Profile

Name

Takahiro (First name) Hosono (Last name)

Birth

Jan 25th, 1976 at Toronto, Canada

Nationality

Japanese

Affiliation and current career stage

Faculty of Advanced Science and Technology, Kumamoto University

Professor

Degree

Ph.D. in Science (March 2003, Tsukuba University, Japan)

Education

31/03/1994

Graduated from Todo High School in Kyoto, Japan

01/04/1994

Enter to Department of Geology, Shinshu University, Nagano, Japan

Supervised by Dr. Kuniaki Makino

20/03/1998

Graduated from Department of Geology, Shinshu University, Nagano, Japan

01/04/1998

Enter to Institute of Geoscience, Tsukuba University, Ibaraki, Japan

Supervised by Dr. Takanori Nakano

25/03/2003

Graduated from Institute of Geoscience, Tsukuba University, Ibaraki, Japan

Employment

01/04/2003

Assistant Professor

Department of Resources and Environmental Engineering, Waseda University, Tokyo, Japan

01/04/2005

Research Fellow

Research Institute for Humanity and Nature, Kyoto, Japan

01/04/2006

JSPS Postdoc Fellow

Research Institute for Humanity and Nature, Kyoto, Japan

01/05/2007

Assistant Professor

Department of Earth Science and Technology, Akita University, Akita, Japan

01/04/2009

Tenure Track Assistant Professor

Priority Organization for Innovation and Excellence, Kumamoto University

June 2013 ~ March 2014
Visiting Researcher
Faculty of Geology, University of Barcelona, Spain
01/04/2014
Associate Professor
Priority Organization for Innovation and Excellence, Kumamoto University
August ~ September 2017
Visiting Associate Professor
Institut de Physique du Globe de Paris, France
01/04/2019
Associate Professor
Faculty of Advanced Science and Technology, Kumamoto University
International Research Organization for Advanced Science and Technology (IROAST), Kumamoto University
01/08/2021
Professor
Faculty of Advanced Science and Technology, Kumamoto University
International Research Organization for Advanced Science and Technology (IROAST), Kumamoto University
Collaborative Researcher, Research Institute for Humanity and Nature, Kyoto, Japan
June 2022 ~ September 2022
Visiting Researcher
Department of Earth Science, The Sapienza University of Rome, Italy

Research topics

Special Topic: Groundwater environmental change due to 2016 Kumamoto Earthquake

1. Evaluation of trans-boundary atmospheric pollutions

2. Study for geochemical weathering processes in surface environments with its CO_2 buffering availability and nutrients discharging fluxes

3. Elucidating transportation rate/behavior of water/materials in an unsaturated zone

4. Investigation for residence time and hydrochemical evolution of springs and groundwaters

5. Assessment on groundwater nitrate pollution using multiple stable isotopes (H, Li, B, C, N, O, S, Sr) and computer simulation

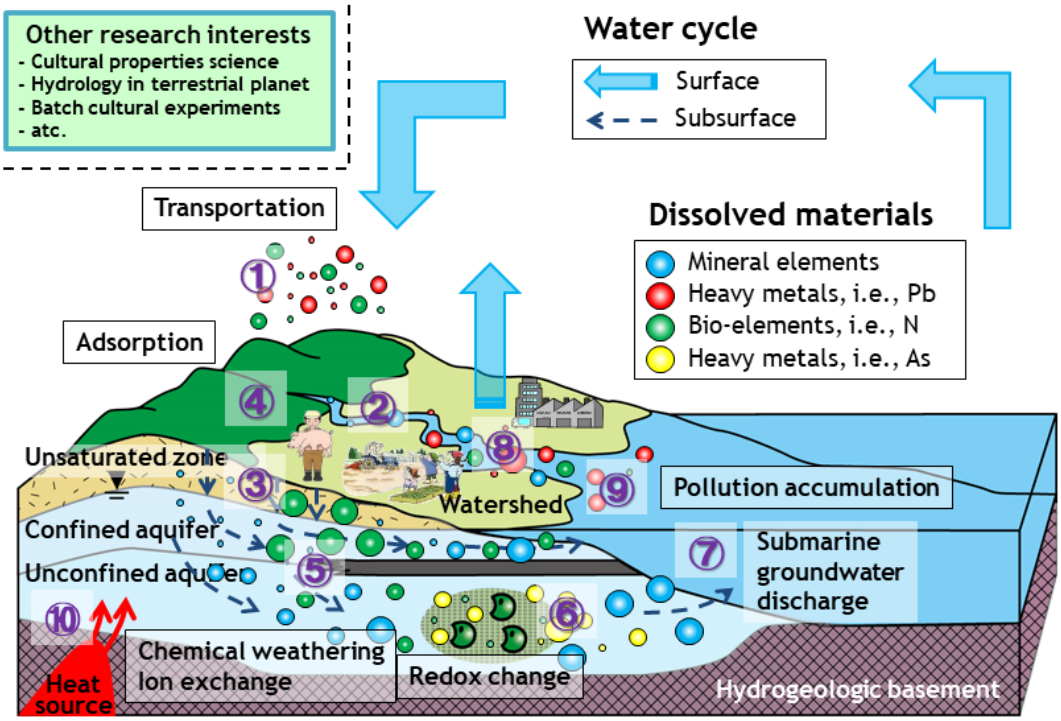
6. Biogeochemical study for groundwater metal pollution

7. Understanding the distribution and flux of submarine groundwater discharge (SGD)

8. Assessment for river water quality using geochemical tools

9. Assessment on coastal environments

10. Investigation for deep, geothermal, and magmatic fluids contributing to near surface environment



Note: numbers in the figure corresponding to the topic numbers in "Research topics".

Members (except Japanese students)

Tokpaeva Zhiide* (**Kyrgyz Republic,** 2024/4- , PhD student, Double Degree Doctor Program): Environmental assessment of continental inland lake applying isotopic fingerprinting tools in Issyk-Lul, eastern Kyrgyzstan (Related subject **5** and **7**)

Wang Haolan* (**China**, 2023/10-2024/04, China Scholarship Council): Modeling of nitrogen biogeochemical processes in river bends (Related subject **8**)

Zhi-Qiang Yu* (**China**, 2023/04-, Postdoc): Study on groundwater environment in Kumamoto and river chemical flux in Japan using numerical and statistical approach (Related subject **5** and **8**)

Rahmah Dara Lufira (**Indonesia**, 2021/10- , PhD student, MEXT Scholarship): Impact of climate change on regional hydrological changes and other surface environmental systems using large database (Related subject **8**)

Oktanius Richard Hermawan (**Indonesia**, 2018/10-2020/9, Ms student, 2020/10- , PhD student, MEXT Scholarship): Process and mechanism of nitrate contamination in karst aquifer at groundwater dam construction site, southern Okinawa main island, Japan (Related subject **5**)

Sakiur Rahman (**Bangladesh**, 2017/10-2020/9, PhD student, MEXT Scholarship; 2020/10- , Postdoc): Modeling of Hydrological Processes in Kumamoto Area, Japan: Machine Learning and Hydrogeological Simulation Approaches (Related subject **4**, Coseismic hydrological change after the 2016 Kumamoto earthquake) Received 'Academic Excellence Award', Graduate School of Science and Technology, Kumamoto University (March 25, 2021)

Dennis Boateng (**Republic of Ghana**, 2017/10-2021/3, PhD student, MEXT Scholarship): Revealing unsaturated zone nitrate transportation manner with pore water infiltration in Kumamoto area, Japan: isotopic approach (Related subject **3**)

Zohre Nejatijahromi (**Iran**, 2017/5-2017/9, PhD student, Visiting Researcher): Determination of sources of nitrate

contamination in Varamin Plain Aquifer, Tehran, Iran, using isotopic indicators and simulation of contaminant transport（Related subject **5**）

Ahmad Taufiq（**Indonesia**, 2014/10-2018/3, PhD student, Double Degree Doctor Program）：Change in groundwater flow dynamics due to excessive pumping based on hydrogeochemistry and modeling in Bandung Basin, Indonesia（Related subject **4** and **5**）

Yaser Nikpeyman（**Iran**, 2012/04-2015/03, PhD student）：The evaluation of submarine groundwater discharge (SGD) input toward the inland sea by using ^{222}Rn method（Related subject **7**）

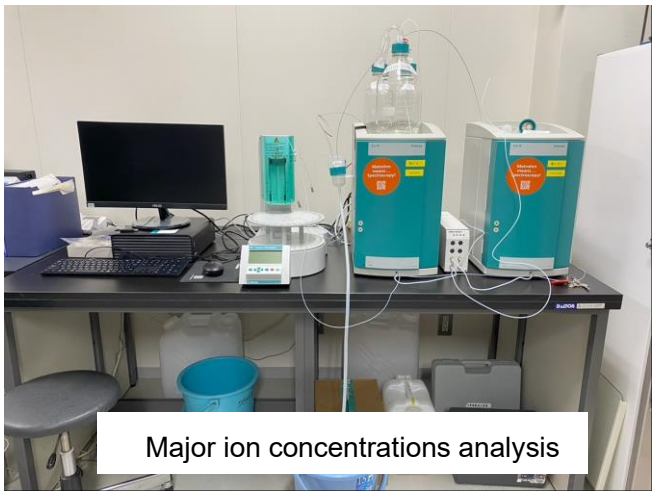
Shahadat Hossain（**Bangladesh**, 2012/10-2016/3, PhD student）：Geochemical Evolution of Groundwater in a Quaternary Volcanic Aquifer System of Kumamoto Area, Japan（Related subject **4, 5** and **6**）

Kelly Alvarez（**Venezuela**, 2012/09-2013/06, Postdoc）：Anaerobic batch experiments to characterize C-N-S isotopic change during autotrophic bacterial denitrification（Related subject **5**）

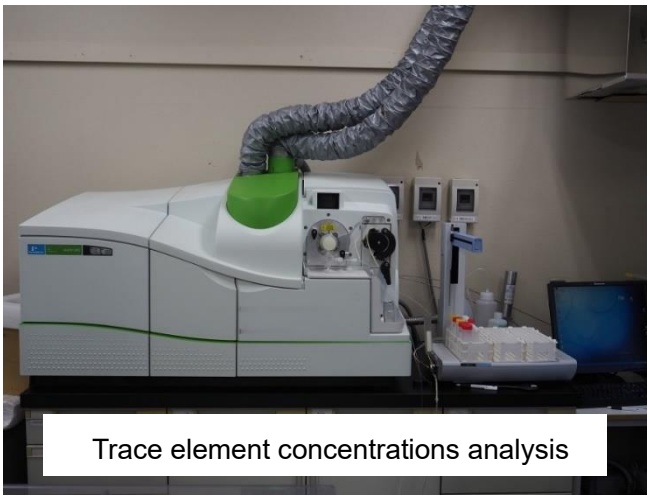
In-Tian Lin（**Taiwan**, 2011/07-2012/09, Postdoc）：Anaerobic batch experiments to characterize C-N-S isotopic change during heterotrophic bacterial denitrification（Related subject **5**）

Ako Andrew Ako（**Cameroon**, 2008/10-2011/09, PhD student, MEXT Scholarship）：Hydrological Sutudy on Groundwater in the Banana Plain and Mount Cameroon area-Cameroon Volcanic Line (CVL)（Related subject **4**）

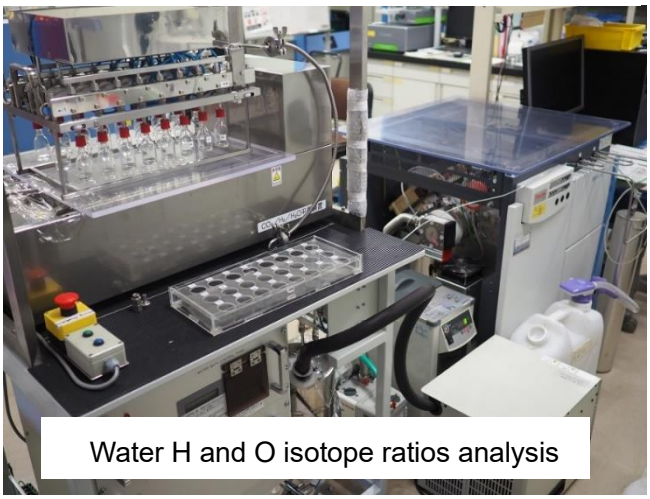
Analytical equipment installed in our laboratory



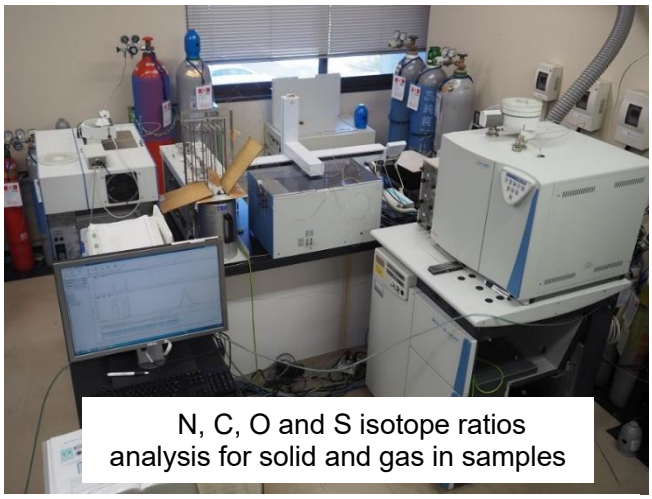
Ion chromatography
(Eco IC, Metrohm, Switzerland)



Inductively coupled plasma mass spectrometry
(NexION 300, Perkin-Elmer Co., Ltd, USA)



Isotope ratio mass spectrometer (Delta V Advantage, Thermo Fisher Scientific, USA) coupled with an automatic water-gas equilibrization devise (Nakano Denshi Co., Ltd., Japan).



Isotope ratio mass spectrometry (Delta V Advantage, Thermo Fisher Scientific, USA) coupled with an elemental analyzer (Flash 2000, Thermo Fisher Scientific, USA), a high temperature conversion elemental analyzer (TC/EA, Thermo Fisher Scientific, USA) and a head gas sampler (a Thermo Gasbench II).

PhD thesis

Geochemical Study of Volcanic Rocks and Epithermal Gold Deposit in the Hishikari Mine, Japan, 2003, 122 p (English with Japanese abstract) (University of Tsukuba, Japan).

Publications

Peer review ISI international journals (international journal with impact factor)

84. Yu, Z.-Q., **Hosono, T.**, Amano, H., Berndtsson, R., Nakagawa, K., 2024. Groundwater resource assessment by applying long-term trend analysis of spring discharge, groundwater levels, and hydroclimatic parameters**.** Water Resources Management (accepted).

83. Wang, Y., Quan, S., Tang, X., **Hosono, T.**, Hao, Y., Tian, J, Pang, Z., 2024. Organic and inorganic carbon sinks reduce long-term deep carbon emissions in the continental collision margin of the southern Tibetan Plateau:

Implications for Cenozoic climate cooling. Journal of Geophysical Research: Solid Earth (accepted).

82. Maruyama, R., Yasumoto, K., Mizusawa, N., Iijima, M., Yasumoto-Hirose, M., Iguchi, A., Hermawan, O.R., **Hosono, T.**, Takada, R., Song, K.-H., Shinjo, R., Watabe, S., Yasumoto, J., 2024. Metagenomic analysis of the microbial communities and associated network of nitrogen metabolism genes in the Ryukyu limestone aquifer. Scientific Reports 14, 4356. https://doi.org/10.1038/s41598-024-54614-8

81. Hermawan, O.R., **Hosono, T.**, Yasumoto, J., Yasumoto, K., Song, K.-H., Maruyama, R., Iijima, M., Yasumoto-Hirose, M., Takada, R., Hijikawa, K., Shinjo, R., 2024. Mechanism of denitrification in subsurface-dammed Ryukyu limestone. Science of the Total Environment 912, 169457. https://doi.org/10.1016/j.scitotenv.2023.169457

80. Hosono, T., Taniguchi, K., Rahman, A.T.M.S., Yamamoto, T., Takayama, K., Yu, Z.-Q., Aihara, T., Ikehara, T., Amano, H., Tanimizu, M., Nakagawa, K., 2023. Stable N and O isotopic indicators coupled with social data analysis revealed long-term shift in the cause of groundwater nitrate pollution: insights into future water resource management. Ecological Indicators, 154, 110670. https://doi.org/10.1016/j.ecolind.2023.110670

79. Hermawan, O.R., **Hosono, T.**, Yasumoto, J., Yasumoto, K., Song, K.-H., Maruyama, R., Iijima, M., Yasumoto-Hirose, M., Takada, R., Hijikawa, K., Shinjo, R., 2023. Effective use of farmland soil samples for N and O isotopic source fingerprinting of groundwater nitrate contamination in the subsurface dammed limestone aquifer, Southern Okinawa Island, Japan. Journal of Hydrology, 619, 129364. https://doi.org/10.1016/j.jhydrol.2023.129364

78. Mizota, C., **Hosono, T.**, Okumura, A., Yamanaka, T., 2023. Nitrogen cycling in western India as revealed by nitrogen isotopes and the historic production of saltpetre. Archaeometry, 65(3) 635-652. https://doi.org/10.1111/arcm.12830

77. Rahman, A.T.M.S., Kono, Y., **Hosono, T.**, 2022. Self-organizing map improves understanding on the hydrochemical processes in aquifer systems. Science of the Total Environment, 846, 157281. https://doi.org/10.1016/j.scitotenv.2022.157281

76. Basak, A., Rahman, A.T.M.S., Das, J., **Hosono, T.**, Kisi, O., 2022. Drought forecasting using the Prophet model in a semi-arid climate region of western India. Hydrological Sciences Journal (in press). https://doi.org/10.1080/02626667.2022.2082876

75. Hosono, T., Nakashima, S., Tanoue, M., Ichiyanagi, K., 2022. Monsoon climate controls metal loading in global hotspot region of transboundary air pollution. Scientific Reports, 12, 11096. https://doi.org/10.1038/s41598-022-15066-0

74. Mizota, C., Hansen, R., **Hosono, T.**, Okumura, A., Shinjo, R., Aizawa, M., 2022. Provenancing nineteenth century saltpetre from British India using nitrogen, oxygen, and strontium isotope ratios. Collections: A Journal for Museum and Archives Professionals. https://doi.org/10.1177/15501906211072909

73. Romero-Mujalli, G., Hartmann, J., **Hosono, T.**, Louvat, P., Okamura, K., Delmelle, P., Amann, T., Böttcher, M.E., 2022. Hydrothermal and magmatic contributions to surface waters in the Aso caldera, southern Japan: Implications for weathering processes in volcanic areas. Chemical Geology, 588, 120612. https://doi.org/10.1016/j.chemgeo.2021.120612

72. Aizawa, M., Mizota, C., **Hosono, T.**, Shinjo, R., Furukawa, Y., Nobori, Y., 2022. Lead isotopic characteristics of gun bullets prevailed during the 19th century in Japan: Constraints on the provenance of lead source from the United Kingdom and Japan. Journal of Archaeological Science: Reports, 41, 103268. https://doi.org/10.1016/j.jasrep.2021.103268

71. Mizota, C., Hansen, R., **Hosono, T.**, Okumura, A., 2022. Museum-archived and recent acquisition nitrates from

the Atacama Desert, Chile, South America: refinement of the dual isotopic compositions ($\delta^{15}N$ vs. $\delta^{18}O$). Isotopes in Environmental and Health Studies, 58, 1-17. https://doi.org/10.1080/10256016.2021.1990913

70. **Hosono, T.**, Yamanaka, C., 2021. Origins and pathways of deeply derived carbon and fluids observed in hot spring waters from non-active volcanic fields, western Kumamoto, Japan. Earth, Planets and Space, 155, 73. https://doi.org/10.1186/s40623-021-01478-1

69. Tanimizu, M., Sugimoto, N., **Hosono, T.**, Kuribayashi, C., Morimoto, T., Ito, A., Umam, R., Nishio, Y., Nagaishi, K., Ishikawa, T., 2021. Application of B and Li isotope systematics for detecting chemical disturbance in groundwater associated with large shallow inland earthquakes in Kumamoto, Japan. Geochemical Journal, 55, 241-250. https://doi.org/10.2343/geochemj.2.0633

68. Rahman, A.T.M.S., **Hosono, T.**, Tawara, Y., Fukuoka, U., Hazart, A., Shimada, J., 2021. Multiple-tracers-aided surface-subsurface hydrological modeling for detailed characterization of regional catchment water dynamics in Kumamoto area, southern Japan. Hydrogeology Journal, 29, 1885-1904. https://doi.org/10.1007/s10040-021-02354-8

67. Ishii, E., Watanabe, Y**.,** Agusa, T., **Hosono, T.**, Nakata, H., 2021. Acesulfame as a suitable sewer tracer on groundwater pollution: A case study before and after the 2016 Mw 7.0 Kumamoto earthquakes. Science of the Total Environment, 754, 142409. https://doi.org/10.1016/j.scitotenv.2020.142409

66. Mizota, C., Khanthavong, P., **Hosono, T.**, Okumura, A., Yamanaka, T., Murano, H., 2021. Reworking saltpetre manufacture in Lao PRD: Implications for isotopic fractionation during the historic processes. Journal of Archaeological Science: Reports, 35, 102747. https://doi.org/10.1016/j.jasrep.2020.102747

65. **Hosono, T.**, Hossain, S., Shimada, J., 2020. Hydrobiogeochemical evolution along the regional groundwater flow systems in volcanic aquifers in Kumamoto, Japan. Environmental Earth Sciences, 79(18), 410. https://doi.org/10.1007/s12665-020-09155-4

64. **Hosono, T.**, Yamada, C., Manga, M., Wang, C. -Y., Tanimizu, M., 2020. Stable isotopes show that earthquakes enhance permeability and release water from mountains. Nature Communications, 11, 2776. https://doi.org/10.1038/s41467-020-16604-y

63. Rahman, A.T.M.S., **Hosono, T.**, Quilty, J.M., Das, J., Basak, A., 2020. Multiscale groundwater level forecasting: Coupling new machine learning approaches with wavelet transforms. Advances in Water Resources. 141,103595. https://doi.org/10.1016/j.advwatres.2020.103595

62. **Hosono, T.**, Saltalippi, C., Jean, J.-S., 2020. Coseismic hydro-environmental changes: insights from recent earthquakes. Journal of Hydrology, 585, 124799.

61. Kawabata, K., Sato, T., Takahashi, H.A., Tsunomori, F., **Hosono, T.**, Takahashi, M., Kitamura, Y., 2020. Changes in groundwater radon concentrations caused by the 2016 Kumamoto earthquake. Journal of Hydrology, 584, 124712. https://doi.org/10.1016/j.jhydrol.2020.124712

60. Tawara, Y., **Hosono, T.**, Fukuoka, Y., Yoshida, T., Shimada, J., 2020. Quantitative assessment of the changes in regional water flow systems caused by the 2016 Kumamoto Earthquake using numerical modeling. Journal of Hydrology, 583, 124559. https://doi.org/10.1016/j.jhydrol.2020.124559

59. Ide, K., **Hosono, T.**, Kagabu, M., Fukamizu, K., Tokunaga, T., Shimada, J., 2020. Changes of groundwater flow systems after the 2016 Mw 7.0 Kumamoto earthquake deduced by stable isotopic and CFC-12 compositions of natural springs. Journal of Hydrology, 583, 124551. https://doi.org/10.1016/j.jhydrol.2020.124551

58. Nakagawa, K., Yu, Z.-Q., Berndtsson, R., **Hosono, T.**, 2020. Temporal characteristics of groundwater chemistry affected by the 2016 Kumamoto earthquake using self-organizing maps. Journal of Hydrology, 582,

124519. https://doi.org/10.1016/j.jhydrol.2019.124519

57. Kagabu, M., Ide, K., **Hosono, T.**, Nakagawa, K., Shimada, J., 2020. Describing coseismic groundwater level rise using tank model in volcanic aquifers, Kumamoto, southern Japan. Journal of Hydrology, 582, 124464. https://doi.org/10.1016/j.jhydrol.2019.124464

56. Miyakoshi, A., Taniguchi, M., Ide, K., Kagabu, M., **Hosono, T.**, Shimada, J., 2020. Identification of changes in subsurface temperature and groundwater flow after the 2016 Kumamoto earthquake using long-term well temperature–depth profiles. Journal of Hydrology, 582, 124530. https://doi.org/10.1016/j.jhydrol.2019.124530

55. Morimura, S., Zeng, X., Noboru, N., **Hosono, T.**, 2020. Changes to the microbial communities within groundwater in response to a large crustal earthquake in Kumamoto, southern Japan. Journal of Hydrology, 581,124341. https://doi.org/10.1016/j.jhydrol.2019.124341

54. Mizota, C., Khanthavong, P., Okumura, A., **Hosono, T.**, 2020. Dual isotopic ($\delta^{15}N$-$\delta^{18}O$) characterization of saltpetre currently prevailing in Lao PDR and its global compilation: new insight into isotope fractionation during production processes. Isotopes in Environmental and Health Studies, 56(1), 1-13. https://doi.org/10.1080/10256016.2020.1717486

53. **Hosono, T.**, Masaki, Y., 2020. Post-seismic hydrochemical changes in regional groundwater flow systems in response to the 2016 Mw 7.0 Kumamoto earthquake. Journal of Hydrology, 580,124340. https://doi.org/10.1016/j.jhydrol.2019.124340

52. Rahman, A.T.M.S., **Hosono, T.**, Kisi, O., Dennis, B., Imon, A.H.M.R., 2020. A minimalistic approach for evapotranspiration estimation using the Prophet model. Hydrological Sciences Journal, 65(12), 1-13. https://doi.org/10.1080/02626667.2020.1787416

51. Nakagawa, K., Amano, H., Berndtsson, R., Takao, Y., **Hosono, T.**, 2019. Use of sterols to monitor surface water quality change and nitrate pollution source. Ecological Indicators, 107,105534. https://doi.org/10.1016/j.ecolind.2019.105534

50. Mizota, C., **Hosono, T.**, Matsunaga, M., Okumura, A., Yamanaka, T., 2019. Anthoropogenic saltpetre: dual (oxygen and nitrogen) isotopic constraints to the biogeochemical processes. Archaeometry, 61(5), 1175-1192. https://doi.org/10.1111/arcm.12472

49. Nejatijahromi, Z., Nassery, H.R., **Hosono, T.**, Nakhaei, M., Alijani, F., Okumura, A., 2019. Groundwater nitrate contamination in an area using urban wastewaters for agricultural irrigation under arid climate condition, southeast of Tehran, Iran. Agricultural Water Management, 221, 397-414. https://doi.org/10.1016/j.agwat.2019.04.015

48. Nikpeyman, Y., **Hosono, T.**, Ono, M., Yang, H., Ichiyanagi, K., Shimada, J., Takikawa, K., 2019. Sea surficial waves as a driving force that enhances the fresh shallow coastal groundwater flux into the oceans. Environmental Earth Sciences, 78, 252. https://doi.org/10.1007/s12665-019-8258-4

47. Taniguchi, M., Burnett, K., Shimada, J., **Hosono, T.**, Wada, C.A., Ide, K., 2019. Recovery of lost nexus synergy via payment for environmental services in Kumamoto, Japan. Frontiers in Environmental Science, 7, 28. https://doi.org/10.3389/fenvs.2019.00028

46. **Hosono, T.**, Yamada, C., Shibata, T., Tawara, Y., Wang, C.-Y., Manga, M., Rahman, A.T.M.S., Shimada, J., 2019. Coseismic groundwater drawdown along crustal ruptures during the 2016 Mw 7.0 Kumamoto earthquake. Water Resources Research, 55(7), 5891-5903. https://doi.org/10.1029/2019WR024871

45. Taufiq, A., Effendi, A.J., Iskandar, I., **Hosono, T.**, Hutasoit, L.M., 2019. Controlling factors and driving mechanisms of nitrate contamination in groundwater system of Bandung Basin, Indonesia, deduced by combined use of stable isotope ratios, CFC age dating, and socioeconomic parameters. Water Research, 148,

292-305. https://doi.org/10.1016/j.watres.2018.10.049

44. Taufiq, A., **Hosono, T.**, Iskandar, I., Effendi, A.J., Hutasoit, L.M., 2018. Estimating groundwater mixing ratios from vertical flux processes due to excessive groundwater pumping using hydrogeochemical parameters and nitrate concentrations in the Bandung Basin, Indonesia. Geologia Croatica, 71(3), 173-184. https://doi.org/10.4154/gc.2018.19

43. **Hosono, T.**, Hartmann, J., Louvat, P., Amann, T., Washington, K.E., West, A.J., Okamura, K., Böttcher, M.E., Gaillardet, J., 2018. Earthquake-induced structural deformations enhance long-term solute fluxes from active volcanic systems. Scientific Reports, 8, 14809. https://doi.org/10.1038/s41598-018-32735-1

42. Okumura, A., **Hosono, T.**, Boateng, D., Shimada, J., 2018. Evaluations of the downward velocity of soil water movement in the unsaturated zone in a groundwater recharge area using $\delta^{18}O$ tracer: the Kumamoto region, southern Japan. Geologia Croatia Journal, 71, 2. https://doi.org/10.4154/gc.2018.09

41. Ide, K., **Hosono, T.**, Hossain, S., Shimada, J., 2018. Estimating silicate weathering timescales from geochemical modeling and spring water residence time in the Kirishima volcanic area, southern Japan. Chemical Geology, 488, 44-55. https://doi.org/10.1016/j.chemgeo.2018.04.009

40. Mizota, C., **Hosono, T.**, Matsunaga, M., Okumura, A., 2018. Dual (oxygen and nitrogen) isotopic characterization of the museum archived nitrates from the United States of America, South Africa and Australia. Science of the Total Environment, 625, 627-632. https://doi.org/10.1016/j.scitotenv.2017.12.260

39. Taufiq, A., **Hosono, T.**, Ide, K., Kagabu, M., Iskandar, I., Effendi, A.J., Hutasoit, L.M., Shimada, J., 2017. Impact of excessive groundwater pumping on rejuvenation processes in the Bandung basin (Indonesia) as determined by hydrogeochemistry and modeling. Hydrogeology Journal, 26(4), 1263-1279. https://doi.org/10.1007/s10040-017-1696-8

38. Nakagawa, K., Amano, H., Takao, Y., **Hosono, T.**, Berndtsson, R., 2017. On the use of coprostanol to identify source of nitrate pollution in groundwater. Journal of Hydrology, 550, 663–668. https://doi.org/10.1016/j.jhydrol.2017.05.038

37. Rahman, A.T.M.S., Jahan, C.S., Mazumder, Q.H., Kamruzzaman, Md., **Hosono, T.**, 2017. Drought analysis and its implication in sustainable water resource management in Barind area, Bangladesh. Journal of the Gological Society of Indea, 89(1), 47-56. https://doi.org/10.1007/s12594-017-0557-3

36. Zeng, X., **Hosono, T.**, Matsunaga, M., Ohta, H., Niidome, T., Shimada, J., Morimura, S., 2017. Spatial distribution of microbial communities in the alluvial aquifer along the Oyodo River, Miyakonojo Basin, Japan. Journal of Water and Environment Technology, 15(4), 152-162. https://doi.org/10.2965/jwet.16-082

35. Hossain, S., **Hosono, T.**, Yang, H., Shimada, J., 2016. Geochemical processes controlling fluoride enrichment in groundwater at the western part of Kumamoto area, Japan. Water, Air and Soil Pollution, 227(10), 385. https://doi.org/10.1007/s11270-016-3089-3

34. Zeng, X., **Hosono, T.**, Ohta, H., Niidome, T., Shimada, J., Morimura, S., 2016. Comparison of microbial communities inside and outside of a denitrification hotspot in confined groundwater. International Biodeterioration & Biodegradation, 114, 104-109. https://doi.org/10.1016/j.ibiod.2016.05.019

33. **Hosono, T.**, Alvarez, K., Kuwae, M., 2016. Lead isotope ratios in six lake sediments cores from Japan Archipelago: Historical record of trans-boundary pollution sources. Science of the Total Environment, 559, 24–37. https://doi.org/10.1016/j.scitotenv.2016.03.138

32. Mizota, C., **Hosono, T.**, Matsunaga, M., Yamanaka, T., 2016. Oxygen and nitrogen isotopic constraints to the origin of saltpetre in historic gunpowder prevailed during the 19th century in Japan. Journal of Archaeological Science: Reports, 6, 547-556. https://doi.org/10.1016/j.jasrep.2016.03.026

31. Hossain, S., **Hosono, T.**, Ide, K., Matsunaga, M., Shimada, J., 2016. Redox processes and occurrence of arsenic in a volcanic aquifer system of Kumamoto Area, Japan. Environmental Earth Sciences, 75(9), 1-19. https://doi.org/10.1007/s12665-016-5557-x

30. Nikpeyman, Y., **Hosono, T.**, Ono, M., Yang, H., Shimada, J., Takikawa, K., 2016. Assessment of the spatial distribution of submarine groundwater discharge (SGD) along the Yatsushiro Inland Sea coastline, SW Japan, using ^{222}Rn method. Journal of Radioanalytical and Nuclear Chemistry, 307(3), 2123-2132. https://doi.org/10.1007/s10967-015-4573-8

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2. 14 Aug, 2019, Earth & Space Science News (EOS) Editors' Highlights, Groundwater Drawn Downward After Kumamoto Quake, https://eos.org/editor-highlights/groundwater-drawn-downward-after-kumamoto-quake

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Affiliated Academic Society

American Geophysical Union, 2009-present
International Association of Hydrological Sciences, 2008-present
Japanese Association of Groundwater Hydrology, 2014-present
Japanese Association of Hydrological Sciences, 2012-present
Japanese Society for Scientific Studies on Cultural Properties, 2004-2014
The Geological Society of Japan, 2002-2009
The Society of Resource Geology, 1998-2014

Editorial Responsibilities

2022-present, Editor, Hydrological Research Letters
2018-2020, Guest Editor, Journal of Hydrology, Special Issue "Coseismic hydro-environmental changes: insights from recent earthquakes"
2016-2022, Associate Editor, Hydrological Research Letters
2015, Japanese Association of Groundwater Hydrology
2013-present, Japanese Association of Hydrological Sciences

Paper Review (international journals only)

Applied Geochemistry (6)
Chemosphere (1)
Ecological Research (3)
Environmental Science and Technology (1)
Geochemical Journal (1)
Geochimica et Cosmochimica Acta (1)
Hydrological Research Letters (10)
Hydrological Processes (1)
Journal of Asian Earth Science (2)
Journal of Hydrology (12)
Journal of Geophysical Research: Solid Earth (1)
Marine Pollution Bulletin (1)

Paddy and Water Environment (1)

Proceedings of the National Academy of Sciences of the United States of America (PNAS) (1)

Science of the Total Environment (5)

Water, Air, & Soil Pollution (1)

Water Research (2)

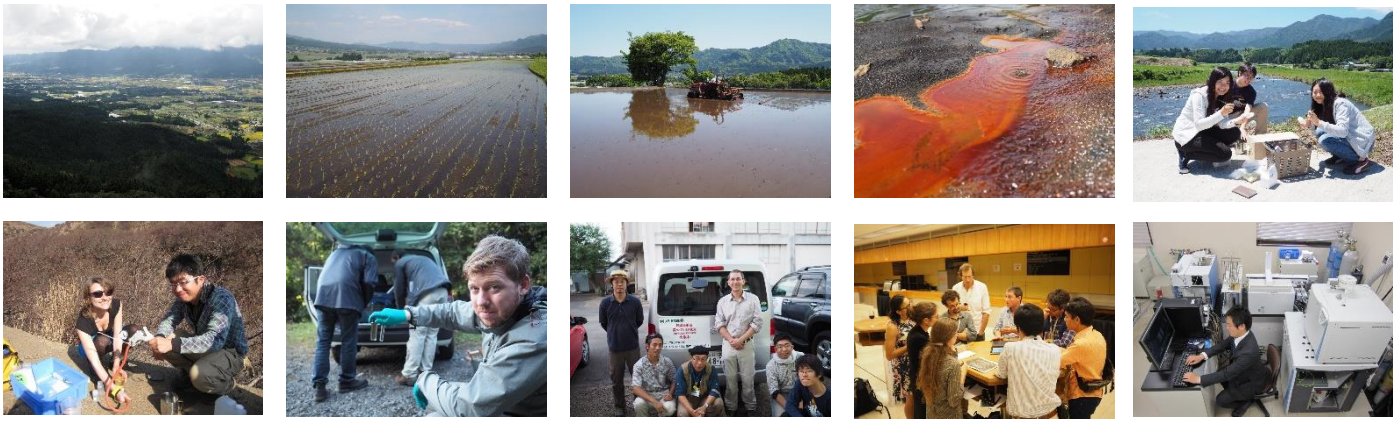
Water Resources Research (1)

Photos

Special Topic: Groundwater environmental change due to 2016 Kumamoto Earthquake

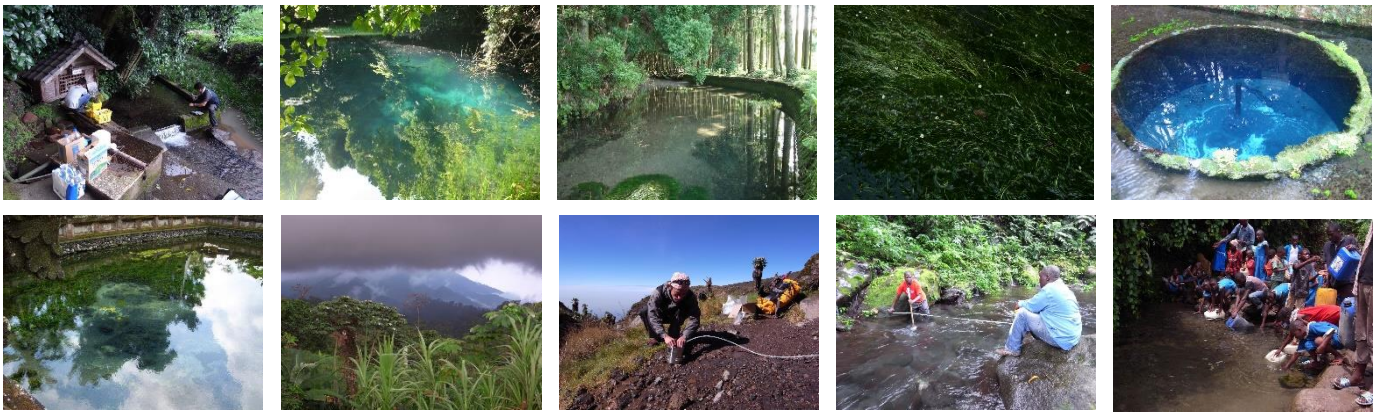
1. Evaluation of trans-boundary atmospheric pollutions

2. Study for geochemical weathering processes in surface environments with its CO_2 buffering availability and nutrients discharging fluxes



3. Elucidating transportation rate/behavior of water/materials in an unsaturated zone

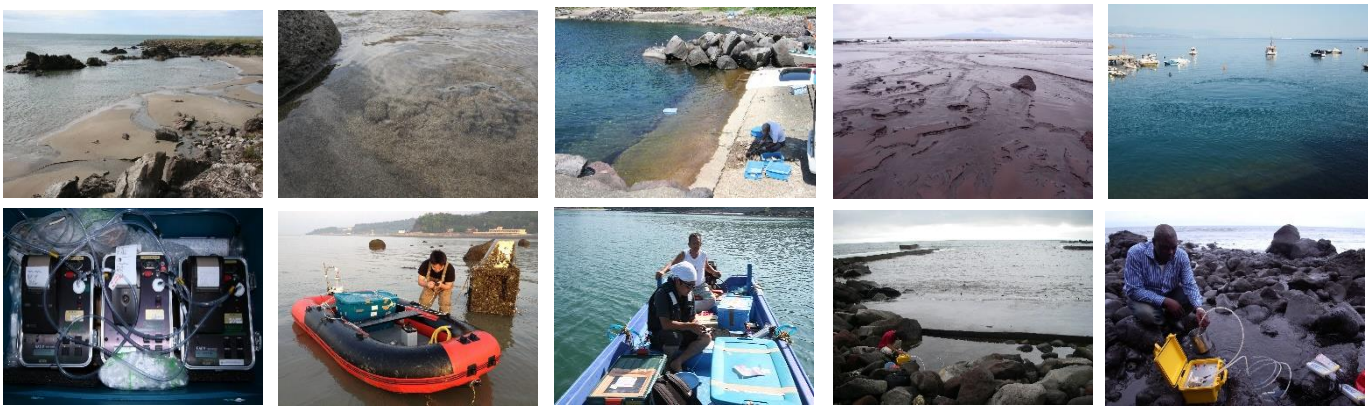
4. Investigation for residence time and hydrochemical evolution of springs and groundwaters



5. Assessment on groundwater nitrate pollution using multiple stable isotopes (H, Li, B, C, N, O, S, Sr) and computer simulation

6. Biogeochemical study for groundwater metal pollution

7. Understanding the distribution and flux of submarine groundwater discharge (SGD)



8. Assessment and characterization for river water quality using geochemical tools and AI approaches

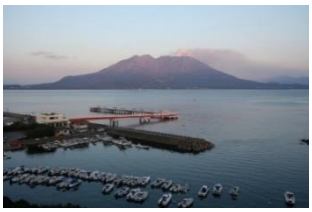
9. Assessment on coastal environments





10. Investigation for deep, geothermal, and magmatic fluids contributing to near surface environment

Previous study in the field of petrology, mineral resources, and cultural property science during the year 1997-2005



Petrology: Intermediate to silicic magmatisms are distributed commonly in the back-arc side of convergent margins, and are associated with hydrothermal deposits throughout the world. The origin and evolutionary process of volcanic and granitic rocks and genetical connection between volcanic rock and hydrothermal deposit have been investigated using Sr (strontium)-Nd (neodym)-Pb (lead) isotope tracers in southern Kyushu, Japan. Stable isotopes were successfully used to distinguish diverse regions contributing to the systems such as oceanic slab, slab sediment, mantle wedge, and crustal material from the lower to upper crust. We have reported results of these studies in several journal papers.

Mineral Resources: Source and genesis of gold- and silver-bearing hydrothermal deposits have been investigated using Sr-Nd-Pb isotope tracers. During the last century, hydrothermal ore forming fluid in the convergent margin have been thought to be derived from water circulated in the shallow crust (1-3 km depth) such as meteoric water and/or magma water. However, we found at the Hishikari world-class hydrothermal gold deposits that the Deep Crustal Fluid, which might be generated in the deeper crust of 10 to 30 km depth, contributes to this system as the important factor creating ore deposits. To understand the spatial distribution of this fluid and the contribution to mineral deposit, gold- and silver-bearing quartz and adularia veins and hot spring water, distributed in wide area in southern Kyushu, were examined. Better understanding of the Deep Crustal Fluid could supply important information for resource exploration and clues for the comprehension of earthquake mechanism.

Cultural Property Science: The Angkor monuments in northwestern Cambodia, which are primarily made of sandstone, are suffering from deterioration due to salt weathering. In order to elucidate the sources of the salts and salt weathering process, we have analyzed bulk chemical compositions and S (sulfur) and Sr (strontium) isotopic ratios for the salts and surrounding environmental materials. The isotopic data suggested that bat guano is related to salt weathering. Our study has demonstrated that removal of these animal excrements is essential for future conservation of these monuments.