

Appendix 2. Explanation of Database Fields and Disclaimer

The database in appendix 1A is a compilation of encounters of aircraft with volcanic ash clouds, 1953–2009. The format is a Microsoft Access database file (.mdb). The same information is also provided in appendix 1B as a Microsoft Excel 93–2007 spreadsheet file (.xls).

This appendix explains what is in each database field. The explanation is followed by the disclaimer.

Explanation of Database Fields

Each record (line) in the database in appendixes 1A and 1B describes an encounter. Available data about each encounter are given in the fields described below.

Incident ID – Unique identifying number (such as 2003–04) that incorporates the year of the encounter as the first four numbers; incident numbers are not necessarily in time-sequential order within a year. Gaps in the numbering sequence indicate where entries in the compilation in ICAO (2007) have been removed because they have been deemed inaccurate or because they did not involve airborne ash clouds: 1935–01 involved lava ejecta at an airstrip, not an ash cloud; 1944–01, 1980–02, 1991–16, 1991–20, and 1991–23 involved aircraft on the ground and were moved to the airports database (Guffanti, Marianne, Mayberry, G.C., Casadevall, T.J., and Wunderman, Richard, 2009, Volcanic hazards to airports, Natural Hazards, v. 51, p. 287–302); and 1982–04 was deemed to be an erroneous report and was deleted.

Severity – Number from 0 (least severe) to 4 (most severe) indicating the severity of the encounter as determined by using table 1 of this report. ISD means that Insufficient Data are available to assign a severity value. An entry of >0 indicates that available data are sufficient to determine that the severity is not 0 but are insufficient to further specify severity as 1, 2, 3, or 4.

ENC date – Reported date (month/day/year or month/year) of the encounter.

ENC location – Brief description of where the encounter occurred; latitude and longitude of the encounter location are included if known. Distances are in miles (mi), nautical miles (nm), or kilometers (km) as given in the data source.

Source volcano – Name of the volcano that produced the ash cloud the aircraft encountered.

Volcano country – Name of the country in which the source volcano is located.

Eruption date – Date (month/day(s)/year or month/year) of eruptive activity that produced the ash cloud the aircraft encountered. For some eruptions, a range of days is given. If possible, the date of a specific explosive event within a longer eruptive period is given.

VEI – Volcanic Explosivity Index of the eruption at the source volcano, generally taken from the Smithsonian Institution's online global volcanism database, which can be queried at <http://www.volcano.si.edu/>. VEI values range from 0 to 8 (Newhall and Self, 1982); eruptions in this database have VEI values of 1 to 6.

ENC & damage summary – Narrative summary of the conditions of the encounter, any damage sustained by the aircraft, and pertinent aspects of eruptive activity at the source volcano. In appendix 1A (Access database file), this is an OLE object field that may contain images, whereas in appendix 1B (Excel spreadsheet file), this is a text-only memo field.

ENC alt, km – Altitude of the encounter reported as or converted into kilometers.

ENC duration, min – Length of time over which the encounter was reported to have occurred, in minutes.

Delta distance, km – Estimated distance between the encounter and the source volcano, in kilometers. ISD means that Insufficient Data are available to reasonably estimate delta distance.

Delta time, hr – Elapsed time in hours between the start of the encounter and the start of the associated eruptive event. ISD means that Insufficient Data are available to estimate delta time. In cases where only the dates of an encounter and the eruptive event are known, the two dates may be compared to derive a very approximate delta time, such as <24 hr or >48 hr.

Aircraft type – Type of aircraft involved in the encounter.

Engine type – Type of engine on the aircraft involved in the encounter.

Flight route – Port of departure and scheduled port of arrival of the aircraft.

Rprtd ENC time – Reported time the encounter began; time zones vary and are specified in each case.

ENC time UTC – Time the encounter began in Coordinated Universal Time.

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Rprtd ENC alt – Reported altitude of the encounter; units vary and are specified in each case. FL, flight level, which is nominal altitude in hundreds of feet; ft, feet; km, kilometers; m, meters.

People – Number of people onboard the aircraft during the encounter.

VNUM – Identifying number assigned to each of the world's volcanoes in the Smithsonian Institution's "Volcanoes of the World" database (<http://www.volcano.si.edu/world/>).

VLAT – Volcano latitude in decimal degrees as specified in the Smithsonian Institution's "Volcanoes of the World" database (<http://www.volcano.si.edu/world/>).

VLONG – Volcano longitude in decimal degrees as specified in the Smithsonian Institution's "Volcanoes of the World" database (<http://www.volcano.si.edu/world/>).

Erupt time local – Time of onset of the explosive eruptive event in the time zone where the volcano is located.

Erupt time UTC – Time of onset of the explosive eruptive event in Coordinated Universal Time.

Data sources – Data sources; see more complete citations in appendix 3 of this report.

Disclaimer

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This database has been approved for release and publication by the Director of the U.S. Geological Survey (USGS). Although this database has been subjected to rigorous review and is substantially complete, the USGS reserves the right to revise the data pursuant to further analysis and review. Furthermore, it is released on condition that neither the USGS nor the United States Government may be held liable for any damages resulting from its authorized or unauthorized use.

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