

Call for Papers

Special issue on “Optimizing port and maritime logistics: advances for sustainable and efficient operations”

Guest Editors

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The *International Transactions in Operational Research* (ITOR), the flagship journal published by the International Federation of Operational Research Societies, will publish a special issue dedicated to “*Optimizing Port and Maritime Logistics: Advances for Sustainable and Efficient Operations*,” at the occasion of the 33rd European Conference on Operational Research (EURO 2024) to be held in Copenhagen, Denmark, from June 30 to July 3. Although we strongly encourage the submission of papers presented at the special sessions devoted to this subject at the EURO 2024 conference, this Call for Papers is open to the entire community of academics and practitioners.

Maritime transport carries over 80% of global trade by volume, underscoring its pivotal role in international commerce. Efficient management of this sector is thus crucial for global trade. The maritime sector frequently has to cope with challenges, including creating and coordinating shipping routes, handling diverse cargo flows, and minimizing delays. Fuel costs and planning disturbances intensify these issues. Addressing these complexities and optimizing operations not only boosts performance but also significantly reduces costs and enhances service reliability.

In this context, ports act as critical nodes and the backbone of global supply chains. They serve as interfaces devoted to interchanging goods transported by sea. Optimizing their operations is essential for smooth cargo flows while efficiently utilizing available space, time, and resources. This involves the integration of advanced technologies and operations research methodologies to enhance operations planning, such as improving berth allocation, enhancing yard management, and optimizing container dispatching. Additionally, efficient port infrastructure, equipment, and personnel management is crucial to reducing congestion, minimizing delays, and maximizing throughput.

Maritime transport is a significant contributor to global CO₂ emissions. Because of this, there is increasing interest and pressure to adopt greener practices and reduce the environmental impact of maritime shipping and port operations. This includes optimizing route planning to save

fuel through slow steaming or eco-friendly routing, modeling and assessing energy-efficient technologies like wind-assisted propulsion and hybrid engines, and implementing shore power (cold ironing) to reduce emissions while ships are at berth. On the port side, strategies such as using electrified container handling equipment, autonomous electric trucks, and on-site renewable energy generation are gaining attention to minimize the carbon footprint.

In this special issue, we are particularly interested in receiving strong, innovative, and insightful studies focusing on theoretical concepts, methodological approaches, and practical applications in enhancing ports and maritime shipping operations. We especially welcome studies that consider not only time and economic benefits but also align with environmental sustainability goals. They should significantly contribute to the existing body of knowledge.

Topics of this special issue may include, but are not be limited to, the use of analytical and optimization approaches as well as empirical research to address significant theoretical and practical issues in the following areas:

- Liner shipping network design problems.
- Container allocation problems (slot allocation) for liner shipping.
- Fleet design and operational characteristics.
- Empty container repositioning problems.
- Decarbonization of maritime shipping.
- Seaside planning at port terminals, for example, berth allocation and quay crane assignment/scheduling, loading/unloading, and stowage planning problems.
- Yard management problems, for example, container stacking, pre-marshaling, block relocation, yard crane deployment, and horizontal transportation.
- Truck appointment systems and inter-terminal transportation planning.
- Port-hinterland transportation: container drayage and synchromodal transportation.
- Waterway and inland network design.
- New energies and technologies for sustainable port operations.
- Resilience and disruption management.

The deadline for submissions is November 30, 2024. All papers submitted for this special issue will undergo the standard peer review procedures established by *ITOR*.

Submitted papers must be original, unpublished, and not currently under consideration for publication elsewhere. All submissions must fit within the domain statement of the journal and will be judged for their relevance to the special issue's scope, innovativeness, and the extent of theoretical and practical research contribution. Contributions should be prepared according to the instructions to authors, which can be found on the journal homepage. Authors should submit and upload their contributions using the submission site <http://mc.manuscriptcentral.com/itor>, indicating in their cover letter that the paper is intended for this special issue. Other inquiries should be sent directly to the guest editors in charge of this issue: Eduardo Lalla-Ruiz (e.a.lalla@utwente.nl); Rosa G. González-Ramírez (rgonzalez@uandes.cl); Mario Guajardo (Mario.Guajardo@nhh.no); and Christopher Expósito-Izquierdo (cexposit@ull.edu.es).