



Algorithms of Adaptive Integrated Navigation

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Integrated navigation by multi-sensors has the advantages of high redundancy, high fault tolerance and high ability of noise resisting etc. However, different algorithms correspond to different reliabilities. The problems of the federated Kalman filter have been analysed at first; then the new developed integrated navigation algorithms have been introduced, which include the static-kinematic filter, adaptive filter based on the geometric adjustment outputs of individual sensors, adaptive filter based on the robust estimates of the individual sensor measurements, adaptive filter based on variance component estimation etc. The advantages and disadvantages of these algorithms have also been analysed and compared. The corresponding adaptive factors and error statistics constructed at present years are introduced and discussed. Some examples are given. The goals of this presentation are to summarize the main developments of the adaptive navigation theories and algorithms, as well as to probe into the development directions of the integrated navigation and application foreground.