

# Hiroki Ando

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## RESEARCH EXPERIENCE

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### PhD Research, University of Arizona 2023 – Present

- Developed a time-series model to address left-censored data in wastewater surveillance.
- Developed a stochastic model for wastewater-based risk assessment of city-level infectious disease epidemics.
- Developed a stochastic model combining hospital case data and wastewater data for nosocomial infection risk assessment.
- Developed a model incorporating shedding load variability to accurately estimate the number of cases.
- Published scientific papers in peer-reviewed journals to support the research programme.
- Secured competitive funding (\$50,000) for a project focused on wastewater surveillance.

### Master Research, Hokkaido University 2020 – 2023

- Developed two highly sensitive detection methods for wastewater surveillance monitoring infectious diseases.
- Collaborated with local authorities to implement wastewater surveillance in Sapporo, Japan.
- Developed a mathematical model for early detection of COVID-19 cases through wastewater surveillance.
- Investigated SARS-CoV-2 and variants in the Tokyo 2020 Olympic and Paralympic athlete village.
- Published three first-author scientific papers in peer-reviewed journals to support the research.

## RELEVANT RESEARCH SKILLS

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- **Laboratory:** PCR, wastewater concentration, nucleic acid extraction.
- **Computation:** R, LaTeX, Bayesian modeling, time-series analysis, infectious disease modeling, stochastic modeling, QMRA

## AWARDS AND FELLOWSHIPS

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9. **One Health Pilot Grant**, University of Arizona One Health Research Initiative (\$50,000) May 2024
8. **Funai Overseas Scholarship**, Funai Foundation for Information Technology (\$150,000) 2023 – 2025
7. **Nishihara Cultural Foundation Scholarship** (\$8,000) 2022 – 2023
6. **Kurita Award (Best Presentation)**, 55th Japan Society on Water Environment (JSWE) Mar 2022
5. **Best Presentation Award**, 14th Interim Presentation, Hokkaido University Dec 2021
4. **Environmental Technology and Project Award**, 58th Env. Engineering Research Forum Oct 2021
3. **Best Poster Award**, 7th Cross-Departmental Symposium, Hokkaido University Oct 2021
2. **Lion Award (Best Poster)**, 55th Japan Society on Water Environment (JSWE) Mar 2021
1. **Dean of Engineering Award**, Hokkaido University Mar 2021  
For achieving the highest GPA in the Environmental Engineering course (top of 50 students).

## EDUCATION

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### University of Arizona 2023 – Present

Ph.D in Public Health (Supervisor: Dr. Kelly A. Reynolds)

### Hokkaido University 2020 – 2023

Master of Engineering in Environmental Engineering (Supervisor: Dr. Masaaki Kitajima)

### Hokkaido University 2016 – 2020

Bachelor of Engineering in Environmental Engineering

## PUBLICATIONS

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17. **H. Ando**, and KA Reynolds. Handling left-censored wastewater surveillance data at the city level: A state-space model incorporating a logistic function. *Water Research*, 295, 125488, **2026**. <https://www.sciencedirect.com/science/article/pii/S0043135426001703>
16. M. Murakami, N. Ishiguro, **H. Ando**, M. Ishida, T. Hamada, S. Nakakubo, R. Oyamada, T. Hayashi, Y. Niinuma, K. Kagami, T. Fukumoto, K. Taki, T. Endo, M. Kitajima. Insights from wastewater surveillance into testing-related underreporting and hospital-acquired SARS-CoV-2 infections. *Environment International*, 207, 110028, **2026**. <https://www.sciencedirect.com/science/article/pii/S0160412025007792>
15. **H. Ando**, M. Kitajima, T. Oki, and M. Murakami. Advancements in global water and sanitation access (2000 – 2020). *Scientific Reports*, 15, 6399, **2025**. <https://www.nature.com/articles/s41598-025-90980-7>
14. M. Murakami, S. Nomura, **H. Ando**, and M. Kitajima. Perceptions and responses to COVID-19 through wastewater surveillance information and online search behavior: A randomized controlled trial. *International Journal of Disaster Risk Reduction*, 118, 105224, **2025**. <https://doi.org/10.1016/j.ijdr.2025.105224>
13. M. Kitajima, M. Murakami, **H. Ando**, S. Kadoya, R. Iwamoto, T. Kuroita, K. Yamaguchi, H. Kobayashi, S. Okabe, H. Katayama, and S. Imoto. Quantitative association of SARS-CoV-2 in wastewater and clinically confirmed cases in different areas of the Tokyo 2020 Olympic and Paralympic Village. *Science of The Total Environment*, 960, 178209, **2025**. <https://doi.org/10.1016/j.scitotenv.2024.178209>
12. **H. Ando**, M. Murakami, M. Kitajima, and KA Reynolds. Wastewater-based estimation of temporal variation in shedding amount of influenza A virus and clinically identified case using the PRESENS model. *Environment International*, 109218, **2024**. <https://doi.org/10.1016/j.envint.2024.109218>
11. M. Murakami, **H. Ando**, R Yamaguchi, and M. Kitajima. Evaluating survey techniques in wastewater-based epidemiology for accurate COVID-19 incidence estimation. *Science of the Total Environment*, 954, 176702, **2024**. <https://doi.org/10.1016/j.scitotenv.2024.176702>
10. **H. Ando**, and KA. Reynolds. Wastewater-based effective reproduction number and prediction under the absence of shedding information. *Environment International*, 194, 109128, **2024**. <https://doi.org/10.1016/j.envint.2024.109128>
9. T. Kuroita, A Yoshimura, R. Iwamoto, **H. Ando**, S. Okabe, M. Kitajima. Quantitative analysis of SARS-CoV-2 RNA in wastewater and evaluation of sampling frequency during the downward period of a COVID-19 wave in Japan. *Science of the Total Environment*, 166526, **2024**. <https://doi.org/10.1016/j.scitotenv.2023.166526>
8. **H. Ando**, W. Ahmed, S. Okabe, M. Kitajima. Tracking the effects of the COVID-19 pandemic on viral gastroenteritis through wastewater-based retrospective analysis. *Science of the Total Environment*, 166557, **2023**. <https://doi.org/10.1016/j.scitotenv.2023.166557>
7. R. Iwamoto, K. Yamaguchi, K. Katayama, **H. Ando**, K. Setsukinai, H. Kobayashi, S. Okabe, M. S. Imoto Kitajima. Identification of SARS-CoV-2 variants in wastewater using targeted amplicon sequencing during a low COVID-19 prevalence period in Japan. *Science of the Total Environment*, 163706, **2023**. <https://doi.org/10.1016/j.scitotenv.2023.163706>
6. **H. Ando**, W. Ahmed, R. Iwamoto, H. Kobayashi, S. Okabe, M. Kitajima. Impact of COVID-19 pandemic on the prevalence of influenza A and respiratory syncytial viruses elucidated by wastewater-based epidemiology. *Science of the Total Environment*, 162694, **2023**. <https://doi.org/10.1016/j.scitotenv.2023.162694>
5. **H. Ando**, M. Murakami, W. Ahmed, R. Iwamoto, H. Kobayashi, S. Okabe, M. Kitajima. Wastewater-based prediction of COVID-19 cases using a highly sensitive SARS-CoV-2 RNA detection method combined with mathematical modeling. *Environment International*, 107743, **2023**. <https://doi.org/10.1016/j.envint.2023.107743>
4. R. Iwamoto, K. Yamaguchi, C. Arakawa, **H. Ando**, E. Haramoto, K. Setsukinai, K. Katayama, T. Yamagishi, S. Sorano, M. Murakami, S. Kyuwa, H. Kobayashi, S. Okabe, S. Imoto, M. Kitajima. Detectability and removal efficiency of SARS-CoV-2 in a large-scale septic tank of a COVID-19 quarantine facility in Japan. *Science of the Total Environment*, 157869, **2022**. <https://doi.org/10.1016/j.scitotenv.2022.157869>
3. M. Kitajima, M. Murakami, S. Kadoya, **H. Ando**, T. Kuroita, H. Katayama, S. Imoto. Association of SARS-CoV-2 Load in Wastewater With Reported COVID-19 Cases in the Tokyo 2020 Olympic and Paralympic Village From July to September 2021. *JAMA Network Open*, 5(8) e2226822, **2022**. <https://doi.org/10.1001/jamanetworkopen.2022.26822>
2. **H. Ando**, R. Iwamoto, H. Kobayashi, S. Okabe, M. Kitajima. The Efficient and Practical virus Identification System with ENhanced Sensitivity for Solids (EPISENS-S): A Rapid and Cost-Effective SARS-CoV-2 RNA Detection Method for Routine Wastewater Surveillance. *Science of the Total Environment*, 157101, **2022**. <https://doi.org/10.1016/j.scitotenv.2022.157101>
1. **H. Ando**, Satoshi Okabe, Masaaki Kitajima. Wastewater-based Epidemiology for Understanding COVID-19 Prevalence and Early Detection of Variant. *Environmental Biotechnology*, 22(1) 91–95, **2022**.

## LANGUAGES

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**English:** Intermediate

**Japanese:** Native

## REFERENCES

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- **Prof. Kelly A. Reynolds**

Department of Public Health, University of Arizona

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- **Prof. Masaaki Kitajima**

University of Tokyo

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