

Kobe University - International Maritime Research Center (IMaRC)

ANNUAL RESEARCH ACTIVITY REPORT



Fiscal Year 2025

April 1st 2025 - March 31st 2026

Research Report for the fiscal year 2025

For details about the structure of IMaRC, as well as the full list of research fellows, please see the website:

<https://www.maritime.kobe-u.ac.jp/imarc/index.html>

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Introduction

This report presents an overview of the research output produced by members of the International Maritime Research Centre (IMaRC) at Kobe University over the 2025-2026 academic cycle.

The publications documented here display a wide range of academic disciplines that converge towards the understanding, the management, and the protection of the marine and coastal environments.

Research contributions range from geoscientific investigations of natural hazards to environmental toxicology studies examining the effects of emerging pollutants on aquatic organisms.

Atmospheric and climate science, ocean engineering, sediment geochemistry, maritime logistics, and international maritime governance are equally represented, underscoring the interdisciplinary character of IMaRC's research culture.

Geographically, the work reported here extends well beyond Japan, with collaborative studies conducted across Asia, Africa, Europe, and the Arctic, involving co-authors from more than fifteen countries. This international reach shows the center's commitment to addressing marine and environmental challenges.

Publication venues include high-impact peer-reviewed journals such as Science, Ocean Engineering, Atmospheric Chemistry and Physics, and Earth and Planetary Science Letters, alongside conference proceedings and applied research outlets, demonstrating engagement with both fundamental science and its practical dimensions.

62

TOTAL PUBLICATIONS

4

RESEARCH DIVISIONS

38+

UNIQUE JOURNALS

15+

COUNTRIES REPRESENTED

Publications by division



Oceanography & Maritime Sciences

40

64.5% of total



Logistics Systems Science

9

14.5% of total



Maritime Transport Engineering

5

8.1% of total



International Marine & Ocean Policy

4

6.5% of total



Cross-divisional Collaborations

4

6.5% of total

Research keywords
(Sized by frequency)



Most frequent journals and venues

01	Environmental Toxicology & Pharmacology	4
02	Geomorphology	3
03	Atmospheric Chemistry & Physics	3
04	Ocean Engineering	3
05	Geochemical Journal	3
06	JSAI 2025 Conference	3
07	Aquatic Toxicology / Ecotox	2
08	Journal of Marine Science & Engineering	2
09	Earth & Planetary Science Letters	2

Research Themes

BY NUMBER OF PUBLICATIONS



Publication Type

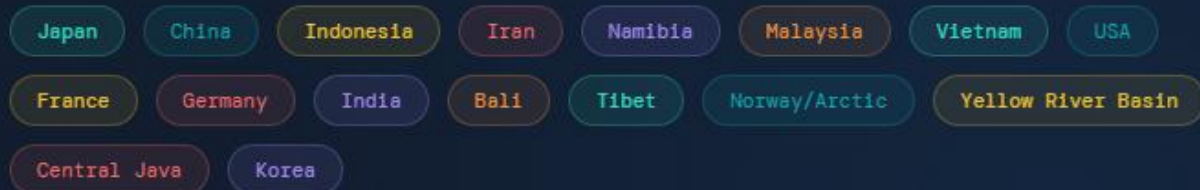
VENUE DISTRIBUTION



- Journal Articles (52)
- Conference Papers (5)
- Review Articles (3)
- Letters / Notes (2)

Geographic Collaboration

COUNTRIES & REGIONS OF CO-AUTHORS



Comment by the director:

IMaRC is working with at least partners from 17 different countries and we have shown that we were able to share the research at the center in international peer-reviewed outlets.

Starting in 2026, I would like to see us develop further collaboration across the different groups that constitute this platform (only 6.5% of all output).

PUBLICATION RECORD (as per Researchmap)

This publication record reflects the contribution of the members of IMaRC, who have their main affiliation with Kobe University, and thus not the record of the fellows, unless the articles have been written in collaboration with a member of the department.

INTERNATIONAL MARINE & OCEAN POLICY

Matthew John Rooks

Nakada Tatsuya

Hirata Enna

- Kondo, T., Fujimoto, S., Rooks, M., Konishi, T., & Yasuta, N. (2025). Transformations in ship management with the advent of maritime autonomous surface ships: A study based on seafarer perspectives. *Transactions of Navigation*, 10(2), 45–56.
- Szwed, P., Rooks, M., & Sholdt, G. (2025, October). Navigating beyond borders: Cultivating affective competencies in future global maritime professionals through study away programs. *Proceedings of the International Association of Maritime Universities Conference*, 25(1), 165–170.
- Nakada, T. (2026). Negotiating a draft treaty toward 2050: The current status and challenges of the IMO's GHG reduction strategy. *Environmental Management*, 62(1), 64–71.
- Naganawa, H., & Hirata, E. (2025, April 23). Social media and logistics: Uncovering challenges and solutions through YouTube data. *Logistics*, 9(2), Article 56, 1–21.

LOGISTICS SYSTEMS SCIENCE

Akita Naoya

Saito Katsuhiro

Nishimura Etsuko

Fuchi Masaki

Sakai Hiroki

Okimoto Tenda

Ueda Yoshihiro

Makino Hidenari

- Hirayama, K., Gohara, K., Koue, J., Okimoto, T., & Kim, D. (2025, October). Learning system-optimal and individual-optimal collision avoidance behaviors by autonomous mobile agents. *Algorithms*, 18, Article 671.
- Mineyuki, K., Nishitani, I., Okimoto, T., Sakai, Y., & Mizutani, J. (2025, May). 新人パイロットの教育を考慮したクルー割当問題 [Crew assignment problem considering training of new pilots]. 人工知能学会全国大会 (JSAI 2025).
- Nishimura, E., Papadimitriou, S., Shintani, K., & Imai, A. (2025, August). Environmental challenge of vehicle dispatching in marine container drayage. *Annals of Operations Research*, 351(1), 1049–1107.
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- Okimoto, T., & Yamaoka, S. (2025, May). 消防隊員の勤務表作成に関する事例研究 [Case study on creating work schedules for firefighters]. 人工知能学会全国大会 (JSAI 2025).
- Papadimitriou, S., Shintani, K., & Imai, A. (2025, July 18). Fatigue state detection of navigational officer using Gaussian Hidden Markov model. *Journal of Marine Engineering & Technology*, 1–17.
- Ueda, Y. (2025, June 7). Linear stability of the non-zero equilibrium state for the viscous Burgers equation with time delay. *Japan Journal of Industrial and Applied Mathematics*.
- Wicaksana, I. M. R., Fuchi, M., Konishi, T., & Adhita, I. G. M. S. (2025, October 22). Resilience analysis of ship near-miss accident using FRAM. *WMU Journal of Maritime Affairs*.

- Zhang, B., Koue, J., Okimoto, T., & Hirayama, K. (2025, July 23). COLREGs-compliant distributed stochastic search algorithm for multi-ship collision avoidance. *Journal of Marine Science and Engineering*, 13(8).

OCEANOGRAPHY & MARITIME SCIENCES

Gomez Christopher

Ijiri Akira

Yamaji Kazuyo

Horie Fumitoshi

Fujiwara Yasushi

Shibahara Makoto

Kanasaki Masato

Taniike Akira

- Astari, A. J., Wibowo, S. B., Sunardi, S., Prasetyo, Y., Lukman, Lavigne, F., Gomez, C., Wening, I., Dede, M., & Aliyan, S. A. (2025, November 4). Stakeholder discourses on disaster risk reduction in Merapi: Aligning local practices with the Sendai Framework and SDGs through Q methodology. *Disaster Prevention and Management: An International Journal*, 1–14.
- Chi, N. D. T., Tanimoto, H., Inomata, S., Fujinawa, T., Müller, A., Sugita, T., Kato, S., Kuze, N., Kanaya, Y., & Fujiwara, M. (2025, November 25). Characterization of Pandora sky-scan modes from the Japan Pandora Network and evaluation of their use in validating satellite NO₂ and HCHO retrievals. *ACS ES&T Air*.
- Chihaya, Y., & Horie, Y. (2025, August 9). Effect of emergency contraception (ulipristal acetate) on growth, sexual differentiation, and reproduction in *Oryzias latipes*. *Environmental Toxicology and Pharmacology*, Article 104786.
- Chihaya, Y., & Horie, Y. (2026, March 27). Effects of contraceptive (gestodene) on hatching, embryo development, and reproduction in *Oryzias latipes*. *Environmental Toxicology and Pharmacology*, Article 105006.
- Dumond, M., Siccard, V., Arnaud-Fassetta, G., Gomez, C., Lissak, C., & Viel, V. (2025). Landscape mutations in the Northern Kyushu region (Japan) induced by the torrential rains of July 2017 and associated restoration projects. *Geomorphology, Relief, Processus, Environnement*.
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from China using EMERGE aircraft observations and WRF/CMAQ modelling. *Atmospheric Chemistry and Physics*.

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- Horie, Y., & Yap, C. K. (2025, November). Effects of methimazole on the thyroid hormone system in Japanese medaka (*Oryzias latipes*) larvae. *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology*, 297, Article 110296.
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controlling topsoil material in the Menoreh-Sumbing volcanic structural transitional landscape, Central Java. *Journal of Water and Land Development*, 67, 72–84.

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- Sawada, A., & Horie, Y. (2025, October 13). Swimming abnormalities and cognitive disruption in Japanese medaka (*Oryzias latipes*) from antiepileptic drug exposure. *Aquatic Toxicology*, 289, Article 107602.
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MARITIME TRANSPORT ENGINEERING

Sasa Kenji
Ooishi Satoru

- Chen, H., Chen, C., Sasa, K., Xi, Y., & Xu, J. (2025, July). Quantitative analysis of a ship anchor dragging accident in extreme weather: A rapid intensification tropical cyclone case. *Ocean Engineering*, 333, Article 121392.



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- Jing, R., Chen, C., Hu, S., Sasa, K., Yu, H., & Hu, Y. (2025, November). Spatial-temporal shipping risk assessment along Asia-Europe route due to ocean waves. *Ocean and Coastal Management*, 270, Article 107922.
- Lee, S.-W., Sasa, K., & Cho, I.-S. (2025, December). Improvement of wave measurement accuracy with shipboard X-band radar: Integration of ship motions and precipitation data. *Ocean Engineering*, 341, Article 122412.
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