

README for Data_S1

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Data_S1

Data and code (R scripts) used to perform time series analysis, including DTW and spectral analysis, on harbour porpoise acoustic time series data

Dataset accompanies the paper

Stedt J., Wahlberg M., Carlström J., Nilsson P.A., Amundin M., Oskolkov N., Carlsson P. (2023) Micro-scale spatial preference and temporal cyclicity linked to foraging in harbour porpoises. *Marine Ecology Progress Series*.

GENERAL INFORMATION

Title of Dataset: Data_S1

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Date of data collection: 2014-04-10 – 2015-03-18

Geographic location of data collection: Kullen, Sweden

Survey site 1: N 56.30228 E 12.44227
Survey site 2: N 56,30474 E 12,45277
Survey site 3: N 56,30213 E 12,47653
Survey site 4: N 56,30063 E 12,49113
Survey site 5: N 56,28933 E 12,54105
Survey site 6: N 56,28203 E 12,56022

SHARING/ACCESS INFORMATION

Data and code published under Creative Commons Zero waiver (<http://creativecommons.org/about/cc0>). If you use any part of these data or code, please acknowledge the primary authors using the recommended citation given below.

Recommended citation for this dataset:

Stedt et al. (2023), Micro-scale spatial preference and temporal cyclicity linked to foraging in harbour porpoises, Dryad, Dataset, <https://doi:10.5061/dryad.c59zw3rc0>

DATA & FILE OVERVIEW

File List (files found within Data_S1.zip):

Workflow_Stedt_et_al_2023.pdf
Data_Stedt_et_al_2023.csv
DTW_Stedt_et_al_2023.R
Spectral_Analysis_Stedt_et_al_2023.R

METHODOLOGICAL INFORMATION

C-POD raw output files were processed as described in the paper and in Workflow_Stedt_et_al_2023.pdf to produce the data file Data_Stedt_et_al_2023.csv.

Files with code provided for DTW and spectral analysis (DTW_Stedt_et_al_2023.R and Spectral_Analysis_Stedt_et_al_2023.R) are R scripts. The software R is freely available at <https://www.r-project.org/>.

DATA-SPECIFIC INFORMATION FOR: Workflow_Stedt_et_al_2023.pdf

This document describes the workflow for the time series analysis performed in the paper.

DATA-SPECIFIC INFORMATION FOR: Data_Stedt_et_al_2023.csv

This file contains the complete dataset (time series with hourly bins) used for analysis in the paper. The data have been processed in preparation for analysis as described in the paper. This file needs to be in your working directory in R for the DTW and spectral analysis to work.

Number of variables: 17

Number of cases/rows: 8198

Variable List:

- DateTime:** Date and time with hourly bins as DD/MM/YYYY HH:MM. Value represent chunk end in time zone UTC+1.
- Month:** Month of the year represented by numbers. Range is 1-12, with 1 = January, 2 = February, (...), and 12 = December.
- Hour:** Hour of the day represented by numbers. Range is 1-24, with 1 = 00:00-00:59, 2 = 01:00-01:59, (...) and 24 = 23:00-23:59.
- LunarIll:** Lunar illumination as fraction of moon illuminated at midnight. Range is 0-1. Data retrieved from NASA (<https://svs.gsfc.nasa.gov/4955>).
- LunarPhase:** Lunar phase as classified based on the lunar illumination value and illumination progress (for definitions see Figure S1 in paper).
- DPM1-6:** Detection positive minutes per hour (DPM h^{-1} , range 0-60) for the six survey sites (1-6). The variable describes the number of minutes in a given hour during which at least one porpoise click train is detected and was used as a measure of porpoise presence.
- FPP1-6:** Foraging-to-presence percentage (FPP, range 0-100%) for the six survey sites (1-6). The variable represent a proxy for the percent of time harbour porpoises spend foraging while at a survey site, and it was used a measure of foraging.

Blank cells for variables DPM1-6 and FPP1-6 indicate that no data is available.

DATA-SPECIFIC INFORMATION FOR: `DTW_Stedt_et_al_2023.R`

This file contains annotated code used for computing the DTW analysis in R.

DATA-SPECIFIC INFORMATION FOR: `Spectral_Analysis_Stedt_et_al_2023.R`

This file contains annotated code used for computing the spectral analysis in R.