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1. Laboratory of Quaternary Geology and Geomorphology

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

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

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

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

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

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

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

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

3) List of Research Activities in FY2008
Peer-reviewed Articles


Other Articles


Reports


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Book Reviews

Miscellaneous Reports

Presentations
University: Attraction of Tokyo: Islands, Sea and Volcanoes. Meeting of Educational Developing Projects, June, Tokyo. (in Japanese)


Japan. The Geological Society of Japan Kanto Branch, June, Tokyo. (in Japanese)


Shirai, M. 2008. Sand grains movement off the Kumano area, Kii Peninsula: Estimation from OSL
measurement technique. Abstracts of Japan Geoscience Union Meeting 2008: G120-007(CD-ROM), May, Makuhari. (in Japanese with English abstract)


Ooi, S., Yamaga, S., Kitamura, K., Tamura, I., and Ando, S. 2008. The Quaternary pyroclastic event
deposits in the uppermost part of the Urizura Hills, Ibaraki prefecture. Abstracts of Japan Geoscience Union Meeting 2008: Q139-P017(CD-ROM), May, Makuhari. (in Japanese with English abstract)


October, Morioka. (in Japanese)


2. Laboratory of Climatology

1) Staff

Jun MATSUMOTO  Professor / D. Sc
Monsoon Climatology

Hideo TAKAHASHI  Professor / D.Sc.
Urban Climatology

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

2) Overview of Research Activities

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

Our research topics are as follows:

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

3) List of Research Activities in FY2008

Peer-reviewed Articles


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*


English abstract)

Other articles


Reports


Book Reviews


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


November, Manila, Philippines.

Zaiki, M. 2009. Historical climatology and environmental GIS—An overview of personal research—. ISIG Séminaire: Geomatics in Historical and Geographical Studies, Contrasted Examples from Japan and France, February, Lyon, France.


Yamashima, R., Matsumoto, J., and Takata, K. 2008. Impacts of historical land use changes on the


3. Laboratory of Environmental Geography

1) Staff

Makiko WATANABE  Professor/ PhD
Soil Science

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

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

2) Overview of Research Activities

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

Recent research subjects are as follows;

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

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

3) List of Research Activities in FY2008

Peer-reviewed Articles

Other Articles


**Books**


**Reports**


**Miscellaneous reports**


**Presentations**


Anthropology and Area Study, Hosei University, December, Tokyo. (in Japanese)


4. Laboratory of Geographical Information Sciences

1) Staff
Hiroshi MATSUYAMA Associate Professor / PhD (D.Sc.)
Hydrometeorology, Geographical Information Sciences

Takeki IZUMI Assistant Professor / PhD (D.Eng.)
Urban Climatology, Geographical Information Sciences, Computational Meteorological Model

Daichi NAKAYAMA Assistant Professor / PhD (D.Sc.)
Geographical Information Sciences, Remote Sensing, Computational Geomorphology

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

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

- Energy and water cycle in the atmosphere and hydrosphere
- Capturing snow distribution and snow water resources, along with snowmelt-runoff based on remote sensing techniques and field surveys
- Quantitative evaluation of spectral reflectance characteristics of coniferous forests and their leaf area indices
- Water environment around Mt. Aso and Tokyo Metropolis
- Numerical simulation of urban climate
- Capturing surface conditions of cities
- Monitoring and modeling natural environment and natural hazards
3) List of Research Activities in FY2008

Peer-reviewed Articles


Other Articles


Nihei, Y., and Hasegawa, K. 2009. Openning “Kizuna no Mori” to study in the forest—A challenge for environmental education by Komazawa University Senior High School—. *Bulletin of*

**Book**

**Reports**

Izumi, T. 2009. Section 2-2: Process of the Asagaya housing estate redevelopment, Section 3-1: The propriety of relaxation type district plan introduction, Section 3-2: An attempt of new community development by citizen in Suginami ward. In *Garden house with wind, green and light of the sun, A masterpiece of the collective housing which is going to be lost, The Asagaya housing estate, Series 1 of Tokyo studies*, ed. M. Ishikawa, H. Jinnai, T. Izumi and M. Matsumoto, 18-24, 29-34, Tokyo: Global Center of Excellence for Sustainable Urban Regeneration, the University of Tokyo. (in Japanese)

**Book Reviews**


**Miscellaneous Reports**


**Presentations**

Matsuyama, H. (read by K. Hasegawa) 2009. Relationship between the bidirectional reflectance distribution function in *Larix leptolepis* and its phenology at Yatsugatake. The 11th CEReS


Omi, H. 2008. Temporal variations of satellite indices at the beginning of the growing period of boreal evergreen forest as detected by Terra/MODIS. Climate Colloquium, August, Hachioji. (in Japanese)


and Water Resources: 182-183, August, Tokyo. (in Japanese)


5 Laboratory of Urban and Human Geography

1) Staff

Yoshio SUGIURA  Professor / PhD (D.Sc.)
Human Geography

Yoshiki WAKABAYASHI  Professor / PhD (D.Sc.)
Urban Geography, Behavioral Geography, Geographic Information Science

Akihiro TAKINAMI  Associate Professor / PhD (D.Lit.)
Cultural Geography, Tourism Study

Yuko TAKEDA  Assistant Professor / Ph. D.
GIS, Urban Geography

Hiroyuki TSUBOMOTO  Assistant Professor / PhD (D.Sc.)
Urban Geography, Office Study

Michiko HARAYAMA  Assistant Professor
Bibliometrics

(Concurrent staff)

Toshio KIKUCHI  Associate Professor / D.Sc.
Agricultural and Rural Geography, Regional Geography of Oceania, Nature Based Tourism

2) Overview of Research Activities

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

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

3) List of Research Activities in FY2008

**Peer-reviewed Articles**


**Other articles**

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


**Books**


**Book reviews**


**Miscellaneous reports**


Koizumi, R. 2008. Changing socio-economic structure since the 1990s and its effect on the work and

**Presentations**


Arima, T. 2008. Sustainable development of urban tourism space with the changes of land use pattern and image in Odaiba, Tokyo. 31st International Geographical Congress, August, Tunis, Tunisia.


