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## THE VECTORIAL 3D BIRD FLIGHT MONITORING SYSTEM: A NEW TOOL TO TRACK AND MANAGE BIRDS ON AIRPORTS

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**(P10) THE VECTORIAL 3D BIRD FLIGHT MONITORING SYSTEM: A NEW TOOL TO TRACK AND MANAGE BIRDS ON AIRPORTS**

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Among the many sensors available to detect and track bird movement on airports, few provide a satisfactory capacity to both monitor bird flight and the capability to rapidly re-view, update, and improve monitoring capabilities. The Vectorial Three Dimension Bird Flight (V3DBF) Monitoring System has been developed to provide detection and analysis of bird movement using digital images and advanced image analysis technology. The sensor system is capable of identifying bird targets and using geometric relationships between sensors and the targets to identify the range and altitude of birds. The rapid refresh rate of the system allows horizontal and vertical tracking of bird targets. Detection algorithms can be automatically updated for species present and system output provides movement tracks in relation to geographic features such as runways. It is also possible to integrate system detection tracks with GIS. Because the digital images are retained, a complete record of detection and corresponding data processing is available to check accuracy and evaluate the performance of the system in a given airport setting. The present system operates using two sensors, but can be expanded to provide multiple sensors and coverage of large areas. Present V3DBF system capabilities have been expanded beyond detection and tracking to include bird strike hazard assessment and hazard warning based on track intersection with critical airspace.