

MARINE RADAR

Contents

1. Description of tables in MARINE RADAR schema in Flysafe database
2. Introduction
3. Structure of data collected by marine radar
 - 3.1 FINO1_RADAR_EFFORT
 - 3.2 FINO1_RADAR_ECHOES

1. Description of tables in MARINE RADAR schema in Flysafe database

Data collected by marine radar on research platform FINO-1
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2. Introduction

Within the projects “BEOFINO” and “FINOBIRD” possible effects of offshore wind farms on bird migration had to be investigated. A marine ship radar was used as a standard equipment for the quantification of bird migration at the research platform ‘FINO 1’ in the southern North Sea (54°01’ N, 06°35’ E; <http://www.fino-offshore.com>) from October 2003 to January 2007.

The radar system operated with a vertically rotating 8 ft antenna (Furuno FR-2115-B, X-band 9410 MHz \pm 30 MHz, 12 kW peak power, 24 rotations per minute, used range scale 0.75 nm, pulse length 0.07 μ s, pulse repetition rate 3,000 Hz; antenna XN24AF, horizontal beam width 20°, vertical beam width 0.95 °, side lobe attenuation within \pm 10° 28 dB, side lobe attenuation outside \pm 10° 32 dB). Radar settings were not changed throughout the whole time of operation. The radar had an open view only to the west-south-west (248°) of the platform, but, due to technical restrictions, not to the opposite direction, which was obstructed by the helicopter deck.

The echoes of each vertical radar sweep were displayed on the screen of the processing computer and remained there with a different colour for the following ten sweeps. In order to quantify the bird echoes, a screenshot was taken of the current radar image every five minutes (i.e. 12 screenshots per hour). Subsequently echo dots were digitised by hand. All images that were more than 20% obscured by rain reflections were discarded.

MARINE RADAR

3. Structure of data collected by marine radar

FINO1_RADAR_EFFORT

This table contains the number of radar-screenshots per hour.

day_cet	Date, Central European Time
hour_cet	Beginning of hour, Central European Time
images	Number of screenshots taken in the respective hour (needed to correct variable 'echocount' in table FINO1_RADAR_ECHOES by effort)

FINO1_RADAR_ECHOES

This table contains the number of echoes per hour and altitude layer.

day_cet	Date, Central European Time
hour_cet	Beginning of hour, Central European Time
altitude	Lower boundary of 100m-altitude-layer in meters
echocount	Number of echoes detected per hour and 100m-altitude-layer