



Source: Initial IMO GHG Strategy

## PROJECT UPDATES

The project's progress continues as planned and all the activities have been carried out efficiently.

In general, all case studies move forward according to the plan, despite some difficulties; significant developments were reported in ecotoxicological, air and water quality modelling.

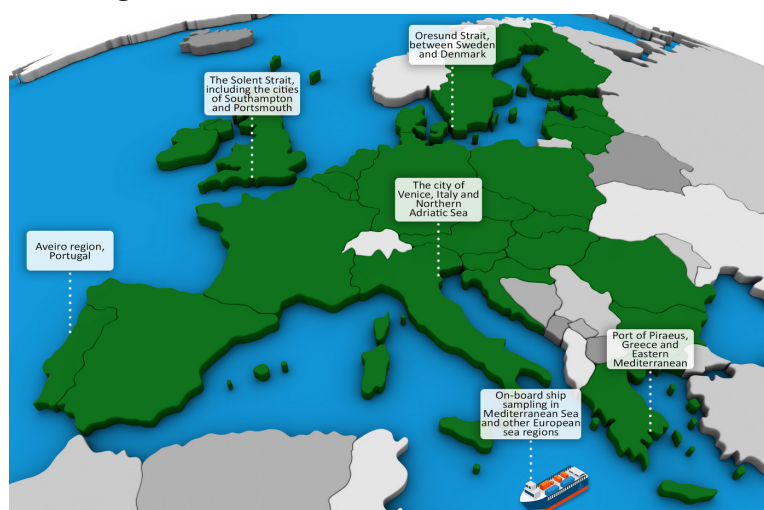
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More specifically, preliminary results from the onboard and the Eastern Mediterranean campaigns have indicated so far interesting and promising findings.

However, the analysis still continues; the water part of the on-board is still under development, and the biogeochemical modelling has progressed well, and preliminary runs have been made for the Eastern Mediterranean campaign. An additional campaign in Saronikos Gulf was concluded and more measurements in Mytilene in more pristine environment have been also carried out. Moreover, two ecotoxicological experiments, one in the port of Thessaloniki and the other one in Chalkidiki area, and two experiments in Saronikos Gulf: the Piraeus port and a reference side have already started. Air quality and water modelling work is a little bit behind for the Solent Strait and the Öresund campaigns, respectively. Nevertheless, for the Solent Strait campaign, there has been good progress in background data and the ecotoxicological work. Monitors for the air quality work will be installed in four locations, but permissions from the local authorities are required. Good progress has been also reported in the modelling work for the Atlantic Sea campaign and in ecotoxicological work for the Öresund campaign. Regarding the modelling work, the first global run with all the weather contributions in STEAM for the year of 2018 was successful, and STEAM datasets, both air emissions and water discharges, for the European domain have been available for the EMERGE partners, in addition to WRF meteo data (5 km resolutions) for the case study regions for the whole of 2018.

On the 9th of June, the EMERGE and SCIPPER projects presented their latest findings on how innovative methods for monitoring emissions together with new fuels and emission control technologies can lead to decreased emissions from vessels during the seminar *"Monitoring and decrease of shipping emissions"* in the framework of Posidonia Exhibition 2022.

EMERGE partners: Prof. L. Ntziachristos (Aristotle University of Thessaloniki-AUTH), Dr. Jana Moldanova (Swedish Environmental Research Institute-IVL), Prof. Evangelia Krasakopoulou (University of Aegean-UAegean) and M.Sc. Elisa Majamäki (Finnish Meteorological Institute-FMI) delivered excellent presentations and, overall, the seminar received positive feedback from the attendees.

Moreover, the EMERGE banner was presented for the first time and project's flyers were disseminated to the audience.



Highlights during the Posidonia Exhibition 2022 in Athens, Greece



Overall, more than 210 delegates attended the International Conference on Air Quality which was held between 27 June- 01 July 2022, in Thessaloniki with about 70% attending in person. Interesting science presentations were delivered, and all the attendees enjoyed the discussions as well as the social events organised by the local hosts.

During the conference, EMERGE's project coordinator Prof. Kukkonen Jaakko (Finnish Meteorological Institute-FMI) gave online a plenary talk entitled "Advances in the assessment of the impacts of shipping emissions" during which he also presented the EMERGE project.

Prof. Leon Ntziachristos from Aristotle University of Thessaloniki (AUTH), an EMERGE partner and coordinator of the SCIPPER project, chaired the special session "Shipping and air quality" with Dr. Volker Matthias.

In addition to the Aristotle University of Thessaloniki, other EMERGE partners from the Swedish Environmental Research Institute (IVL), Finnish Meteorological Institute (FMI), Centre for Atmospheric and Climate Physics Research (CACP) also attended the conference either in person or online. Some preliminary findings of the EMERGE project was also presented to the attendees during either oral presentations or poster sessions as well. Furthermore, we had the opportunity to present our EMERGE's poster and share the project's flyers to all the visitors.



*Highlights during the 13th International Conference on Air Quality, in Thessaloniki, Greece*

## PUBLICATIONS

- Ranjeet S. Sokhi, Nicolas Moussiopoulos, Alexander Baklanov, John Bartzis, Isabelle Coll, Sandro Finardi, Rainer Friedrich, Camilla Geels, Tiia Grönholm, Tomas Halenka, Matthias Ketzel, Androniki Maragkidou, Volker Matthias, Jana Moldanova, Leonidas Ntziachristos, Klaus Schäfer, Peter Suppan, George Tsegas, Greg Carmichael, Vicente Franco, Steve Hanna, Jukka-Pekka Jalkanen, Guus J. M. Velders, and Jaakko Kukkonen, 2022.

**Advances in air quality research – current and emerging challenges.** Atmos. Chem. Phys., 22, 4615–4703, 2022  
Read [here](#)

This review provides a community's perspective on air quality research focusing mainly on developments over the past decade. The article provides perspectives on current and future challenges as well as research needs for selected key topics. While this paper is not an exhaustive review of all research areas in the field of air quality, we have selected key topics that we feel are important from air quality research and policy perspectives.

- Matthias Karl, Liisa Pirjola, Tiia Grönholm, Mona Kurppa, Srinivasan Anand, Xiaole Zhang, Andreas Held, Rolf Sander, Miikka Dal Maso, David Topping, Shuai Jiang, Leena Kangas, and Jaakko Kukkonen, 2022.

**Description and evaluation of the community aerosol dynamics model MAFOR v2.0.** Geosci. Model Dev., 15, 3969–4026, 2022

Read [here](#)

Numerical models are needed for evaluating aerosol processes in the atmosphere in state-of-the-art chemical transport models, urban-scale dispersion models, and climatic models. This article describes a publicly available aerosol dynamics model, MAFOR (Multicomponent Aerosol FORMation model; version 2.0); addressing the main structure of the model, including the types of operation and the treatments of the aerosol processes.

## FUTURE EVENTS

### [LSSTF 2022](#) | 05-06 September 2022

LEC Sustainable Shipping Technologies Forum- Hamburg, Germany

### [Marine and Inland Waters Research Symposium 2022](#) | 16-20 September 2022

Will be held at AKS Hotel Conference Centre in Porto Heli-Argolida, Greece

### [ICES ASC 2022](#) | 19-22 September 2022

ICES Annual Science Conference will be a hybrid event- join online or in Aviva Stadium-Dublin, Ireland

Join the session about the impact of shipping on the marine environment ([Theme session L \(ices.dk\)](#))

### [HARMO21](#) | 27-30 September 2022

21st International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes- Aveiro, Portugal

### [TRA2022](#) | 14-17 November 2022

Transport Research Arena-Lisbon, Portugal.

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By becoming part of our Information Network you are joining one of the most Innovative projects in the marine and maritime field.

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EMERGE project under the Policy Area Ship was granted a Flagship status



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 874990

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