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The European Volcanic Ash Crisis: Between International and European Law

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Introduction

Following the eruption of the Icelandic volcano Eyjafjallajökull on April 14, 2010, a cloud of ash, helped by winds, quickly spread across Europe. Since volcanic ash is a recognized threat to aircraft, most European civil aviation authorities, following well established and widely published international safety protocols issued by the International Civil Aviation Organization (ICAO),[1] closed their airspace.[2] The impact of the six-day closure was enormous: more than 100,000 flights were cancelled and about ten million passengers were unable to travel. In many cases, passengers were stranded in another country without any immediate possibility of going home. This situation not only placed the existing international framework for operational response to volcanic ash under a stress test, it also highlighted the limited level of integration achieved by the European Union (EU) in the civil aviation sector.

Background

The flying bans were instituted because of fears that the volcanic ash—a mixture of glass, sand, and rock particles—could seriously damage aircraft engines. The national measures were based on scientific advice provided by the Volcanic Ash Advisory Centre (VAAC)[3] and were implemented by the European Organization for the Safety of Air Navigation (EuroControl).[4] Yet, even before the bans were lifted, recriminations among all those involved began. National authorities came under pressure from European airlines, several of whom claimed that successful test flights were conducted in the supposed danger zone. After three days of flying bans, all major airlines vocally claimed that authorities had been overly cautious in using a precautionary approach. In addition, critics disputed the model (Numerical Atmospheric-dispersion Modelling Environment, or NAME) used by the VAAC, which was originally developed to track radioactive fallout from Chernobyl nuclear disaster in 1986.[5] They dismissed its model-based estimates of the extent of the ash cloud as "theoretical."[6] National authorities defended their "zero risk" regulatory response, claiming that it was consistent with the guidelines developed by ICAO in the 2007 Manual on Volcanic Ash,[7] as well as with the Volcanic Ash Contingency Plan – EUR Region.[8] In turn, scientists strenuously defended the predictions made by the NAME atmospheric dispersion model underpinning the ICAO guidelines.[9]

The European Regulatory Response

Meanwhile, the cloud was not moving. As Europe was facing another week of disruption, the European Commission – acting outside of its competence – took the initiative over the weekend of April 17-18, with the Spanish Presidency and EuroControl, to propose a coordinated European approach.[10] As the situation evolved, the NAME model and the national risk management procedures were tested. EU Member States, national air safety authorities, national air traffic controllers, and EuroControl realized that a more differentiated assessment of risk from the ash cloud was needed. But no Member State could act independently by departing from the ICAO guidelines and taking the first step to introduce change.

The guidelines are unequivocal regarding the danger of volcanic ash for

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DOCUMENTS OF NOTE

Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds

Volcanic Ash Contingency Plan – EUR Region

Convention on International Civil Aviation (Chicago Convention)

ORGANIZATIONS OF NOTE

European Commission

International Civil Aviation Organization

Volcanic Ash Advisory Centre

European Organization for the Safety of Air Navigation

European Centre for Disease Prevention and Control

aircraft engines:

> Unfortunately, at present there are no agreed values of ash concentration which constitute a hazard to jet aircraft engines . . . but it is worth noting at this stage that the exposure time of the engines to the ash and the thrust settings at the time of the encounter both have a direct bearing on the threshold value of ash concentration that constitutes a hazard. In view of this, the recommended procedure in the case of volcanic ash is exactly the same as with low-level wind shear, regardless of ash concentration — AVOID AVOID AVOID.[11]

Yet, five days after the enforcement of the national flying bans, on April 19, EuroControl Member States unanimously agreed to move to "a co-ordinated European approach in response to the crisis."[12] As a result, new procedures were defined, which led to a partial reopening of the European air space and hence reduced the human and economic impact on passengers, airlines, and cargo.[13] The new measures came into force on April 20 and established three types of zone (depending on the degree of contamination): The first zone was located in the central nucleus of the emissions, where a full restriction of operations was maintained; the second consisted of an intermediary zone, where Member States could allow flights "in a coordinated manner [with other members]" but with additional restrictions and safety controls;[14] and the third zone, not affected by the ash, had no restrictions. These procedures, based on a more differentiated risk assessment and paving the way for more coordinated decisionmaking among states, enabled "a progressive and coordinated opening of European Air Space."[15] By April 22, eight days after the eruption had begun, regular flight schedules resumed.[16]

The Legal Implications of the Crisis

The situation created by the protracted closure of the European airspace has been so extraordinary that the regulatory action leading to the disruption continues to be at the center of a growing controversy. Beyond the personal dramatic situations experienced by millions of stranded passengers and difficult implementation of the Passenger's Rights Regulation,[17] the air industry has incurred significant costs and suffered reduced revenues. To address these concerns, the Commission has concluded that Member States should rapidly implement measures in favor of the air industry that would repair the damage caused by the natural disaster.[18] Moreover, the disruption may also have some unforeseen financial consequences for the EU's Emissions Trading Scheme (ETS).[19] Indeed, since 2010 is the monitoring year for the establishment of the number of Aviation Allowances (AAs) allocated for free to airlines, the reduced activity in April could affect the distribution of those allowances between aircraft operators.

The regulatory consequences stemming from the crisis were not limited to the aviation sector. Thus, for instance, since April 14, 2010, the European Commission has raised questions about public health resulting from the ash cloud that covered large parts of the European Union. As a result, the Commission asked the European Centre for Disease Prevention and Control (ECDC) to assess the potential impact of the ash cloud on public health,[20] and the European Food Safety Authority (EFSA) to obtain urgent advice on the possible risks for public and animal health of the contamination of the feed and food chain.[21] The EFSA, in record time, concluded that, based on the available information, the potential risk of contamination posed by the volcanic ash-fall to drinking water, vegetables, fruit, fish, milk, meat, and feed was negligible.

Finally, the closure of the European airspace disrupted the travel of many third country nationals, who are subject to strict visa requirements during their stay or transit through the territory of the Schengen States. Urgent derogatory measures were taken for certain categories of travelers and, in particular, for people holding a short stay visa that had expired on or after April 15, 2010 and others not intending but needing to enter a Member State's territory.

The Not-yet European Sky

EU integration does not extend to air traffic management.[22] Only Member States can decide whether or not to close their airspace. As a result, the EU boasts twenty-seven different air traffic zones, each able to impose a flying

European Food Safety Authority

European Air Safety Agency

ban. This fragmentation is the result of a history of air traffic control remaining closely associated with sovereignty, and hence confined within national borders. Indeed, air traffic control is still perceived as governed by both national defense and sovereignty interests. This also reflects one of the tenets of the Chicago Convention according to which each State is responsible for safety oversight in civil aviation within its jurisdiction.[23]

Yet, efforts have been made toward integration of the EU airspace.[24] Following the adoption of the Single European Sky (SES I) legislation in 2004, air traffic management was brought under the EU common transport policy.[25] The idea was to redesign the European sky according to traffic flows rather than national borders. Yet, as unambiguously exemplified by the patchwork regulatory response to the current crisis, a truly "single" sky has not been achieved. To remedy this situation, another reform, the "Single European Sky Package" (SES II), was adopted by the European Parliament and the Council in November 2009.[26] To accelerate the full implementation of the SES II, the Commission seems ready to leverage the volcanic ash crisis to create political momentum. In the aftermath of the crisis, the Commission issued a set of encouraging proposals. First, it proposed the creation of a European Aviation Crisis Coordination Cell (EACCC), gathering together EuroControl, European Air Safety Agency (EASA),[27] member states, and air transport stakeholders. This is exactly what the EU did not have available during the crisis. The EACCC will mainly facilitate the management of crisis situations affecting aviation in the EU and will be empowered to launch unmanned aircraft vehicles (UAV) to collect data. Second, the Commission proposed the nomination of Functional Airspace Blocks (FAB) coordinators. FABs are nine airspace blocks based on operational requirements and established regardless of State boundaries, as foreseen in SES II.[28] Third, the Commission proposed that the central European network management be appointed by the end of 2010 and authorized to develop a more harmonized and coordinated approach to risk and flow/capacity assessment.

Conclusion

Although existing ICAO guidelines proved effective in preventing accidents in the wake of the recent eruption of the Eyjafjallajökull volcano, actions taken by national authorities resulted in unprecedented disruptions of service and severe economic impact to the airline industry, as well as to sectors relying on air transport services. It became clear that more needed to be done to establish a safety risk assessment framework for determining whether it is safe to operate in airspace contaminated by volcanic ash. At the urging of industry, ICAO agreed to form a multi-disciplinary International Volcanic Ash Task Force (IVATF), and terms of reference have since been agreed upon. In light of its own experience, the EU Commission has decided to elaborate a new methodology for safety risk assessment and risk management in relation to the closure of airspace, to be proposed to the next ICAO general assembly in September 2010.[29] In the meantime, by leveraging the disruption caused by the volcanic ash crisis, the Commission is likely to accelerate the implementation of SES II, thus institutionalizing some of the *ad hoc* mechanisms and procedures developed during the eruption. Undoubtedly, this crisis has added new impetus to the long-running struggle to unite Europe's airspace. As shown by this crisis, more than twenty years after the EU eliminated its internal land borders, the Union still lacks an integrated airspace. Time seems ripe for the EU to conquer its own sky.

About the Author

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Endnotes

[1] ICAO was created in 1944 by the Convention on International Civil Aviation and is headquartered in Montreal, Canada.

[2] At its height, in April 17-18, 2010, seventeen EU Member States had a full airspace closure and two were partially closed. At the same time, six non-EU States were fully closed.

[3] Nine Volcanic Ash Advisory Centers around the world are responsible for advising international aviation of the location and movement of clouds of volcanic ash. They are part of an international system set up by ICAO in coordination with the World Meteorological Organization (WMO) and called the International Airways Volcano Watch (IAVW). In particular, the London VAAC is responsible for monitoring and forecasting the movement of volcanic ash over the United Kingdom, Iceland, and the north-eastern part of the North Atlantic Ocean.

[4] EUROCONTROL is an international, not an EU, organization, established in 1960 by Belgium, France, Germany, Luxembourg, Northern Ireland, the Netherlands, and the United Kingdom through the EuroControl International Convention relating to Co-operation for the Safety of Air Navigation. This convention entered into force in 1963 and has thirty-eight Member countries, including the European Union.

[5] *See* Int'l Civil Aviation Org. [ICAO], *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds*, ICAO Doc. 9691 (2d ed. 2007), *available at* http://www.paris.icao.int/news/pdf/9691.pdf [hereinafter Manual] (providing that the NAME has evolved into an all-purpose dispersion model capable of predicting the transport, transformation, and deposition of a wide class of airborne materials (e.g., nuclear material, volcanic emissions, biomass smoke, chemical spills, foot-and-mouth disease).

[6] Statement by Giovanni Bisignani, Director, General, & Chief Executive of the Int'l Air Transport Ass'n (IATA) (Apr. 19, 2010).

[7] *See* Manual, *supra* note 5.

[8] *Volcanic Ash Contingency Plan – EUR Region*, EUR Doc 019 (2d ed. 2009), *available at* http://www.paris.icao.int/documents_open /files.php?subcategory_id=63.

[9] *See* Manual, *supra* note 5, § 3.4.

[10] *See* Memorandum, Volcanic Ash Crisis: Frequently Asked Questions, MEMO/10/143 (Apr. 20, 2010).

[11] *See* Manual, *supra* note 5, § 3.4.8.

[12] *See* Memorandum, *supra* note 10.

[13] These procedures were presented by EU Commission Vice President Kallas and endorsed at an extraordinary meeting of Transport Ministers, chaired by Spanish Minister José Blanco.

[14] This zone has since then split into two "enhanced zones": a red zone in which some volcanic ash may be encountered, but where flights can still take place according to EASA; and a grey zone in which EASA recommends two approaches that allow flights under certain conditions.

[15] Extraordinary Meeting of Ministers of Transport (Apr. 19, 2010), *available at* http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata /en/trans/113899.pdf.

[16] *See* EuroControl Volcanic Ash Cloud Timeline **-** April Events, EUROCONTROL- EUR. ORG. FOR THE SAFETY OF AIR NAVIGATION, http://www.eurocontrol.int/corporate/public/standard_page /volcanic_ash_cloud_chronology.html (last visited June 30, 2010) (noting that 27,284 flights were approved, compared with the 28,578 flight expected on the same day two weeks earlier).

[17] *See* Note d'information de M. Kallas [Information Note to the Commission], *Conséquences du nuages de cendres générée par l'éruption volcanique survenue en Islande sur le trafic aérien* [*The Impact of the Volcanic Ash Cloud Crisis on the Air Transport Industry*], SEC(2010) 533, ¶ 26 (Apr. 27, 2010) [hereinafter Information Note] (noting that despite the exceptional circumstances, the EU Commission considered that the Regulation on Air Passengers Rights (EC Regulation 261/2004) remained fully applicable).

[18] *See* Memorandum, *supra* note 10 (explaining that besides air carriers, other transportation providers or those providing transportation services have incurred damages). For example, airports have been severely hit, as well as

ground handling services and tour operators. Under EU law, tour operators are required to provide repatriation of stranded passengers. They are also obliged to refund or offer alternative arrangements to customers who have not started their journey because of the European airspace's closure.

[19] Directive 2008/101 of the European Parliament and of the Council of 19 November 2008 Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, *available at* http://eurlex.europa.eu/LexUriServ /LexUriServ.do?uri=CELEX: 32008L0101:EN:NOT.

[20] The advice from the ECDC indicated that the amount of ash likely to come to ground in the aftermath of the eruption, as well as impact on health, was minimal, if any.

[21] The Commission asked EFSA to provide by April 22, 2010 scientific assistance, based on the chemical composition of volcanic ash, on the possible health risks via food, including drinking water and feed, in case of a significant ash fall. *See* Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 Laying Down the General Principles and Requirements of Food Law, Establishing the European Food Safety Authority and Laying Down Procedures in Matters of Food Safety, art. 31, *available at* http://eur-lex.europa.eu/LexUriServ /LexUriServ.do?uri=OJ:L:2002:031:0001:0024:EN:PDF.

[22] Air Traffic Management (ATM) encompasses the functions required to ensure safe and efficient movement of aircraft during all phases of operations (Air Traffic Services (ATS)), Airspace Management (ASM) and Air Traffic Flow Management (ATFM).

[23] Chicago Convention on International Civil Aviation, Dec. 7, 1944.

[24] Efforts to shape an EU airspace date back to 1996 when the European Commission published a White Paper on Air Traffic Management ("Freeing Europe's Airspace") and were followed by the 1997 initiative of EuroControl members to open up membership to the European Community.

[25] *See* Regulation 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the Single European Sky, *available at* http://eur-lex.europa.eu/LexUriServ /LexUriServ.do?uri=CELEX:32004R0549:EN:NOT (providing that the SES I consists of a Framework Regulation plus three technical regulations on the provision of air navigation services, organization and use of the airspace, and the interoperability of the European air traffic management network).

[26] Regulation 1070/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004, and (EC) No 552/2004 in order to improve the performance and sustainability of the European aviation system, *available at* http://eur-lex.europa.eu/LexUriServ /LexUriServ.do?uri=OJ:L:2009:300:0034:0050:en:PDF.

[27] The European Air Safety Agency provides expert advice to the EU on drafting new legislation. In particular, it is in charge of the implementation and monitoring of safety rules, including inspections in the Member States as well as of the approval of organizations involved in the design, manufacture, and maintenance of aeronautical products.

[28] *See* Information Note, *supra* note 16, ¶ 44 (noting that, in accordance with Article 8 of the Framework Regulation, the European Commission has issued a mandate to the EuroControl Agency for support in the establishment of FABs).

[29] *Id*. ¶ 60.