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TWO-LEVEL INTELLECTUAL SYSTEM FOR PREVENTING DANGEROUS FLIGHT SITUATIONS IN DIFFICULT CONDITIONS

The two-stage process of ensuring flight safety is described by automatically generating warning alarms and preventing emerging threats in difficult conditions. At the first stage, for a quantitative assessment, a confidence coefficient for the continuation of the flight is formed, calculated using fuzzy logic algorithms under the action of a few negative factors. At the second stage, algorithms for generating warning information to the crew or algorithms for automatic control of the aircraft for the main stages of the flight are implemented. The stages of landing and route flight are considered as examples. At the stage of route flight, one of the most difficult tasks of evading aircraft during their emergency approach was considered. The basis of the rules of the expert system is formed for separate or joint deviations in lateral and longitudinal movement, depending on the parameters of the relative location of the aircraft.

Keywords: optimal control, dynamic programming method, predictive risk function, crosswind, alarms.

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