不良天候下之飛機性能參數化研究

The purpose of this research is to find out, by using existing low level windshear F-factor as the medium, the degrees of performance degradation for aircraft flying under different adverse weather conditions. First set up the 3-D F-factor, then combined with turbulence T-factor developed earlier. Secondly, take the aircraft performance calculated from heavy rain and ice accretion by existing CFD techniques; convert it to an equivalent F-factor value. Finally, a new FW-factor has been derived from different F-factor and T-factor values for the four adverse weather conditions that the aircraft might face. It is believed that this FW-factor represents a measuring weighting parameter for each adverse weather condition. Through the combining efforts in flight dynamics, aerodynamics, performance parameter developments, this study represents a first try in quantifying different adverse weather influences on aircraft performance degradation.