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Deployment and Assessment of Avian Radars

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As part of a multiple year Federal Aviation Administration research program in Airport Safety (AAR-411), avian radar units have been deployed at Seattle-Tacoma International Airport (SEA) and the Naval Air Station Whidbey Island, Oak Harbor, Washington (NASWI) by the University of Illinois Center of Excellence in Airport Technology (CEAT). The radars have been operating for a year or more providing performance data and information on bird movement dynamics. The CEAT performance assessment program has been comprehensive considering sensor location, radar calibration, data acquisition and management, and data visualization. Sensor location issues are associated with antenna type, ambient clutter, and the information needs of the study program. CEAT has developed procedures for site selection based on clutter mapping that optimizes sensor location to achieve observational objectives. Radar calibration exercises have been undertaken at SEA using a radio controlled helicopter and balloon targets. Calibration exercises have revealed important information about radar sensors and these exercise have contributed to an improved understanding of radar targets. Data management has proven to be a particularly important element of the performance assessment. Multiple radar units generate extremely large data sets that must be processed to provide useful information to wildlife managers or airport safety personnel. CEAT has developed a data processing procedure that provides sequenced track summaries of detections providing a basis for identifying details of bird movement and the changes in this movement dynamics over daily to seasonal time scales. The initial deployment of avian radars is being supplemented with additional units at the O'Hare International Airport, John F. Kennedy Airport, and Dallas-Fort Worth Airports where radar performance in actual airport settings will be evaluated.

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