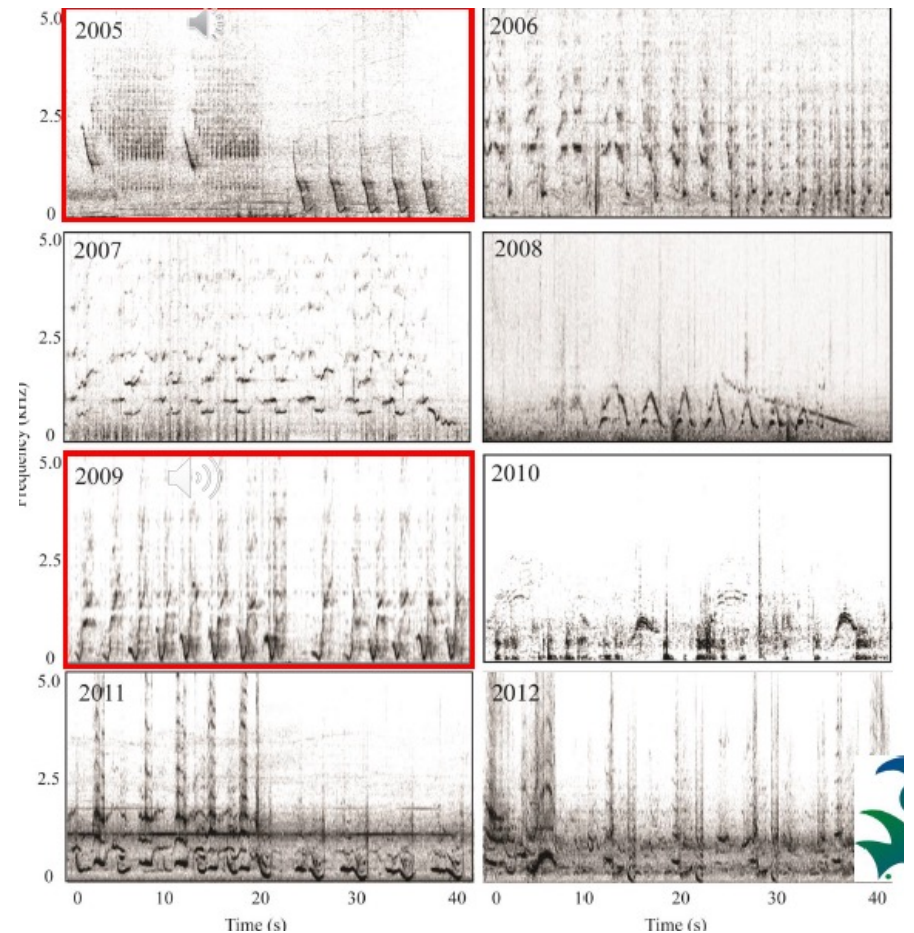


Whale Sound



Disko LIVE



Project Description:

The project focuses on analysing long-term underwater acoustic data collected in Greenland using an hydrophone to detect and monitor whale presence in the Arctic environment. The project aims to develop an automated workflow for processing, analysing, and visualizing acoustic signals to identify whale calls (as species or individuals) over time, contributing to a better understanding of migration patterns and habitat use. The work combines signal processing techniques, machine learning approaches, and interactive visualization tools, and supports marine bioacoustics research and environmental monitoring in polar regions.

Learning Objectives:

- Understand the fundamentals of acoustics and its applications in marine mammal monitoring.
- Gain experience in processing and analysing long-term acoustic datasets.
- Learn to apply signal processing and ML techniques for detecting and classifying whale calls.
- Develop skills in temporal and spatial visualization of acoustic detections using standard digital tools.
- Enhance the ability to interpret acoustic data in the context of marine ecology and environmental change.

Competences to develop::

- Basic knowledge of acoustics, oceanography, or marine biology.
- Familiarity with digital signal processing methods and software (e.g., MATLAB, Python, or R).
- Understanding of machine learning or pattern recognition concepts.
- Experience in data visualization and time-series analysis.
- Ability to work with temporal data using standard analysis and visualization tools

Notes: Supervisors Patrizio Mariani, pmar@dtu.dk, Outi Tervo outer@aqua.dtu.dk, Fletcher Thompson, fletho@aqua.dtu.dk. Possible collaborations with DTU Elektro on advanced signal processing.