

A Fuzzy TOPSIS Based Model for Safety Risk Assessment of Operational Flight Data

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Abstract : Flight Data Monitoring (FDM) program assists an operator in aviation industries to identify, quantify, assess and address operational safety risks, in order to improve safety of flight operations. FDM is a powerful tool for an aircraft operator integrated into the operator's Safety Management System (SMS), allowing to detect, confirm, and assess safety issues and to check the effectiveness of corrective actions, associated with human errors. This article proposes a model for safety risk assessment level of flight data in a different aspect of event focus based on fuzzy set values. It permits to evaluate the operational safety level from the point of view of flight activities. The main advantages of this method are proposed qualitative safety analysis of flight data. This research applies the opinions of the aviation experts through a number of questionnaires Related to flight data in four categories of occurrence that can take place during an accident or an incident such as: Runway Excursions (RE), Controlled Flight Into Terrain (CFIT), Mid-Air Collision (MAC), Loss of Control in Flight (LOC-I). By weighting each one (by F-TOPSIS) and applying it to the number of risks of the event, the safety risk of each related events can be obtained.

Keywords : F-topsis, fuzzy set, flight data monitoring (FDM), flight safety

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