

COPERNICUS MARINE 8th GENERAL ASSEMBLY

- **Operational model for the
Curonian Lagoon and
southeast Baltic Sea**
Jovita MEŽINĖ, Rasa IDZELYTĖ



Klaipeda
University
Marine Research
Institute



PROGRAMME OF
THE EUROPEAN UNION



Copernicus
Marine Service

implemented by



MERCATOR
OCEAN
INTERNATIONAL



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The project aims to improve understanding of the shallow lagoon and coastal waters of Lithuania.

Promote an operational modeling service for stakeholders and enhance the visibility of CMEMS.



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**Marine Research
Institute of Klaipėda
University, Lithuania**

Core Activities of the Marine Research Institute

Conducts international marine research, supports R&D for businesses, shapes marine R&D strategies, and participates in the educational process.

Laboratories:

- Fisheries and Aquaculture
- Coastal Environment and Biogeochemistry
- Water transport and air pollution
- Mechanical and Marine Engineering



Project current team members



Dr. Jovita Mėžinė

OPER-LIT project lead,
modeller, data analyst,
developer



Dr. Rasa Idzelytė

Modeller, data analyst,
developer



Dr. Georg Umgiesser

Modelling group lead,
modeller, developer



Dr. Petras Zemlys

Modeller, data analyst,
developer



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- **Copernicus Marine
Products and
Coastal model**

COASTAL MODEL

SHYFEM – Shallow water
HYdrodynamic Finite Element
Model

(<https://github.com/SHYFEM-model/shyfem>)

Geographical coverage:

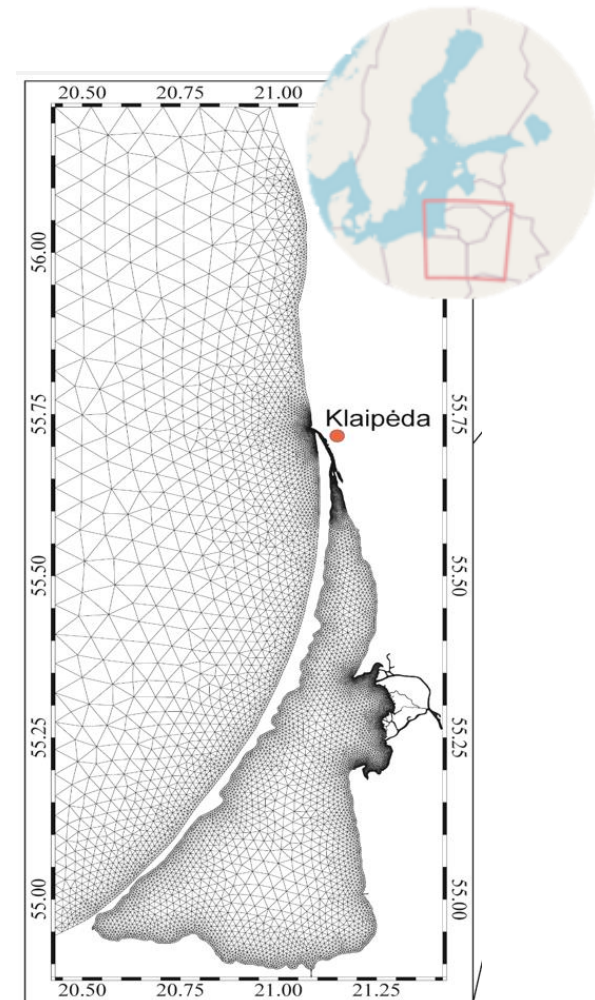
20.431° E, 54.87986° N,
21.41875° E, 56.22538° N

Horizontal grid:

triangular elements with varying
resolution from 20-5000 m

Vertical grid is in zeta layers:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13,
15, 18, 25, 35, 50 and 68 m.



FORCING DATA

Sea boundaries:

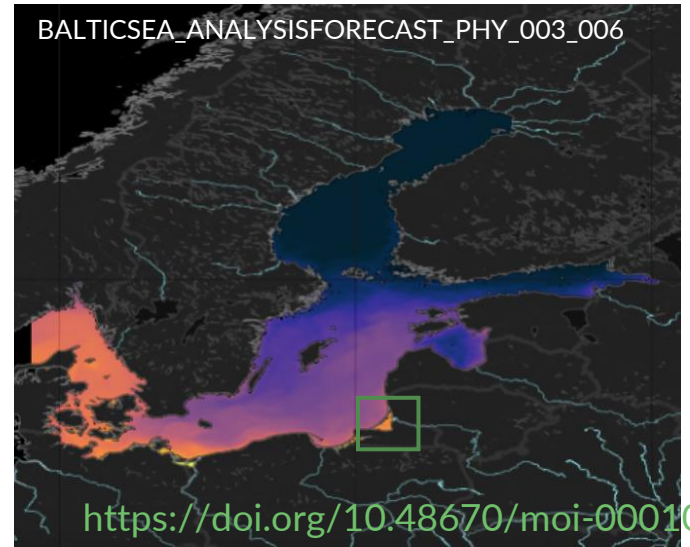
**Copernicus Marine Product -
Baltic Sea Physics Analysis
and Forecast**

Meteorological data:

**European Centre for Medium-
Range Weather Forecasts**

River data:

**Lithuanian
Hydrometeorological
Service**



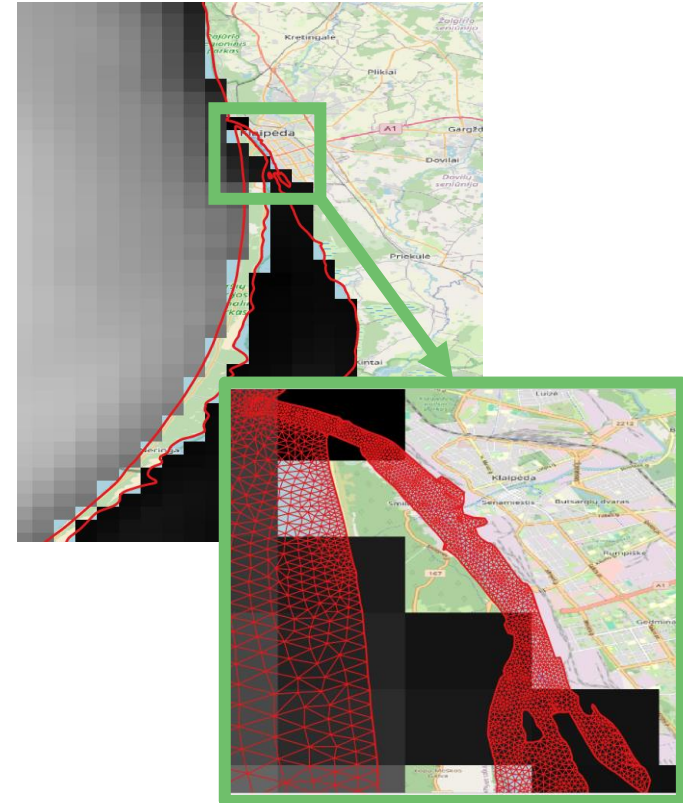


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● **Seamless coastal
service**

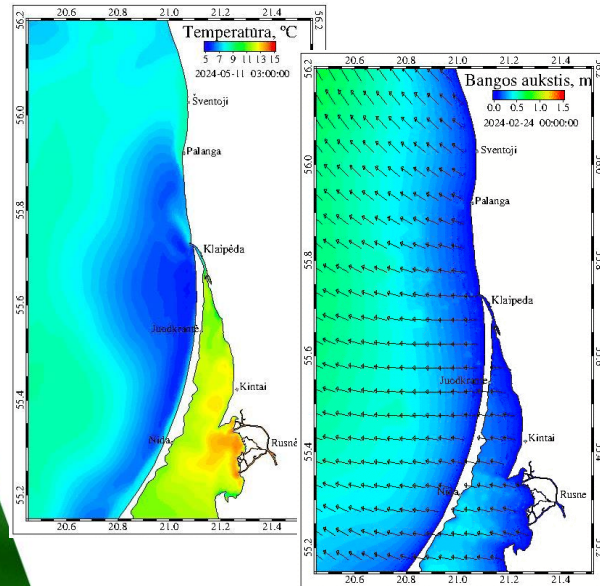
Downscaling (increasing resolution)

- **Very precise coastline**
- **Much higher resolution, particularly in shallow and narrow areas**
- **Modelled parameters:**
 - Water temperature
 - Salinity
 - Water level
 - Waves
 - Currents

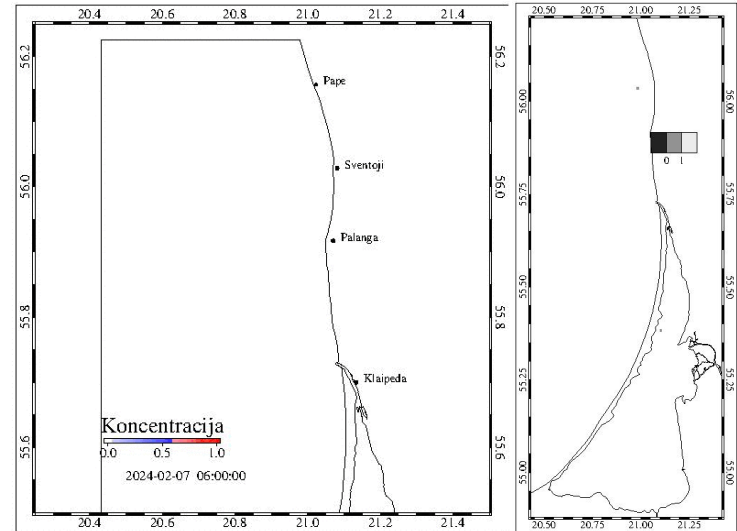


Use Cases

1. An operational planning of monitoring activities in the coastal area of the Baltic Sea

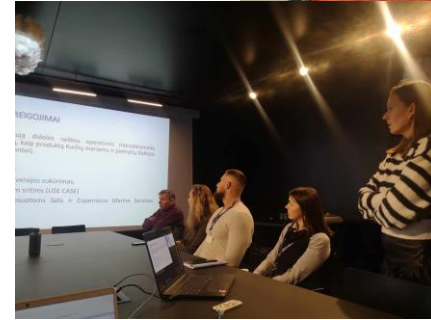


2. The monitoring of the spills of chemical or microbiological pollution.



Stakeholder Involvement

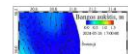
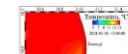
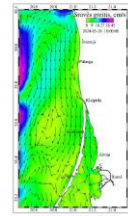
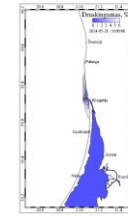
- Meetings with stakeholders:
 - Environment Protection Agency
 - Lithuanian Hydrometeorological Service
 - Klaipeda State Seaport Authority
-
- Results are accessible free-of-charge through an online webpage
(<https://jti.ku.lt/lt/projektai-8/oper-lit>)



Operacinis hidrodinaminis modelis Kuršių mariose ir pietryčių Baltijos jūrai (OPER-LIT)



Projektas yra finansuojamas pagal Europos Sąjungos struktūrinių fondų lėšas ir Lietuvos Respublikos valdžios lėšas. Projektas yra vykdomas pagal Europos Sąjungos struktūrinių fondų lėšas ir Lietuvos Respublikos valdžios lėšas. Projektas yra vykdomas pagal Europos Sąjungos struktūrinių fondų lėšas ir Lietuvos Respublikos valdžios lėšas.





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Thank you

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