



*International Civil Aviation Organization*

**FOURTEENTH MEETING OF THE  
COMMUNICATIONS/NAVIGATION/SURVEILLANCE  
AND METEOROLOGY SUB-GROUP OF  
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

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**Agenda Item 9:           Regional Implementation of International Airways Volcano Watch  
(IAVW)**

**5<sup>th</sup> INTERNATIONAL WORKSHOP ON VOLCANIC ASH**

(Presented by New Zealand)

**SUMMARY**

This paper reports on the important WMO 5th International Workshop On Volcanic Ash held in Santiago in March 2010 hosted by the Dirección General de Aeronautica Civil de Chile.

This paper relates to:

**Strategic Objectives:**

- A. Safety – Enhance global civil aviation safety
- D. Efficiency – Enhance the efficiency of aviation operations

**Global Plan Initiatives:**

- GPI-18 Aeronautical information
- GPI-19 Meteorological Systems

**1.           Introduction**

1.1           The 5<sup>th</sup> International Workshop on Volcanic Ash (VAWS/5) was held in Santiago, Chile, from 22 to 26 March 2010. The meeting heard of progress in many scientific and operational areas of significant interest to the International Airways Volcano Watch (IAVW) and international aviation in general, including the Asia/Pacific Region.

1.2           The meeting was convened by the World Meteorological Organization in collaboration with the International Civil Aviation Organization and hosted by Dirección General de Aeronautica Civil de Chile.

1.3           40 scientists, technologists and operations experts participated in the workshop.

1.4           The workshop noted again that, so far, no fatal aircraft encounters with volcanic ash have occurred, arguably as a result of the efforts of the IAVW and its robust support from the scientific community.

1.5 The presentations given by the participants helped to identify areas of progress, but also those remaining questions that need to be addressed by both the scientific community and the operational users of the information.

## **2. Output of the Meeting**

The meeting achieved its aims and produced a set of actions, outcomes and findings.

### **2.1 Actions**

2.1.1 Airbus agreed to write to the engine manufacturers asking if an answer is available on the question of safe particle size and concentration of ash that is sustainable by engines on its aircraft. Airbus will respond to IATA who will in turn inform VAWS/6 and IAVWOPSG.

2.1.2 This action was eclipsed by the events surrounding the Eyjafjalajokull event in Europe and the subsequent development of a temporary surrogated tolerance level for turbine engines. The robust determination of these tolerance levels will form part of the work to be achieved by the new ICAO International Volcanic Ash Task Force (IVATF).

2.1.3 A subgroup/working group of VAAC members (to be designated by the new Scientific Steering Group) should be formed to examine the use/provision of uncertainty forecasting and probabilistic information. The group should report back to the IAVWOPSG/6 meeting in Dakar in September 2011.

2.1.4 It was recommended that a Volcanic Ash (VA) Science Steering Group (VASSG) be established under the auspices of the WMO, comprising no more than 5-6 key scientists representing the various science communities involved, and perhaps chaired by the WMO. The workshop agreed that the approach would provide a much more timely and dynamic method of co-ordinating the science developments with the changing needs of international aviation (refer section 5.3 for full details).

2.1.5 The VASSG has now been formed by WMO.

### **2.2 Outcomes**

2.2.1 The science behind the IAVW has advanced in many areas, including in satellite remote sensing, cloud height assignment, dispersion modeling, and eruption detection through lightning, infrasound and seismic networks. Two major ‘special issues’ of academic journals dealing with the volcanic clouds issue have been published since 2007.

2.2.2 In general, the interaction between all IAVW participants appears to have improved, and this is evident to users of IAVW products. The lack of major safety incidents during the major eruptions of 2007-2010 is seen as a significant testimony to the effectiveness of the IAVW, despite some ongoing concerns.

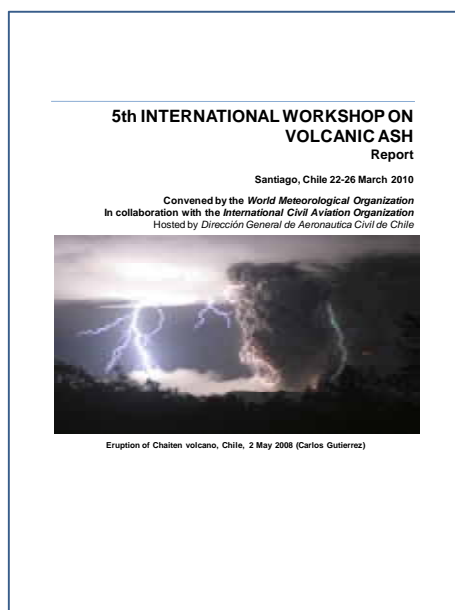
2.2.3 There continues to remain no definition of a “safe concentration” of ash for different aircraft, engine types or power settings. In order to give a reliable and justifiable “all clear” once a plume has dispersed enough to be undetectable, clear limits of ash content are required from both the manufacturers and aviation licensing authorities (refer to the full report, Actions Summary).

2.2.4 A two-year effort to establish a protocol for assigning eruption source parameters to dispersion models during eruptions, when real-time observations were unavailable, has been completed. The result is a table of values, assigned to each of the world’s volcanoes. The main limitation of the protocol is that it does not consider uncertainty at this stage (refer Findings Summary).

2.2.5 There needs to be a very co-operative and collaborative process in moving the science and new technology into the operational sphere and that management of such transfer needs to work carefully within the constructs of the safety management frameworks of ICAO, WMO and other international organizations (refer to the full report, Actions Summary).

### 3. Full Report

The full report including the scientific findings on the state of work in the area, presentation summaries and abstracts can be found at the International Airways Volcano Watch Operations Group site: <http://www2.icao.int/en/anb/met-aim/met/iavwopsg/Lists/Workshops/AllItems.aspx>



### 4. Action required by the Meeting

4.1 The meeting is invited to note the information presented in this paper.

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