Abstract

Safety has always been the aviation industry’s top priority. In cases of distress and emergency, flights are always prioritized to the best airport. However, when an unexpected emergency occurs, the crew may be too busy controlling the flight to explain the situation to air traffic controllers and check for the best airport to divert to. The advisory system in the cockpit can suggest a suitable runway based on the immediate situation, which helps pilots reduce reaction and communication time.

This study focuses on the development of a diversion airport advisory system. The system calculates trajectories and provides pilots with a 3D visualization of the flight path. The system is based on the OpenAP model and contains different extended parameters representing flight conditions. Pilots can refer to the advisory system to make immediate decisions about a safe landing. With this system, pilots can save time and focus on controlling the aircraft, allowing the aircraft to seize critical minutes to gain more options for a safe landing. The air traffic controller could also effectively arrange the airspace for better support to the emergency aircraft. Hence, to improve the safe landing rate of aircraft emergencies.