

Meeting: 6th SSN / LRIT Group Meeting

Place and date: Lisbon, 31 October 2019

Agenda item: Status of the Traffic Density Mapping Service project

Document number: SSN/LRIT 6.6.3

Submitted by EMSA

Summary	This document presents the status of the Traffic Density Mapping Service (TDMS) and introduces the concept for an Emissions Density Mapping Service (EDMS).
Action to be taken	As per paragraph 3.
Related documents	n.a.

1 Background

Traffic Density Maps are valuable tools which help Member State Authorities to obtain a better understanding of maritime traffic. There was an agreement at the HLSG 2 meeting (Brussels, 20 June 2017) “on mandating EMSA to start preparing for providing traffic density maps, based on AIS data, to interested parties upon request, as a new service.” The HLSG 3 (Brussels, 28 February 2018) approved the methodology proposed by EMSA, and agreed on the service to be provided to the EMODnet Human Activities Portal following the agreement between EMSA and DG MARE.

EMSA plans to develop a new service, called the Emissions Density Mapping Service (EDMS) to:

- calculate theoretical air emissions produced by ships in the EU waters based on different data sources and algorithms, and;
- automatically generate and present the results of the calculations in emission density maps.

The status of the TDM Service is presented in section 2.1, and the concept of the EDMS in section 2.2.

2 Current status

2.1 Traffic Density Mapping Service (TDMS)

The TDMS became operational in September 2019, and made available to Member States and EU Institutions via the SEG application, and to the public via the EMODnet portal.

As decided at HLSG 3, the TDMS allows users to evaluate the overall shipping density within selected areas (i.e. Baltic Sea, North Sea/North Atlantic, Atlantic, Mediterranean Sea, Black Sea, as well as all Europe) for predefined time periods (i.e. monthly, quarterly or annually), and for six ship type ranges (i.e. cargo, tanker,

passenger, fishing, all others and all traffic). The TDMS uses historical T-AIS and S-AIS ship position data which is provided by the SSN Ecosystem. Fig. 1 shows an example of a TDM layer displayed in the SEG.

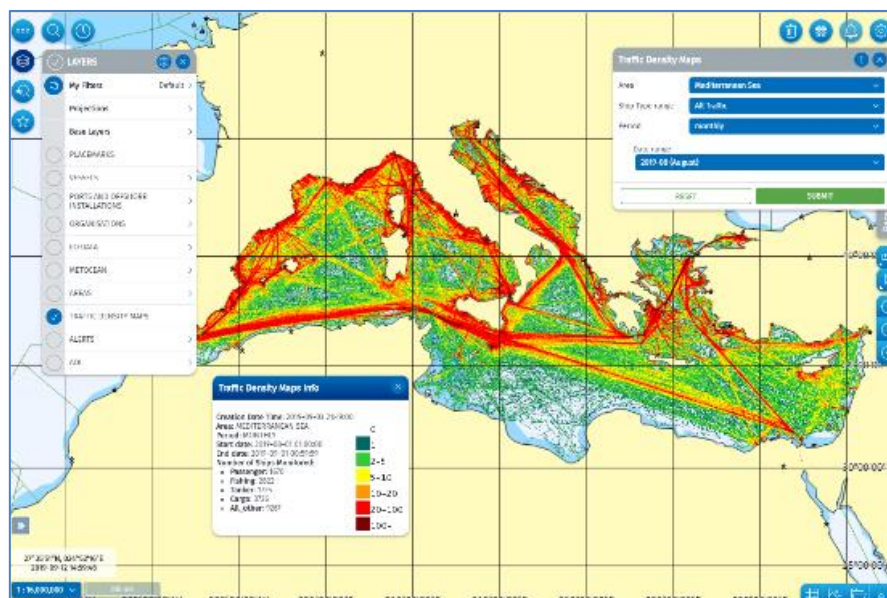


Fig.1: TDMS layer in SEG

The service will be further enhanced in a second phase, and it will consider potential technological improvements and additional user requirements using the experience gained. New types of maps are foreseen, such as comparative maps, vector maps and detailed maps, and an export feature is also under consideration.

2.2 Emissions Density Mapping Service (EDMS) concept

The emissions calculation will be based on a methodology to be approved by the HLSC. Emissions will be calculated for a predefined zone (e.g. a SECA) and for predefined ship type ranges (e.g. passenger, cargo, tanker, etc.).

Calculations will produce results for each category of pollutant, such as the following:

- Nitrogen Oxides (NOx);
- Carbon Dioxide (CO₂);
- Sulphur Oxides (SOx); and
- Particulate Matter (PM).

The result of the calculations will be statistics which will be made available to users via THETIS and Emission Density Maps (EDMs), which will be made available to users through the SEG application. The EDMs will present emission densities by categories of pollutants, ship type ranges, areas and time periods.

The EDMS concept foresees the following steps in order to construct EDMs: aggregating ship positions, constructing ship routes (polylines), collecting ship particulars, sorting polylines by ship type, calculating emissions for corresponding ship routes in grid cells, counting the emissions density values per grid cells and applying the density classification. Fig. 2 shows the steps taken in order to generate EDMs.

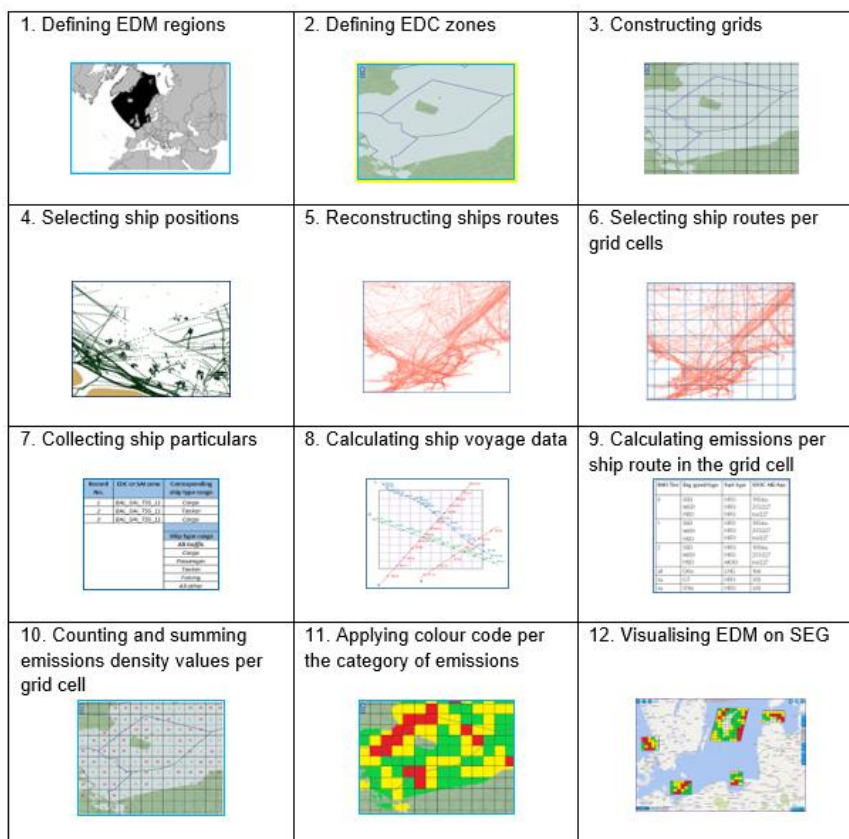


Fig.2: Steps to construct EDM

A new feature will be developed in the SEG in order to be able to search for and select EDMs based on relevant criteria (e.g. reference area, zone, pollutant category, ship type range and time category).

Fig. 3 shows a conceptual example of EDMs displayed in the SEG.

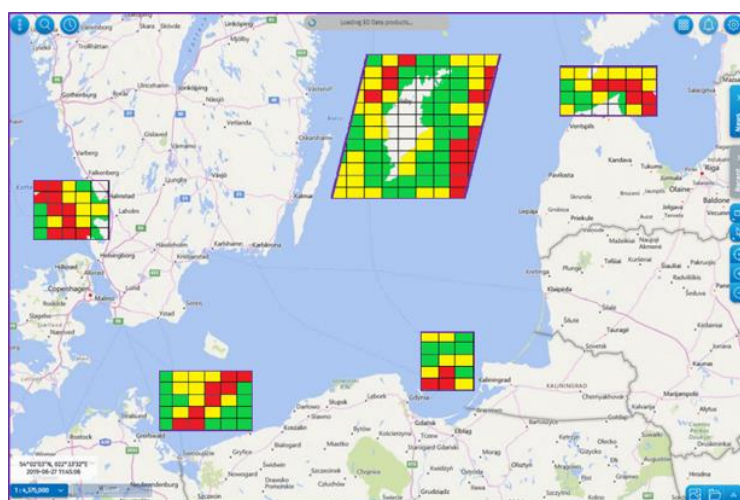


Fig.3: EDMs in the Baltic Sea area (conceptual example)

The EDMS methodology and the implementation plan will be presented for approval at the next HLSG meeting. It is expected that the EDMS will become operational by the end of 2020.

3 Actions required

Member States are invited to take note of the above information.