



Waterborne Transport



HORIZON EUROPE

AIRCOAT

AIR-induced friction reducing ship COATING

Decarbonising Waterborne Transport

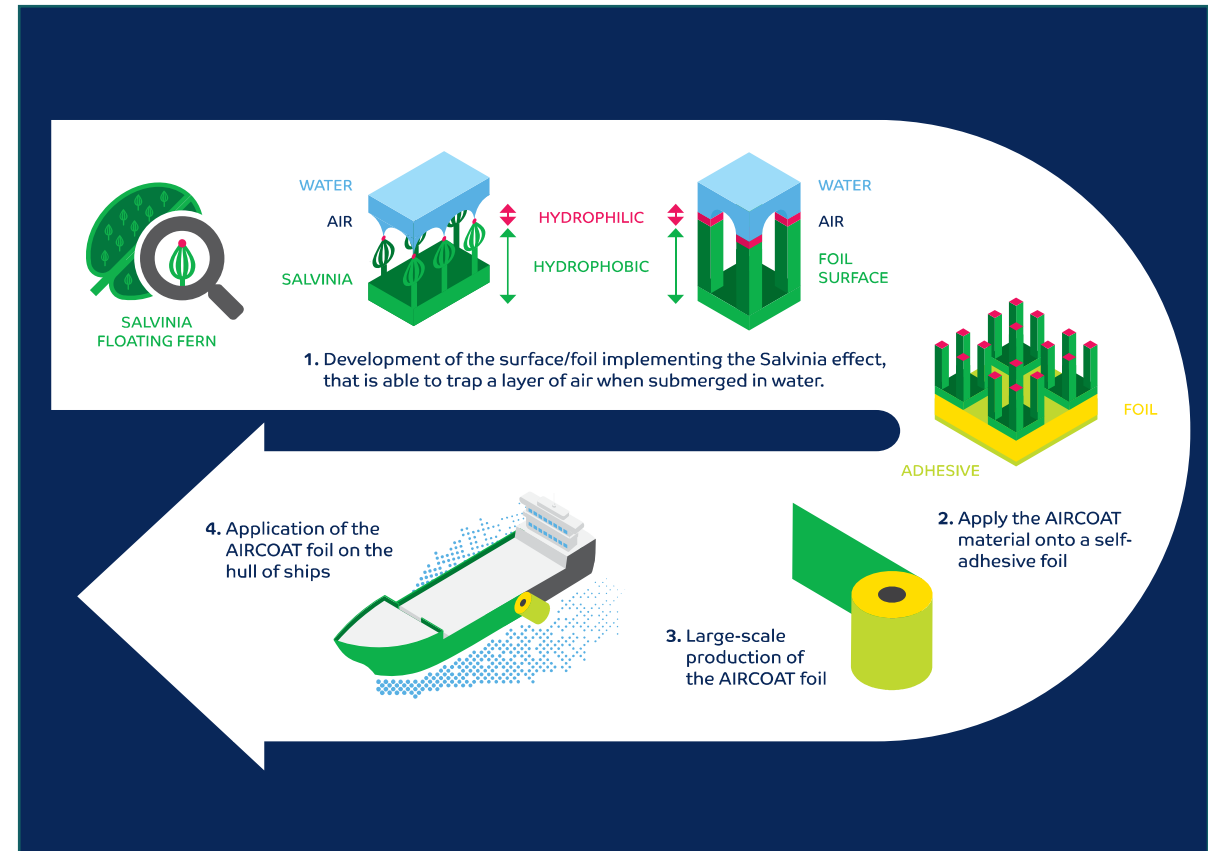
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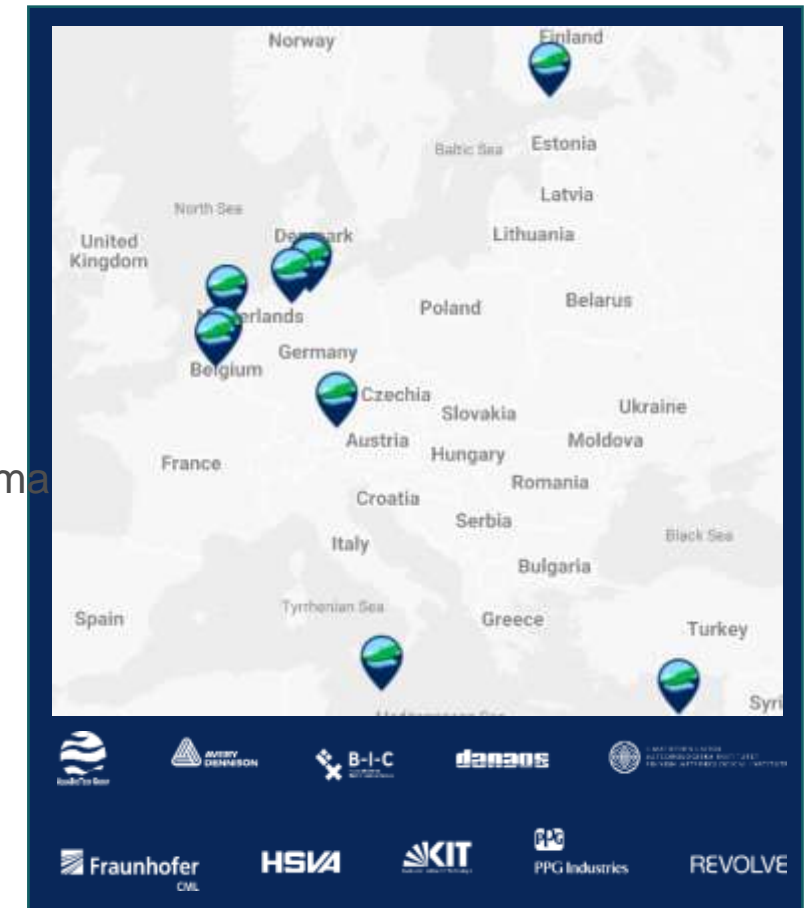
The challenge

- Reducing hull friction to make ships more energy efficient
- Developing passive air lubrication technology inspired by the Salvinia effect on a self-adhesive foil system
- Demonstrate that passive air lubrication reduces friction in lab at large-scale and validate AIRCOAT numerically at full-scale



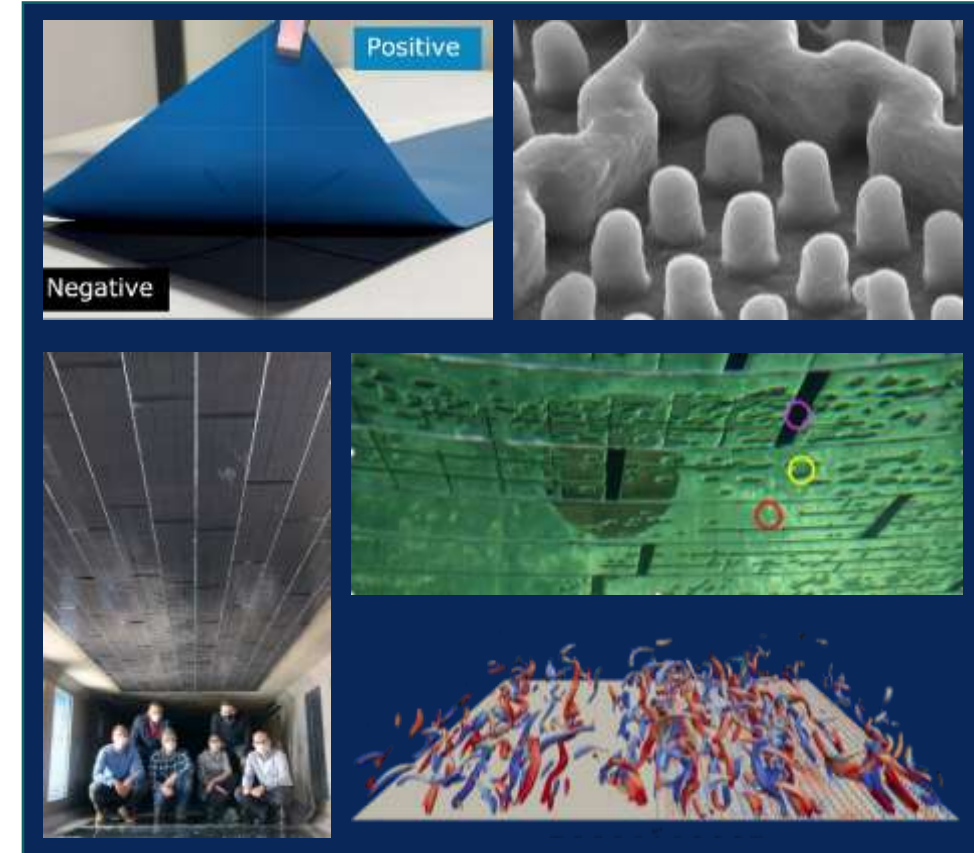
The AIRCOAT project

- Expert consortia :
 - AquaBioTech Group, Malta
 - Avery Dennison Materials, Belgium
 - City University of Applied Sciences Bremen, Germany
 - Danaos Shipping, Cyprus
 - Finnish Meteorological Institute, Finland
 - Fraunhofer Center for Maritime Logistics and Services, Germany
 - Hamburg Ship Model Basin, Germany
 - Karlsruhe Institute of Technology, Germany
 - PPG Coatings Europe BV, Netherlands
 - Revolve Water, Belgium
- Budget €5.9M with EU support of €5.1M
- 48 months, from May 2018 until April 2022



Achievements

- Continuous casting machine developed to produce high quality micro structured foils
- Successfully preventing microfouling
- DR at large-scale (max. $RE = 7 \times 10^7$) = 9-14%
- Structure size defines drag reduction
- Upscaling: 9.4% (single ship) resp. 2% (global fleet) maximum energy consumption



Achievements

- Industrial production and application procedures validated (demonstrated on research vessel and container ship)
- Diffusion, mechanical stress and hydrostatic pressure degrades air
- Oxygen Saturation is key element
- Degassed fouling-release AIRCOAT as fall-back solution



Next Steps

- AIRTUBE for pipe flow, national project
- Follow Research Project applications
- Joint Industry Project AIRCOAT2.0
- 5 years+ for market take-up
- Challenges with long-term air retention has not yet been overcome
- Active AIRCOAT re-loading technology conceptualized but need further investigations and funding.

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Q&A ?

Speaker will be available on the stand for the remainder of the day.

Contacts:

- www.aircoat.eu
- [LinkedIn](#), [Twitter](#)
- AIRCOAT project coordinator: johannes.oeffner@cml.fraunhofer.de
- Horizon Europe Horizon Europe | European Commission (europa.eu)
- Waterborne TP: [Welcome to Waterborne - Setting the agenda for Maritime Research in Europe - waterborne.eu](#)