Naka River, Southwest Japan. Geographical review of Japan, 81A: 25-40. (in Japanese with English abstract)
- Ueki, U. 2007. Visualization of rock magnetization using a lava sample acquired with saturated isothermal remanent magnetization (SIRM): Introduction to paleomagnetism and plate tectonics. Education of earth science, 60: 187-188. (in Japanese with English abstract)
- Fujiwara, H., Sato, S., Shirai, M. and Tajima, Y. 2007. A Field Study on the Sediment Movement in the Tenryu-Enshunada Watershed. Annual Journal of Coastal Engineering : 54, 591-595, November, Miyazaki. (in Japanese)
- Tamura, I., Yamazaki, H. and Mizuno, K. 2008. Characteristics for the recognition of Pliocene and early Pleistocene marker tephras in central Japan. Quaternary International, 178: 85-99.

#### ***Other Articles***

- Yamazaki, H. 2007. What is the long-term stability of the geological environment for the HLW geological disposal? , Materials science and technology, 77: 1121-1125 (in Japanese)
- Yamazaki, H. and Sasaki, T. 2007. Uplift and Erosion: Potential impact on the geological environment. OECD NEA Web page. <http://www.nea.fr/download/manchester/>
- Suzuki, T. 2007. Landforms Formed by River: Introduction of Fluvial Geomorphology. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp. 69-76, Nonomiya-shoten. (in Japanese).
- Suzuki, T. 2007. River and Mitigating Disaster: Fluvial Landforms and Life of People. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp. 77-86, Nonomiya-shoten. (in Japanese).
- Suzuki, T. 2007. Coffee Break: Walking and Watching the Landforms of Tama River. In Kikuchi T. (eds.) Meguro City College Sosho 8 World Opened from River: Life, Nature and Culture. pp.

87-90, Nonomiya-shoten. (in Japanese).

- Ueki, U. 2007. Description and age estimate of the Nariki Landslide, eastern margin of the Kanto Mountains, Ome city, central Japan. Bulletin of the Geological Survey of Japan, 58: 253-259. (in Japanese with English abstract) Shirai, M., Nishimura, M. and Yasuda, H. 2007. Descriptive evaluation of consolidated sedimentary rock structures with X-ray imaging: Examples from Site 1276 core. Proceedings of ODP, Scientific Results, Leg. 210 chapter111: 1-11.
- Tamura, I. 2007. A situation and problems about the field work of earth science in high school in Japan (in Japanese). Chishitsu News, 640: 20-24 .
- Tamura, I. 2008. A lesson of 「Environmental 1」 that attached great importance to the field work(in Japanese). Report of Tokyo Metropolitan Wakaba Sogo Senior High School, 3:37-42.

### ***Reports***

- Suzuki, T. 2007. Tephra Survey. Archaeological Excavation Report of Yaita City 6 "Report of Archaeological Excavation at Takahara-san Obsidian Kengamine Site in 2006" : 14-16 , Tochigi Prefecture Yaita Education Committee.
- Ueki, U. and Sakai, A. 2007. Geology of the ome District. Quadrangle series, 1: 50,000, Geological Survey of Japan, AIST, 189p. (in Japanese with English abstract) Shirai, M. 2008. Supply of terrestrial organic-carbon to deep sea. Annual Report of Studies on Greenhouse Gas with Research Vessels, 14: (in press, in Japanese)

### ***Book reviews***

- Suzuki, T. 2007. Book review of Cartographical Thinking of Earth Men by Nishikawa, O. Journal of Geography, 116: 215. (in Japanese)

### ***Miscellaneous articles***

- Suzuki, T., Nakabayashi, I., Eguchi, T., Kasahara, J., Obara, K., Seno, T. and Shimokawa, K. 2007 . Preface for the Special Issue on "Geosciences and Impacts of Future Earthquakes Occurring below the Tokyo Capital Region, and Countermeasures" Journal of Geography 116: 309-312.
- Suzuki, T. 2007. Pictorials 1: Future Earthquakes Occurring below the Tokyo Capital Region and its Disaster Simulation Journal of Geography 116
- Takagi, H. and Tamura, I. 2007. Will it be really good in this? In the high school, the earth science is becoming extinct. The Science News Paper, April 13.

### ***Presentations***

- Yamazaki, H. and Sasaki, T. 2007. Uplift and Erosion: Potential impact on the geological

- environment. Integration Group for Safety Case (IGSC) Workshop “Geosphere Stability”, OECD/Nuclear Energy Agency(NEA). 2007.11. UK, Manchester.
- Yamazaki, H. 2007. Quaternary tectonics in and around the onshore plate convergence boundary in central Japan. International Symposium on Quaternary Environmental Changes and Humans in Asia and the Western Pacific. Geological Survey of Japan Interim Report, No.42, 111-112. 2007.11. Ibaraki, Tsukuba.
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## 2 Laboratory of Climatology

### 1) Staff

Takehiko MIKAMI                      Professor / PhD(D.Sc.)

Urban climatology, Climatic variation

Jun MATSUMOTO                      Professor / D. Sc

Monsoon climatology

Hideo TAKAHASHI                      Professor / PhD (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
- \* Climatological studies by using remote-sensing data
- \* Carbon dioxide exchanges between grassland and the atmosphere in a semiarid region
- \* Heat and water budget in a semiarid ecosystem

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- Matsumoto, J. 2007. MAHASRI and AMY. Extended abstracts of the Japan-Taiwan Joint Workshop for the EAMEX and MAHASRI, p.1-2, Hakone, Japan.
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- Yokoi, S. and Matsumoto, J. 2007. Large-scale conditions associated with heavy rainfalls in central Vietnam. The International Symposium for the East Asian Monsoon Experiment and

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- Ohnmar Htway • Matsumoto, J. and Takahashi M. 2007. The controlling factor of the interannual variations of summer monsoon onset over Myanmar. The 6th International Symposium on Asian Monsoon System (ISAM6), p.35, December, Fukuoka, Japan.
- Yokoi, S. and Matsumoto, J. 2007. Heavy rainfalls in central Vietnam and cold surges from China. The 6th International Symposium on Asian Monsoon System (ISAM6), p.64, December, Fukuoka, Japan.
- Wu, P., Hamada, J.-I., Yamanaka, M. D., Matsumoto, J. and Hara, M. 2007. Why Rainfall Rarely Occurs over Southeast Kalimantan (Borneo) Island in the Late Afternoon and Evening. The 6th International Symposium on Asian Monsoon System (ISAM6), p.70, December. Fukuoka, Japan.
- Ogino, S.-Y., Nodzu, M. I., Ha, H. T., Fujiwara, M., Satomura, T., Matsumoto, J. and Thanh, N., 2007: Temperature inversion layers and related thermal budget over Hanoi, Vietnam. The 6th International Symposium on Asian Monsoon System (ISAM6), p.65, December, Fukuoka, Japan.
- Matsumoto, J. 2007. MAHASRI and AMY. National Workshop on MAHASRI, December, Goura .
- Matsumoto, J., Asada, H. and Hayashi, T. 2008. Flood and storm surge disasters in Bangladesh. Proceedings of the General Meeting of the Association of Japanese Geographers, p.17, March, Tokyo. (in Japanese)
- Takahashi, H. 2007. Urban climate and geometric structure of urban surface: Toward the evaluation of urban flood occurrence and heat island phenomenon. Tokyo Metropolitan University research seeds symposium 2007. September, Tokyo. (in Japanese)
- Nakano, T. 2007. Carbon dioxide flux and its controlling factors in a semi-arid grassland of Mongolia. Abstracts of Japan Geoscience Union 2007 Meeting, J244-P012 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Nakano, T. and Nemoto, M. 2007. Comparison of methods to measure nighttime water vapor flux. Abstracts of Joint Conference on Environmental Engineering in Agriculture 2007, P95 (CD-ROM), September, Tokyo. (in Japanese)
- Nakano, T. 2007. Perspective on estimation of net plant production in semi-arid grassland. The Japan-Mongolia Joint Workshop on the Mongolian Grasslands and Mobile Pastoralism, September, Tokyo.
- Nakano, T., Nemoto, M. and Shinoda, M. 2007. Environmental controls on photosynthetic production in a semi-arid grassland. Abstracts of Meteorological Society of Japan 2007 Fall Meeting, p.313. October, Sapporo. (in Japanese)
- Nakano, T., Nemoto, M. and Shinoda, M. 2008. Soil moisture and ecosystem respiration in semi-arid grasslands of Mongolia. Abstracts of Soil Moisture Workshop 2008, p.9.1-9.4, March, Tokyo.

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- Tsukahara, T. and Zaiki, M. 2007. Meteorological data by von Siebold and its implications for an analysis of Global Warming. Siebold Collection Conference II July 2007. July, Leiden.
- Grossman, M. and Zaiki, M. 2007. Reconstructing typhoon landfalls in Japan from historical documentary records, 1801-1830. Papers of the applied geography conference no.30, p.334-343, October, Indianapolis.
- Tsukahara, T., Zaiki, M., Nakagami, K. and Osawa, M. 2007. Pompe's works related to science on earth and environment: mineral collection, weather observation, bathing at beach and drinking milk. International Historical Conference: 150th Anniversary of the Beginning of Modern Western-Style Medical Education in Japan. November, Nagasaki.
- Zaiki, M., Tsukahara T., Können, G.P. and Mikami, T. 2007. Reconstruction of the pressure pattern over Japan using two-point pressure/temperature datasets. American Geophysical Union Fall Meeting 2007 PP11A-0213 (CD-ROM), December, San Francisco.
- Zaiki, M., Jarvie, H.P., Lin, Z., Oguchi, T. and Neal, C. 2007. Statistical and GIS analysis of river water quality data across the Humber catchment, UK. Abstracts of Japan Geoscience Union 2007 Meeting, Z170-P010 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Oguchi, T., Zaiki, M., Hataya, M., Lin, Z. and Jarvie, H.P. 2007. Comparison of spatial distributions of riverine suspended sediment concentration under high- and low-flow conditions. Abstracts of Japan Geoscience Union 2007 Meeting, Z164-P005 (CD-ROM), May, Chiba. (in Japanese with English Abstract)
- Grossman, M., Zaiki, M. and Oguchi, T. 2007. Annual maximum floods and typhoons in the Kanto and Hokkaido regions of Japan in the 20th Century. Abstracts of the Study Meeting of the Association of Japanese Geographers Autumn 2007 p.129, October, Kumamoto.
- Zaiki, M., Jarvie, H.P., Lin, Z. and Oguchi, T. 2007. Statistical and spatial analysis of river water quality data across the Humber catchment, UK. Center for Spatial Information Science the University of Tokyo, the session of inter-university research activities in Japan, research abstracts on spatial information science p.16, November, Kashiwa. (in Japanese)
- Osawa, M., Tsukahara, T. and Zaiki, M. 2007. Pompe's works related to earth science: his Japanese mineral collection. The Society for the History of Western Learning in Japan 2007 Fall Meeting. November, Nagasaki. (in Japanese)
- Zaiki, M., Jones, P., Tsukahara, T. and Mikami, T. 2008. The 19th century 1841-1883 meteorological records in Beijing, China. Abstracts of the Study Meeting of the Association of Japanese Geographers Spring 2008 p.143, March, Soka. (in Japanese)

- Zaiki, M., Ohba, T., Hirano, J. and Morishima, W. 2008. Climate reconstruction based on diary weather records of Kawanishi, Yamagata Prefecture for 1830-1980. Abstracts of the Study Meeting of the Association of Japanese Geographers Spring 2008 p.244, March, Soka. (in Japanese)
- Tanaka, H., Seto, Y. Mikami, T. and Matayoshi, N. 2007. The third report of the impact statement which the building group in the Shiodome area gives to the downwind area of the sea breeze –From a result of the synchronization observation by pilot balloon, helicopter and doppler lidar–. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p.258. May, Tokyo. (in Japanese)
- Akasaka, I., Morishima, W. and Mikami, T. 2007. Change in seasonal cycle of rainfall in the Philippines: A case study during the autumn-winter 1998-2000. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p.279. May, Tokyo. (in Japanese)
- Akasaka, I., Morishima, W. and Mikami, T. 2007. Interannual variation on seasonal march of rainfall in the Philippines. Asia Oceania Geoscience Society-Annual meeting 4th (CD-ROM). July, Bangkok, Thai land.
- Akasaka, I., Morishima, W. and Mikami, T. 2007. Characteristics of the atmospheric circulation associated with onset of summer rainy season in the Philippines. Abstract of the Association of Japanese Geographers 2007 Fall Meeting, p.100, October, Kumamoto. (in Japanese)
- Akasaka, I., Morishima, W. and Mikami, T. 2008. Characteristics of the atmospheric circulation and sea surface temperature patterns associated with onset of summer rainy season in the Philippines. Abstract of the Association of Japanese Geographers 2008 Spring Meeting, p.125. March, Saitama. (in Japanese)
- Fukushima, A., Takahashi, H. and Matsumoto, J. 2007. Interannual variations of pre-monsoon season precipitation in Nepal and characteristics of large-scale circulation. Abstracts of the 2007 Spring Assembly of the Meteorological Society of Japan, p.197, May, Tokyo. (in Japanese)
- Fukushima, A. and Takahashi, H. 2007. The influence of circulation change from pre-monsoon to monsoon season upon the rainfall phenomena in Nepal. AOGS, Thailand, August, 2007.
- Okubo, S. and Mikami, T. 2007. Long-term trend in SPM concentration and its spatial distribution and in the Kanto region. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p.251. March, Tokyo. (in Japanese)
- Okubo, S. and Mikami, T. 2007. Long-term trend in SPM spatial distribution in the Kanto region. Proceedings of the 48<sup>th</sup> Annual Meeting of Japan Society for Atmospheric Environment, p.319. September, Okayama. (in Japanese)
- Takahashi, K. and Mikami, T. 2007. Temperature distribution and behavior of land and sea breeze in summer in Tokyo ward area. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p.165. May, Tokyo. (in Japanese)

Oka, A., Mikami, T., Izumi, T., Shimizu, S., Narita, K. 2008. The evaluation for the cool air flowing out and influencing to built-up area from the Imperial Garden green space. Research Group Meeting for Urban Climatic Environment at Annual Meeting of the Association of Japanese Geographers 2008 spring Meeting, March, Soka.

### 3 Laboratory of Environmental Geography

#### 1) Staff

Shuichi OKA Associate Professor / D.Sci.

Vegetation Geography, Landscape Ecology

Shuichi OYAMA Assistant Professor / PhD (D. Human and Environment)

Area Study(Africa, South America), Environmental Geography, Ecological Anthropology

#### 2) Overview of Research Activities

Our laboratory focuses on the relations between human and natural environment. Especially we attach great importance on the structure and its changes of the relationships in the local and global scales. Therefore we are trying to apply inter-disciplinary approach flexibly, with not only physical and human geography but also other environmental sciences, such as botanical science, forest ecology, zoology, soil science, landscape design, political ecology, folklore, anthropology and so on. Research methods are primarily based on fieldwork, including weather observation, land survey, interview survey and participatory research as well as analysis of aerial photos and satellite images. Study fields are all over the world, especially Japan, Asia, Africa and 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 themes are as follows;

- 1) Interrelation between environmental change and human response in savanna area of Africa
- 2) Process of land degradation in environment
- 3) Coral reef formation and interrelation between coral and reef topography
- 4) Geo-ecological research on landscape and the change in alpine and sub-alpine
- 5) Hydro-climatic environment based on the water balance in the Bonin Islands, Japan
- 6) Climatic landscape in view of vegetation and land use
- 7) Cultural geography of slash-and-burn cultivators and development of cultivation system in miombo woodland zone of Africa
- 8) Applied ecological study to combat desertification in Sahel zone, Africa.
- 9) Domestication of Camelidae animals and *Solanum* crops in Andes, South America

#### 3) List of Research Activities in 2006



### ***Peer-reviewed Articles***

- Kobashi, S., Fujii, N. and Oka, S. 2007. A review of the studies on geographical variation in *Fagus crenata* and the future prospects. *Bulletin of Botanical Society of Nagano*, 40, 207-213. (in Japanese)
- Oyama, S. 2007. Combating desertification of rural areas and improving the sanitary conditions of urban areas by applying indigenous ecological knowledge of Hausa cultivators in southern Niger- Contributing to Human Security based on field research. *Journal of African Studies* 71, 85-99. (in Japanese with English Abstract)

### ***Other Articles***

- Oka, S., Oyama, S., Tsuchiya, T. and Yakabe, Y. 2007. Laboratory of Environmental Geography: focusing on the multiphasic relation between human and physical environment. *Proceedings of the International Symposium on Sustainable Urban Environment 2007*, 112.
- Oka, S. 2007. Change of forest zone on the southern slope of Mt. Fuji based on a view of the old trail of Murayama. *Abstract of the 9th Mt. Fuji Seminar*, 15. (in Japanese)
- Oka, S., Shirakawa, A. and Kanno, H. 2008. Why is larch scrub community kept around Oniwa on the northern slope of Mount Fuji? *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 199. (in Japanese)
- Oyama, S. 2007. The difference of crop production among households in Hausa village and the contract for livestock settlement to the Fulani and Tuareg pastoral people in Niger. *Abstract of the 44<sup>th</sup> academic meeting of African Studies*, 110. (in Japanese)
- Oyama, S. 2007. Coping strategy and ecological knowledge of Hausa cultivators to land degradation in Sahel zone of West Africa. *Proceedings of the General Meeting of the Association of Japanese Geographers*, 72, 148. (in Japanese)
- Yakabe, Y. and Oka, S. 2008. The *Pinus lutchuensis* population dynamics and the physical environments in the subtropical dry scrub on the Ogasawara (Bonin) Islands. *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 240. (in Japanese)
- Kawahira, N., 2008. Changes in the Middle Reaches of the Tenryu River Valley Area As Seen from the Land Use. T *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 257. (in Japanese).
- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of the residents and the conservation activities for the river basin environment: a case study of Sakawa River in Kanagawa Prefecture, Japan. T *Proceedings of the General Meeting of the Association of Japanese Geographers*, 73, 254. (in Japanese).

### ***Reports***

Oyama, S. 2008. Land reform in Republic of Zambia- Building civil society based on modern law and social confusion of shifting cultivators. Kodama, Y. ed. *Reports of Community Based Organizations and Civil Society in Rural Africa*. Institute of Developing Economics. 128-161. Japan External Trade Organization. Tokyo. (in Japanese)

#### ***Miscellaneous reports***

Oka, S. 2008. Short trip around the *Yato* valley in the Tama-hill. *Chiri*, 53(4), 86-93. (in Japanese)

Oyama, S. 2008. Book Reviews- African Farmers who live on possibilities written by S. Shimada. *Geographical Reviews of Japan* 81(3): 128-130. (in Japanese)

Tsuchiya, T. 2008. The environmental conservation and the residents in the river basin: a case study of Sakawa River, Japan. *The reports of 14th meeting of citizens' environmental activities in Kanagawa Prefecture*. 39-42. (in Japanese)

Oyama, S. 2007. Natural History of Life- Conservation of vicuña and rural development in Peruvian Andes. *Monthly Magazine of National Museum of Ethnology* **30 (6)**: 20-21. (in Japanese)

#### ***Presentations***

Oka, S. 2007. Ogasawara Islands-the so-called Galapagos in the Orient. Meguro City College in 2007, World Islands-marine station, the evidences of nature and culture in island, Tokyo, April. (in Japanese)

Oka, S. 2007. Understanding vegetation landscape and climatic landscape on the maps. Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, May. (in Japanese)

Oka, S. 2007. Search various climatic landscapes in map and field. Guidance of the excursion in Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, June. (in Japanese)

Oka, S. 2007. Landscape of the drainage basin and the management of *Satoyama*-cases of the *Yato* valley in the Tama-hill. Landscape Seminar in Kyushu Sangyo University, Fukuoka, June. (in Japanese)

Oka, S. 2007. How to understand the nature?-fundamental of understanding the environments. The training course of support ranger, Open University of Tokyo Metropolitan University, Tokyo, August. (in Japanese)

Kikuchi, T., Oka, S., Suzuki, T. and Oyama, S. 2007. obserbation and consideration of nature of mountain. Guidance of excursion in the training course of support ranger, Open University of Tokyo Metropolitan University, Tokyo, September. (in Japanese)

Kazmer, M., Sho, K., Oka, S., Sugimoto, O., Asami, R., Yamada, T., and Iryu, Y. 2007. Annual record of environmental history in corals and tree-rings—a land-sea correlation at Ogasawara

- Islands, Japan. The First Asian Dendrochronology Conference and Workshop, Thailand, September.
- Oka, S. and Kawahira, N. 2008. Change of forest use in the Hinode region, western part of Tokyo. Forum to learn from the nature of Satoyama in Tama region, Tokyo, March. (in Japanese)
- Oyama, S. 2007. The ecology of Andean indigenous Camelidae- *Vicugna vicugna*. 47<sup>th</sup> Academic Meeting of Ecosophia (Ethno-Nature Sciences) “Rethinking Hunting and Pastoral Activities from the Andean Mountains.”. Kyoto, April. (in Japanese)
- Oyama, S. 2007. The difference of crop production among households in Hausa village and the contract for livestock settlement to the Fulani and Tuareg pastoral people in Niger. The 44<sup>th</sup> academic meeting of African Studies, Nagasaki, May. (in Japanese)
- Oyama, S. 2007. African nature, land, history and ethnic culture. Meguro City College in 2007, Map and Scenery-search a dense relationship between map and scenery, Tokyo, June. (in Japanese)
- Oyama, S. 2007. Coping strategy and ecological knowledge of Hausa cultivators to land degradation in Sahel zone of West Africa. The General Meeting of the Association of Japanese Geographers in 2007 Autumn, Kumamoto, October. (in Japanese)
- Oyama, S. 2007. Co-evolution of Camelidae animals and potato in Andean mountains. 1<sup>st</sup> Academic Meeting of Nature and Society Research group. The General Meeting of the Association of Japanese Geographers in 2007 Autumn, Kumamoto, October. (in Japanese)
- Oyama, S. 2007. The desertification problems in Niger of West Africa and indigenous technologies of Hausa cultivators for improving the soil conditions. The 727<sup>th</sup> Academic Meeting of Social Anthropology, Tokyo Metropolitan University. Hachioji, November. (in Japanese)
- Oyama, S. 2007. Land enclosure and social changes of shifting cultivators in northern Zambia. Research Project of Community Based Organizations and Civil Society in Rural Africa. Institute of Developing Economics. Japan External Trade Organization. Tokyo, November. (in Japanese)
- Oyama, S. 2008. The ecology of vicuña from the viewpoint of domestication. The 186<sup>th</sup> Academic Meetings of Chubu Anthropology society Symposium “Multi-disciplinary Approach on Andean Camelidae and people’s utilization”, Nagoya, March. (in Japanese)
- Kawahira, N., 2008. Changes in the Middle Reaches of the Tenryu River Valley Area As Seen from the Land Use. Annual meeting 2008. The General Meeting of the Association of Japanese Geographers, Saitama, March.
- Tsuchiya, T. 2008. The environmental conservation and the residents in the river basin: a case study of Sakawa River, Japan. 14th meeting of citizens’ environmental activities in Kanagawa Prefecture, Yokohama. February. (in Japanese)
- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of the residents and the conservation activities for the river basin environment: a case study of Sakawa River, Japan. The seminar of researches in Sagami-hara City Museum, Sagami-hara. March. (in Japanese)

- Tsuchiya, T. 2008. Interrelation of the water environment, the consciousness of the residents and the conservation activities for the river basin environment: a case study of Sakawa River in Kanagawa Prefecture, Japan. The General Meeting of the Association of Japanese Geographers in 2008 Spring, Soka. March. (in Japanese)
- Yakabe, Y. 2008. The *Pinus lutchuensis* population dynamics and the physical environments in the subtropical dry scrub on the Ogasawara (Bonin) Islands. The seminar of researches in Sagamihara City Museum, Sagamihara. March. (in Japanese)
- Takishima, K. 2007. The altitudinal change of patch colony and establishment of *Larix kaempferi* on tree limit of northwest slope of Mt. Fuji. *9th Mt. Fuji Seminar*
- Yoshida, Y. 2008. Flood disturbance caused by the typhoon and plant communities in the sandbank at Akigawa River, Japan. 56<sup>th</sup> Study Meeting for the Presentations of the Undergraduate Students, Koganei, March.

## 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 the remote sensing techniques
- Quantitative evaluation of spectral reflectance characteristics of coniferous forests, along with the quantitative evaluation of their leaf area indices.
- Hydrological cycle around Mt. Aso and Tokyo Metropolis
- Numerical simulation of the urban heat island
- Capturing surface conditions of cities such as albedo, roughness length, and evaporative fraction
- Estimating landslides based on digital elevation model, remote sensing, and data mining techniques
- Flood monitoring in Bangladesh based on remote sensing and geographical information systems
- Monitoring urban environment and natural environment by using synthetic aperture radar
- Precise geometric correction of satellite images

### 3) List of Research Activities in 2006

#### *Peer-reviewed Articles*

- Shimamura, Y., Izumi, T., and Matsuyama, H. 2007. Configuration of rapid digital mapping system using tablet PC and its application to obtaining ground truth data: A case study of a snow survey in Chuetsu district, Niigata prefecture. *Journal of Geography (Japan)* 116: 749-758. (in Japanese with English abstract)
- Saito, H., Nakayama, D., and Matsuyama, H. 2007. Estimation and evaluation of drainage basins with landslides using decision tree technique and ASTER data. *Landslides - Journal of the Japan Landslide Society* 44: 1-14. (in Japanese with English abstract)
- Zhang, H., Sato, N., Izumi, T., Hanaki, K. and Aramaki, T. 2008. Modified RAMS-Urban Canopy Model for Heat Island Simulation in Chongqing, China. *Journal of Applied Meteorology and Climatology*, 47(2), 509-524.

#### *Other Articles*

- Matsuyama, H. 2007. Subtropical convergence zone formed in Brazil: Simultaneous appearance of wild fire and heavy rainfall. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 56-57. Kyoto: Nakanishiya. (in Japanese)
- Matsuyama, H. 2007. Water problems of the Lake Balkhash basin in Central Asia. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 104-105. Kyoto: Nakanishiya. (in Japanese)
- Urushibara-Yoshino, K., Fujitsuka, Y., Matsuyama, H., and Ohnishi, K. 2007. Regional problems in the world. In *Regional problems in the world*, ed. K. Urushibara-Yoshino, Y. Fujitsuka, H. Matsuyama and K. Ohnishi, 2-3. Kyoto: Nakanishiya. (in Japanese)
- Matsuyama, H. 2008. Estimation of snow water resources in the mountainous region: A case study around Mt. Makihata, Niigata prefecture. *Electric Power Civil Engineering* No. 333: 6-11. (in Japanese)
- Narumiya, H., Nakayama, D., and Matsuyama, H. 2007. Classification of springwaters in Tokyo based on a mathematical statistical method. *Water Science* No. 295: 43-56. (in Japanese)

#### *Books*

- Urushibara-Yoshino, K., Fujitsuka, Y., Matsuyama, H., and Ohnishi, K. 2007. *Regional problems in the world*. Kyoto: Nakanishiya. (in Japanese)

#### *Reports*

- Matsuyama, H. 2007. GIS Day in Tokyo 2006: Safety of region as depicted by GIS. Annual Report

of the Research Grant for History and Geography 2006, 168-169. Tama: Fukutake Science and Culture Foundation. (in Japanese)

### ***Book review***

- Matsuyama, H. 2007. Book review (Nishina, J. Fundamental climatology - Enlarged edition). Chiri 52(5): 121. (in Japanese)
- Matsuyama, H. 2007. Book review (Tadokoro, K. Clima e literatura do nordeste Brasileiro). Chiri 52(6): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Heibonsha ed. Junior national flags 3rd, rev. ed.). Chiri 52(7): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Hidaka, T., and Akimichi, T. Whose are forests ? - Future of forests and human in Asia - ) Chiri 52(8): 120. (in Japanese)
- Matsuyama, H. 2007. Book review (Nishikawa, D. Diary of a Japanese emigrant for agriculture - General image of Japanese emigrants for agriculture in Brazil - ) Chiri 52(9): 115. (in Japanese)
- Matsuyama, H. 2007. Book review (Hoffman-Wellenhof, B., Lichtenegger, H., and Collins, J., translated by S. Nishi. Global Positioning System, 5th, rev. ed.). Chiri 52(10): 107. (in Japanese)
- Matsuyama, H. 2007. Book review (Yoshino, M. History of climatology: From ancient to contemporary times). Chiri 52(11): 114. (in Japanese)
- Matsuyama, H. 2007. Book review (Hirakawa, K. How to write compositions in 600 words). Chiri 52(12): 111. (in Japanese)

### ***Miscellaneous reports***

- Matsuyama, H. (Read by K. Hasegawa) 2007. Configuration of the observing system for multi-angular reflectance of forest canopy by using observing tower at the foot of Mt. Yatsugatake. Proceedings of the 9th CERES Symposium on Environmental Remote Sensing: 40-43. (in Japanese)
- Matsuyama, H. 2007. Shiga highland where it has passed 17 years since the last visit. Annual Report of Old Boys/Girls of Wandervogel Club in Tokyo University: 97-99. (in Japanese)
- Matsuyama, H. 2008. Estimation of the recharge area of springwater and the mechanism for its gushing out based on water temperature, discharge and concentration of silica - A case study of Hino city, Tokyo Metropolis. Tamagawa No. 117: 9. (in Japanese)
- Maruyama, S., Eguchi, T., Kasahara, J., Geshi, N., Matsumoto, J., Matsuyama, H., and Yamakawa, S. 2007. Preface for the special issue on "Water; from the Earth's core to planetary space". Journal of Geography (Japan) 116: 1-6. (in Japanese)
- Izumi, T. 2007. How the meteorological observation of Fukiage garden in the imperial palace is

realized ? Very profound network of old boys/girls of wandervogel club in Tokyo University  
Annual Report of Old Boys/Girls of Wandervogel Club in Tokyo University: 100-101. (in Japanese)

Narumiya, H. 2007. A spring where gas bubbles were gashing out - Serigaya park in Machida city, Tokyo Metropolis. Chiri 52(6): 81-83. (in Japanese)

Iwasaki, K. 2007. Prediction of Rausu Dashi gap wind using regional atmospheric modeling system (RAMS). Record of General Meeting for Graduation Theses of Geography, 2006. The New Geography (The Shin-Chiri) 55(1): 62. (in Japanese)

### ***Presentations***

Matsuyama, H. 2007. Scene of hydrological cycle recalled by map. Meguro City Collage 2007 (Map and scene - Searching for their close relationship - ), May, Tokyo. (in Japanese)

Izumi, T. 2007. Regional planning and regulations for preparing good conditions in a city - Report of the scene from redevelopment of Asagaya houses - . 5th Meeting, Forum of My Town, August, Tokyo. (in Japanese)

Izumi, T. 2007. Overview of the regional planning system. 6th Meeting, Seminar for Preparing Good Conditions in Narita Region, August, Tokyo. (in Japanese)

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- Hoque, R., Nakayama, D., and Matsuyama, H. 2008. Monitoring the 2004 flood in the Meghna river basin in Bangladesh using ground data, RADARSAT imagery and GIS. Proceedings of the General Meeting of the Association of Japanese Geographers 2008 Spring Meeting, p. 259, March, Soka.
- Watanabe, T., Nakayama, D., and Matsuyama, H. 2007. Relationship between typhoon courses and rainfall distribution characteristics in Yamanashi prefecture. Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p. 409, May, Tokyo. (in Japanese)
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- Iwasaki, K., Izumi, T., and Matsuyama, H. 2007. Prediction of Rausu Dashi gap wind using regional atmospheric modeling system (RAMS). Abstracts of Meteorological Society of Japan 2007 Spring Meeting, p. 376, May, Tokyo. (in Japanese)
- Mikami, T., Izumi, T., Shimizu, S., and Oka, A. 2008. The effect of cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 1) Summary of cool-island phenomena observation in the Imperial Palace, Tokyo. Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
- Narita, K., Mikami, T., Izumi, T., Shimizu, S., and Oka, A. 2008. The effect of cool-island effect in a urban green space - Report of the observation in and around the Imperial Palace - 3) Cold-air-seeping phenomena around the garden of the Imperial Palace, Tokyo. Study Group of Urban Climate and Environment, Association of Japanese Geographers, March, Soka. (in Japanese)
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## 5 Laboratory of Urban and Human Geography

### 1) Staff

Yosio SUGIURA                      Professor / PhD (D.Sc.)

Human geography

Yoshiki WAKABAYASHI Associate Professor / PhD (D.Sc.)

Urban geography, Behavioral geography, Geographic information science

Yuko TAKEDA                        Assistant Professor / Ph. D.

GIS, Urban geography

Hiroyuki TSUBOMOTO    Assistant Professor /

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 2006**

#### ***Peer-reviewed Articles***

- Yui, Y, Wakabayashi, Y., Nakazawa, T. and Kamiya, H. 2007. Residential choices of working women in urban space. E-journal GEO 2(3): 139-152 . (in Japanese with English abstract)
- Wakabayashi, Y. 2008. The role of maps in the cognition of geographic space. Cognitive Studies 15(1): 38-50. (in Japanese with English abstract)
- Tsubomoto, H. 2007. Restructuring Business Spaces in Tokyo after the 1990s. Annals of the Japan Association of Economic Geographers, 54: 461-477.
- Tsubomoto, H. 2008. Construction of a new office style by a foreign management consulting firm in central Tokyo: The case of Company A since the 1990s. Urban Geography of Japan, 3: 18-32. (in Japanese with English abstract)
- Yabe, N. 2007. Spatially varying NEET factors in the Tokyo metropolitan area: a moving window path analysis. Japanese Journal of Human Geography, 59(4): 348-362. (in Japanese with English abstract)

#### ***Other Articles***

- Sugiura, Y. 2007. On book reviews of Central Place System in Southern Germany. Notes on Theoretical Geography 16 (in press).
- Kinpara, S., Sugiura, S. and Harayama, M. 2007. The present conditions of "Joyful Minowa" shopping mall in Arakawa Ward, Tokyo with reference to Metropolitan streetcar as a symbol. Notes on Theoretical Geography 16 (in press).
- Wakabayashi, Y. 2007. Cities and their functions in Hokuriku region. In Fujita, M. and Tabayashi, A. eds.: Regional Geography of Japan vol.7: Chubu region. 473-482 , Asakura Shoten: Tokyo. (in Japanese)
- Wakabayashi, Y. 2007. Geography of perception. Ueno, K., Tsubaki, M., and Nakamura, Y. eds.: Fundamental geography series vol. 1: An introduction to geography. 89-94, Asakura Shoten: Tokyo. (in Japanese)

- Wakabayashi, Y. 2007. The world looked through maps. Kobayashi, K. ed.: Practical issues of geography education. 78-194, Nakanishiya: Kyoto. (in Japanese)
- Arima, T. 2008. Urban Tourism in Tokyo. In Kikuchi, T. eds., Introduction of Tourism studies, Ninomiya Publisher, Tokyo, 133-143.(in Japanese)
- Arima, T. 2008. (coffee break)Alternative Form of Urban Tourism in Tokyo: a case study of Odaiba. In Kikuchi, T. eds., Introduction of Tourism studies, Ninomiya Publisher, Tokyo, 144-151.(in Japanese)

### ***Books***

- Kobayashi, S. and Sugiura, Y. 2008. Human Geography. 2nd Edition. Hoso-Daigaku Kyoikushinnko-kai: Tokyo. (in Japanese)
- OECD ed., translated into Japanese by Kamiya, H., Yui, Y., Kukimoto, M, Takeda, Y., Wakabayashi, Y. and Nakazawa, T. 2008. OECD regions at a glance 2007. Akashi Shoten: Tokyo. (in Japanese)

### ***Reports***

- Tsubomoto, H. 2007. Distribution and preservation of urban forests in Sagami-hara city. Report of Sagami-hara Urban Research Institute. 16p (in Japanese).

### ***Presentations***

- Wakabayashi, Y. 2007. Gender-related differences in the map use of in-vehicle navigation systems. August 4-10, 2007, 23rd International Cartographic Conference, Moscow.
- Wakabayashi, Y. 2007. Geographical studies on crime and the role of crime maps.. September 2, 2007, 45th Annual Meeting of Japanese Association of Criminal Psychology, Kohriyama.
- Wakabayashi, Y. 2007. Notes on the world geographic knowledge of students from the viewpoint of spatial cognition. October 7, 2007, The Study Meeting of the Association of Japanese Geographers Autumn 2007, Kumamoto.
- Wakabayashi, Y. 2007. Cartographic literacy and map reading of thematic maps: the case of Women's Atlas of Japan. October 20, 2007, 41st Regional Meeting of Japan Cartographers Association, Toyama.
- Wakabayashi, Y. 2008. GIS and spatial cognition: evolution of maps and geographic information science. March 10, 2008, GIS seminar of Chugoku division of GISA, Hiroshima.
- Liang, H. S. 2007. Environment change and progress of urbanization in Chinese inner Mongolia. Proceedings of the General Meeting of the Association of Japanese Geographers . 73:141 (in Japanese).
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