

Review of past aircraft volcanic ash encounters in Japanese airspace involving international airlines

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Volcanic ash encounters by large transport aircraft were reported in this country, especially at Kagoshima Airport area, since 1970s. Kagoshima Airport and its approaching and departing route are located in the proximity of Sakurajima Volcano, less than 20km at closest point. Countermeasures against ash encounter in this area have improved by reflecting past experience of encounters based on cooperations of government agencies and airlines, and contributions by academic group such as Sakurajima Volcanological Observatory, Kyoto University.

On the other hand, at other volcanos in this country, volcanic ash encounters were reported in recent years since 1990, e.g., at Unzen Volcano in 1991 and at Miyakejima Volcano in 2000. Post incident investigation of respective volcanic ash encounter should be carried out carefully to find out cause of encounter correctly and accurately in order to reflect them properly to countermeasures against future encounters.

Since mid 1990s, ICAO VAACs have been established and they have been working hard and contributed to prevention of volcanic ash encounters in the world. However, VAAC is not a final goal of countermeasures for prevention of volcanic ash encounters.

The aircraft encounter case with volcanic ash of Unzen Volcano on 27 June 1991 was reviewed by the author and was concluded that the reported items in this case was not consistent with volcanic activities of the volcano on this day including previous day. It was more likely to be associated with the "High Altitude Ice Crystal Icing" reported by Mason(2007), rather than volcanic ash encounter. There is not direct evidence to prove the case at this stage due to 20 years of time has gone already, but it should be further studied from aviation meteorological point of view instead of volcanological point of view.

The B747 and B737 encounter with Miyakejima volcanic ash on 18 August 2000 was researched with supplementing new stuffs recorded at the time of ash encounter. The results did not agree with some past reports on the case. The area was adjacent to terminal area of Haneda Airport and Narita Airport and have heavy air traffic in the proximity of active volcanos. Countermeasures for this area shall be discussed.