AI in marine sciences:

Classifying vessels using CNNs based on underwater acoustics

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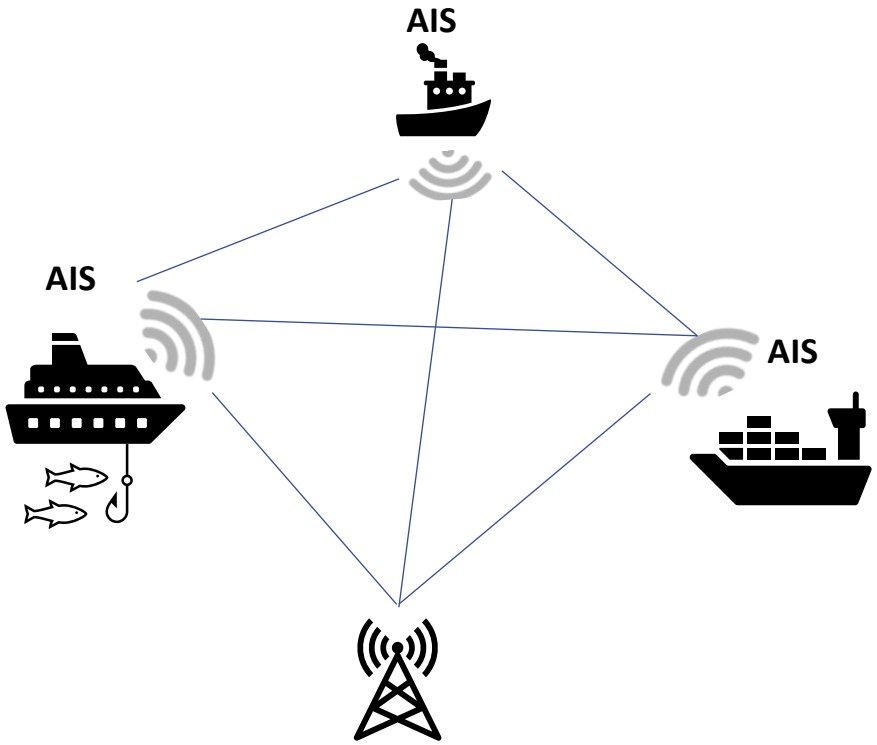
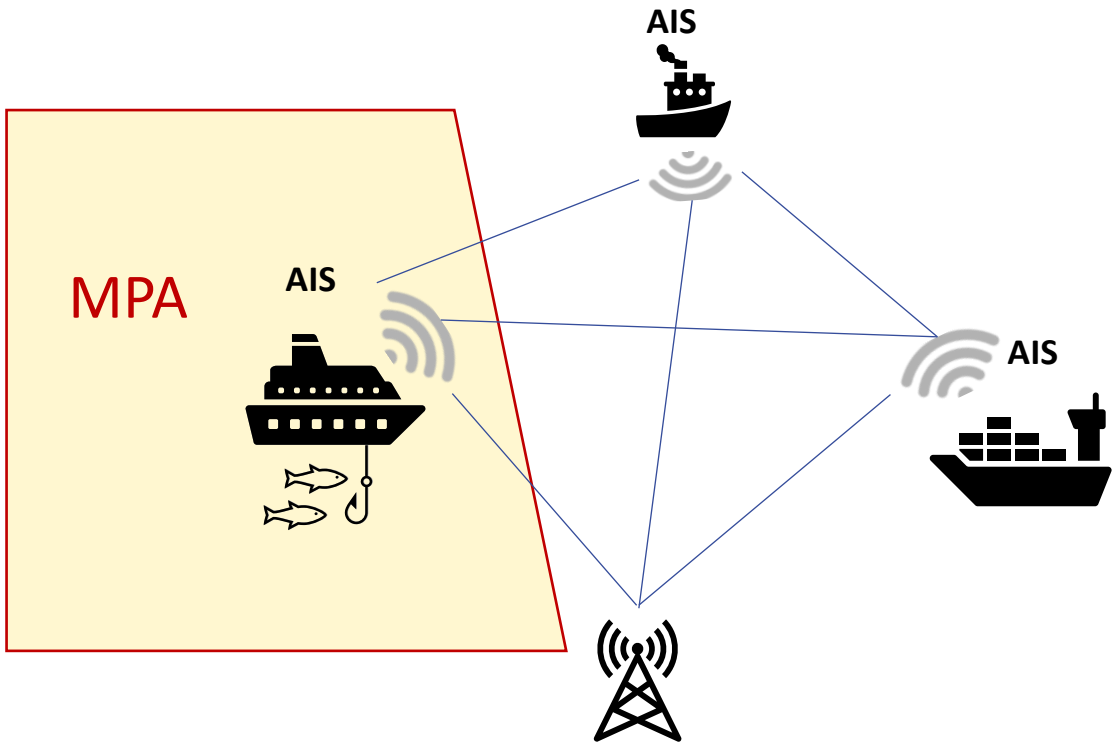
Monitoring MPA's



Long	Lat	Time	Ship_type	Activity
2.1912	51.3837	04/02/22	Cargo	underway
2.4912	51.6529	04/02/22	Recreation	Anchored
2.2107	51.6264	04/02/22	Cargo	Moored

Monitoring MPA's



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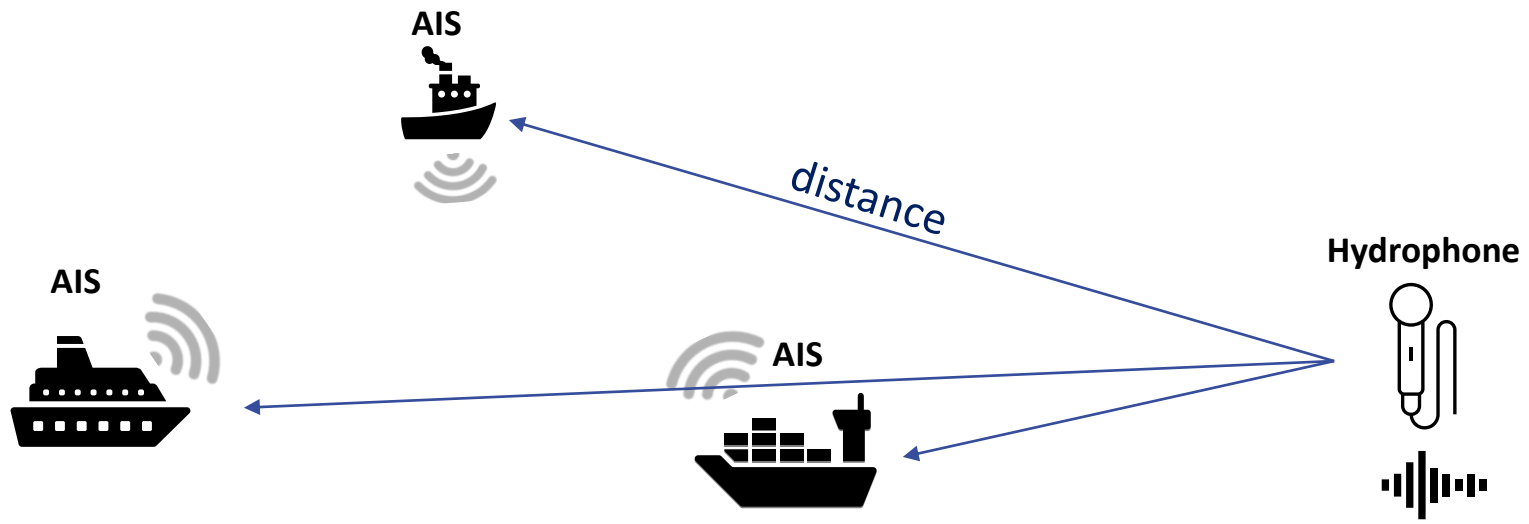
Creating the database



AIS data:
Coordinates
Timestamp
vessel information

+

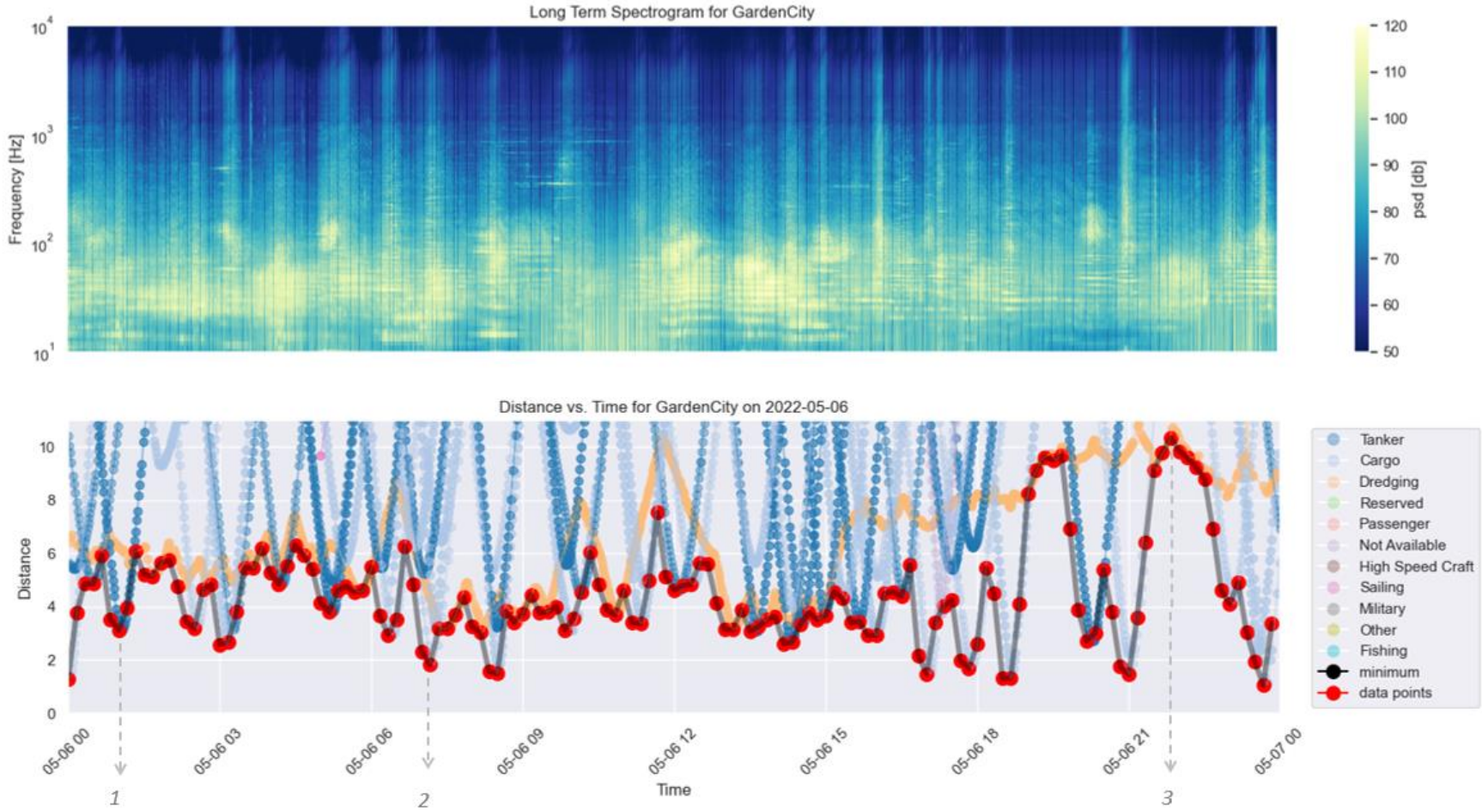
Hydrophone recordings
Coordinates
Timestamp
recording

→

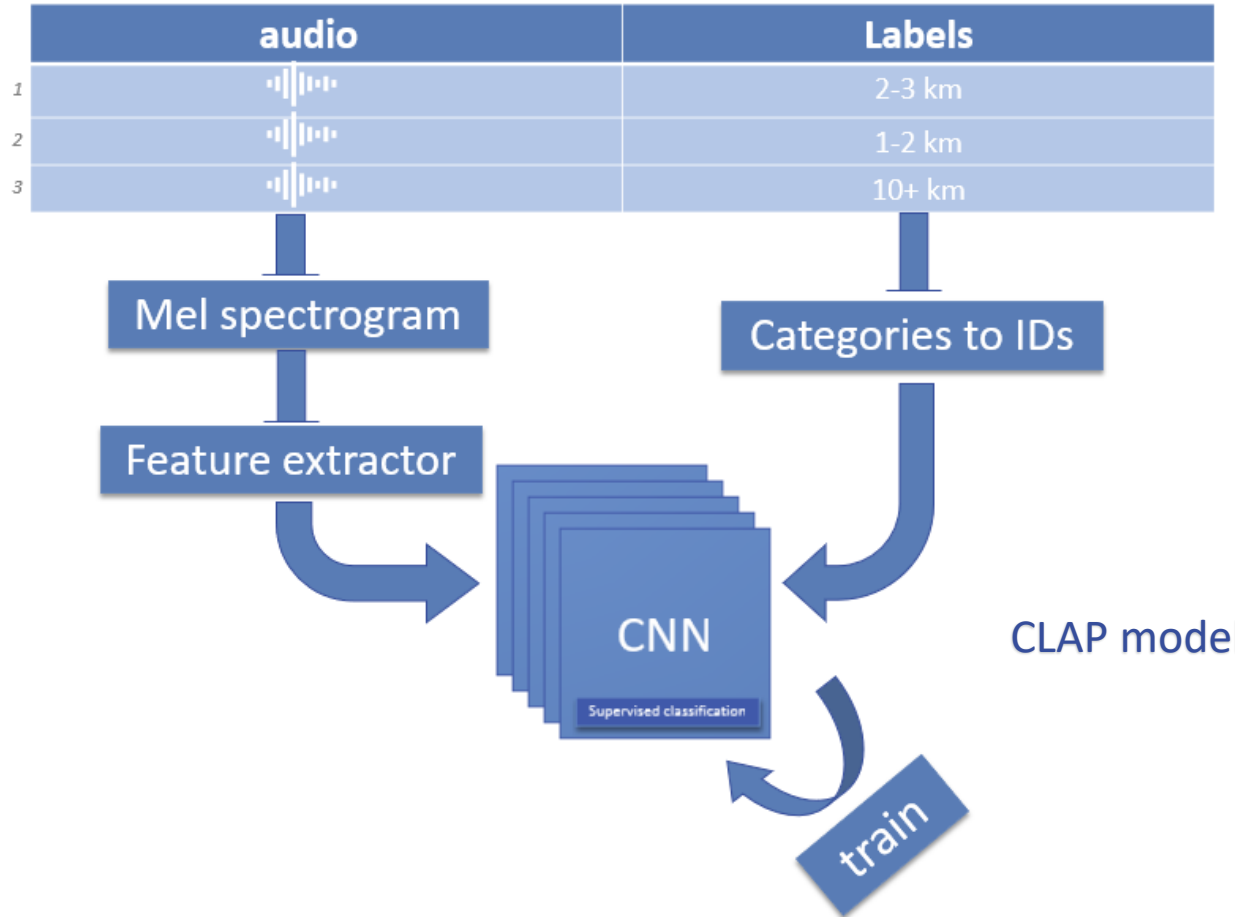
Database

The power spectral density is in function of the distance

Checking the data



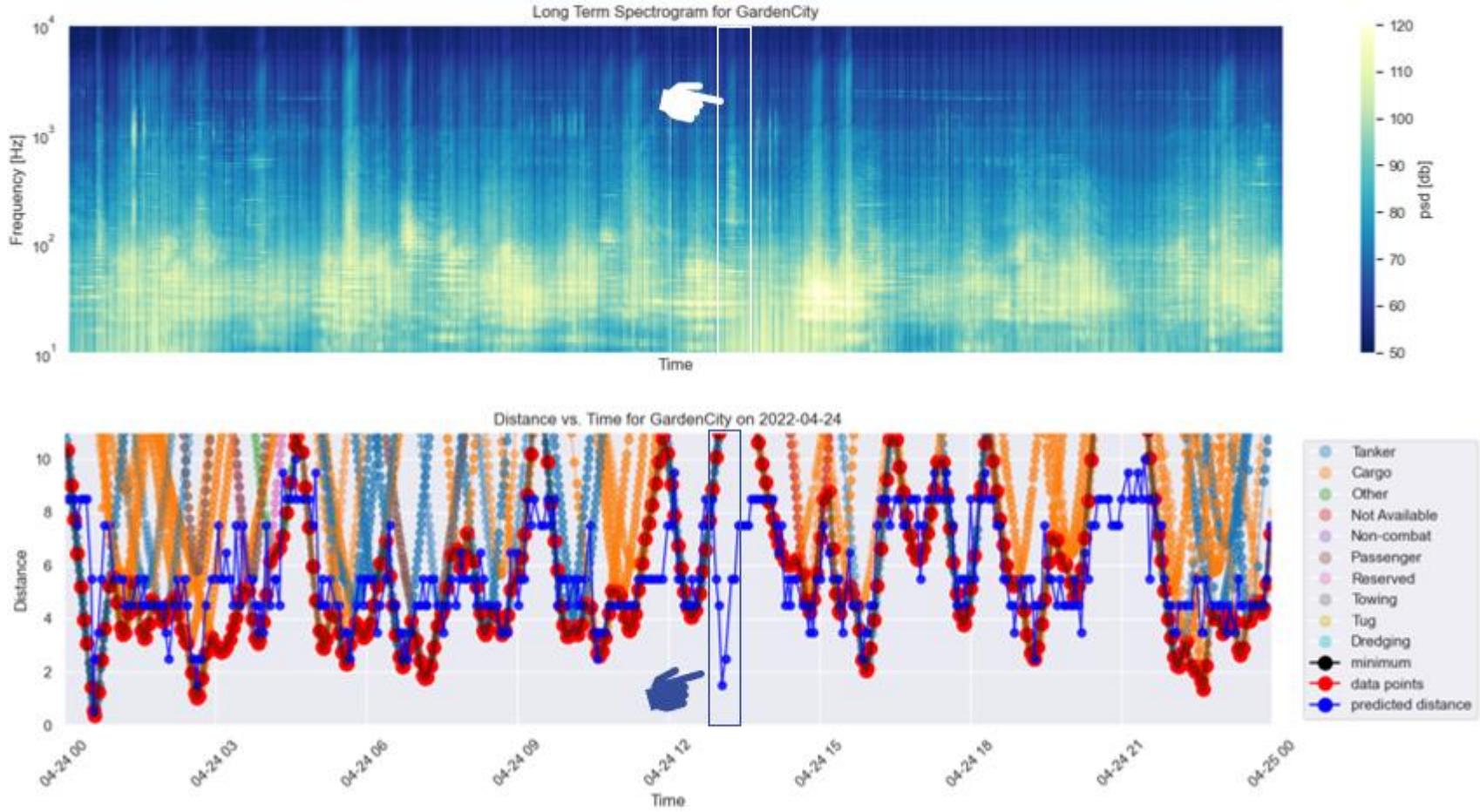
Creating the model



CLAP model pre-trained on bioacoustics.

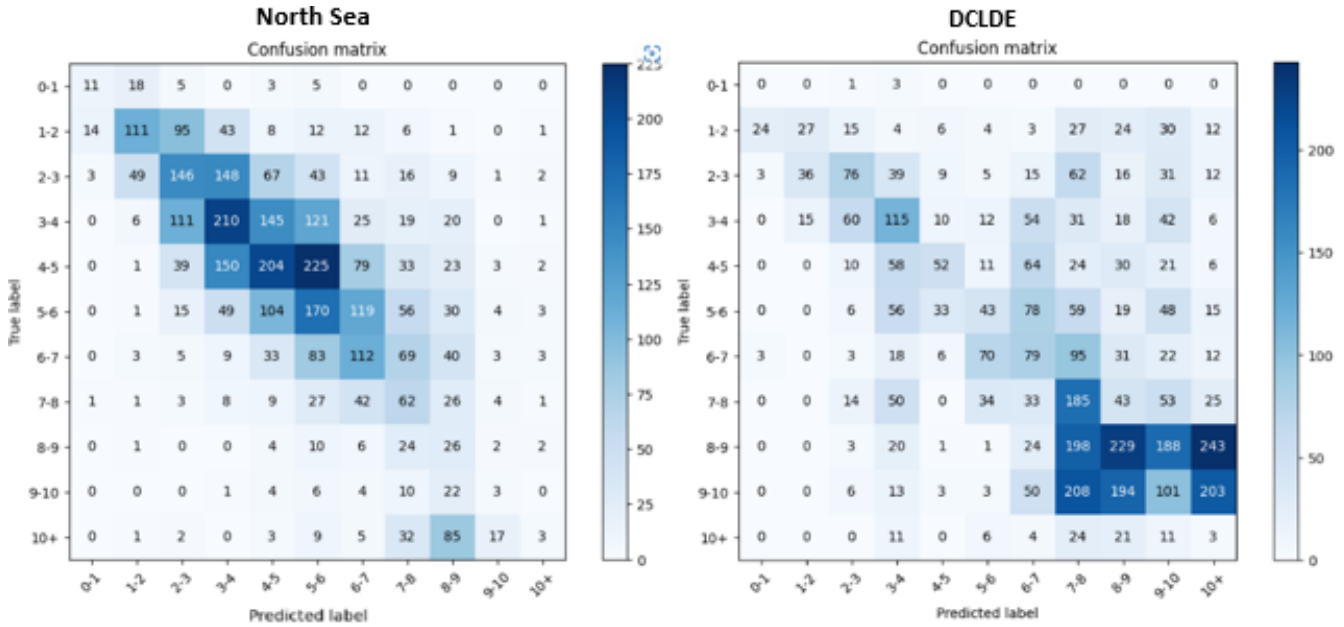
Predictions plotted on database

Results North Sea



Model is able to identify false negatives from dataset.

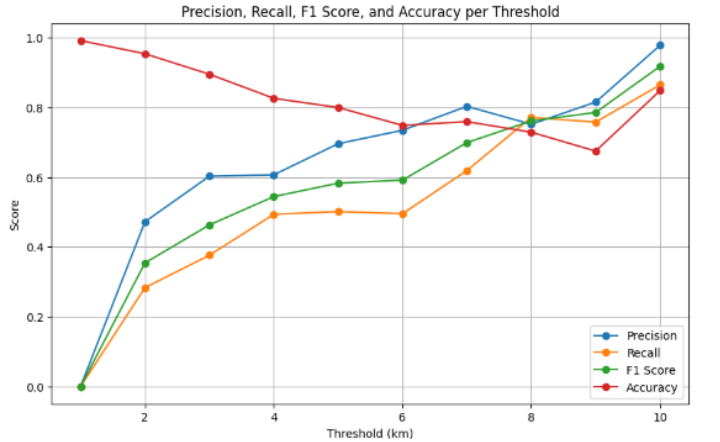
Results North Sea vs DCLDE



	North Sea	DCLDE
MSE	*3.46 km*	*6.1 km*
RMSE	*1.86 km*	*2.47 km*

Model re-trained on 2.8k DCLDE data-points from vessel track.

Slighly overestimates the distance but still able to classify/detect



The team:

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The MOC and acoustics team

ChatGPT

Thank you

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