

Dinevich L., Leshem Y., Pinsky M., Sterkin A. 2004. *Detecting birds and estimating their velocity vectors by means of MRL-5 meteorological radar*. Ring 26, 2: 35-53.

**Abstract**

The computerised bird monitoring system devised on the basis of MRL-5 meteorological radar enables to perform around-the-clock automated bird monitoring. The paper presents an algorithm for identifying bird signals against a background of other objects. The radar signal reflected from a flying bird changes its location in space. In case the flight direction remains unchanged, the coordinates of the corresponding radio echoes obtained as a result of successive azimuth scans form a straight line. This enables to isolate bird radio echoes from those of motionless or chaotically moving objects, such as ground clutter, clouds, precipitation, atmospheric inhomogeneities, *etc.* In the proposed algorithm, the coordinates thus obtained are used for estimation of vectors of individual birds and bird groups.

In order to identify a bird signal, its fluctuation pattern is analysed. A fluctuation pattern is determined by the frequency of wing-flapping that is characteristic of a certain bird species. The analysis of the spectra of signals obtained in the study indicates that the proposed algorithm enables to isolate bird radio echoes with approximately 85% confidence. The technique implying simultaneous measurements of signal fluctuation pattern and of the effective scattering area (ESA) forms a promising basis for further studies aimed at determining the species of flying birds by means of radar.

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