

Annual Report 2019

Geography

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

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1 Laboratory of Quaternary Geology and Geomorphology

1) Staff

Takehiko SUZUKI	Professor / D.Sc. Geomorphology, Quaternary Science, Volcanology
Masaaki SHIRAI	Associate Professor / D.Sc. Sedimentology, Quaternary Geology, Marine Geology
Daisuke ISHIMURA	Assistant Professor / D.Sc. Tectonic geomorphology, Quaternary Geology

2) Overview of Research Activities

To prospect the futuristic view of environmental changes, our laboratory investigates the history and process of surface landform/geological development during the Quaternary period. The followings are some topics of our studies.

1. Reconstruction of geomorphological/geological phenomena during the Quaternary (the last 2–3 million years) with accuracies of 10^5 – 10^1 years
2. Study on volcanic products (tephra) and explosive eruption history in and around the Japanese Islands
3. Investigation on production–transport–depositional processes of sedimentary particles
4. Study on coastal–deep marine sediment for reconstruction of natural hazard history and influence of human activity to natural environment
5. Reconstruction of earthquake recurrence interval and fault activity from earthquake/fault induced landform and sediment
6. Investigation on marine/fluvial terraces for reconstruction of landform development and crustal movement during the last 10^5 years

3) List of Research Activities in FY2019

Peer-reviewed Articles

- Suzuki, T., Maruyama, S., Danhara, T., Hirata, T., Machida, H. and Arai, F. 2020. Identification of Lower Pleistocene widespread tephra associated with large caldera - forming eruptions in the Tohoku area, north - east Japan. *Journal of Quaternary Science* **35**: 316-333. doi 10.1002/jqs.3162.
- Abbott, P., Jensen, B., Lowe, D., Suzuki, T. and Veres, D. 2020. Crossing new frontiers: extending tephrochronology as a global geoscientific research tool. *Journal of Quaternary Science* **35**: 1-8.

doi 10.1002/jqs.3184.

- Albert, P., Smith, V., Suzuki, T., McLean, D., Tomlinson, E., Miyabuchi, Y., Kitaba, I., Mark, D., Moriwaki, H., Suigetsu 2006 Project Members and Nakagawa, T. 2019. Geochemical characterisation of the Late Quaternary widespread Japanese tephrostratigraphic markers and correlations to the Lake Suigetsu sedimentary archive (SG06 core). *Quaternary Geochronology* **52**: 103-131. doi.org/10.1016/j.quageo.2019.01.005.
- McLean, D., Albert, P., Suzuki, T., Nakagawa, T., Kimura, J., Chang, Q., Macleod, A., Blockley, S., Staff, R., Yamada, K., Kitaba, I., Haraguchi, T., Kitagawa, J., Smith, V. and SG14 Project Members 2020. Refining the eruptive history of Ulleungdo and Changbaishan volcanoes (East Asia) over the last 86 kyrs using distal sedimentary records. *Journal of Volcanology and Geothermal Research* **389**: 106669. doi.org/10.1016/j.jvolgeores.2019.106669.
- Endo, K., Chiba, T., Suginaka, Y., Suzuki, T., Uesugi, Y., Ishiwata, S., Nakayama, T., Funatsu, T., Osato, S., Suzuki, M., Nogichi, M., Sato, A., Kondo, R. and Hori, S. 2019. New division of landforms in Musashino Upland, Tokyo. *The Quaternary Research* **58**: 353-375.
- Shirai, M., Utsugawa, T. and Watanabe, M. 2020. Influence of mega debris flow on geomorphological features of the upper reaches in the Abe River examined from the formation process of the Akamizu waterfall. *The Quaternary Research* **59**: 17-29. (in Japanese with English abstract)
- Ishimura, D. 2019. Re-examination of the ages of paleo-tsunami deposits in Onuma, Miyagi Prefecture, northeast Japan. *Active Fault Research* **51**: 53-59. (in Japanese with English abstract)
- Ishimura, D. 2019. Co-seismic vertical displacement associated with the 2016 Kumamoto earthquake (Mw7.0) and activity of the Futagawa fault around Futa, Nishihara Village, Kumamoto prefecture. *Active Fault Research* **50**: 33-44. (in Japanese with English abstract)
- Ishimura, D. 2019. Paleo-tsunami deposit research on the Sanriku Coast since the 2011 Tohoku-oki earthquake. *The Quaternary Research*: **58**, 175-186. (in Japanese with English abstract)
- Ishimura, D. and Yamada, K. 2019. Palaeo-tsunami inundation distances deduced from roundness of gravel particles in tsunami deposits. *Scientific Reports* **9**: 10251 doi.org/10.1038/s41598-019-46584-z.
- Ishimura, D. and Hiramane, R. 2020. Proximal–distal fall deposit correlation of VEI - 5 tephra (Towada - Chuseri) from Towada volcano, northeast Japan. *Journal of Quaternary Science* **35**: 334-348 doi.org/10.1002/jqs.3161.
- Toda, S. and Ishimura, D. 2019. Evaluation of short active faults reflected from distributed minor surface breaks found at recent inland large earthquakes including the 2016 Kumamoto earthquake. *The Quaternary Research*: **58**, 121-136. (in Japanese with English abstract)
- Aoki, K. 2020. Dawson tephra, a widespread 29-ka marker bed, in a marine core from Patton Seamount off the Alaska Peninsula and its potential marine-terrestrial correlation. *Journal of Quaternary Science* **35**: 93-101. doi.org/10.1002/jqs.3176.

- Takahashi, T. and Sugai, T. 2020. Reexamination of the Fluvial Terrace Development in the Nagatoro Gorge and the Development of Longitudinal Profile of the Ara River in the Kanto District, Central Japan. *Journal of Geography* **129**: 123-140. (in Japanese with English abstract)
- Tamura, I., Mizuno, K., Utsunomiya, M., Nakajima, T. and Yamazaki, H. 2019. Widespread tephra of the Kazusa Group distributed in the Boso Peninsula, Chiba Prefecture, Japan - Especially, tephrostratigraphy and tephra correlation of the lower part of the Kazusa Group -. *The Journal of the Geological Society of Japan* **125**: 23-39. (in Japanese with English abstract)
- Takagi, H., Sugiyama, K., Tamura, I., Mizuno, K., Kitazawa, N. and Kawamoto, K. 2019. Identification of the youngest activity of the Median Tectonic Line at Hiji outcrop, Ina City, Nagano Prefecture. *Active Fault Research* **50**: 1-12. (in Japanese with English abstract)
- Nishizawa, F. and Suzuki, T. 2019. Characterization and correlation of the Hegawa-Kasamori 5 tephra, a widespread tephra aged c. 450 ka associated with large-scale pyroclastic flows from southern Kyushu, SW Japan. *Journal of Quaternary Science* **35**: 288-303. doi: 10.1002/jqs.3172.
- Utsugawa, T. and Shirai, M. 2019. Characteristics of breaking and abrasion mechanisms acting on fluvial sediments during production and transport processes: relationships between rock type, grain size, and roundness of gravel and sand. *Journal of the Sedimentological Society of Japan* **78**: 15-31. (in Japanese with English abstract)

Other Articles

- Nakazawa, T., Tomonori, T., Sakata, K., Hongo, M., Suzuki, T. and Nakayama, T. 2020. Re-examination of the stratigraphy of the Tokyo Formation at the type core section in the Yoyogi Park, Tokyo, central Japan. *Bulletin of the Geological Survey of Japan* **71**: 19-32.
- Aoki, K. 2020. Major-element composition of volcanic glass shards in late Quaternary tephra provided from the Asama volcano in An-naka and Tomioka area, Gunma prefecture, central Japan. *Geographical Reports of Tokyo Metropolitan University* **55**: 1-11.
- Aoki, K. 2020 A consideration on the distribution of Amagi-Kawagodaira tephra (Kg) and its eruptive age. *Bulletin of the Society for Cultural History, Showa Women's University* **23**: 39-49. (in Japanese)
- Shitaoka, Y., Soda T., Aoki, K., and Wakai, A. 2020. Petrography and Radiocarbon Dating of As-BP Group of Asama volcano, Japan. *Bulletin of Geo-Environmental Science, Rissho University* **22**: 57-65. (in Japanese with English abstract)
- Takahashi, T. 2019. Reconstruction of the long-term sediment routing in the upper reaches using hydrological analysis. *GIS NEXT*: **69**, 59. (in Japanese)
- Tamura, I. 2019. Tephra – The history of volcanic eruption and time scale key bed. In *Geo World Boso Peninsula*. eds Takagi, H. and Hirukawa, M., 67-78. mihorin Planning Office.(in Japanese)
- Utsunomiya, M., Mizuno, K. and Tamura, I. 2019. Stratigraphic positions and characteristics of tephra beds in the lower to middle Kiwada Formation (lower Pleistocene), Kazusa Group. *Bulletin*

of the *Geological Survey of Japan* **70**: 373-441. (in Japanese with English abstract)

Utsugawa, T. and Shirai, M. 2020. Sedimentological characteristics of gravels on refreshed gravel bar by Typhoon 1721 in the middle of the Tama River, central Japan. *Geographical Reports of Tokyo Metropolitan University* **55**: 13-21.

Books/ Reports/ Book Reviews

Kaizuka, S., Ota, Y., Koaze, T., Koike, K., Nogami, M., Yonekura, N., Kubo, S. and Suzuki, T. (eds.) 2019. *Geomorphology Illustrated New Edition*. Tokyo: University of Tokyo Press. (in Japanese)

Miscellaneous Reports

Suzuki, T. 2019. Reports of lectures on the Suigetsu tephra studies. *QR newsletter* **26**: 12-13. (in Japanese)

Suzuki, T. 2020. 1.2.1 Overview. In *Report of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River*, eds. Committee of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River, 22-24. Tokyo: Committee of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River. (in Japanese)

Suzuki, T. 2020. Chapter 2 Kazusa Group in the middle to upper reaches of the Tama River. In *Report of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River*, eds. Committee of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River, 55-104. Tokyo: Committee of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River. (in Japanese)

Ishimura, D. 2019. Description of Active Fault Map, Tsushima (Revised edition). Geographical Survey Institute, D1-No.933. (in Japanese)

Ishimura, D., Kagohara, K., Suzuki, Y. and Chida, N. 2019. Active Fault Map, Tsushima (Revised edition). Geographical Survey Institute. (in Japanese)

Presentations

Suzuki, T. 2019. Quest of landforms in Tokyo: History of landforms and sediments in Musashino. Open University, Tokyo Metropolitan University, April, Chiyoda-ku. (in Japanese)

Suzuki, T. 2019. Quaternary chronological studies on stratigraphy and tephra in the Choshi area: a favorable field for the reconstruction of development history of the Kanto Plain, NE Japan. Joint Symposium by the Japan Association for Quaternary Research and Choshi Geopark: Recent Result of the Quaternary Research in the East Kanto Plain, August, Choshi. (in Japanese)

Suzuki, T. 2019. Does an earthquake occurring below the Tokyo capital really occur in future? Possibility and preparation. Shincho Koza, September, Shinjuku-ku. (in Japanese)

Suzuki, T. 2019. Recent studies and disaster countermeasure for Oshima volcano. Oshima Citizen Forum: volcanic and landslide hazards mitigation measure, November, Oshima. (in Japanese)

Suzuki, T. 2019. Recognition of natural disaster: active fault and its related beds and landforms in Tama. Lecture for Hachioji Citizens, December, Hachioji. (in Japanese)

- Suzuki, T. 2020. Recognition of natural disaster: active fault and its related beds and landforms in Tama. 10th Training Lecture for Leader of Hachioji City Environmental Learning, January, Hachioji. (in Japanese)
- Suzuki, T. 2020. Large eruption history in the NE Japan Arc and development of the Kanto Plain established by tephra in the Kazusa Group. Symposium of the Branch, Association of Geological Society of Japan: tephra in the Kanto, age and their source, January, Kita-ku. (in Japanese)
- Suzuki, T. 2020. Keynote: Kazusa Group in the middle to upper reaches of the Tama River. Symposium of the Studies on the Kazusa Group in the middle to upper reaches of the Tama River, February, Hamura. (in Japanese)
- Suzuki, T. 2020. History of the extremely low frequent and huge eruptions and their impacts during the last 2 million years. 9th Symposium of the Japan Academic Network for Disaster Reduction, March, Minato-ku. (in Japanese)
- Suzuki, T. and Chigira, M. 2019. Slope failures occurred in the southwest part of the Izu-oshima Island in geological time, NE Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HDS14-04, May, Chiba. (in Japanese with English abstract)
- Suzuki, T. and Terayama, S. 2019. Tephrostratigraphy of the basaltic Izu-oshima volcano during last 20,000 years using radiocarbon ages and distal tephra, off Tokyo Pacific Ocean. *Abstracts of 20th Congress of the International Union for Quaternary Research (INQUA)*: P-1608, July, Dublin, Ireland.
- Suzuki, T., Terayama, S., Matsukaze, J. and Kato, Y. 2019. Tephrochronology in the southwest part of basaltic Izu-oshima volcanic island during last 20,000 years, off Tokyo, Pacific Ocean. *Abstracts of Japan Geoscience Union Meeting 2019*: SVC38-01, May, Chiba. (in Japanese with English abstract)
- Ishihara, T. and Suzuki, T. 2019. Comparison of geological stratigraphy between three drilling cores and analysis of shallow geological structure in the Koriyama Basin, Northeast Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-P-05, May, Chiba. (in Japanese with English abstract)
- Kato, Y. and Suzuki, T. 2019. Late Quaternary fluvial terraces and facies in the Tanagura area, along the upper reaches of Kuji River, NE Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-06, May, Chiba. (in Japanese with English abstract)
- Chigira, M., Tjika, J., Ishimaru, S. and Suzuki, T. 2019. Geological features of landslides of pyroclastic fall deposits induced by the 2018 Eastern Ibaraki Earthquake and other previous earthquakes. *Abstracts of Japan Geoscience Union Meeting 2019*: HDS14-P10, May, Chiba. (in Japanese with English abstract)
- Takasugi, N., Saito, T., Makino, K. and Suzuki, T. 2019. Tephrochronological relations of Middle-Pleistocene tephra derived from Myoko Volcanic Group and the pumice and scoria fall deposits

- found in Kosha Volcano, Central Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: SVC36-P19, May, Chiba. (in Japanese with English abstract)
- Naya, T., Sakata, K., Nakazawa, T., Suzuki, T. and Nakayama, T. 2019. Stratigraphy of Tokyo Formation: re-examination of Kita-Ku Central Park core. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-10, May, Chiba. (in Japanese with English abstract)
- Takasugi, N., Saito, T., Takeshita, Y., Makino, K. and Suzuki, T. 2019. Correlation of the Iz-KT tephra and the pumice fall deposits found in Kohsha Volcano, Central Japan. *Programme and Abstracts the Volcanological Society of Japan 2019 Fall Meeting*: 97, September, Akita. (in Japanese).
- Siwan, D., Albert, P., Bourne, A., Cook, E., Svensson, A., Suzuki, T., Ponomareva, V., Jensen, B. 2019. The Greenland tephra repository: uncovering the source and timing of distant eruptions. *Abstracts of 20th Congress of the International Union for Quaternary Research (INQUA)*: O-3042, July, Dublin, Ireland.
- Smith, V., Humphreys, M., Stock, M., Isaia, R., Suzuki, T., McLean, D. and Albert, P. 2019. Can apatites be used to correlate tephra deposits? *Abstracts of 20th Congress of the International Union for Quaternary Research (INQUA)*: P-3629, July, Dublin, Ireland.
- Endo, K., Suginaka, Y., Horii, S., Sugai, T., Suzuki, T., Isiwata, S., Uesugi, Y., Kondo, R., Chiba, T., Nakayama, T., Osato, S., Noguchi, M., Sato, A. and Takemura, T. 2019. Revision of geomorphology and geology of Tokyo Upland and Lowland, based on boring data and precise landform analysis. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-08, May, Chiba. (in Japanese with English abstract)
- Shirai, M. 2020. Geological features of the western part of the Musashino Upland and surrounding hills: Ome Formation and Kazusa Group. Open University, Tokyo Metropolitan University, Natural Environment of the western part of the Musashino Upland, February, Chiyoda-ku. (in Japanese)
- Shirai, M., Takehara, M. and Utsugawa, T. 2019. Sedimentological features of Fuji-Sagamigawa Lahar deposits from the upper reaches of Sagami River, central Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-P09, May, Chiba. (in Japanese with English abstract)
- Shirai, M., Utsugawa, T. and Kawajiri, K. 2019. Sedimentological features on hyperconcentrated flow deposit formed by the 300 years ago slope failure due to Nankai-Trough earthquake, central Japan. *Abstracts of 20th Congress of the International Union for Quaternary Research (INQUA)* : P-3868, July, Dublin, Ireland.
- Ishimura, D., Tsutsumi, H., Takahashi, N., Oda, R., Matsukaze, J., Kaneda, H., Kobayashi, M., Kumahara, Y., Kobayashi, M. and Ichihara, T. 2019. Paleo-seismological survey on the Idenokuchi fault, Nishihara village, Kumamoto prefecture. *Abstract of Japan Geoscience Union Meeting 2019*: SSS15-16, May, Chiba. (in Japanese with English abstract)
- Ishimura, D., Takahashi, N., Tsutsumi, H., Kumahara, Y., Toda, S. and Ichihara, T. 2020. Paleoseismic

- trenching on the subsidiary surface ruptures associated with the mainshock of the 2016 Kumamoto earthquake sequence. *Abstracts of HOKUDAN International Symposium on Active Faulting*: 44-45, January, Awaji, Japan. (invited)
- Ishimura, D. and Yamada, K. 2020. Lateral correlation of tsunami deposits since ca 6000 cal BP at Koyadori, Yamada Town, Iwate Prefecture, based on sedimentary facies, geochemical signature, gravel roundness, and radiocarbon dating. *Abstracts of HOKUDAN International Symposium on Active Faulting*: 42-43, January, Awaji, Japan.
- Ishimura, D. and Yamada, K. 2020. Estimations of source and transport process based on shape of gravels in event deposits: Case study of tsunami deposits at Koyadori, Yamada Town, Iwate Prefecture. *Proceedings of the General Meeting of the Association of Japanese Geographers* **97**: 156, March, Setagaya. (in Japanese)
- Fukushima, Y. and Ishimura, D. 2019. InSAR ground displacements and slip distribution associated with secondary fault slips of the 2016 Kumamoto earthquake. *Abstract of Japan Geoscience Union Meeting 2019*: STT45-03, May, Chiba. (in Japanese with English abstract)
- Claro, S.M., Ramos, N., Maxwell, K., Ramirez, A.B. and Ishimura, D. 2019. Characterization of coastal sediments in Zamboanga del Sur, Philippines in relation to offshore tsunamigenic earthquakes. *Abstracts of 20th Congress of the International Union for Quaternary Research (INQUA)*: O-3163, July, Dublin, Ireland.
- Murata, M., Kobayashi, M., Aoki, K. and Suzuki, T. 2019. Tephrostratigraphy and these correlation on Tenjosan and Kushigamine in Kozushima volcano, Izu Islands. *Japan Association for Quaternary Research, Programme and Abstracts* **49**: 22, August, Choshi. (in Japanese)
- Murata, M., Kobayashi, M., Takahashi, T., Aoki, K. and Suzuki, T. 2019. Tephrostratigraphy and these correlation on Ananoyama in Kozushima volcano, Izu Islands. *Programme and Abstracts, the Volcanological Society of Japan, 2019 Fall Meeting*: 97, September, Kobe. (in Japanese)
- Aoki, K., Kobayashi, M., Murata, M., and Suzuki, T. 2019. Tephrostratigraphy of drilled core C9010E off the Boso Peninsula: as a preliminary report. *Abstract of Japan Geoscience Union Meeting 2019*: HQR05-05, Chiba. (in Japanese with English abstract)
- Aoki, K., Kobayashi, M., Nishizawa, F., Murata, M., Ishimura, D., and Suzuki, T. 2019. Standard stratigraphy and characteristic properties of late Quaternary tephras on the Niijima-island: Report of geochemistry and refractive indices of volcanic glass shards, orthopyroxene, hornblende, and cummingtonite. *Abstract of Japan Geoscience Union Meeting 2019*: SVC38-P21, Chiba. (in Japanese with English abstract)
- Aoki, K., Kobayashi, M., Murata, M., and Suzuki, T., 2019. Characters and chronology of tephra beds in the drilled core C9010E off the Boso Peninsula. *Programme and Abstracts, Japan Association for Quaternary Research* **49**: 12, August, Chiba. (in Japanese)
- Aoki, K., Kobayashi, M., Murata, M., Nishizawa, T., Takahashi, T., and Suzuki, T. 2020. Construction

- of late Quaternary eruption history in and around the Izu Volcanic Islands, off Tokyo. Ocean Sciences Meeting 2020, February, San Diego, USA.
- Takahashi, T. and Sugai, T. 2019. Temporal and spatial changes of sediment supply processes from tributaries since the last glacial period in the upper valleys of the Tama and Ara rivers, central Japan. *Abstract of Japan Geoscience Union Meeting 2019*: HGM04-P08, May, Chiba. (in Japanese with English abstract)
- Takahashi, T., Aoki, K., Murata, M. and Suzuki, T. 2019. A review for the reconstruction of the eruptive history of the Izu Islands in consideration of the eustatic sea-level changes and submarine landforms. *Japan Association for Quaternary Research, Programme and Abstracts*: **49**, 47, August, Choshi. (in Japanese)
- Komatsu, T., Hiura, Y., Takahashi, T., Funatsu, T., Muraki, M., Kimori, T. and Sugai, T. 2019. Implications of the distribution of marine terraces and submerged terraces in Japanese Island. *Abstract of Japan Geoscience Union Meeting 2019*: HGM04-P12, May, Chiba. (in Japanese with English abstract)
- Kobayashi, M. 2020. Explosive tephra eruption history in the area from Fuji-Hakone Volcanoes to northern part of Izu Islands Volcanoes, *Abstracts of Symposium on recent chronology and sources of tephra in the Kanto region*, Geological Society of Japan (Kanto branches), 1-4, January, Kita-ku. (in Japanese)
- Kobayashi, M. 2020. The Growth of Kozushima Volcano, Explosive eruption history over recent tens of thousands of years. Sightseeing town development support advisor dispatch programme (Kozushima Tourism Association NPO), January, Kozushima. (in Japanese)
- Kobayashi, M. 2020. How to understand volcanic hazard maps correctly. Follow-up training programme for disaster prevention expert in Fujinokuni, Shizuoka Prefecture, December, Aoi-ku. (in Japanese)
- Kobayashi, M. 2020. Benefits of volcano created by long-term eruption activity of Kozushima Volcano. Sightseeing town development support advisor dispatch programme (Kozushima Tourism Association NPO), March, Kozushima. (in Japanese)
- Kobayashi, M., Murata, M., Aoki, K., Ishimura, D. and Suzuki, T. 2019. Tephrostratigraphy at Daisanyama and Jinai-jima, and correlation with eruption deposits from Mamashitaura Volcanoes in Niijima Volcano, Izu-islands. *Abstract of Japan Geoscience Union Meeting 2019*: SVC38-02, May, Chiba. (in Japanese with English abstract)
- Kobayashi, M., Murata, M., Nishizawa, F. and Suzuki, T. 2019. Tephrostratigraphy and its eruption history of the Latest Activity in the Kozushima Volcano, the Izu Islands. *Abstract of Japan Geoscience Union Meeting 2019*: SVC38-P22, May, Chiba. (in Japanese with English abstract)
- Kobayashi, M., Mannen, K., Yamaguchi, T. and Nagai, M. 2019. Eruption ages of the latest chains of craters on the central-cones of Hakone volcano. *Proceedings of the International Meeting on*

- Eruptive History and Informatics*: **2019-1**, 23-28, July, Jonan-ku. (in Japanese)
- Kobayashi, M., Mannen, K., Yamaguchi, T. and Nagai, M. 2019. Eruption ages of the latest chains of craters around Kamiyama and Owakudani, and positioning of 2015 Owakudani event in the eruption history of Hakone volcano. *Japan Association for Quaternary Research, Programme and Abstracts*: **49**, 24, August, Choshi. (in Japanese)
- Kobayashi, M., Mannen, K., Nagai, M. and Yamaguchi, T. 2019, The fissure vents in Kamiyama and Owakudani areas and their significance for disaster mitigation plans of Hakone Volcano. *Programme and abstracts the Volcanological Society of Japan 2019 Fall Meeting*: **110**, 88, Nada-ku. (in Japanese)
- Kobayashi, M., Murata, M., Nishizawa, F. and Suzuki, T. 2019, The Guide of Excursion in Kozushima Volcano, Jointly hosted by the Geological Society of Japan (Kanto branches) and Research Center for Volcanic Hazards and Their Mitigation of Tokyo Metropolitan University, November-December, Kozushima. (in Japanese)
- Kobayashi, M., Mannen, K., Yamaguchi, T. and Nagai, M. 2020. Phreatic eruption history at the latest stage (since ca. 3ka) of Hakone Volcano. *Proceedings of the International Workshop on the mechanism of Phreatic Eruption*: 10-11, January, Odawara.
- Tamura, I. 2019. The geohistory of Kamakura, Kanagawa Prefecture, Japan. Geo-Walk in Zisei no Kai, October, Kamakura. (in Japanese)
- Tamura, I. 2019. Tephrochronological study on paleo-environment in the Tama River Basin, Tokyo. The Geo Society of Aki River Basin. November, Tokyo.(invited) (in Japanese)
- Tamura, I. 2019. Tephrochronological study of the Naarai Formation, Inubo Group in the Choshi district, Chiba Prefecture, Japan. The geological education society of Chiba Prefecture. December, Chiba. (invited) (in Japanese)
- Tamura, I. 2020. The key tephras at P/P boundary in South Kano area. Symposium of Geological Society of Japan, Kanto branch. Summary, 13-16. January, Tokyo. (in Japanese)
- Tamura, I., and Mizuno, K. 2019. The history of volcanic eruption based on tephrochronology at Pliocene-Pleistocene in Japan :2 Chronology of pyroclastic flow deposits in southern Kyushu. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05- P07, May, Chiba. (in Japanese with English abstract)
- Tamura, I., Mizuno, K. and Yamazaki, H. 2019. Tephrochronological study of the Naarai Formation, Inubo Group in the Choshi district, Chiba Prefecture, Japan. *Japan Association for Quaternary Research 2018 : Programme and Abstracts* **49**: 52, August, Chiba. (in Japanese)
- Baba, A., Fujii, T., Chiba, T., Yoshimoto, M., Nishizawa, F. and Shibuya, H. 2019. Consideration of the formation process of Mt.Hoei, Fuji volcano. *Abstracts of Japan Geoscience Union Meeting 2019*: SVC35-02, May, Chiba. (in Japanese with English abstract)
- Yamamoto, S., Nishizawa, F., Yoshimoto, M., Miyairi, Y., Yokoyama, Y., Suga, H. and Ohkouchi, N.

- Compound-specific ^{14}C dating of tephra layers in the Lake Kawaguchi sediments. *Abstracts of Annual Meeting of the Geochemical Society of Japan*: 149, September, Bunkyo-ku. (in Japanese)
- Utsugawa, T. 2019. Establishment of a database and a network focusing on sedimentological learning materials for science education on elementary and junior high schools. *Abstracts for Annual Meeting of the Sedimentological Society of Japan 2019*: 15-16, April, Osaka. (in Japanese)
- Utsugawa, T. 2019. Geographical photographs of the dam management at the Tenryu River and coastal erosion at Enchu Coast in Shizuoka Prefecture, central Japan. The 2019 annual meeting of the Rissho Geographical Association: G11, June, Kumagaya. (poster, in Japanese)
- Utsugawa, T. 2020. Topography of the western part of the Musashino Upland: the Tama River and fluvial terrace. Open University, Tokyo Metropolitan University, Natural Environment of the western part of the Musashino Upland, February, Chiyoda-ku. (in Japanese)
- Utsugawa, T., Shirai, M., Kato, H. and Kato, S. 2019. Sedimentological characteristics of the Ome Formation exposed on the western margin of Musasino Upland, central Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-09, May, Chiba. (in Japanese with English abstract)
- Yokoyama, T., Hara, M., Utsugawa, T., Ito, T. and Shimazu, H. 2020. Agricultural land use and inundation risk in the river side land of the Natori River, Miyagi Prefecture. *Proceedings of the General Meeting of the Association of Japanese Geographers 97*: 264, March, Setagaya-ku. (in Japanese)
- Kawai, T., Nishizawa, F., Yamada, M. and Suzuki, T. 2019. Reexamination of correlation of Omachi APm Tephra Group and chronology of the Middle Pleistocene in northern Kanto District and northern Nagano Prefecture, Central Japan. *Japan Association for Quaternary Research, Programme and Abstracts 49*: 53, August, Choshi. (in Japanese)
- Hiramine, R. 2019. The pyroclastic materials as indicator of paleoenvironment in the northern part of Shimokita peninsula, Aomori prefecture. *Shimokita Geopark Research Meeting*, June, Mutsu. (in Japanese)
- Hiramine, R. 2020. Estimation of the source areas of drift pumice along the coast of the Japanese Island. *Joint-Use/Research Annual Report Meeting*: 45, February, Nankoku. (in Japanese)
- Hiramine, R., Aoki, K., Ishimura, D. and Kobayashi, M. 2019. Discovery and these sources of drift pumices interbedded in coastal sediments at Sekinehama, in the northern part of Shimokita peninsula, Aomori prefecture. *Abstracts of Japan Geoscience Union Meeting 2019*: HQR05-P04, May, Chiba. (in Japanese with English abstract)
- Hiramine, R., Aoki, K. and Suzuki, T. 2020. Distribution and source of drift pumice along the recent coast of the Japanese islands. *Proceedings of the General Meeting of the Association of Japanese Geographers 97*: 157, March, Setagaya-ku. (in Japanese)
- Tano, T., Suzuki, T., Kobayashi, M., Murata, M. 2019. Characteristic properties of distal and proximal tephra in the Mikurajima Island, Izu Islands. *Abstracts of Japan Geoscience Union Meeting 2019*:

- SVC38-P27, May, Chiba. (in Japanese with English abstract)
- Matsukaze, J., Shirai, M. and Utsugawa, T. 2019. Abrasion process of gravel considered from shape change of beach gravel in Joetsu region, Niigata Prefecture, central Japan. *Abstracts of Japan Geoscience Union Meeting 2019*: HCG32-P01, May, Chiba. (in Japanese with English abstract)
- Oda, R., Ishimura, D., Suzuki, T. 2019. Distribution, geometry and slip rates of branch faults around the Kita-Izu fault zone. *Abstracts of Japan Geoscience Union Meeting 2019*: SSS15-P07, May, Chiba. (in Japanese with English abstract)
- Terayama, S., Suzuki, T., Kobayashi, M. 2019. Descriptions and age of volcanic products before the caldera formation in the northern part of Izu-Oshima, off Tokyo, Pacific Ocean. *Abstracts of Japan Geoscience Union Meeting 2019*: SVC38-P19, May, Chiba. (in Japanese with English abstract)
- Akikusa, K. 2020. The formation process of the characteristic shell condensed area in the Yatsu Tidal Flat, Tokyo Bay. The 68th National Geography Major Graduation Article Conference, March, Koganei. (in Japanese)

2 Laboratory of Climatology

1) Staffs

Jun MATSUMOTO	Professor / D.Sc. Monsoon Climatology, Environmental Climatology
Hideo TAKAHASHI	Professor / D.Sc. Urban Climatology, Climatic Change, Rainfall Climatology
Hiroshi TAKAHASHI	Assistant Professor / PhD (D.Sc.) Climate System Study, Cloud-Precipitation Climatology, Regional Climate Modeling
Fumiaki FUJIBE	Project Professor / D.Sc. Urban Climatology, Environmental Climatology
Jun-Ichi HAMADA	Project Associate Professor / PhD (D.Sc.) Tropical Climatology, Meteorological Observation
Tomoshige INOUE	Project Assistant Professor / PhD (D.Sc.) Monsoon Climatology, Climate Change, Global Warming
Nozomi KAMIZAWA	Project Assistant Professor / PhD (D.Sc.) Asian monsoon, Climate change, Climate simulation
Masato NODZU	Project Researcher / PhD (D.Sc.) Tropical climatology, Satellite Meteorology, Meteorological Observation
Yoshihito SETO	Project Researcher / PhD (D.Sc.) Urban Climatology, Local Climatology, Statistical Analysis
Ko NAKAJIMA	Project Researcher / PhD (D.Sc.) Urban Climatology, Local Climatology

2) Overview of Research Activitie

Our laboratory investigates climate system on the earth in various temporal-spatial scales. In particular, we focus on climate changes due both to natural and anthropogenic causes, for example, processes of heat island and heavy rainfall events over and around urban regions, and influences of land-use changes and deforestation on regional climates. We also investigate diurnal, intra-seasonal, and inter-annual variabilities and long-term changes of climate, in particular, rainfall activities in the Asian monsoon region, and influences of global warming on regional climates (future projection).

We apply three major methods, observation (monitoring), data-analysis of various global and regional datasets, and numerical modeling for investigating above-mentioned topics.

1. Climate changes and climate variability over Japan and around the world
2. Variability and seasonal changes of regional climate over Asian monsoon region
3. Observational study on formation processes of urban heat island, detailed structure of urban boundary layer, and elucidation of urban effects on short duration intense rainfall
4. Impacts of land-surface conditions and changes on cloud and precipitation activities, in particular, in the tropics
5. Reconstruction of past climate during the historical period in Japan and in East Asia

3) List of Research Activities in FY2019

Peer-reviewed Articles

- Matsumoto, J., Olaguera, L.M., [Nguyen-Le, D.](#), [Kubota, H.](#) and [Villafuerte II, M.Q.](#) 2020. Climatological seasonal changes of wind and rainfall in the Philippines. *International Journal of Climatology*. doi:10.1002/joc.6492.
- Oka, A., Takahashi, H., Nakajima, K. and Suzuki, H. 2019. Regional characteristics of heavy summertime rainfall in and around urban Tokyo from the viewpoint of the spatial extent of rainfall area. *E-journal GEO* **14**: 233-245. doi: 10.4157/ejgeo.14.233 (in Japanese with English abstract)
- Fujibe, F., Matsumoto, J. and Suzuki, H. 2019. Spatial and temporal features of cold mortality in Japan and their relation to temperature variations. *Tenki* **66**: 513-527. doi:10.24761/tenki.66.8_513. (in Japanese with English abstract)
- Fujibe, F., Matsumoto, J. and Suzuki, H. 2019. Spatial variability of municipality-wise heat and cold mortality in Japan with respect to temperature and economic states. *Geographical Review of Japan, Series B* **92**: 52-63.
- Du, H., Alexander, L. V., Donat, M. G., Lippmann, T., Srivastava, A., Salinger, J., Kruger, A., Choi, G., He, H. S., Fujibe, F., Rusticucci, M., Nandintsetseg, B., Manzanar, R., Rehman, S., Abbas, F., Zhai, P., Yabi, I., Stambaugh, M. C., Wang, S., Batbold, A. de O., Priscilla T., Adrees, M., Hou, W., Zong, S., Santos e Silva, C. M., Lucio, P. S. and Wu, Z. 2019. Precipitation from persistent extremes is increasing in most regions and globally. *Geophysical Research Letters* **46**: 6041-6049. doi:10.1029/2019GL081898.
- Seto, Y., Fukushima, A. and Takahashi, H. 2019. Regional transition time distribution of local summer wind systems in the southern Kanto region. *E-journal GEO* **14**: 223-232. doi: 10.4157/ejgeo.14.223. (in Japanese with English abstract)
- Olaguera, L.M. and Matsumoto, J. 2020. A climatological study of the wet and dry conditions in the pre-summer monsoon season of the Philippines. *International Journal of Climatology*. doi:10.1002/joc.6452.
- Olaguera, L.M., Matsumoto, J., Julie Mae B. Dado and Gemma Teresa T. Narisma 2020. Non-tropical cyclone related winter heavy rainfall events over the Philippines: climatology and mechanisms.

Asia-Pacific Journal of Atmospheric Sciences. doi:10.1007/s13143-019-00165-2.

Other Articles

Matsumoto J. and Asada H. 2020. Rainfall, floods, and rice production in the Ganges-Brahmaputra-Meghna River Basin. In: Yokoyama S., Matsumoto J., Araki H. (eds) *Nature, Culture, and Food in Monsoon Asia, International Perspectives in Geography, AJG Library 10*, 3-14, Singapore: Springer. doi: 10.1007/978-981-15-2113-3_1.

Fujibe, F. 2019. Strong winds and disaster in Kagoshima due to a typhoon on 15 August 1899. *Tenki* **66**: 495-499. (in Japanese).

Fujibe, F. Matsumoto, J. and Suzuki, H. 2019. Features of heat stroke damage in the 2018 summer in Tokyo. *Tenki* **66**: 644-650. (in Japanese).

Ueda, H., Kibe, A., Saitoh, M., and Inoue, T., 2019. Tropical-origin remote forcing on wintertime snowfall variations in Japan. *Meteorological Research Note* **240**: 105-113. (in Japanese).

Books

Yokoyama S., Matsumoto J. and Araki H. (eds) 2020. *Nature, Culture, and Food in Monsoon Asia, International Perspectives in Geography, AJG Library 10*, Singapore: Springer.

Reports

Tsukahara T., Matsumoto, J., Kubota, H., Ota, A. and Matsumoto K. (eds.) 2019. *Climate Reconstruction in Asia, Trans-science between Humanities and Meteorology over Logbook, Monsoon and Typhoon*. Kobe: STS Science. (in Japanese with English Abstract)

Takahashi, H. and Suzuki, H. eds. 2020. Researches on the behavior of heavy rainfall systems in urban area. FY2019 Joint Research Report of Tokyo Metropolitan University and Research & Development Center of JR East Group. (in Japanese)

Book Reviews

None

Miscellaneous Reports

Matsumoto J. 2019. Report on the 11th Annual ACRE Meeting and other related meetings. *Journal of Geography (Chigaku Zasshi)* **128**: N73. (in Japanese)

Presentations

Matsumoto, J. 2019. Variability of Asain monsoon and rice cultivation — severe floods promote agriculture in Bangladesh. *Kawasaki Citizen Academy Course*, October, Kawasaki. (in Japanese)

Matsumoto, J. Olaguera, L.M., Kubota, H., Inoue, T., Cayan, E.O. and Hilario, F.D. 2019. Interdecadal Shifts in the Summer and Winter monsoon of the Philippines. *The 27th International Union of Geodesy and Geophysics (IUGG) General Assembly*, July, Montreal, Canada.

Matsumoto, J., Trinh-Tuan, L., Konduru, T.R., Inoue, T., Ngo-Duc T. and Olaguera, L.M. 2019. Increasing autumn heavy rainfall trend in South Central Vietnam and its relationship with local

- sea surface temperature. *Abstract of the Asia Oceania Geosciences Society 2019 Meeting*: AS03-A016, July, Singapore.
- Matsumoto, J., Kubota, H., Inoue, T., Terao, T., Murata, F., Hayashi, T., Akasaka, I. and Endo, N. 2019. Data rescue activities in the Asian monsoon region under the ACRE-Japan 2019. *ACRE-Asia Joint Workshop*, November, Wuhan, China.
- Matsumoto, J., Kubota, H., Inoue, T., Terao, T., Murata, F., Kiguchi, M., Hayashi, T., Akasaka, I., Fujinami, H., Kanamori, H. and Endo, N. 2019. Long-term Asian monsoon changes through the data rescue activities under the ACRE-Japan. *Workshop on Climate in History in Asia*, September, Leiden, Netherlands.
- Matsumoto, J., Kubota, H. Inoue, T., Terao, T., Murata, F., Kiguchi, M., Hayashi, T., Akasaka, I., Kamahori, H., Fujinami, H., Kanamori, H. and Endo, N. 2019. Long-term Asian monsoon changes through the data rescue activities under the ACRE-Japan. *AsiaPEX Kick-off Conference*, August, Sapporo.
- Matsumoto, J., Kubota, H. Inoue, T., Akasaka, I., Kamahori, H., Fujibe, F., Hayashi, T., Terao, T., Murata, F., Fujinami, H., Fukushima, A., Mikami, T. and Zaiki, M. 2019. Recovery of the Asian monsoon variations since the late 19th century by the data rescue activities. *Abstract of the Japan Geosciences Union 2019*: MIS17-05, May, Chiba.
- Matsumoto, J., Inoue, T., Fujibe, F., Hamada, J., Hayashi, T., Terao, T., Murata, F., Kubota, H., Akasaka, I., Kamahori, H., Endo, N., Yamamoto, H., Kobayashi, S. and Muraji, Y. 2019. ACRE – Japan, reconstruction of the long-term Asian monsoon variations through the data rescue activities. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 45, May, Shibuya-ku. (in Japanese)
- Fujinami, H., Kanamori, H. and Matsumoto, J. 2019. Characteristics of summer time rainfall variations and their long-term changes in Bangladesh. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 225, May, Shibuya-ku. (in Japanese)
- Fukushima, A., Kanamori, H. and Matsumoto, J. 2019. Regionality of interannual variation of seasonal precipitation over India. *AsiaPEX Kick-off Conference*, August, Sapporo.
- Kiguchi, M., Okami, N., Tanoue, M., Hayashi, T., Oki, T. and Matsumoto, J. 2019. Long-term changes of rainfall characteristics in Sri Lanka using 100-years record. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 191, May, Shibuya-ku. (in Japanese)
- Kiguchi, M., Okami, N., Tanoue, M., Hayashi, T., Oki, T. and Matsumoto, J. 2019. Change of rainfall characteristics in Sri Lanka using 100-years record. *Proceedings of the General Meeting of the Association of Japanese Geographers 2019 Fall Meeting* **96**: 134-135, September, Niigata. (in Japanese)
- Kubota, H., Matsumoto, J., Akasaka, I., Zaiki, M. and Kobayashi, S. 2019. Research on the summer Asian monsoon variations developed from the precipitation data rescue activities in the

- Philippines. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 48, May, Shibuya-ku. (in Japanese)
- Kubota, H., Matsumoto, J., Zaiki, M., Mikami, T., Tsukahara, T., Kobayashi, S., Yamamoto, H., Hirano, J., Inoue, T., Akasaka, I., Kamahori, H., Fujibe, F., Hayashi, T., Terao, T., Murata, F., Fujinami, H. and Fukushima, A. 2019. ACRE Japan and Ship logs along Japan. *The C3S Data Rescue Capacity Building Workshop and the 12th ACRE Meeting*, April, Buenos Aires, Argentina.
- Muraji, Y., Matsumoto, J., Inoue, T., Kubota, H., Yamamoto, H., Kobayashi, S., Akasaka, I. and Kamahori, H. 2019. Digitization of paper and image format meteorological data in the early 20th century. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 43, May, Shibuya-ku. (in Japanese)
- Murata, F., Matsuyama, S., Inoue, T., Yamasaki, R., Kuriyama, K., Kamahori, H. and Matsumoto, J. 2019. Characteristics of precipitation in Shikoku, Japan using long-term daily rainfall data. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 71, May, Shibuya-ku. (in Japanese)
- Murata, F., Terao, T., Fujinami, H., Chakravarty, K., Syiemlieh, H.J., Cajee, L. and Matsumoto, J. 2019. Causes of the wettest place in the southern slope of the Meghalaya Plateau, Northeast India. *AsiaPEX Kick-off Conference*, August, Sapporo.
- Terao, T., Kanae, S. and Matsumoto, J. 2019. New Asian monsoon hydroclimatological project under the GEWEX framework. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 337, May, Shibuya-ku. (in Japanese)
- Terao, T., Kanae, S. and Matsumoto, J. 2019. Missions and key questions of new Asian monsoon hydroclimatological project, Post MAHASRI. *Abstract of the Asia Oceania Geosciences Society Annual Meeting*: HS07-A022, August, Singapore.
- Terao, T., Kanae, S. and Matsumoto, J. 2019. Objectives and Overarching Key Questions of AsiaPEX. *AsiaPEX Kick-off Conference*, August, Sapporo.
- Takahashi, H., Sugawara, H., Seto, Y., Nakajima, K., It, Y. and Tsunematsu, N. 2020. Preliminary analysis concerning thermal structures of nocturnal boundary layer from west suburbs to the central area of Tokyo. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 129, March, Setagaya-ku. (in Japanese)
- Oka, A., Takahashi, H. and Suzuki, H. 2020. Regional characteristics of diurnal variation in occurrence frequency of summertime localized heavy rainfall in and around the Tokyo metropolitan area. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 317, March, Setagaya-ku. (in Japanese)
- Takahashi, H. G., Sugimoto, S. and Fujinami, H. 2019. Role of land-atmospheric interactions in the diurnal variation of precipitation over the Asian monsoon region. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 342, May, Shibuya-ku. (in Japanese)

- Sugimoto, S. and Takahashi, H. G. 2019. Importance of high resolution experiments over Tibetan and Himalayan regions. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 341, May, Shibuya-ku. (in Japanese)
- Fujibe, F. 2019. Urban warming in Japan with relation to global climate change. *International Workshop on Urban Climate Projection*, October, Tsukuba.
- Fujibe, F. 2019. Tornado disaster at the Yodobashi Elementary School in Tokyo on 23 September 1903. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 108, October, Fukuoka. (in Japanese)
- Fujibe, F. and Matsumoto, J. 2020. Long-term trends of newspaper coverage on climate change and summer heat. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 122, March, Setagaya-ku. (in Japanese)
- Fujibe, F., Matsumoto, J. and Suzuki, H. 2019. Distribution of heat and cold mortality based on municipality-wise data. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 288, May, Shibuya-ku. (in Japanese)
- Fujibe, F., Matsumoto, J. and Suzuki, H. 2019. Regional and temporal variations of heat-stroke transport rates in Japan: Comparison with the features of mortality. *The 14th National Conference of Heat Island Institute International* 76-77, September, Kashiwa. (in Japanese with English abstract)
- Fujibe, F., Matsumoto, J. and Suzuki, H. 2019. Relationship between daily ambulance transport rates due to heat stroke and meteorological elements. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 163, October, Fukuoka. (in Japanese)
- Kamahori, H., Fujibe, F. and Matsumoto, J. 2019. Data rescue for precipitation observation in the Kanto and Tokai Districts. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 44, May, Shibuya-ku. (in Japanese)
- Hamada, J.-I., Matsumoto, J., Kamogawa, M., and Takahashi, Y. 2019. Study on lightning activities over the Tokyo Metropolitan area based on atmospheric electrical field observation. *The 13th MU radar/Equatorial Atmospheric Radar Symposium*, September, Uji. (in Japanese)
- Hamada, J.-I., Matsumoto, J., Inoue, T., Kamogawa, M., and Takahashi, Y. 2019. Study on thunder cloud activities over Tama, Tokyo based on atmospheric electric field observation -Case study for the hail storm event in May 4, 2019-. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 318, March, Setagaya-ku. (in Japanese)
- Hamada, J.-I., Matsumoto, J., Yamanaka, M. D., Hasan, S. and Syamsudin, F., 2019: Seasonal rainfall variations and their long-term variability in Jakarta, Indonesia. *Abstract of the Meteorological Society of Japan 2019 Spring meeting* **115**: 74, May, Shibuya-ku. (in Japanese)
- Hamada, J.-I., Matsumoto, J., Yamashita, K., H. Kamogawa, and Takahashi, Y. 2019. Monitoring for lightning activities and thunder cloud developments over the Tokyo metropolitan area during the

- 2018 summer. *Abstract of the Japan Geosciences Union Meeting 2019*: MIS05-P04, May, Chiba.
- Estrebillo, L., Sato, M., Takahashi, Y., Kubota, H., Yamashita, K., Hamada, J.-I. and Marciano, J. 2019. Estimation of lightning location using V-POTEKA lightning observation network. *Abstract of the Japan Geosciences Union Meeting 2019*: MIS05-07, May, Chiba.
- Katsumata, M., Mori, S., Hamada, J.-I., Hattori, M., Syamsudin, F. and Yamanaka, M.D. 2019. Diurnal cycle over a coastal area of the maritime continent as derived by special networked soundings over Jakarta during HARIMAU2010. *Abstract of the Asia Oceania Geosciences Society 2019 Meeting*: AS28-D3-PM1-P-154, July, Singapore.
- Kubota, H., Takahashi, Y., Sato, M., Yamashita, K. and Hamada, J.-I. 2019: ULAT SATREPS – Observation study for the lightning activity and tropical cyclone intensity relationship in the Philippine Sea. *AsiaPEX Kick Off Conference*, August, Sapporo.
- Mori, S., Katsumata, M., Hamada, J.-I., Sulistyowati, R., Lestari, S. and Syamsudin, F. 2019. Jakarta Heavy precipitation Experiment (JaHE), a new field study on the IMC coastal hydrological cycle climatology. *Abstract of the Australian Meteorological and Oceanographic Society (AMOS) National Radar Workshop*, November, Clayton, Australia.
- Mori, S., Hamada, J.-I., Souma, K., Kanamori, H. and Syamsudin, F. 2019. JAKarta Heavy Precipitation Experiment (JAHE), a new Kakenhi based field study on the MC coastal hydrological cycle climatology. *AsiaPEX Kick Off Conference*, August, Sapporo.
- Mori, S., Hamada, J.-I., Wu, P., Shirooka, R., Yokoi, S., Yoneyama, K., Haryoko, U., Nurahyati, N., Sulistyowati, R. and Syamsudin, F. 2019. Convections and lightning activities over the southwestern coastal area of Sumatra Island, Indonesia, observed during the Pre-YMC 2015 and YMC-Sumatra 2017 campaigns. *Abstract of the European Geosciences Union General Assembly 2019*: EGU2019-3856/AS1.38, April, Vienna, Austria.
- Mori, S., Hamada, J.-I., Wu, P., Shirooka, R., Yokoi, S., Yoneyama, K., Haryoko, U., Nurhayati, N., Sulistyowati, R. and Syamsudin, F. 2019. Convections and lightning activities over the southwestern coastal land of Sumatra island, Indonesia, observed during the Pre-YMC 2015 and YMC-Sumatra 2017 campaigns. *Abstract of the Australian Meteorological and Oceanographic Society Annual Meeting and the International Conference on Tropical Meteorology and Oceanography (AMOS-ICTMO) 2019*: #61/31, June, Darwin, Australia.
- Mori, S., Hamada, J.-I., Wu, P.-M., Shirooka, R., Yokoi, S., Yoneyama, K., Haryoko, U., Sulistyowati, R. and Syamsudin, F. 2019. Diurnal variations of convection and lightning activity over the southwest coastal area of Sumatra. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 137, October, Fukuoka. (in Japanese)
- Sato, M., Takahashi, Y., Kubota, H., Yamashita, K., Hamada, J.-I. and Marciano, J. 2019. Relation between lightning and typhoon activities (Typhoon LAN) in the western Pacific region. *Abstract of the Japan Geosciences Union Meeting 2019*: MIS05-04, May, Chiba.

- Sato, M., Takahashi, Y., Kubota, H., Yamashita, K., Hamada, J.-I., and Marciano, J., 2019. Prediction of the typhoon intensity development by monitoring lightning activity. *Abstract of the Asia Oceania Geosciences Society 2019 Meeting*: AS47-D4-PM2-302-003, August, Singapore.
- Takahashi, Y., Sato, M., Kubota, H., Yamashita, K., Hamada, J.-I., Castro, E., Ishida, T., Estrebillo, L., Pulutan, D. and Purwadi. 2019. Monitoring of typhoon and thunderstorms using micro-satellites and ground-based lightning networks. *Abstract of the European Geosciences Union General Assembly 2019*, EGU2019-12625/AS1.38, April, Vienna, Austria.
- Inoue, T., Matsumoto, J. and Kubota, H. 2019. Data rescue activities of daily rainfall before the early 20th century and rainfall variations for the past 125 years (1891-2015) in Myanmar (Burma). *Kick-off Workshop: Rain, Water, and Rice in Modern Burma*, November, Bunkyo-ku.
- Kiguchi, M., Okami, N., Murata, F., Tanoue, M., Fukushima, A., Yamane, Y., Terao, T., Hayashi, T., Oki, T., Inoue, T. and Matsumoto, J. 2019. Long-term changes of rainfall characteristics in Bangladesh using 126-years daily precipitation records. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 73, May, Shibuya-ku. (in Japanese)
- Kiguchi, M., Okami, N., Murata, F., Tanoue, M., Fukushima, A., Yamane, Y., Terao, T., Hayashi, T., Oki, T., Inoue, T., and Matsumoto, J. 2019. Change of rainfall characteristics in Bangladesh and Sri Lanka using more than 100-years record. *Abstract of the American Geophysical Union Fall Meeting 2019*: A23H-3016, December, San Francisco, USA.
- Murata, F., Terao, T., Kiguchi, M., Fukushima, A., Tanoue, M., Hayashi, T., Inoue, T. and Matsumoto, J. 2019. Inter-annual variation of daily rainfall in Bangladesh during 1891-2016. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 189, May, Shibuya-ku. (in Japanese)
- Murata, F., Terao, T., Yamane, Y., Kiguchi, M., Fukushima, A., Tanoue, M., Hayashi, T., Inoue, T., Matsumoto, J. 2019. Synoptic condition during pre-monsoon precipitations in Bangladesh. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting*, **116**: 195. October, Fukuoka. (in Japanese)
- Kamizawa, N. and Takahashi H. G.. 2019. Roles of the Pacific-Japan teleconnection pattern on the 2018 heatwave in Japan and its association with the dramatic seasonal march of the Asian summer monsoon. A workshop on tropical meteorology, December, Toyama. (in Japanese)
- Kamizawa, N. and Takahashi H. G.. 2020. Effect of the Pacific-Japan teleconnection on the 2018 heatwave in Japan and its relationship with the seasonal march of the Asian summer monsoon. *Proceedings of the General Meeting of the Association of Japanese Geographers 2018 Autumn Meeting* **97**: 132, March, Setagaya-ku. (in Japanese)
- Nakajima, K., Tsunematsu, N. and Takahashi, H. 2019. Inter annual variation of nocturnal vertical potential temperature profile during clear and weak wind winter nights over the urban area of Tokyo. *Proceedings of the General Meeting of the Association of Japanese Geographers Autumn Meeting* **96**: 30, September, Niigata. (in Japanese)

- Nakajima, K., Takahashi, H., Sugawara, H. and Tsunematsu, N. 2019. Characteristic features of urban boundary layer on fine winter days observed by temperature profiler at the central Tokyo. *Research Group Meeting for Urban Climatic Environment at Annual Meeting of the Association of Japanese Geographers 2019 Autumn Meeting*, September, Niigata. (in Japanese)
- Nakajima, K., Tsunematsu, N., Yokoyama, H., Shusse, Y. and Takahashi, H. 2019. Relationship between surface wind systems and precipitation distribution during a short time intense rainfall on 4 May, 2019 in Tokyo metropolitan area. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **113**: 148, October, Fukuoka. (in Japanese)
- Nodzu, M. I.. 2019. Reviewing Asian Monsoon Years (AMY): Sec. 3.5.1 description -as an example for coordinated obs. & modeling initiatives-. *AsiaPEX International SSG Workshop*, September, Nagoya.
- Nodzu, M. I.. 2020. River basin scale validation of the GSMaP rainfall estimation over Vietnam. *The International Workshop on Asian Monsoon Climate*, January, Hachioji.
- Nodzu, M. I., Matsumoto, J., Trinh-Tuan, L., Ngo-Duc, T. and Duc-Tri, T. 2019. Validation of GSMaP sub-daily-scale precipitation over northern Vietnam. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 339, May, Shibuya-ku. (in Japanese)
- Nodzu, M. I., Matsumoto, J., Trinh-Tuan, L., Ngo-Duc, T. and Duc-Tri, T. 2019. Toward improvement in estimate of precipitation in higher resolution with surface gauge, radar and satellite observations in Vietnam. *AsiaPEX Kick-off Conference*, August, Sapporo.
- Nodzu, M. I., Matsumoto, J., Trinh-Tuan, L., Ngo-Duc, T. and Truong-Duc, T. 2019. Performance of Global Satellite Mapping of Precipitation (GSMaP) estimate over northern Vietnam. *The 39th International Conference on Radar Meteorology*, September, Nara. (Poster)
- Nodzu, M. I., Matsumoto, J., Watanabe, T., Seto, Y., Nakajima, K. and Matsuzaki, Y. 2019. A promising new observation in the AsiaPEX – an unmanned aerial vehicle observation of evolution in the lower boundary layer in the morning. *AsiaPEX Kick-off Conference*, August, Sapporo. (poster)
- Nodzu, M. I., Matsumoto, J., Seto, Y., Watanabe, T., Nakajima, K., Matsuzaki, Y., Olaguera, L.M. and Saito Y. 2019. UAV observation of evolution in lower planetary boundary layer in clear and calm-wind morning in winter. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 399, October, Fukuoka. (in Japanese)
- Nodzu, M. I., Shigeta, Y., Tada, Y., Otani, K., Makizono, Y., Yoshida, A., Matsumoto, J., Olaguera, L.M., Watanabe, T., Seto, Y., Nakajima, K., Inoue, T., Hamada, J.-I., Matsuzaki, Y., Saito Y. 2020. UAV Observation of temperature and humidity in lower planetary boundary layer at Shionomisaki Wind Effect Laboratory. *Workshop toward integrative research of observational data in, over and around the ocean*, February, Kushimoto. (in Japanese)
- Nodzu, M. I., Shigeta, Y., Yoshida, A., Tada, Y., Otani, K., Makizono, Y. and Matsumoto, J. 2019.

- Comparing vertical-profile observations of temperature, relative humidity and wind by UAV observation with those by tethered and pilot balloons. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting*, **116**: 151, October, Fukuoka. (in Japanese)
- Nodzu, M. I., Watanabe, T., Seto, Y., Matsumoto, J., Olaguera, L.M., Nakajima, K., Inoue, T., Hamada, J.-I., Matsuzaki, Y., Saito Y., Shigeta, Y., Tada, Y., Otani, K., Makizono, Y. and Yoshida, A. 2020. Observation of lower planetary boundary layer with an industrial drone. *Workshop of meteorological measurement instruments association*, February, Chiyoda-ku. (in Japanese)
- Ogino, S.-Y., Miyazaki, K., Fujiwara, M., Nodzu, M. I., Shiotani, M., Hasebe, F., Matsumoto, J., Witte, J., Thompson, A., Nguyen, H.A, and Nguyen V.T. 2019. Lower-tropospheric high-ozone layer over eastern edge of Indochina Peninsula revealed by ozonesondes in Hanoi, Vietnam. *The 4th Atmospheric Composition and Asian Monsoon (ACAM) 2019 Workshop*, June, Bangi, Malaysia.
- Ogino, S.-Y., Miyazaki, K., Fujiwara, M., Nodzu, M. I., Shiotani, M., Hasebe, F., Matsumoto, J., Witte, J., Thompson, A., Nguyen, H.A. and Nguyen V.T. 2019. Pre-monsoon ozone enhancement in the lower troposphere over the southeast Asia: Generation mechanism and three-dimensional structure. *The 13th MU radar/Equatorial Atmospheric Radar Symposium*, September, Uji. (in Japanese)
- Ogino, S.-Y., Miyazaki, K., Fujiwara, M., Nodzu, M. I., Shiotani, M., Hasebe, F., Matsumoto, J., Witte, J., Thompson, A., Nguyen-Hoang, A. and Nguyen-Vinh, T. 2019. Ozon increase phenomenon in lower troposphere in spring over Southeast Asia: Generation mechanisms and three-dimension structure. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 483, October, Fukuoka. (in Japanese)
- Shigeta, Y., Yoshida, A., Nodzu, M. I., Tada, Y., Otani, K., Makizono, Y. 2019. Observation of temperature and relative humidity with tethered balloons and GPS radiosondes: Quality control of measurements in lower atmosphere. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 150, October, Fukuoka. (in Japanese)
- Watanabe, T., Nodzu, M. I., Seto, Y. and Matsumoto, J. 2019. Structure of troposphere over Kanto Plain during a föhn phenomenon in heat-wave events in July, 2018. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 222, October, Fukuoka. (in Japanese)
- Yoshida, S., Nishimura, T., Ariyoshi, K., Inuma, T., Nishida, S., Machida, Y., Miyazawa, Y., Miyama, T., Uchida, H., Wakita, M., Fujita, M., Kuwatani, T., Fujiwara, S., Kimoto, K., Nakano, Y., Kawai, Y., Watanabe, S., Ichikawa, K., Hasegawa, T., Fuji, A., Komatsu, Y., Tachibana, Y., Watarai, Y., Nakamura, Y., Hirata, H., Shigeta, Y., Nodzu, M. I., Minowa, M., Takashima, Y., Inoue, S., Iwahori, T. and Intensive Observational Campaign Team of Shinseimaru, Seisuimaru and Cape Shionomisaki 2019. Penetrative-coincident observation of atmosphere, ocean and seabed off and over Kii Peninsula. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**:

- 403, October, Fukuoka. (in Japanese)
- Seto, Y. and Takahashi, H. 2020. Adjustment technique of observed wind by roughness parameter for analysis of recent changes in local wind systems over the Kanto Plain. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 316, March, Setagaya-ku. (in Japanese)
- Seto, Y., Shoji, Y., Tsunematsu, N. and Takahashi, H. 2019. Relationships between water vapor concentration index derived from GNSS and surface wind convergence during localized heavy rainfall in Tokyo in summer. *Abstracts of JpGU Meeting 2019*: MTT46-P06, May, Chiba.
- Fujiwara, S. and Matsumoto, J. 2019. Long-term changes of summer time precipitation characteristics in Korea. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting*, **116**: 372, October, Fukuoka. (in Japanese)
- Konduru, R. T., and Takahashi, H. G. 2020. Seasonal differences in the land-atmosphere coupling over South Asia simulated using a regional climate model. *Geographical reports*, **55**: 23-34.
- Matsuzaki, Y. and Matsumoto, J. 2019 Categorize of wind field and its interannual variability over the Maritime Continent during boreal winter. *Abstracts of the Japan Meteorological Society 2019 Fall Meeting* **116**: 424, October, Fukuoka. (in Japanese)
- Olaguera, L.M., Matsumoto, J., Kubota, H., Inoue, T., Cayanan, E.O. and Hilario, F.D. 2019. Interdecadal shifts in the winter monsoon rainfall of the Philippines. *Abstract of the Asia Oceania Geosciences Society 2019 Meeting*: AS03-A001, July, Singapore.
- Yamaji, M. and Matsumoto, J. 2020. Overview of the Global Satellite Mapping of Precipitation (GSMaP) and its application in Geographical Education. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting* **97**: 38, March, Setagaya-ku. (in Japanese).
- Yamaji, M., Takahashi, H. G., Kubota, T., Oki, R., Hamada, A., and Takayabu, Y. N. 2019: Gloal Drop Size Distribution observed by GPM/DPR. Poster1-01, 39th International Conference on Radar Meteorology, September 2019, Nara, Japan.
- Yamaji, M., Takahashi, H. G., Kubota, T., Oki, R., Hamada, A. and Takayabu, Y. N. 2019: Gloal Drop Size Distribution observed by GPM/DPR. *Abstracts of the Meteorological Society of Japan 2019 Fall Meeting* **116**: 447, October 2019, Fukuoka. (in Japanese).
- Kitabayashi, S. and Takahashi, H. G. 2019. Dependence of variability of surface air temperature by volcanic eruptions on the phase of ENSO. *Abstracts of the Meteorological Society of Japan 2019 Spring Meeting* **115**: 252, May, Shibuya-ku. (in Japanese)
- Kitabayashi, S. and Takahashi, H. G. 2019. Surface air temperature response to large volcanic eruptions: Difference in the phase of ENSO. *Abstracts of the Meteorological Society of Japan 2019 Autumn Meeting* **116**: 363, October, Fukuoka. (in Japanese)
- Kitabayashi, S. and Takahashi, H. G. 2020. Surface air temperature response to large-scale volcanic

eruptions and its relationship with ENSO. *Proceedings of the General Meeting of the Association of Japanese Geographers* **97**: 239, March, Setagaya-ku. (in Japanese)

Nobuhiro, K. 2020. Relationship between snowfall on the Kanto region and the south-coast cyclone track, focusing on the Kuroshio path. The 68th Meeting of Graduation Thesis of Geography, March, Koganei.

3 Laboratory of Environmental Geography

1) Staffs

Makiko WATANABE	Professor/ Ph.D Soil Geography, Environmental Dynamic Analysis, Geoarcheology
Masayuki KAWAHIGASHI	Associate Professor/ PhD.(D.Agr.) Soil Ecology, Environmental Chemistry, Material Dynamics in Ecosystems

2) Overview of Research Activities

This research unit 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.

- 1 Development of survey methods for evaluation of soils in urban area
- 2 Characterization of sclerotium grains and their function in forest soil ecosystem
- 3 Geoarcheological study of ancient water environment in Kharga, Western Desert, Egypt
- 4 Environmental risk evaluation of the soils surrounding the mining area in Erdenet, Mongolia
- 5 Environmental dynamics study of watershed area of Small Water Impounding Project dam in central Luzon, Philippines
- 6 Influence of anthropic pressure in a river basin on downstream water environment
- 7 Evaluation of forest fire impact on soil, vegetation and landform in terrestrial ecosystems
- 8 Study for elemental dynamics in urban ecosystems

3) List of Research Activities in FY2019

Peer-reviewed Articles

Lathifah, A.N., Guo, Y., Sakagami, N., Suda, W., Higuchi, M., Nishizawa, T., Prijambada, I.D. and Ohta, H. 2019. Comparative characterization of bacterial communities in moss-covered and unvegetated volcanic deposits of Mount Merapi, Indonesia. *Microbe and Environment* **34**: 268-277.

Sakoda, M., Mizusawa, M., Shiotsu, F., Sakagami, N., Guo, Y., Masutomi, Y., Fujii, D., Isobe, K.,

Fujiwara, T., Senoo, K. and Nishizawa, T. 2019. Azoarcus sp. strain KH32C affects rice plant growth and the root-associated soil bacterial community in low nitrogen input paddy fields. *Soil Science and Plant Nutrition* **65**: 451-459.

Battulga, B., Kawahigashi, M., Oyuntsetseg, B. 2020. Behavior and distribution of polystyrene foams on the shore of Tuul River in Mongolia. *Environmental Pollution*. **260**: 113979. <https://doi.org/10.1016/j.envpol.2020.113979>.

Other Articles

Kawahigashi M. 2020. Monitoring and assessment of soils. In *Soils in the environment*, Asakura-shoten, pp175-190. (in Japanese)

Kawahigashi M. 2020. Improvement and management of soils based on environmental planning. In *Soils in the environment*, Asakura-shoten, pp191-206. (in Japanese)

Kawahigashi, M., Murata, T., Kida, K., Inui, T., Nagaishi, N., Morisada, K. and Yoshinaga, A. 2019. Borders between soils affected by anthropogenic pressures. *Japanese Journal of Soil Science and Plant Nutrition*. **90**: 217-222. (in Japanese)

Sumida, H., Inoue, Y., Kawahigashi, M., Kobayashi, T., Machida, H., Miura H., Takesako, H., Amano, K. and Kita, K. 2019. What did eruption of Mt. Fuji influence on soil and agriculture in Southern part of Kanto region?: From an interdisciplinary point of view. *Japanese Journal of Soil Science and Plant Nutrition*. **90**: 223-229. (in Japanese)

Sakagami N, Liyantono, Chen B, Kato T, Ramri N (2020) Collaborative education toward regional sustainability in association with Bogor Agricultural University - International summer course program on agriculture and ecosystem resilience to environmental disaster in Java, Indonesia. *International Workshop on Natural Resources and Risk Management in the Context of Climate Change, Hanoi University of Natural Resources and Environment*, 369–375.

Myoga, S. 2020. Transition and potential of the land function of the “Tokushachi”(Bare lands) in the Seto District, Aichi, Japan. *Geographical Report of Tokyo Metropolitan University* **55**: 49-59.

Tashiro T, Watanabe M, Akasaka I, Sakagami N, Murata T(2019) Soil properties of the Hyotan-pond catchment area in the Institute for Nature Study. *Miscellaneous Reports of the Institute Nature Study* **50**: 21-28.

Battulga, B., Kawahigashi, M., Oyuntsetseg, B. 2020. Abundance of microplastics in sediments from the urban river in Mongolia. *Geographical reports of Tokyo Metropolitan University* **55**: 35-48.

Books

None

Reports

Nishikura, S. 2019. A report on the 28th Pedologist Training Course. *Pedologist* **63**: 102-104. (in Japanese)

Book Reviews

None

Miscellaneous Reports

None

Presentations

- Kawahigashi, M. and Orgilbold, M. 2019. Role of suspended solids (SS) on elemental dynamics in the Selenga River system. *Abstract of the Japan Geosciences Union 2019*: AHW22-17, May, Chiba. (invited)
- Kawahigashi, M., Kida, K. and Ibori, Y. 2019. How do we recognize soils in reclaimed areas? *Abstract of the Soils of Urban Industry Traffic Mining and Military Areas (SUITMA10)*: A-074, June, Seoul, Korea.
- Kawahigashi, M. 2019. Various roles of urban soils along with urbanization. *Open Symposium, Science Council of Japan*, April, Minato-ku. (in Japanese)
- Kawahigashi, M., Kida, K. and Ibori, Y. 2019. Relationship between planting year and soil properties in reclaimed greenery areas. *Abstract of Annual Meeting of Japanese Society of Soil Science and Plant Nutrition* **65**: 74, September, Shizuoka. (in Japanese)
- Kawahigashi, M. 2019. Study on the greenery area along the Tokyo Bay area. *The 60th anniversary memorial symposium of Tohoku Research Center of Forestry and Forest Products Research Institute*, November, Morioka. (in Japanese)
- Kawahigashi, M. and Kida, K. 2019. Specific features in soil processes of the reclaimed soils in Japan. *14th East and South East Asia Federation of Soil Science*: 168, November, Taipei, Taiwan.
- Ono, K., Noguchi, H., Imai, A., Ugawa, Y., Komoriya, A., Tachibana, R., Kida, K. and Kawahigashi, M. 2019. Banking and reclaimed soils constructed for restoring the coastal forests as their growing bases in Japan: morphology and physical properties. *Abstract of the Soils of Urban Industry Traffic Mining and Military Areas (SUITMA10)*: A-044, June, Seoul, Korea.
- Hori, S., Asagi, N., Sakagami, N., Mochizuki, Y., Kobayashi, H. and Miyamoto, T. 2020. Application effects of high purity magnesium fertilizer on growth and yield of paddy rice. *The 249th Meeting of the Crop Science Society of Japan*, March, Tsukuba. (in Japanese)
- Fukushima, K., Yoshimura, K., Katata, G., Sakagami, N., Enomoto, T., Takase, Y. and Oikawa, S. 2020. Effect of herbicide application on nitrogen cycling and loss in the Kudzu dominated soil on the slope of a highway road. *Abstracts of 67th Annual Meeting of the Ecological Society of Japan*, March, Nagoya. (in Japanese)
- Takase, Y., Katata, G., Oikawa, S., Enomoto, T. and Sakagami, N. 2019. Landscape evaluation on the Kudzu vegetation view from the roadside of a highway by local residents. *Abstracts of Annual meeting of Kanto Branch of Japanese Institute of Landscape Architecture* **37**: 95-96, November, Chiba. (in Japanese)

- Katata, G., Watanabe, M., Takahashi, A., Fukushima, K., Kubota, T., Oikawa, S., Takase, Y., Enomoto, T. and Sakagami, N. 2019. Trial observation of local effect of vegetation of the slope of a highway road on atmospheric condition. *The 60th Annual Meeting of Japan Society for Atmospheric Environment*, September, Tokyo. (in Japanese)
- Noguchi, M., Takada, K., Hashimoto, M., Matsushita, S., Sakagami, N., Guo, Y., Nishizawa, T., Ohta, H. and Narisawa, K. 2019. Spatial and temporal effect of *Veronaeopsis simplex* Y34 inoculation on microbial communities of Tomato root. Abstracts of 2019 JSME annual meeting, 118, September, Yamanashi. (in Japanese)
- Guo, Y., Takashima, Y., Sakagami, N., Narisawa, K. and Nishizawa, T. 2019. Comparative metagenomic insights into functional diversification of soil microbiome across a vegetation gradient on the deforested land around Komado wetland. *Abstracts of annual meeting of Japanese Society of Soil Microorganisms*, 32, June, Sapporo.
- Lathifah, A.N., Guo, Y., Sakagami, N., Suda, W., Higuchi, M., Nishizawa, T., Prijambada, I.D. and Ohta H. 2019. Succession of Betaproteobacteria in the 2010 volcanic deposits of Mt. Merapi, Indonesia. *Abstracts of annual meeting of Japanese Society of Soil Microorganisms*, 37, June, Sapporo.
- Arsyadi, A., Ebihara, A., Guo, Y., Sakagami, N. Ohta, H., and Nishizawa, T. 2019. Integrative analysis of denitrifier community harbored in miscanthus rhizosphere, a pioneer grass on Miyake-jima volcanic deposits, Japan. *Abstracts of annual meeting of Japanese Society of Soil Microorganisms*, 38, June, Sapporo.
- Noguchi, M., Takada, K., Hashimoto, M., Matsushita, S., Sakagami, N., Guo, Y., Nishizawa, T., Ohta, H. and Narisawa, K. 2019. Chronological monitoring of microbial communities of Tomato root effected by microbial inoculant with *Veronaeopsis simplex* Y34. *Abstracts of annual meeting of Japanese Society of Soil Microorganisms*, 14, June, Sapporo. (in Japanese)
- Kida, K., and Kawahigashi M. 2019. Differences in classification concepts for human modified soils: Comparison among World Reference Base for Soil Resources, Soil Taxonomy, and Japanese soil classification system. *Abstract of the Soils of Urban Industry Traffic Mining and Military Areas (SUITMA10)*: A-066, June, Seoul, Korea
- Kida, K. and Kawahigashi, M. 2019. Identification of land-fill materials focusing on existence form of sulfur. *Abstract of Annual Meeting of Japanese Society of Soil Science and Plant Nutrition* **65**: 77, September, Shizuoka. (in Japanese)
- Morishita, M. and Kawahigashi, M. 2019. A proposal for classification of Japanese peat and muck from the view of topographical factor. *Abstract of Annual Meeting of Japanese Society of Soil Science and Plant Nutrition* **65**:75, September, Shizuoka. (in Japanese)
- Morishita, M. and Sprague, D. 2019. Can Artificial intelligence(AI) understand soil formation? : A GIS analysis. *Proceedings of Japanese Society of Pedology on 2019*: 37, November, Yamaguchi.

(in Japanese)

- Batdulum, B., Kawahigashi, M. and Bolormaa, O. 2019. Behavior of plastic debris in Mongolian river system and characterization for aged microplastics. *European Geoscience Union General Assembly 2019*: EGU2019-6485, April, Vienna, Austria.
- Batdulum, B., Kawahigashi, M. and Bolormaa O. 2019. Characterization, distribution and degradation of environmental plastics in inland river system of Mongolia. *Abstract of the Japan Geosciences Union 2019*: AHW22-12, May, Chiba.
- Srisomkiew, S., Kawahigashi, M. and Limthong, P. 2019. Digital soil mapping of soil fertility for Thai Jasmine rice using remote sensing and terrain parameters employing machine learning in Thung Kula Rong-Hai region, Thailand. *Abstract of the 14th International Conference of the East and Southeast Asia Federation of Soil Science Societies (ESAFS)*: 64, November, Taipei, Taiwan.
- Nishikura, S. and Kawahigashi M. 2019. Difference of Vegetation and Soil Properties in Isahaya Polder. *Abstract of the Soils of Urban Industry Traffic Mining and Military Areas (SUITMA10)*: A-101, June, Seoul, Korea.
- Nishikura, S. and Kawahigashi, M. 2019. Soils on the polder develop various types of soil structure. *Abstract of Annual Meeting of Japanese Society of Soil Science and Plant Nutrition* **65**:76, September, Shizuoka. (in Japanese)
- Nishikura, S. and Kawahigashi, M. 2019. The relationship between development of soil structure and time after the reclamation of a polder. *Proceedings of Japanese Society of Pedology on 2019*: 40, November, Yamaguchi. (in Japanese)
- Nishikura, S. and Kawahigashi, M. 2019. Development of soil structure and land uses on the polder. *Proceedings of the Japanese Society of Soil Science and Plant Nutrition, Kanto Regional Meeting*: 16, November, Nagano. (in Japanese)
- Tamura, G., Nyamsanjaa, K., Watanabe, M. and Oyuntsetseg, B. 2020. Vegetation of forest-steppe ecotones in Baluun Salaa, northern Ulaanbaatar, Mongolia. *Proceedings of the General Meeting of the Association of Japanese Geographers 2019 Spring meeting* **97**: 302, March, Tokyo. (in Japanese)

4 Laboratory of Geographical Information Sciences

1) Staffs

Hiroshi MATSUYAMA	Professor / PhD (D.Sc.) Hydrometeorology, Geographical Information Sciences
Takeki IZUMI	Assistant Professor / PhD (D.Eng.) Urban Climatology, Geographical Information Sciences, Numerical Meteorological Modelling
Daichi NAKAYAMA	Assistant Professor / PhD (D.Sc.) Geographical Information Sciences, Remote Sensing, Computational Geomorphology

2) Overview of Research Activities

This laboratory is mainly 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, numerical modeling, and GIS (Geographical Information Systems) are main methods used in this laboratory.

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

1. Energy and water cycle in the atmosphere and hydrosphere
2. Capturing snow distribution and snow water resources, along with snowmelt-runoff based on remote sensing techniques and field surveys
3. Quantitative evaluation of spectral reflectance characteristics of coniferous forests and their leaf area indices
4. Water environment around Mt. Aso and Tokyo metropolis
5. Numerical simulation of urban climate and local wind
6. Capturing surface conditions of cities using GIS
7. Monitoring and modeling natural environment and natural hazards
8. Quantitative evaluation of geographical phenomena in Tokyo in the modern era

3) List of Research Activities in FY2019

Peer-reviewed Articles

- Matsuyama, H., Sakawa, Y., Tsuchihashi, K. and Ogura, N. 2019. Why has the electrical conductivity in spring waters around Akiru plateau decreased? *Journal of Japan Society of Hydrology and Water Resources* **32**: 231-244. (in Japanese with English abstract)
- Matsuyama, H., Flores, J., Oikawa, K. and Miyaoka, K. 2020. Comparison of precipitable water via JRA-55 and GPS in Japan considering different elevations. *Hydrological Research Letters* **14**: 9-16.
- Marc, O., Gosset, M., Saito, H., Uchida, T. and Malet J.-P. 2019. Spatial patterns of storm-induced landslides and their relation to rainfall anomaly maps. *Geophysical Research Letters* **46**: 11167-11177.
- Ishikawa, K. and Nakayama, D. 2019. Estimation of origin-destination flows of passenger cars in 1925 in old Tokyo City, Japan. *International Journal of Geo-Information* **8**, 472: DOI:10.3390/ijgi8110472.

Other Articles

- Nemoto, Y. 2019. Study on the disaster recognition of students when go to the Shinjuku Campus of Mejiro University. *Memoirs of Mejiro University College* **55**: 71-83. (in Japanese)
- Nemoto, Y. 2020. Development of the map for disaster prevention around the Shinjuku Campus of Mejiro University using WebGIS. *Memoirs of Mejiro University College* **56**: 71-84. (in Japanese)
- Hasegawa, K. 2019. Development of field study in Hakone Geopark using three-dimensional model created by 3D printer – cross-curriculum learning between geology and geography – . *The Bulletin of the Education Institute for Private Schools in Japan* **55**: 33-36. (in Japanese)

Books

None

Reports

- Matsuyama, H. 2020. Report of Gorno-Altai, Russia in 2019. *Journal of Japan Society of Hydrology and Water Resources* **33**: 11-16. (in Japanese)
- Matsuyama, H., Sakawa, Y. and Nagai, S. 2020. Change of water quality between 1990s and 2010s at springwaters in Akiruno-city, Tokyo Metropolis. *Report of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River*: 184-190. (in Japanese)
- Matsuyama, H., Iwasa, R. and Nagai, S. 2020. Difference of water quality between eastern and western parts of Akishima-city, Tokyo Metropolis – Comparison of shallow and deep ground waters. *Report of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River*: 191-195. (in Japanese)
- Hisatomi, Y. 2020. Study on rainfall response of shallow groundwater flow in Ome city. *Report of the Research Project on the Kazusa Group in the Middle to Upper Reaches of the Tama River*: 196-

200. (in Japanese)

Book Reviews

- Matsuyama, H. 2019. Book review (Nagayama, Y. and Yoshida, A. eds.: Siberia in Asia: indigenous people of Siberia, Russia). *Geographical Review of Japan* **92**: 194-195. (in Japanese)
- Matsuyama, H. 2019. Book review (Martin F. Price: Moutains (Translated by Watanabe, T. and Ueno, K.)). *Geographical Review of Japan* **92**: 247-248. (in Japanese)
- Matsuyama, H. 2019. Book review (Pyak, A. I. et al. Endemic plants of the Altai mountain country). *Chiri* **64**(8): 120. (in Japanese)
- Matsuyama, H. 2019. Book review (Shimazu, H., Ito, T. and Department of Geography, Rissho University eds. Geographical excursion in foreign countries). *Geographical Review of Japan* **92**: 314-315. (in Japanese)
- Matsuyama, H. 2019. Book review (Yamazaki, H. Why Mt. Fuji is located there? – History of Japanese islands as revealed by geomorphology). *Geographical Review of Japan* **92**: 405-406. (in Japanese)
- Matsuyama, H. 2020. Book review (Kakazu, H. Nissology). *Geographical Review of Japan* **93**: 40-41. (in Japanese)
- Matsuyama, H. 2020. Book review (Nakazawa, T. Frontier of typhoon prediction). *Geographical Review of Japan* **93**: 109-110. (in Japanese)

Miscellaneous Reports

- Matsuyama, H. 2019. Self-study of Russian every day in the age of 50's. *Annual Report of Old Boys/Girls of Wandervogel Club in the University of Tokyo* **11**: 73. (in Japanese)
- Matsuyama, H. 2019. Discussion with Mr. Hiroshi MATSUYAMA. *Annual Report of Old Boys/Girls of Wandervogel Club in the University of Tokyo* **11**: 74. (in Japanese)
- Nemoto, Y. and Natsume, M. 2019. Development of a system for creating WebGIS using Leaflet. *Theory and Applications of GIS* **27**: 154. (in Japanese)

Presentations

- Matsuyama, H. 2019. Review and prospect of strong local wind Matsubori-kaze blowing in the western foot of Mt. Aso. *Abstracts of Japan Geoscience Union Meeting 2019: MIS20-17*, May, Chiba. (invited, in Japanese with English abstract)
- Matsuyama, H. 2019. The application of Soil Water Index to landslide prediction in snowy regions – Sensitivity analysis in Japan and preliminary results at Tomsk, Russia – . Life and Earth Sciences and Sustainable Global and Regional Development (AKTRU2019) International Symposium, July, Gorno-Altai, Russia. (invited)
- Nakayama, D. 2019. Geohazard map of Izu Islands, Japan. ESRI User Conference 2019, July, San Diego, USA. (poster)
- Nakayama, D. Khromykh, V., Khromykh, O. and Matsuyama, H. 2019. Flood evacuation simulation

- in Tomsk City, Russia. *Proceedings of the General Meeting of the Association of Japanese Geographers 2019 Autumn Meeting* **96**: 47, September, Niigata. (in Japanese)
- Khromykh, V. and Khromykh, O. 2019. The system for flood monitoring on the Ob River (within the Tomsk Region). *Proceedings of the General Meeting of the Association of Japanese Geographers 2019 Autumn Meeting* **96**: 48, September, Niigata.
- Watanabe, T. 2019. Validation of tropospheric ozone in the fifth generation ECMWF atmospheric reanalysis, ERA5. *Abstracts of the 60th Annual Meeting of Japan Society for Atmospheric Environment* **60**: 290, September, Tokyo. (poster, in Japanese)
- Watanabe, T., Nodzu, M. I., Seto, Y. and Matsumoto, J. 2019. Atmospheric structures in the Kanto plain during a foehn wind event on the intense heat of July 2018. *Abstracts of the 2019 Autumn Meeting of the Meteorological Society of Japan* **116**: 222, October, Fukuoka. (in Japanese)
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- Nemoto, Y. and Natsume, M. 2019. Development of the teaching materials and the system for creating WebGIS using Leaflet. *Proceedings of the General Meeting of the Association of Japanese*

- Geographers 2019 Autumn Meeting 96*: 88, September, Niigata. (in Japanese)
- Nemoto, Y. and Natsume, M. 2019. Development of a system for creating WebGIS using Leaflet. *Proceedings of the 28th Conference of GIS Association of Japan (CD-ROM)*: E-1-3, October, Tokushima. (Oral and poster, in Japanese)
- Natsume, M. and Nemoto, Y. 2019. Interdisciplinary research on folklore utilizing GIS: A case study on waterways that remained in oral tradition. *Proceedings of the 28th Conference of GIS Association of Japan (CD-ROM)*: B-6-1, October, Tokushima. (in Japanese)
- Fujitsuka, Y. 2020. Gentrification in inner city areas of Tokyo. *Proceedings of the General Meeting of the Association of Japanese Geographers 2020 Spring Meeting 97*: 100, March, Setagaya-ku. (in Japanese)
- Ishikawa, K. 2019. How much passengers numbers have increased in center of Tokyo compared to 1930?. 15th GIS Community Forum, May, Minato-ku. (poster, in Japanese)
- Ishikawa, K. 2019. Time-series map of the number of streetcar passengers in 1930 in old Tokyo City, Japan. 2019 Esri User Conference, July, San Diego, USA. (poster)
- Ishikawa, K. 2019. Multi-agent simulation of Tokyo city tram in 1930. *Proceedings of the General Meeting of the Association of Japanese Geographers 2019 Autumn Meeting 96*: 95, September, Niigata. (in Japanese)
- Ishikawa, K. 2019. Analysis of Tokyo City Tram by using Agent-based model – Comparison between before and after revision of operation route in 1931 –. *Proceedings of the 28th Conference of GIS Association of Japan (CD-ROM)*: E32, October, Tokushima. (in Japanese)
- Ishikawa, K. 2019. Reproduction of Tokyo City tram in early Showa era by using multi-agent simulation. *Research Abstracts on Spatial Information Science, CSIS DAYS 2019*: 54, November, Kashiwa. (poster, in Japanese)
- Ishikawa, K. and Nakayama, D. 2019. Streetcar passenger flow maps in old Tokyo city in 1930. International Cartographic Association, July, Tokyo.
- Tanaka, A. Watanabe, T., Kaneda, Y., Matsuyama, H. and Miyaoka, K. 2019. Comparative study of Northern Kyushu heavy rainfall events in 2012 and 2017 by focusing on precipitable water. *Abstracts of the 2019 Spring Meeting of the Meteorological Society of Japan 115*: 198, May, Shibuya-ku. (poster, in Japanese)
- Flores, J. 2020. How tropical cyclones influence seasonal variability of precipitation in Ogasawara (Bonin) Islands during El Niño events, La Niña events, and normal conditions? First Extension Lecture of Tokyo Metropolitan University, Chichi-jima. (in Japanese)
- Flores, J. 2020. How tropical cyclones influence seasonal variability of precipitation in Ogasawara (Bonin) Islands during El Niño events, La Niña events, and normal conditions? Second Extension Lecture of Tokyo Metropolitan University, Haha-jima. (in Japanese)
- Flores, J., Matsuyama, H. and Miyaoka, K. 2019. Comparison of precipitable water via JRA-55 and

- GPS in Japan considering different elevations. *Abstracts of the 2019 Spring Meeting of the Meteorological Society of Japan* **115**: 262, May, Shibuya-ku. (poster, in Japanese)
- Miyoshi, S., Saito, Y. and Maatsuyama, H. 2020. Estimation of leaf area index of *Cryptomeria japonica* using various methods – Have forests of *Cryptomeria japonica* in the Aso district, Kumamoto prefecture been growing? – . *22nd CERE S Symposium on Environmental Remote Sensing*, February, Chiba. (poster, in Japanese)
- Yasumoto, E., Horii, Y., Ishikawa, K. and Nakayama, D. 2019. Simulation of evacuation behavior by using agent-based model -A case study of Uchinomaki area, Aso city-. *Research Abstracts on Spatial Information Science, CSIS DAYS 2019*: 49, November, Kashiwa. (poster, in Japanese)

5 Laboratory of Urban and Human Geography

1) Staffs

Yoshiki WAKABAYASHI	Professor / PhD (D.Sc.) Urban Geography, Behavioral Geography, Geographical Information Sciences
Akihiro TAKINAMI	Associate Professor / PhD (D.Lit.) Regional Studies, Representation Studies
Naoto YABE	Associate Professor / PhD (D.Sc.) Quantitative Geography, Urban Geography
Hiroyuki TSUBOMOTO	Assistant Professor / PhD (D.Sc.) Urban Geography, Office Study
Yoshio SUGIURA	Senior Leading Professor / PhD (D. Sc.) Human Geography

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 FY2019

Peer-reviewed Articles

- Yui, Y., Miyazawa, H., and Wakabayashi, Y. 2019. The regeneration of housing estates by the community-based integrated care system. *Annals of Japan Society for Urbanology* **52**: 65-71. (in Japanese)
- Miyazawa, H. and Wakabayashi, Y. 2019. Supply-Demand Balance and Policy Issues of Childcare Services: GIS-based Geo-Visualization Approach. *The Japanese Journal of Labor Studies* **61**(6): 35-46. (in Japanese)
- Susaki, S. 2019. Spatial characteristics and existence conditions of the gay district in Shinjuku 2-chome, Tokyo. *Urban Geography of Japan* **14**: 16-27. (in Japanese with English abstract)

Other Articles

- Wakabayashi, Y. 2019. Residential preference for the cities and regions in modern Japan. In *Succession and development of urban geography in Japan*. eds. Abe, K. and Sugiura, Y., 43-51. Nagoya: Arumu. (in Japanese)
- Wakabayashi, Y. 2019. Population Dynamics and the Environment. In *Human Geoscience*. ed. Himiyama, Y., Satake, K. and Oki, T., 249-260. Singapore: Springer.
- Wakabayashi, Y. 2020. Mapping the problems of housing vacancies in Japan. In *The Rise in Vacant Housing in Post-growth Japan: housing market, urban policy and revitalizing aging cities*. ed. Kubo., T. and Yui, Y. 23-32. Singapore: Springer.
- Takinami, A. 2020. Marketing strategies and promotion for branded rice “Asakamai” by Japan Agricultural Cooperative in Koriyama region. *Notes on Theoretical Geograghy* **22**: 19-40. (in Japanese)
- Takinami, A. 2020. The characteristics of the regions where refugees have left and returned after the Fukushima Daiichi nuclear power plant incident : A study of the reconstruction of schools and residences in Tomioka town, Fukushima prefecture. *Notes on Theoretical Geograghy* **22**: 104-124. (in Japanese)
- Yabe, N. London. *Urban Geography of Japan* **14**: 154-161. (in Japanese)
- Yabe, N., Kagomiya, N., Tanaka, T. and Watanabe, M. 2019. Changes and its cause of tourists flow patterns of inbound tourists to Japanese countryside. *ESRI Research Note* **47**: 1-17. (in Japanese)
- Tsubomoto, H. 2020. Office locations in Yokohama Minato Mirai 21 district since 2000. *Notes on Theoretical Geograghy* **22**: 159-168. (in Japanese)
- Akutagawa, H. 2020. The purpose of establishing a new station in Koriyama, its utilization and impact to the surrounding areas. *Notes on Theoretical Geograghy* **22**: 59-78. (in Japanese)
- Kono, R. 2020. Current status and prospects of inbound tourism in Koriyama : From the survey conducted in several tourist places and organizations. *Notes on Theoretical Geograghy* **22**: 41-58. (in Japanese)

Namiki, Y. 2020. The characteristics of the regions where refugees have left and returned after the Fukushima Daiichi nuclear power plant incident : A study of the reconstruction of schools and residences in Tomioka town, Fukushima prefecture. *Notes on Theoretical Geography* **22**: 79-103. (in Japanese)

Books

Abe, K. and Sugiura, Y. (eds.) 2019. *Succession and development of urban geography in Japan*. Nagoya: Arumu. (in Japanese)

Reports

None

Book Reviews

None

Miscellaneous Reports

Morita, T. et al. 2019. Final report of the 29th International Cartographic Conference and 18th General Assembly of International Cartographic Association. *Map: Journal of the Japan Cartographers Association* **57** (4) : 13-55. (in Japanese)

Yabe, N. 2019. 2018 annual review – economic geography. *Japanese Journal of Human Geography* **71**: 257-261. (in Japanese)

Presentations

Thang, L.L., Yui, Y., Wakabayashi, Y. and Miyazawa, J. 2019. Re-creating 'Shutter-Down: Shop Spaces for Community Support and Care: Case Study of an Aging Neighborhood in Japan's Depopulated New Town. ICAS 11, July, Leiden (Netherlands).

Wakabayashi, Y. 2019. Intergenerational differences in the use of maps: results from an online survey. ICC2019, July, Tokyo.

Wakabayashi, Y. 2019. Visualization of two aspects of residential preference and its change in Japan. EUROGEO2019 Ljubljana (Slovenia).

Wakabayashi, Y. and Bettaieb, B. 2019. Current conditions and issues of public signs for foreign visitors to central Tokyo. *Proceedings of the General Meeting of the Japan Society for Urbanology* **66**: 84-85. (in Japanese)

Wakabayashi, Y. 2020. Waldo Tobler's Legacy in cartography and geographic information science and its inheritance. *Proceedings of the General Meeting of the Association of Japanese Geographers* **97**: 225. (in Japanese)

Yabe, N. 2019. Geographically weighted bidimensional regression on the 17th-century map of a castle town in Japan. *Abstracts of the International Cartographic Association* **1**: 412, July, Minato-ku.

Yabe, N. and Okano, Y. 2019. Changes and its cause of inbound tourists' flow patterns to Japanese countryside. *Proceedings of the General Meeting of the Association of Japanese Geographers* **96**:

- 162, September, Niigata. (in Japanese)
- Yabe, N. and Okano, Y. 2019. Longitudinal Data Analysis of Inbound Tourists Visiting Japan's Countryside. 2019 Annual Meeting of The Human Geographical Society of Japan, November, Osaka. (in Japanese)
- Yabe, N. 2019. Background of inbound tourists' flow for Japanese countryside. The 58th ESRI Economic Policy Forum, November, Chiyoda-ku. (in Japanese)
- Saito, A., Tsubomoto, H., Sugano, F., Ishizaki, M. and Higa, F. 2019. The trial survey for workers of the "SOF workplace model" part-2. *Journal of 20th JOS National Convention*: 29-32, September, Shinjuku-ku. (in Japanese with English summary)
- Tsubomoto, H. and Sugano, F. 2020. Survey Report of "SOF workplace model". Facility Management Forum 2020, February, Edogawa-ku. (in Japanese)
- Koizumi, R. 2019. The formation of community support center of the integrated care system in Yokohama. *Proceedings of the General Meeting of the Association of Japanese Geographers* **95**: 58, March, Kawasaki. (in Japanese)
- Koizumi, R. 2019. The residential area structure and its changes of the Tokyo metropolitan area and Kawasaki city. Senshu University Institute of Social Science "Study on current situation and problem of industry, labor and the life in Kawasaki" project workshop, November, Kawasaki. (in Japanese)
- Araori, T. 2019. The role of disease maps in influenza epidemiological surveillance in Japan. 17th International Medical Geography Symposium, July, Tokyo.
- Araori, T. 2019. Regional differences in the use of maps for the prevention and control of infectious diseases. *Proceedings of the General Meeting of the Association of Japanese Geographers* **97**: 279, March, Setagaya-ku. (in Japanese)
- Susaki, S. 2019. Space/place and the viewpoint of sexual minorities. *Proceedings of the General Meeting of the Association of Japanese Geographers* **96**: 21, September, Niigata. (in Japanese)
- Susaki, S. 2019. Problems of coexistence of lesbians with gay men in Shinjuku 2-chome. *Proceedings of the General Meeting of the Association of Japanese Geographers* **96**: 83, September, Niigata. (in Japanese)
- Bettaieb, B. and Wakabayashi, Y. 2019. Spatial analysis of tourist spots in central Tokyo using online geotagged photographs from Flickr. ICC2019, July, Tokyo.
- Bettaieb, B. and Wakabayashi, Y. 2019. Role of maps and public street signs in wayfinding behavior by foreign visitors. 16th ICGS, September, Zagreb (Croatia).