Temporal patterns in offshore bird abundance during the breeding season at the Dutch North Sea coast

Jens A. van Erp, E. Emiel van Loon, Kees J. Camphuysen
Judy Shamoun-Baranes

ESM 2; RobinRadar detection probability at different range and heights.

Fig. 1 shows the range and altitude form the radar at which the probability of detection for an object of 1 standard avian target (SAT, Fig. 1a) and 0.125 SAT (Fig. 1b) by the horizontal S-band antenna of the RobinRadar 3D-Fix system is >80%. A standard avian target is a theoretical object used as a standard for evaluating the performance of avian radar systems and approximates the physical features of a carrion crow (*Corvus corone*) with a radar cross section (RCS) of -16 dBm^2 and a mass of 500 g. A 0.125 SAT object correlates to a RCS of -25 dBm^2 and a mass of 62.5 g. Based on these figures the maximum range of the area of interest was set at 2000m, as from that point the probability of detection drops below 80% for small birds (RCS = -25 dBm^2) with increasing range.

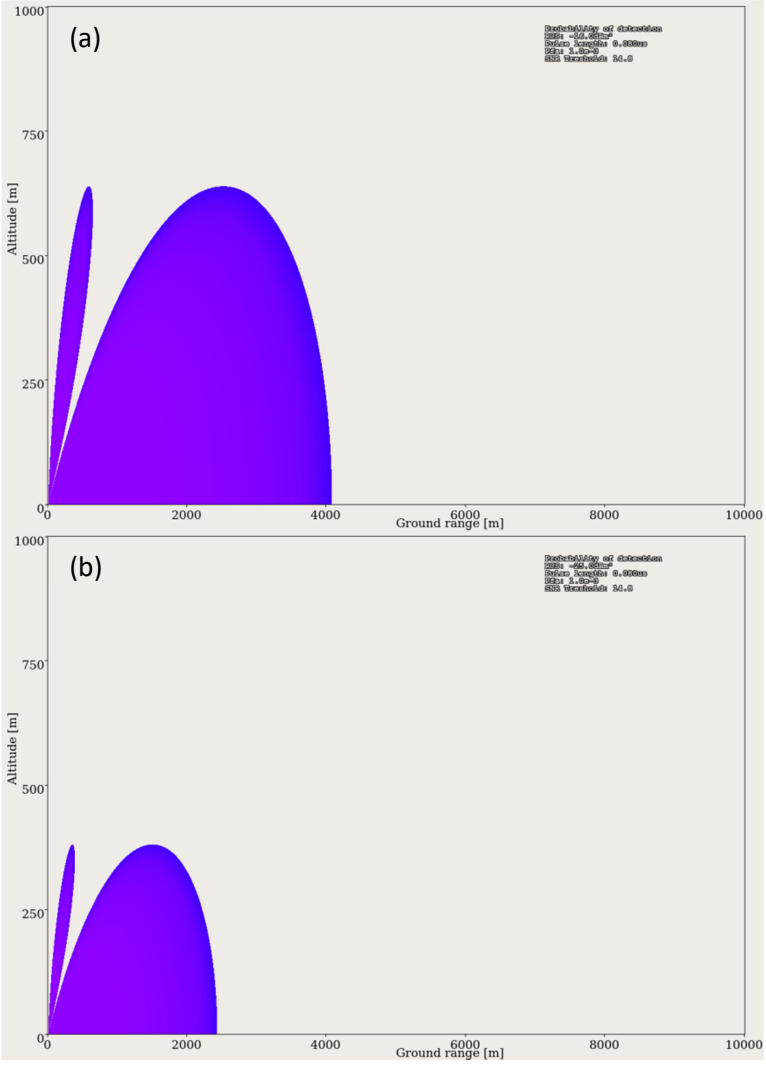

Fig. 1 Probability of detection by the Horizontal S-band antenna of the RobinRadar 3D-fix at different ground range and altitude from the radar position (0,0 on the axes). (a) The area shows the range/altitude combinations at which the probability of detection >80%. Probability of detecting a target of size 1SAT. (b) Probability of detecting a target of size 0.125SAT. Figures provided by RobinRadar