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Introducing new technical and organizational solutions in air transport requires demonstrating that the level of safety will not be reduced. The LPV-200 (Localizer Performance with Vertical Guidance) approach for landing procedures represents a great opportunity for development of small, poorly equipped airports, as it permits precise landing without costly investment in the ILS (Instrument Landing System).

The review and analysis of data on global aviation accidents at communication airports in 2010 – 2021, carried out in the initial phase of the research, showed the existence of a relatively large group of air incidents, the main reason of which were negative factors occurring in the final approach and landing phase, leading to CFIT. This problem is important because in most cases it ends with the most tragic consequences.

The purpose of this dissertation is to assess the effects of the introduction of LPV-200 procedures for air traffic safety which was determined by the probability of a CFIT (Controlled Flight Into Terrain) accident assessed by Probability of CFIT (PoC). Factors affecting PoC are of a diverse nature, some of which are subjective and cannot be expressed precisely. Therefore, PoC assessment uses fuzzy logic methods, and more specifically hierarchical fuzzy inference systems, with a knowledge base obtained from experts. As a result of simulation experiments PoC was determined for airports with various levels of navigational equipment. It was also found that the introduction of LPV-200 procedures allows the reduction of PoC, with the highest effect being achieved for the least equipped airports. Also, in the event of failure of the main approach assistance system ILS, the use of LPV-200 procedures allows maintaining PoC at the same or close to the basic value level.

On the basis of the results it can be concluded that the introduction of LPV-200 procedures is clearly positive for the commercial use of small, less equipped aerodromes. It was shown that thanks to employing LPV-200 procedures it is possible to keep the PoC at a level similar to typical commercial airports.