



WORKING PAPER

INTERNATIONAL VOLCANIC ASH TASK FORCE (IVATF)

FIRST MEETING

Montréal, 27 to 30 July 2010

Agenda Item 8: Future work programme

DELIVERABLES

(Presented by the Secretariat)

SUMMARY

This paper addresses the future work programme of the task force in terms of deliverables.

1. INTRODUCTION

1.1 The task force (TF) will concur that a detailed work programme with deliverables, together with the corresponding milestones, is essential in ensuring the progress of work concerning tasks assigned to the TF.

2. DISCUSSION

2.1 It will be noted that a detailed work programme has been attached to this paper for endorsement by the TF (Appendix A refers). The work programme is presented in terms of the tasks allocated to the sub-groups. The TF will agree that it is essential that the Rapporteurs take an active role in ensuring that progress is being made and reported as indicated in the work programme.

2.2 A template for the regular quarterly progress reports is attached as Appendix B to this paper for endorsement by the TF. It may be agreed that the template should be completed by all the Rapporteurs of the sub-groups two weeks before the quarterly teleconference to ensure that all the IVATF members and their advisors have sufficient time to review the progress and to be made aware of the areas of difficulties identified by the Rapporteurs.

2.3 With regard to the work of the IAVW coordination group, the TF may wish to agree that the terms of reference of IAVWOPSG and its work programme (IP/3 refers) can accommodate the IAVW-issues raised at this meeting and should therefore be forwarded to that group for follow-up.

To maintain an overall awareness of the progress, it will be nevertheless important that the Rapporteur of the IAVW coordination group keeps the IVATF au fait with the progress by providing regular updates. In this regard, it may be expected that the Rapporteur prepares a draft IAVWOPSG/6 working paper, with well-defined action together with timelines, for information and endorsement by the IVATF/2 Meeting. These issues will be subsequently acted upon by the IAVWOPSG/6 Meeting (September 2011).

2.4 Finally, it may be noted that the issues identified by the EUR/NAT METTF for consideration by the IVATF are attached to Appendix C. It may be agreed that they should all be addressed during the 12-month period by the sub-groups concerned and the results be brought to the attention of the IVATF/2 Meeting in July 2011 by the Rapporteurs. It may be further considered that the issues addressed to the IVATF as a whole should be considered at the IVATF/2 Meeting based on the recommendations made by the sub-groups.

2.5 To achieve the foregoing action, the TF is invited to formulate the following “action agreed”:

Action agreed 1/... — Deliverables for 2010-2011

That, the IVATF endorse:

- a) the deliverables and the corresponding milestones as contained in Appendix A to this paper;

Note 1.— Tasks allocated to the IAVW coordination group will be transferred to the IAVWOPSG for follow-up action; the IVATF will be kept posted through regular progress reports and will review a draft IAVWOPSG/6 WP containing an action plan with timelines;

- b) the template as contained in Appendix B to this paper, for use by the Rapporteurs to report progress for the quarterly teleconference; and

Note 2.— The completed templates are to be submitted to the Secretary of the IVATF at least two weeks prior to each quarterly teleconference.

- c) the issues identified by the EUR/NAT VATF as contained in Appendix C to this paper be addressed by the sub-groups concerned during the next 12-month period and the results thereof be brought to the attention of the IVATF/2 Meeting by the Rapporteurs.

Note 3.— Issues addressed to the IVATF as a whole are to be addressed at the IVATF/2 Meeting based on the reports by the sub-groups.

3. **ACTION BY THE IVATF**

3.1 The IVATF is invited to :

- a) note the information in this paper; and
- b) formulate “action agreed” as contained in this paper.

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APPENDIX A

DELIVERABLES

Note 1.— The quarterly teleconferences are expected to be held on 27 October 2010 (IVATF/T1), 26 January 2011 (IVATF/T2) and 20 April 2011 (IVATF/T3). The second meeting of the IVATF is expected to be convened early July 2011; and

Note 2.— Key: ToR = terms of reference.

Tasks allocated to the ATM sub-group

<i>Task number (origin)</i>	<i>Sub-group/ responsibility</i>	<i>Task</i>	<i>Deliverable</i>	<i>Milestones (progress reports)</i>	<i>Expected completion</i>
TF-ATM01 (ToR)	ATM sub-group ATM Rapporteur	Assess contingency procedures and reporting criteria to detect and mitigate risk	Identify operational and ATC procedures which need to be updated, together with an assessment for the need of guidance for information sharing and decision making	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)
TF-ATM02 (ToR)	ATM sub-group ATM Rapporteur	Review existing notification and warning procedures in light of the Icelandic eruption experience	Recommend procedures, as necessary, to enhance pre-flight and in-flight information dissemination technologies to ensure notification of all flights affected	13 October 2010; 12 January 2011	6 April 2011 (IVATF/T3)
TF-ATM03 (IVATF/1)	ATM sub-group ATM Rapporteur	Assess the need and feasibility for a template (model) for volcanic ash contingency	Assessment	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)

<i>Task number (origin)</i>	<i>Sub-group/ responsibility</i>	<i>Task</i>	<i>Deliverable</i>	<i>Milestones (progress reports)</i>	<i>Expected completion</i>
TF-ATM04 (IVATF/1)	ATM sub-group ATM Rapporteur	Study the ways and means how to improve and enhance the issuance of special air-reports by aircraft for volcanic ash (including volcanic ash encounters)	Action plan including an identification of needs to amend ICAO procedures/ guidance	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)
TF-ATM05 (IVATF/1)	ATM sub-group ATM Rapporteur	Study notification and warning provisions in view of proposing simplifications to the information provided in order to eliminate redundancies and overlapping between VA-related products	Plan how to simplify VA-related products and/or provide SIGMET information for large complex events	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)
TF-ATM06 (IVATF/1)	ATM sub-group ATM Rapporteur	Review existing procedures and practices on the provision of information to flight crews and airlines to support their operational decisions	Review of existing procedures taking into account a) uncertainty; b) the probabilistic nature of information); and c) the possibility of restricting the airspace around the immediate eruption site and to otherwise provider all information to the operators for their decision making	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)

Tasks allocated to the AIR sub-group

<i>Task number (origin)</i>	<i>Sub-group/ responsibility</i>	<i>Task</i>	<i>Deliverable</i>	<i>Milestones (progress reports)</i>	<i>Expected completion</i>
TF-AIR01 (ToR) (IVATF/1)	AIR sub-group AIR Rapporteur	Develop the acceptable level(s) of ash concentration for safe aircraft operations in contaminated airspace; establish regulatory provisions required for the level(s) identified	Validate and refine, as necessary the acceptable levels of ash concentration developed by the EUR/NAT VATF; Identify provisions required to be developed for various types of operations	13 October 2010; 12 January 2011 6 April 2011 1 June 2011	1 June 2013 (IVATF/4)
TF-AIR02 (IVATF/1)	AIR sub-group AIR Rapporteur	Evaluate engine tolerance to ash (including the airworthiness effects of ash exposure) in view of the development of safe operating levels in volcanic ash and of the definition of areas of ash concentration to be provided to users	Evaluation of engine tolerance to different levels of ash concentration	13 October 2010; 12 January 2011 6 April 2011 1 June 2011	1 June 2013 (IVATF/4)
TF-AIR03 (IVATF/1)	AIR sub-group AIR Rapporteur	Consider formulating a recommendation for operators to use a “volcanic ash risk management framework” based on a definition of the ash expressed in terms of its airworthiness effects	An assessment whether a “volcanic ash risk management framework” could be established based on the airworthiness effects of volcanic ash and the principle that ash visible in the field of view would continue to be avoided	13 October 2010; 12 January 2011 6 April 2011	1 June 2011 (IVATF/2)
TF-AIR04 (IVATF/1)	AIR sub-group AIR Rapporteur	Assess the need of ash concentration levels for aircraft and jet engines ; determine the types of ash composition and particle size that are most detrimental to aircraft and jet engines	Assessment of the need for ash concentrations; Classification of the hazardousness of ash based on its composition and particle size	13 October 2010; 12 January 2011 6 April 2011 1 June 2011	1 June 2013 (IVATF/4)

Tasks allocated to the Science sub-group

<i>Task number (origin)</i>	<i>Sub-group/ responsibility</i>	<i>Task</i>	<i>Deliverable</i>	<i>Milestones (progress reports)</i>	<i>Expected completion</i>
TF-SCI01 (ToR) (IVATF/1)	S sub-group SCI Rapporteur	Determine the ways and means to improve ash detection/ avoidance systems	Identify technologies and recommend system requirements for ground, airborne and space-based systems, in particular address the limitations of satellite sensors in detecting multiple layers of ash and their vertical depths;	13 October 2010; 12 January 2011 6 April 2011 1 June 2011	1 June 2013 (IVATF/4)

Tasks allocated to the IAVW coordination group for follow-up by the IAVWOPSG

Note 1.— Timelines:

- a) *Progress reports by the Rapporteur of the IAVW Coordination Group on*
 - 1) *13 October 2010;*
 - 2) *12 January 2011; and*
 - 3) *6 April 2011*
- b) *A draft IAVWOPSG/6 WP for review and endorsement by the IVATF/2 Meeting on 1 June 2011”.*

Note 2.— The following deliverables to be considered by the IAVWOPSG:

<i>Task number (origin)</i>	<i>Deliverable</i>
TF-VAA01 (ToR)	Identification of VA-related guidance which needs to be updated
TF-VAA02 (ToR; IVATF/1)	Assessment concerning the need for VAACs to <ul style="list-style-type: none">a) harmonize the dispersion models and their output; andb) refine graphical VA advisories (including the model charts in Appendix 1 to Annex 3) and/or develop new advisory products to include ash concentrations based on tolerance information and taking into account their operational usefulness
TF-VAA03 (IVATF/1)	Plan how to improve models based, inter alia, on the use of ensemble modelling in view of enhancing the accuracy of the predicted ash density level
TF-VAA04 (IVATF/1)	Improved definition of source parameters (in coordination with the IUGG and volcano observatories), together with an assessment how to depict the uncertainties of such parameters in view of reducing their impact
TF-VAA05 (IVATF/1)	Investigation into the feasibility of using collaborative decisions making amongst VAACs, MWOs, ANSPs and volcano observatories
TF-VAA06 (IVATF/1)	Evaluation of dispersion models used by the VAACs using a common set of observations and eruption source parameters in view of: <ul style="list-style-type: none">a) addressing the accuracy and levels of uncertainty; andb) promoting the standardization of the dispersion models used by the VAACs.
TF-VAA07 (IVATF/1)	Investigation into the benefits of the VAACs providing CSV data files with the ash boundaries using specific FIR intersection points in view of assisting States in the issuance of consistent volcanic ash SIGMET and NOTAM/ASHTAM

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APPENDIX B

TEMPLATE FOR PROGRESS REPORTS FOR USE BY THE RAPPORTEURS

To be prepared at least two weeks prior to the quarterly teleconference and submitted to the Secretary of the IVATF.

Task: <i>identify the task</i>
Progress
<i>Briefly highlight the progress made over the last three months.</i>
Issues identified
<i>List all the issues (problems) that have arisen.</i>
Suggested action to resolve the issues identified
<i>Provide details how the sub-group intends to address the issues identified including the corresponding timelines.</i>

APPENDIX C

ISSUES RAISED BY THE EUR/NAT VATF

IVATF sub-groups	EUR/NAT VATF recommendations for the IVATF sub-group
IVATF as a whole	<ol style="list-style-type: none">1) Determine the number of ash concentration levels to be used taking into consideration the operational requirements, scientific observation and forecast capability, and the need for safety and efficiency;2) Re-evaluate PANS-ATM Doc 4444 paragraph 15.8 (principally 15.8.3) in view of permitting operations in airspace where ash contamination exists within safe/tolerable levels;3) Consider whether the <i>Volcanic Ash Contingency Plan – EUR and NAT Regions</i> could be used as a template/model for other ICAO Regions;4) Determine need for new or improved SARPs and/or guidance when: <i>entire</i> FIRs are contaminated by volcanic ash; volcanic ash is just entering an FIR; and/or the re-suspension of volcanic ash occurs (i.e. windblown ash) affecting an aerodrome or FIR;

<p>Air Traffic Management (ATM) sub-group</p>	<ol style="list-style-type: none"> 1) Determine common methodology for simplifying complex airspace descriptions for dissemination by SIGMET, NOTAM/ASHTAM, or when defining Danger or Restricted Areas; 2) Develop guidance to aid the decision making process when contamination may be considered ‘unsafe’, and when airspace and/or aerodromes should be closed and re-opened; 3) Develop guidance relating to the use of alternate aerodromes when large areas of airspace contamination exist or for aircraft in emergency situations; 4) Consider standardization and possible aggregation of SIGMET and NOTAM for warning of airspace contamination (including ash concentration), and re-evaluate the utility/application of ASHTAM; 5) Evaluate the acceptability of referring operators to public Internet sites where detailed information concerning volcanic ash activity is provided; 6) Consider whether the current provision of volcanic ash advisory information <i>at least once every 6 hours</i> (valid T+0 to 18 hours) is sufficient to meet current and future user needs – consider longer term planning products (T+0 to T+30 hours); increased temporal resolution (particularly between T+0 and T+6); increased frequency of issuance (at least every 3 hours), etc; 7) Determine whether a central repository and information sharing scheme could be established for air (“pilot”) and maintenance reports related to volcanic ash encounters; 8) Consider how to improve the submission of Volcanic Activity Reports (VAR) by clarifying the distribution mechanism to ensure that all concerned stakeholders receive the information in a timely and efficient manner;
<p>Airworthiness (AIR) sub-group</p>	<ol style="list-style-type: none"> 1) Determine what types of airspace contamination might be hazardous (or not) to aviation taking into consideration particle size, ratio, chemical composition, etc; 2) Determine commonly agreed threshold values and terminology (e.g. low/medium/high or light/moderate/severe) for each level of airspace contamination;

Science (S) sub-group	<ol style="list-style-type: none"> 1) Determine the need for near real-time calibration and verification systems based on quantifiable data from in-situ and well-established airborne, ground and space-based remote sensing systems; 2) Establish standards and specifications related to volcanic ash observations and measurements; 3) Determine a suitable mechanism whereby the feed of volcanic ash observations and measurements to the VAACs can be enhanced in order to improve the timely and efficient data assimilation in dispersion modelling; 4) Identify a commonly agreed definition for ‘visible ash’ and the methods used to determine it (e.g. satellite image wavelength, remote sensing technique, etc); 5) Consider whether Eulerian dispersion models or ensemble forecasting techniques could be used to predict the dispersion of volcanic ash. Such modelling could reduce the uncertainties in model initialization (source parameters) and better identify ‘levels of confidence’ in the model output;
IAVW coordination group	<ol style="list-style-type: none"> 1) Determine whether all VAACs are in a position to produce and disseminate ash concentration guidance charts and coordinate data (akin to that provided by the meteorological office co-located with VAAC London) and develop a draft amendment to ICAO SARPs accordingly; 2) Determine common user requirements with regards to the vertical segmentation (i.e. vertical layers) of ash advisory and concentration information that would allow more effective use of non-contaminated airspace above and below the expected contamination areas – to better support airport, terminal manoeuvring area and en-route flight operations; 3) Determine feasibility of observing and forecasting different types of airspace contamination (e.g. gas versus hard particles), and identify how less hazardous phenomenon to aviation, such as steam, could be relayed to airspace managers and users.

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