This paper elaborates the Accurate Continuous-Discrete Extended Kalman Filter grounded in an ODE solver with global error control and its comparison to the Continuous-Discrete Cubature and Unscented Kalman Filters. All these state estimators are examined in severe conditions of tackling a seven-dimensional radar tracking problem, where an aircraft executes a coordinated turn. The latter is considered to be a challenging one for testing nonlinear filtering algorithms. Our numerical results show that all the methods can be used for practical target tracking, but the Accurate Continuous-Discrete Extended Kalman Filter is more flexible and robust. It treats successfully (and without any manual tuning) the air traffic control scenario for various initial data and for a range of sampling times.