JOMOPANS Newsletter - 2019

Interreg North Sea Region Jomopans
European Regional Development Fund

EUROPEAN UNION

The second year of Jomopans is crucial for the whole project. All activities are now in full swing and the Jomopans is enthusiastically working on the results. In this newsletter we highlight our efforts on the measurements at sea and on the integration of the results from measurements and modelling. In the last half year also the development of the Good Environmental Status (GES) Tool made a large jump forward. Michael Carder Ltd. was contracted to build the tool and in a very animated workshop the functionality of the tool was further detailed. After a short delay in 2018 we are now on track again.

The interest in Jomopans from professionals and the public remained high. The team members of Jomopans discussed the project at various meetings and there was coverage in national media in the UK and Norway. We have prepared for participation of the 2019 Aquatic Noise conference in The Hague from 7 to 12 July and Jomopans organizes in co-operation with the IQOE two workshops on monitoring underwater sound on 13 July, also in The Hague.

I also want to mention our continuing discussion with marine managers on the implementation of the project results. These discussions will take place in all participating countries in preparation to the next meeting of the Policy Advisory Board in October.

Finally I am looking forward to the Jomopans Midterm event on 8 October in London. This will be an opportunity to meet the Jomopans team, discuss the progress of Jomopans, the connection with other projects and learn more about sound in the sea.

I hope to meet you on one or more of these occasions.

On behalf of the Jomopans project team,

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Measurement update

To support the initial model verification (see. JOMOPANS Newsletter 2018 – Acoustic modelling) with measurement data, a pre-measurement phase was conducted during 2018 within WP5. During this time every JOMOPANS partner nation deployed a bottom mounted underwater sound measurement station, equipped with calibrated hydrophones. After this "learning"-phase, these eight stations were expanded for the 2019 measurement phase to 14 hydrophone stations, scattered over the North Sea project region (Fig. 1). One is still to be deployed. The overall design of the bottom mounted stations followed one of two different construction setups: The first one consists of a metal frame, platform or an anchor, on which the hydrophone system is mounted (Fig. 2).

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Figure 1. Map of North Sea with 14 stations which up to June 2019, 13 (red dots) are active.

Figure 2. The Swedish cabled hydrophone station is being deployed south west of the island of Vinga on the Swedish west coast.

The setups usually are designed to stand on the sea floor steadily and to remain stable under heavy current and wave conditions. Occasionally this setup was connected with a cable, ensuring real-time data transfer and continuous power supply.

The second type of bottom mounted designs consists of a self-floating autonomous hydrophone-system which is connected to an anchor weight to keep the system on position. These systems are typically small, lightweight and easy-to-deploy stand-alone devices (on-board hydrophone, recorder and energy supply).

Utilizing either of the two setups the continuous sound at the respective positions in the North Sea are measured. By doing so, monthly datasets are acquired, consisting of sound pressure levels of the 34 pre-defined frequency bands, which will help to underpin the development of the numerical models through iterative validation and modification and verify the reliability of the JOMOPANS model results.

Acoustic metric specification

The first important task for WP6 has been to define the acoustic metric which will be modelled and measured (Fig. 3). This metric is central to the project since it is the quantity which will be displayed in the sound maps, and it is the measure of underwater noise pollution which will be used in the management tool.

Three criteria were devised for determining the acoustic metric parameters. Firstly, ecological relevance, such that the metric reflects the way that marine species are affected by sound. Secondly, it must be practical to measure and to model (e.g. not requiring such high resolution that it is impossible to model). Thirdly, where possible it should be defined such that it can be readily understood by non-specialists, particularly the policymakers and environmental managers who will make decisions based on maps of the metric.

The metric which has been agreed by the project meets these criteria, and is consistent with continuous noise indicators specified in EU and OSPAR monitoring guidance. Full details are provided in the Acoustic Metric Specification report can be found on the project website.

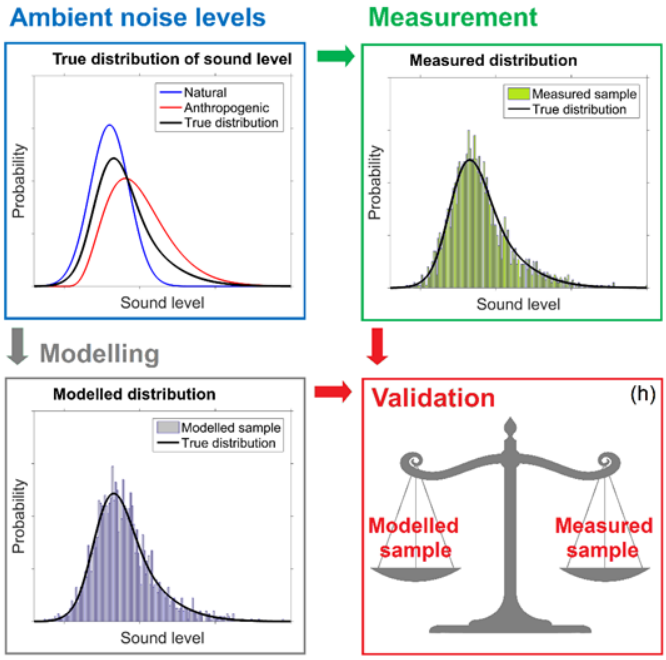

Figure 3. Schematic illustrating the constituent components of the underwater sound field i.e. natural and anthropogenic which combine to form the true distribution of sound levels, which can be measured, and modelled based on models of the natural and anthropogenic components. The accuracy of the models is assessed by the process of validation, whereby model predictions at certain locations are compared to measured sound levels at the same site.