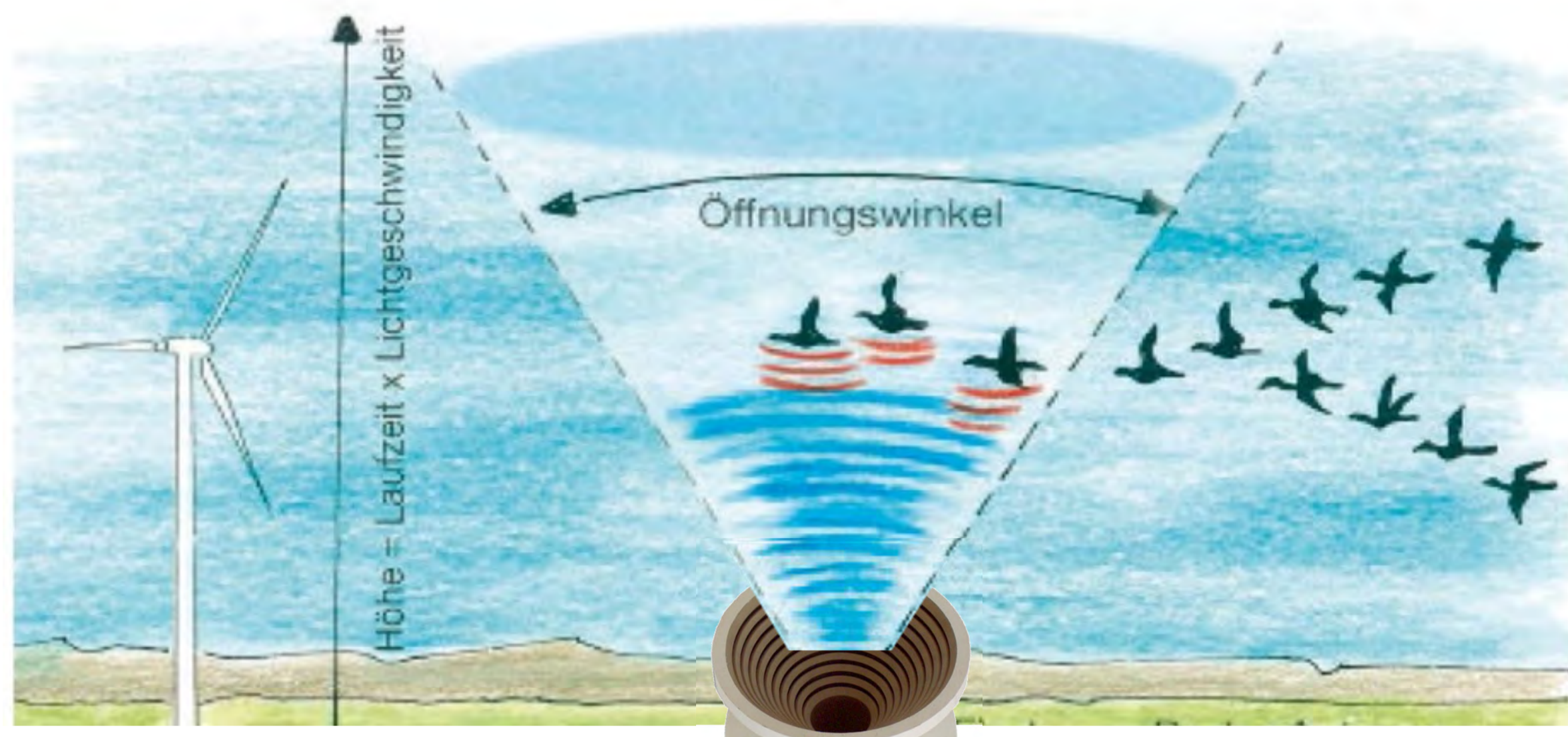


Automated monitoring of bird migration by radar: identification and quantification in real time

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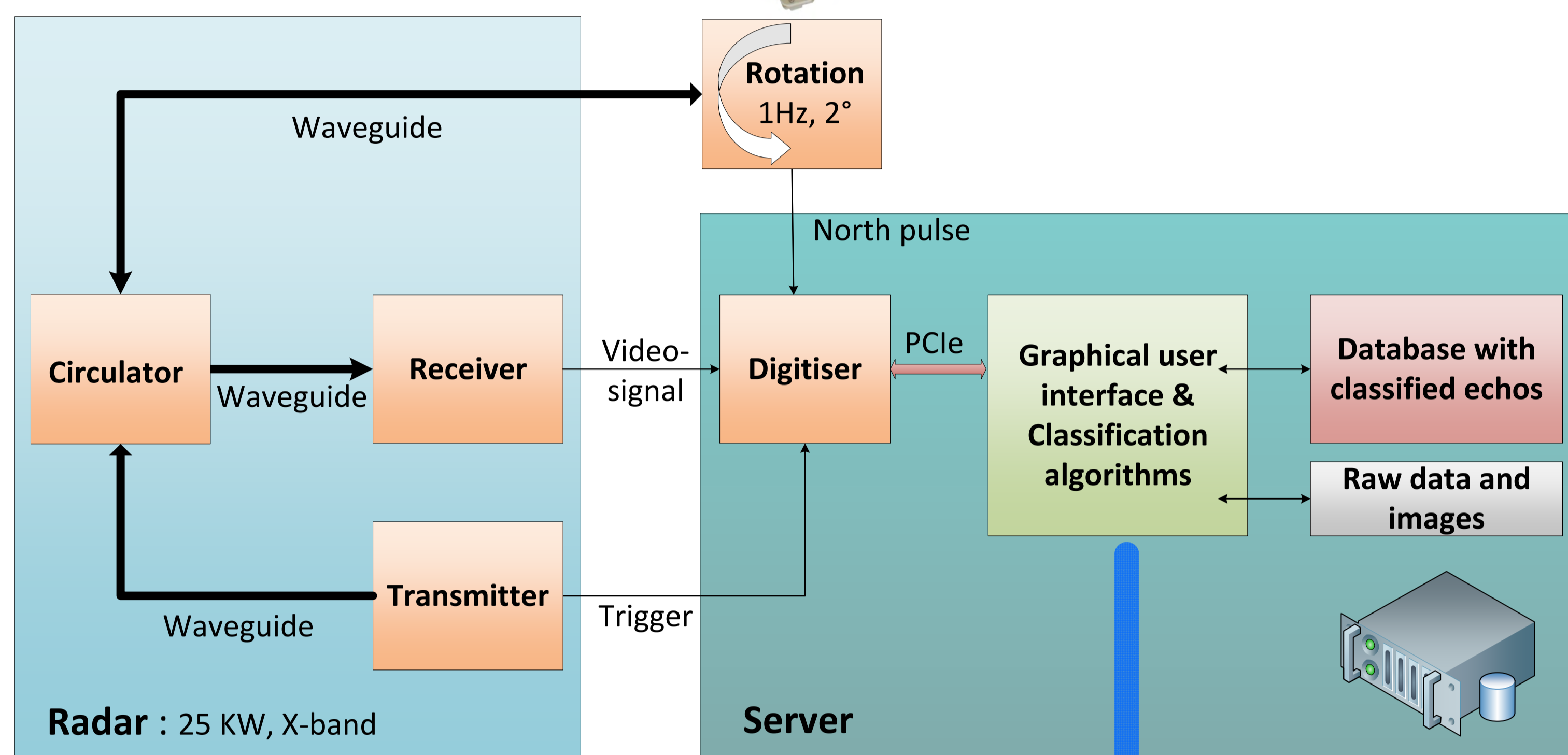
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Radar survey of bird migration



Horn antenna, 30° opening angle

Signal processing



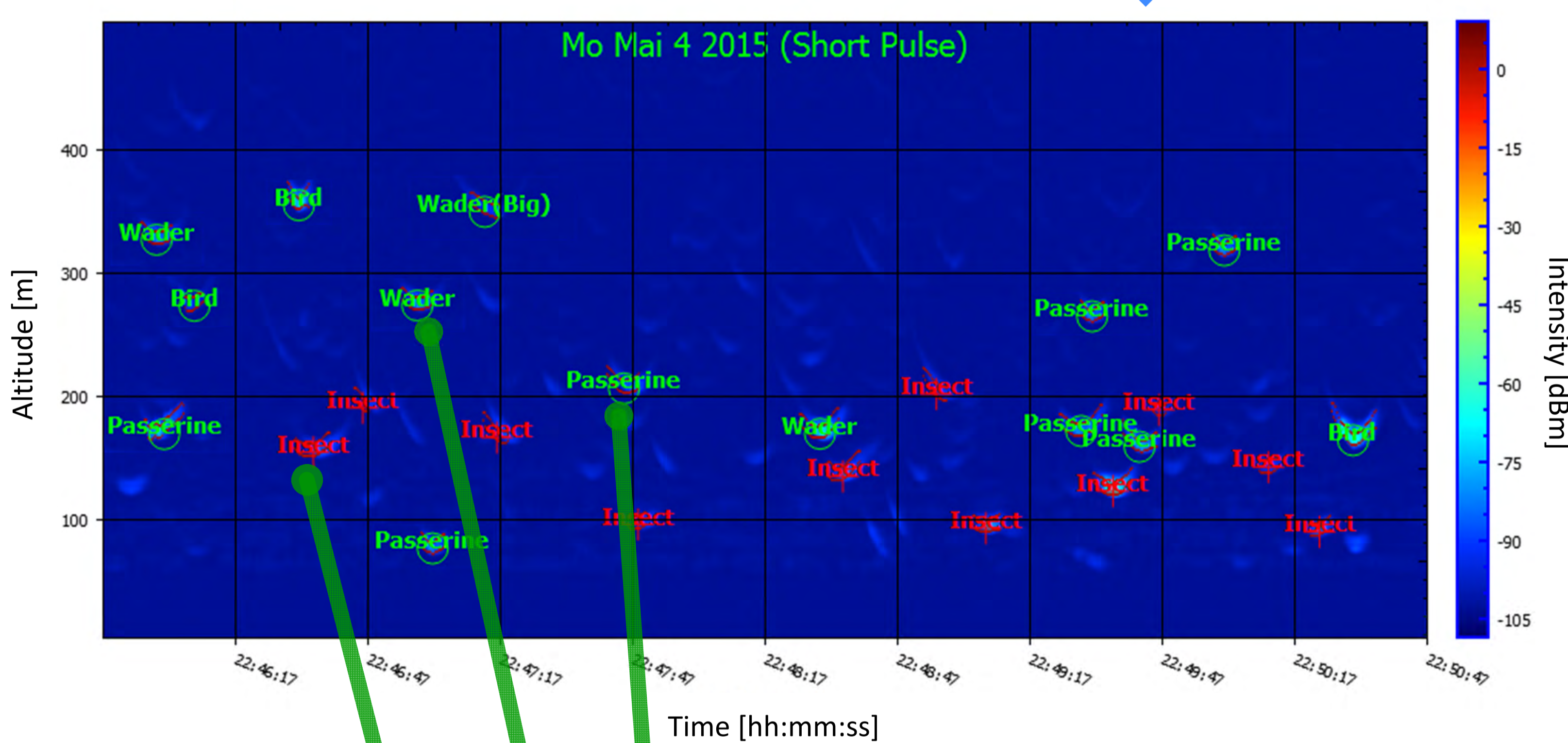
Introduction

Radar systems can monitor mass movements of migrating birds. Static radar beam systems quantify the spatio-temporal distributions of bird migration, but provide no information on flight parameters. The radar system *BirdScan MR1* detects the flight speed and direction, and performs real time classification of targets based on their wing flapping patterns.

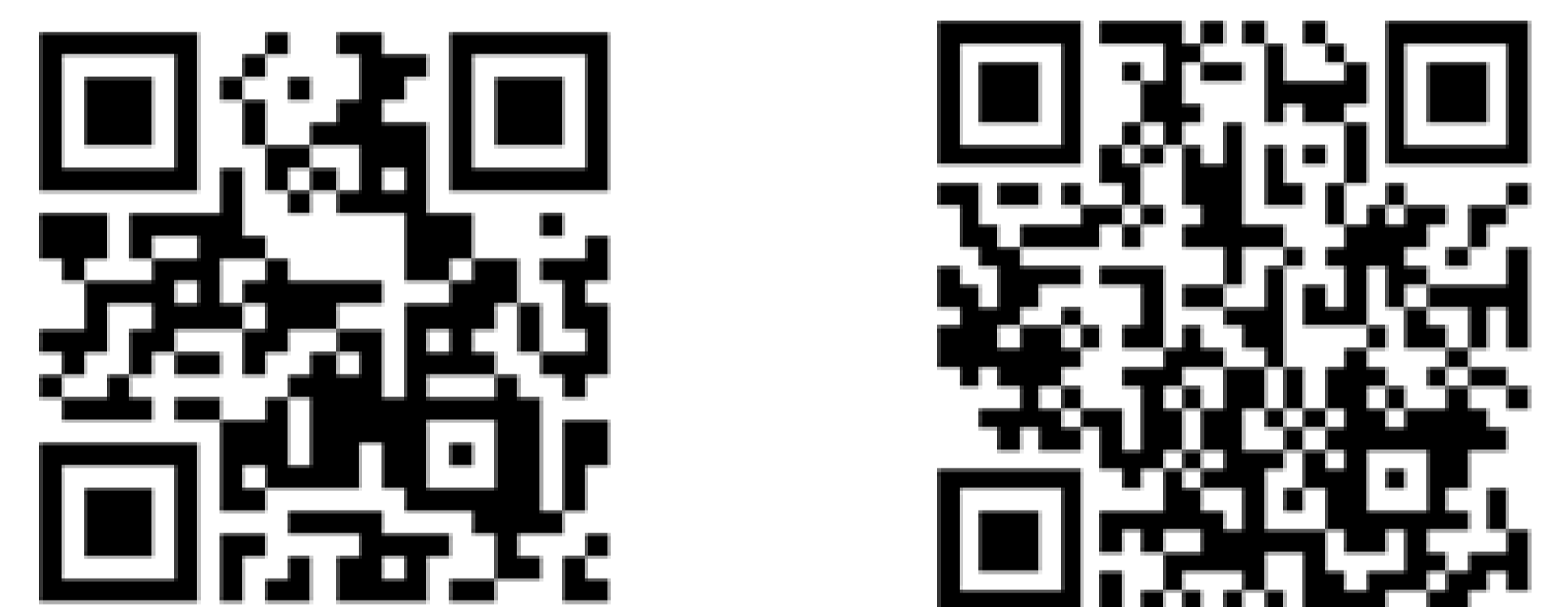
Methods & Results

A slight nutation of the beam tracks the targets, which enables the evaluation of the target's flight speed and direction. A modified Naïve Bayes algorithm classifies each target in near real-time using multiple features of the echo signature (e.g. wing flapping patterns). This allows to monitor in real-time the spatio-temporal distributions of classes of bird species.

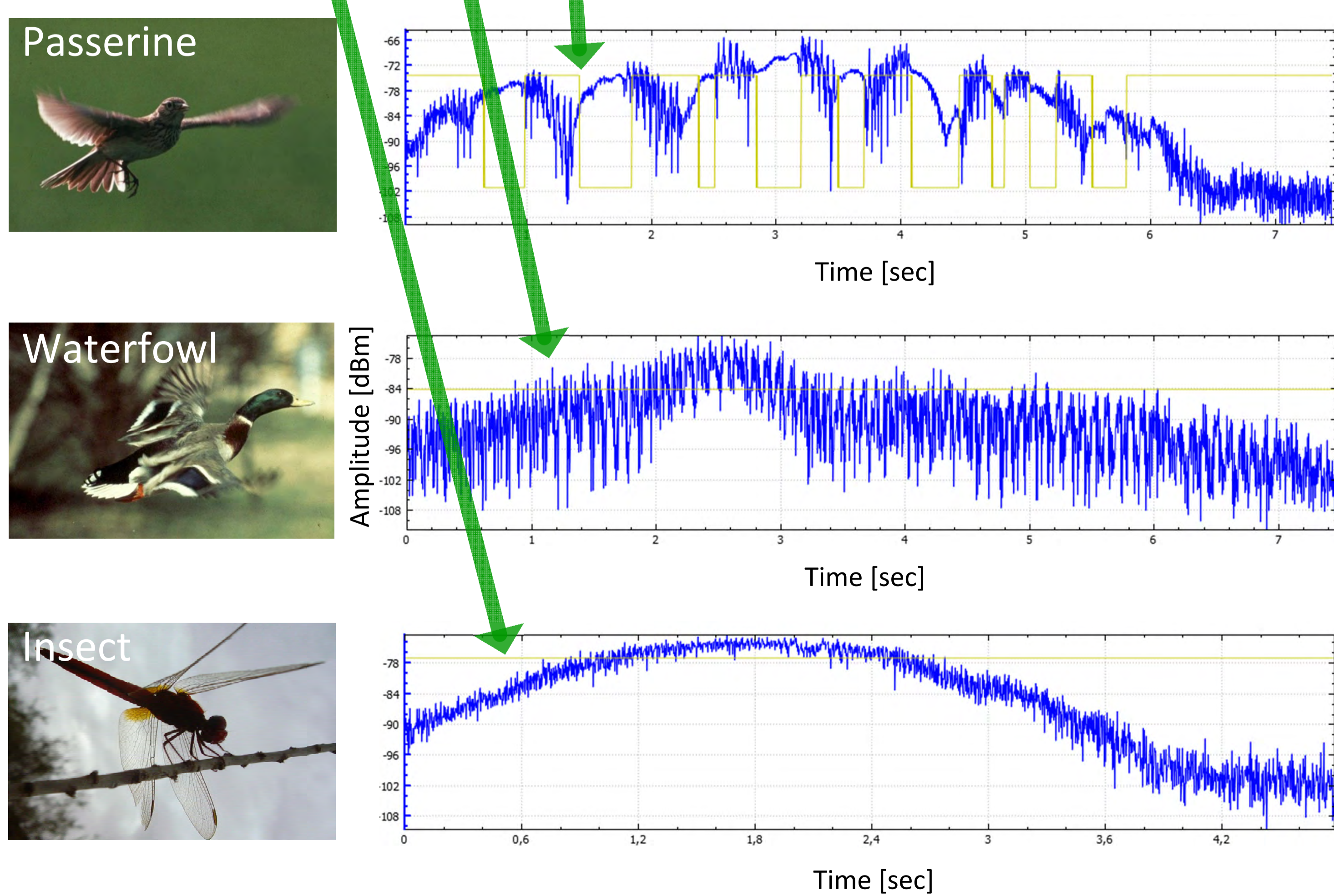
Echo detection



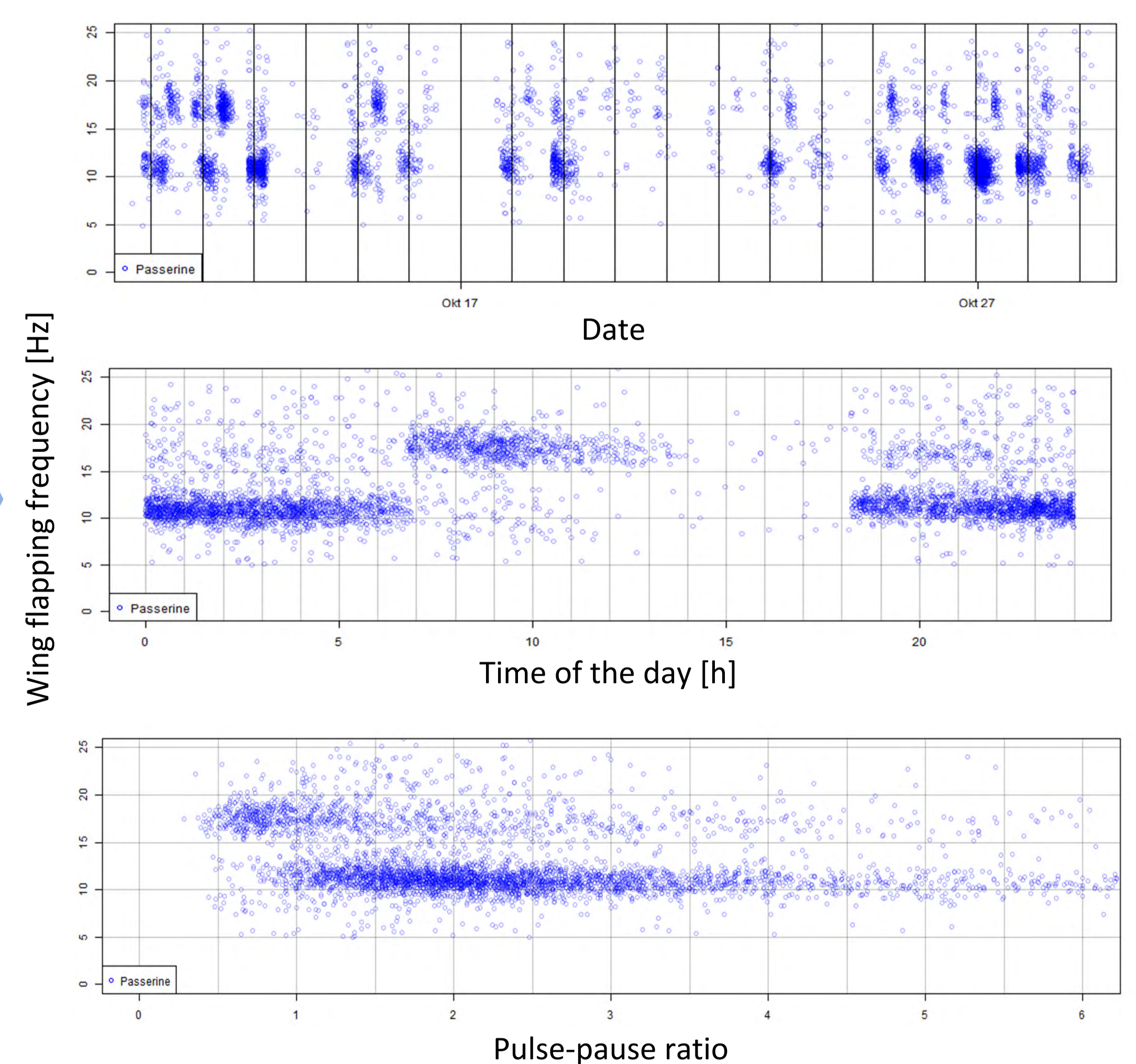
Scan the QR-code to watch 'real-time, classification'



Echo classification, database and results



Echo signatures



Statistical results of bird migration



vogelwarte.ch



In collaboration with:
Exeter University, UK
Naturaconst@, France