

Madame Chair, members of the Subcommittee, I am Captain Linda Orlady, Executive Air Safety Vice-Chair of the Air Line Pilots Association, International, representing the safety interests of more than 53,000 professional pilots at 38 airlines in the United States and Canada. On behalf of our members, I thank you for this opportunity to testify on volcanic ash, and the risks it poses to aviation.

There are 55 to 60 volcanic eruptions annually worldwide. The resulting ash and gases reach altitudes routinely traveled by the airlines. As vividly demonstrated during the recent Icelandic eruption, an ash cloud can drift for days or weeks and contaminate large areas of airspace. Flying in volcanic ash and gases poses a significant, but little-understood threat to the integrity of an aircraft, its engines, and to the health of its occupants.

Although no fatal airline accidents have been attributed to volcanic ash, damage to aircraft and potential dangers to the passengers and crew have been well documented. Two notable events involved a British Airways 747 flight over Indonesia in 1982, and a KLM 747 flying over Alaska in 1989. Both of these aircraft lost power to all four engines during an inadvertent volcanic ash encounter. In each case, the pilots were able to restore partial power to the engines and managed to safely land a badly damaged aircraft. In both cases, the encounter caused

extensive damage to the engines, windshields, and to other aircraft systems.

Documented volcanic ash encounters have revealed these vulnerabilities. Further study is required to fully understand our susceptibilities to volcanic ash and gas cloud contamination.

Additionally, volcanic gases pose serious health hazards to aircraft crew and passengers - including breathing difficulties, headaches, and itchy eyes. Volcanic gases can produce an acrid odor which may mislead a flight crew into thinking they have an electrical problem, or might mask the presence of an actual electrical problem.

Volcanic ash clouds and gases are not displayed on cockpit radar or on ATC radar. They are extremely difficult to detect at night. Pilots must rely on information from dispatchers and other pilots to determine the location of these hazards. Coordinating and standardizing this information is further complicated by the number of different entities who supply it.

The recent Icelandic eruption demonstrated a lack of standardization between the various forecasts available to flight crews and dispatchers. As operations resumed in Europe, we received reports from pilots at different airlines, who were given conflicting information in their dispatch release documents. In some cases, pilots had one depiction showing extensive ash coverage while another showed nothing at all.

While we have made progress in predicting where and when an eruption may occur, work must be done to improve forecasting and standardizing information about where and how an ash cloud will spread.

The recent air travel disruption demonstrated the benefit of having data to reliably and objectively define a specific hazard area, potentially allowing flights in some regions. However, we do not have scientifically reliable data to make that determination. Areas of potential hazard cannot currently be defined in terms that flight crews can use for dispatch and while airborne.

ALPA is encouraged that the Senate version of the current FAA reauthorization bill supports research on volcanic ash hazards. We urge Congress to enact this legislation. Without such research to improve understanding of the hazards, and ways to mitigate them, ALPA continues to advocate that the only safe course of action is for flight crews to avoid any encounter with volcanic ash.

We need to determine if scientifically validated threshold levels, developed with stakeholder participation, can define an acceptable volcanic ash encounter. This determination must be based on rigorous, structured testing and produce reliable and scientifically quantifiable results. It will never be acceptable to hope for the best as we see how close to an ash cloud we can fly.

To continue operating in areas where there is a risk of flight into volcanic ash, ALPA believes we need several improvements:

First, onboard systems to detect ash clouds and concentrated volcanic gases which will allow pilots enough time to identify potential hazards and sufficient time to provide for safe navigation around them;

Secondly, more rigorous aircraft certification standards;

And thirdly, new procedures and training programs for flight crews, dispatchers, mechanics, and air traffic controllers.

As a rare but positive example, Alaska Airlines developed volcanic ash training scenarios that provide tools and techniques for both avoidance and recovery from inadvertent entry into volcanic ash and gas cloud conditions. Unfortunately, this type of comprehensive training is not universal for airlines operating in the vicinity of potential volcanic activity.

Thank you for the opportunity to testify on this important subject.