Safety and/or Sovereignty? European Skies After the Icelandic Volcano Crisis

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Abstract

The 2010 eruption of the Icelandic volcano Eyjafjallajökull led to an unprecedented cessation of European air traffic. Since the crisis, European air regulators have aggressively advocated for accelerated implementation of the second phase of the Single European Sky reforms, which would effectively eliminate national borders in air travel by delegating sovereign air traffic management to multilateral entities. However, this Comment argues that, contrary to the official version of events, this cure—more centralized decision-making—contributed to the crisis’s escalation in the first place. A better solution, with greater legitimacy under existing European Union and United Nations agreements, is to maintain a system of national air traffic management while empowering private carriers to make cancellation decisions with input from outside agencies as requested. National sovereignty should be respected in air traffic regulation not just because of its historic relevance, but because the practical costs of the loss of sovereignty in air traffic management can be impermissibly high. In short, there should not be a tradeoff in European aviation between innovations in safety and maintaining the sovereignty of individual nations.

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I. INTRODUCTION

The 2010 eruption of Eyjafjallajökull, an ice cap volcano on the southern tip of Iceland, led to an unprecedented shutdown of air traffic in twenty-five European states, adversely impacting millions of air travel passengers around the world and leading to billions of dollars in economic losses. To European authorities, the crisis illuminated the chaotic state of European air traffic regulation, and the necessity of further integration of European air traffic management under the second Single European Sky (SES-II) package of reforms to prevent future air traffic crises. However, this position—tainted...
simultaneously by nirvana fallacy and political expediency—lacks even modest recognition of or care for the concept of national sovereignty, which it sees as a mere roadblock on the highway to a unified European sky.\(^4\) This Comment argues that not only does national sovereignty provide valuable insights into the European response to the crisis, but also that it is a vital concept that cannot be shuffled to the side under the existing international legal framework governing air travel.

The volcanic eruption produced a massive cloud of ash that entered the jet stream above Iceland and floated over the UK and continental Europe.\(^5\) As the ash cloud hovered over mainland Europe, a disorganized band of airlines, sovereign air traffic managers, and multilateral authorities competed amongst themselves to impose their own solution on the skies of Europe, with differing beliefs about the dangers the ash would pose to jet engines in flight.\(^6\) Ultimately, the influence of a single multilateral regulator led sovereigns to apply the precautionary principle strictly and to overrule the independent judgment of the airlines, who wished to fly, leading to the cancellation of thousands of flights and stranding millions of passengers. The regulators, however, eventually surrendered to political pressure and relaxed the particle density threshold at which passenger jets could travel and the European skies re-opened.\(^7\)

In the aftermath of the crisis, calls for a further integrated European airspace under an accelerated adoption of the second phase of the European Commission’s Single European Sky program grew louder. As may be expected, the European Commission is strongly in favor of these reforms—even while national populations are increasingly skeptical of surrendering state sovereignty to greater European integration.\(^8\) But before Europe resolves this conflict and embraces the ultimate vision of SES-II, several questions must be asked. Is such integration legal under the existing European and international air traffic management (ATM) framework? Is there a necessary tradeoff between air traffic

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\(^4\) European Union Press Release, *Single European Sky Second Package (SES II)—Q&A* (June 24, 2008), online at http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/432&format=HTML&aged=0&language=EN&guiLanguage=en (visited Apr 11, 2011) (“The process of integration . . . regardless of national borders, has encountered numerous hurdles. Air traffic control is mistakenly related to national sovereignty. Obviously this is a complex argument, but instead of prompting innovative solutions for exercising sovereignty, it has been used to block cross-border integration.”).

\(^5\) See Section III.

\(^6\) See Section III.C.

\(^7\) Id.

safety and sovereignty? What are the costs of increased regulatory centralization, and can the dueling concepts of sovereignty and safety be reconciled? This Comment seeks to use the Icelandic volcano crisis as a mechanism to answer these questions, and to argue modestly for a future ATM framework that protects the sovereign interests of each individual nation while retaining the benefits of an integrated system.

Accordingly, the analysis will proceed as follows: Section II explains the disorganized legal framework out of which the current structure of European ATM evolved, focusing primarily on the balance of power between the UN's International Civil Aviation Organization (ICAO) and the independent European Organization for the Safety of Air Navigation (Eurocontrol). Section III details the volcano crisis itself, with attention paid to the crisis response as it proceeded under the framework. Section IV considers the events of the crisis in light of proposals currently being pushed for expedited approval to unify European airspace under SES-II, the second phase of Eurocontrol’s so-called "Single European Sky" integration, and the legality of such integration under existing ICAO doctrine. Finally, Section V argues that in the debate over the Single European Sky, whether or not delegation of sovereignty to multilateral organizations is ultimately necessary for an air traffic management system that provides optimum flight safety, the concept of national sovereignty should be more than a mere footnote.

II. THE CURRENT LEGAL FRAMEWORK

The broad framework of airspace management, air travel regulation, the oversight of airports, and the regulation of air carriers have been previously examined in great detail. For this Comment's focus, therefore, will be on the

9 The web of overlapping supranational, multilateral, bilateral, and sovereign air transportation regulatory bodies in Europe is extremely complex. For the purposes of this Comment, I will focus exclusively on air traffic management and the multitude of bureaucracies to which it is assigned. Other frequently analyzed topics in European aviation law include competition law, open skies agreements, environmental regulation (including noise regulation), carrier liability, labor relations, fare regulation, passenger rights, flight security, the intersection of military and civilian aviation, and carrier regulation (or, in the modern context, deregulation). For a broad contemporary overview, see generally Paul Stephen Dempsey, European Aviation Law (Kluwer 2004); Jeffrey Goh, European Air Transport Law and Competition (Wiley 1997) (providing more detail on EU competition law as applied to the airline context); Martin Bartlik, The Impact of EU Law on the Regulation of International Air Transportation (Ashgate 2007). For a general introduction to international aviation law, see Paul B. Larsen, Aviation Law: Cases, Laws and Related Sources 35–72, 231–66 (Transnational 2006).
narrower question of the provision of European ATM responsibilities.\textsuperscript{10} Even within these narrower parameters, and the short history of European air travel, there have been numerous iterations of regulation and disparate layers of bureaucracy, each intended to serve a unique purpose, though with a result of tremendous overlap and confusion. Yet at its most basic, European ATM has three layers, working backwards from broad powers to narrow. The first, outer layer, is the regime provided by the UN’s ICAO agency; for the purposes of this Comment, this most critically concerns the general oversight of airspace through standard-setting, enforcement of domestic sovereign airspace control, a meteorological analysis function, and an oft-unused disaster investigation role.\textsuperscript{11}

The second, intermediate layer of regulation is that of the EU, including the European Commission and Eurocontrol, a strictly European agency that provides a broader array of centralized air travel regulations and actual ATM.\textsuperscript{12} The third, and innermost layer, is the ATM policies of the individual sovereign nations themselves, and their interplay with and governance of airports and the air carriers themselves.

The following sections will examine these layers in precisely that order.

A. Early Multilateral Air Traffic Management\textsuperscript{13}

The same expanded scope of international regulatory institutions\textsuperscript{14} that coincided with the end of World War II drove the political will for regulation of global air transport. The rise of new, more powerful, civilian jet aircraft traveling at high altitudes where previously only military aircraft could fly led to a need to better coordinate the usage of airspace between sovereigns.\textsuperscript{15} To that end, the US invited fifty-four nations from around the globe to Chicago, Illinois, in November 1944, with the goal of establishing uniform standards for global civil

\textsuperscript{10} Despite the narrow focus of this Comment on the relationship between the European ATM framework and the reality of the Icelandic volcano crisis, the relative costs and benefits of regulatory centralization are widely applicable to other forms of integration in other locales.

\textsuperscript{11} See Section II.A (concerning the role of ICAO).

\textsuperscript{12} See Section II.B (concerning the role of Eurocontrol).

\textsuperscript{13} For further reading on ICAO and its relationship to the broader global air regulation framework as mentioned in note 9, see generally Michael Milde, \textit{International Air Law and ICAO} (Boom Eleven International 2008).


\textsuperscript{15} See Amir A. Majid, \textit{Legal Status of International Institutions: SITA, INMARSAT and EUROCONTROL Examined} 91–92 (Dartmouth 1996) (exploring Eurocontrol’s history and legal authority).
aviation. The resulting agreement, known as the Chicago Convention, established both a small provisional international organization, and then later ICAO, which formally came into being in 1947, ten years prior to the Treaty of Rome.

Most critically, under Article 1 of the Chicago Convention, member states continue to maintain sovereignty over the airspace above their territory. Under Article 2, “territory” is defined as the “land areas and territorial waters adjacent thereto under the sovereignty . . . of such State.” It is noteworthy that the first major multilateral effort to integrate air transportation began with what is essentially an affirmation of the Roman maxim *ad coelum.* This maxim originates with the ideas of Gaius, a second century Roman jurist, and affirms the absolute right of a property owner to both the land and the sky as it rises infinitely above it. While recognition of the maxim as a doctrine under modern law is at best questionable, the maxim is transferable to the ICAO context as affirming sovereignty as a bedrock principle in the management of airspace. Under this

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16 See Milde, ICAO at 14-16 (cited in note 13).
18 See generally id. Of the three foundational treaties of what is now the EU, the one most relevant to air traffic management and safety is what is generally known as the Treaty of Rome. The Treaty aimed to create the European “common market” and increase economic efficiency among its participating nations through an area of free trade. See Treaty Establishing the European Economic Community (Mar 25, 1957), preamble, 298 UN Treaty Ser 11, (entered into force Jan 1, 1958). For a thorough timeline of the integration of Europe since 1944, see John McCormick, *The European Union: Politics and Policies* 395 (Westview 4th ed 2008). Three major unifications that the EU aspires to under the Single Market is a single currency, a single transportation network (without the use of passports for internal travel), and entirely free internal trade. For more details, and an example of how regional integration progresses, see id at 22. The first multilateral air treaty was the International Commission for Air Navigation (“ICAN”), established in 1919 and entered into force in 1922, under the auspices of the League of Nations. ICAN, though with different responsibilities and lacking US membership, ended up being folded into ICAO, and the leader of ICAN at the time became the first leader of ICAO during its provisional phase. See *International Commission for Air Navigation, 1 Intl Org* 383, 383–84 (1947).
19 Chicago Convention, Art 1 (cited in note 17).
20 Id, at Art 2.
21 “Whosoever owns the land, owns to the sky and to the bottom of the earth.” For this translation of the Roman maxim, see Richard A. Epstein, *Cybertrespass,* 70 U Chi L Rev 73, 75 (2003). See also Lora D. Lashbrook, *The "Ad Coelum" Maxim as Applied to Aviation Law,* 21 Notre Dame L R 143 (March 1946) (providing an example of how ad coelum was interpreted at the time of the Chicago Convention). For another formulation of the Roman maxim, see Brian F. Havel, *Beyond Open Skies: A New Regime for International Aviation* 99 n 3 (2009).
22 See Lashbrook, 21 Notre Dame L R at 143 (cited in note 21).
23 See, for example, *Hinman v Pacific Air Transport,* 84 F2d 755, 758–59 (9th Cir 1936) (providing an example of this phenomenon in the modern context).
analogy, the sovereign nation is the property owner, and only it can legitimately
govern the usage of the skies above its lands. Even after assenting to the
Chicago Convention, every state has to make the autonomous decision as to
"which extent, by whom and when its airspace is used."24

Despite the passage of time, ICAO still exists to affirm those sovereign
rights under its Chicago Convention responsibilities.25 In 2005, ICAO member
nations formally amended their agreement to update ICAO's vision and mission
statement.26 Today, ICAO is organized as a specialized agency of the UN under
the Economic and Social Council.27 ICAO provides for uniform civil aviation
regulation and affirms the sovereignty of each signatory nation's skies.28 ICAO's
regulatory jurisdiction does not include air traffic control management or
integration. Currently, ICAO has been assented to by 190 of the 192 UN
member states.29 Most importantly, for these nations, ICAO establishes
international air measurement standards, international airport codes, and
baseline regulations for air transport.30 Further, in recent years, ICAO has
assumed a role in environmental regulation.31 While aviation is excluded from

24 Bartlik, The Impact of EU Law at 3 (cited in note 9) (outlining the "eight freedoms in international
air law," all of which are premised on state sovereignty).

25 For a broad overview of ICAO's modern goals and role in the regulation of international air
space, see ICAO, Strategic Objectives 2005–2010, online at
further details on ICAO's current power, see generally Ludwig Weber, International Civil Aviation

26 For details, see Ruwantissa Abeyratne, Aeropolitics 263 (Nova 2009). For a general history of
European aviation since the Chicago Convention, and that of European flag carriers in particular,
see generally Hans-Liudger Dienel and Peter Lyth, eds, Flying the Flag: European Commercial Air
Transport since 1945 (St Martin's 1998). For the statute's 2006 revision, see Convention on
International Civil Aviation (2006), Doc 7300/9 online at

27 United Nations Charter (1947) Art 7 (1948) (defining the Economic and Social Council, which
allows for subsidiary organs to be created under the UN umbrella; this is the authority under
which ICAO was incorporated), See also Abeyratne, Aeropolitics at 265 (cited in note 26) ("ICAO
is the specialized agency of the United Nations").

28 Chicago Convention, Art 1 (cited in note 17).

29 ICAO, Member States, online at http://www.icao.int/cgi/statesDB4.pl?en (visited Apr 13, 2011).
For details on the UN's 192 member states, see United Nations, Member States, online at

30 See, for example, Milde, ICAO at 156-64 (cited in note 13) ("When aircraft cross the national
boundaries they must be assured of uniform standards for personnel training and licensing, rules
of the air, units of measurement, certification of airworthiness, aeronautical communications,
characteristics of airports, aircraft operation, and many other aspects.").

31 Id, at 198 ("E]nvironmental protection is gradually becoming one of the top priorities in the
work program of ICAO.").
the Kyoto Protocol, recent ICAO responsibilities include the establishment of commensurate environmental standards for air traffic.32

Notably absent from the Chicago Convention or its subsequent revisions are any ICAO ATM responsibilities, any role in coordinated safety or navigation, and any meaningful disaster investigation role (insofar as it is limited and typically unused).33 However, one of ICAO's more narrowly-tailored responsibilities, under a meteorological observation and data collection function, is to lead the development of the Volcanic Ash Advisory Centers (VAAC).34 These centers are data-collection offices, generally housed within sovereign meteorological offices, which have the specialized task of monitoring volcanic eruptions and the subsequent ash plumes.35 The London branch of the VAAC, for example, is housed within the offices of the UK's key governmental weather monitor, the so-called Met Office, but also provides ICAO-mandated services as an outpost for the monitoring of volcanic ash in the North Atlantic. This sort of dual role is common to the VAAC infrastructure—there are eight other VAAC outposts in, among other locations, Tokyo, Montreal (the headquarters of ICAO), Washington DC (where VAAC is housed in an office of the US government's meteorological service, the National Oceanic and Atmospheric Administration (NOAA)), and others, all established under ICAO and the UN's meteorological monitoring mandate.36

Despite these seemingly modest Chicago Convention goals, at the time of its establishment, ICAO in reality saw itself as, perhaps, an all-encompassing regulator of the skies, under Article 55(a) of its charter.37 Article 55(a) allowed

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32 See, for example, ICAO, Environment Branch, online at http://www.icao.int/icao/en/env2010/index.html (visited Apr 13, 2011) (“In 2004, ICAO adopted three major environmental goals, to (a) limit or reduce the number of people affected by significant aircraft noise; (b) limit or reduce the impact of aviation emissions on local air quality; and (c) limit or reduce the impact of aviation greenhouse gas emissions on the global climate.”). See also ICAO Air Transport Bureau, Environment Branch: Aircraft Engine Emissions, online at http://www.icao.int/env/see.htm (visited Apr 27, 2011) (“International aviation emissions are currently excluded from the [Kyoto Protocol] targets.”).

33 Chicago Convention, Art 26 (“[I]n the event of an accident to an aircraft of a contracting State occurring in the territory of another contracting State... procedure... may be recommended by [ICAO].”).


35 See International Airways Volcano Watch Operations Group Home Page, online at http://www2.icao.int/en/anb/met-aim/met/iavwopsg/Pages/default.aspx (visited Apr 16, 2011)

36 Id.

for ICAO to set up regional subsidiaries to manage regional air transport issues. Instead of developing a global infrastructure under this power, however, various intergovernmental bodies have been established outside of ICAO. Not strictly a part of ICAO, but also not entirely legally separate, these regional organizations include the European Civil Aviation Conference (ECAC), established in 1954. Regional bodies like the ECAC maintain this intermediate status with a regional secretariat housed on the premises of a regional office of ICAO, but at the same time, the time costs are borne by the “regional body itself” and not ICAO. Similar to ICAO, its parent, ECAC, does not provide for any major operational ATM services.

B. Eurocontrol and the Development of a Modern Air Traffic Management Infrastructure

The UN’s establishment of ICAO created a baseline of regulation over global airspace and established (or, rather, affirmed) the right of a sovereign to its airspace, yet it did so while imbuing ICAO with few proactive responsibilities. In contrast, European nations have carved out many more substantive, operational powers for regional regulation of their own airspace. This is best viewed as a manifestation of a sort of federalism, in which, at a global level, airspace is regulated only in very specific situations with broad, clearly delineated rules and standards. However, at the continental or regional level, more ongoing regulatory power is delegated to multilateral bodies.

Because of the number of small countries within a relatively small air mass (twenty-seven countries divided among a continent roughly the size of the US Midwest) and the fact that most of them are major air traffic destinations, Europe’s skies are some of the most crowded in the world, and they face tremendous long-term capacity challenges. Flights traveling between nations or over Europe need to switch repeatedly between small countries’ air traffic

38 Id (discussing the intermediate status of EACA and similar regional bodies).
39 See Betsy Gidwitz, The Politics of International Air Transport 89 (Lexington 1980).
controllers, creating additional transition points between controllers and thus, at least the possibility of more room for error.  

Europe's regional regulation of transportation and air transport stretches back to the beginning of European regulation itself. The Treaty of Rome established the European Economic Community (EEC) in 1957 as part of the Common Transport Policy. Later, the EEC established Trans-European Networks (as a part of the Single Market policy of the late 1980s) and further consolidated its regulatory approach to uniform transportation throughout Europe. The multilateral air traffic services coordinator, which executes much of the European Commission's policy, is Eurocontrol—formally known as the European Organization for the Safety of Air Navigation. Eurocontrol is an international organization, and began from the same theoretical roots as much of Europe's multilateral air regulation: as Eurocontrol has stated, with numerous nations "between which there are substantial differences in terms of equipment, capabilities, funding etc.", a powerful regulator is required to harmonize standards and provide unified ATM services and communication.

Six original nations (Belgium, France, the Federal Republic of Germany, Luxembourg, and the Netherlands, with the UK and Ireland soon to follow) established Eurocontrol as a separate international organization, independent of the formal Treaty of Rome structure. The agreement codifying its founding, the 1960 Eurocontrol International Convention relating to Cooperation for the

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44 An appropriate analogy would be to the twenty-one route centers throughout the US, all coordinated by the US Federal Aviation Administration (FAA). As a plane flies from one to another, it switches radio contact to a new tower. Europe, however, has seventy-five route centers, with an average of three per sovereign. Overall, only one European route center is actually managed by Eurocontrol (the UAC center, which manages the airspace of Belgium, Netherlands, Luxembourg, and parts of Germany) while an additional Eurocontrol center is being constructed in Vienna for ATM in Austria, Bosnia-Herzegovina, Croatia, Czech Republic, Hungary, Italy, Slovak Republic and Slovenia.

45 The second so-called "Treaty of Rome" provided for the establishment of an integrated European atomic regulatory body. See generally Treaty Establishing the European Economic Community Art 3(e), 298 UN Treaty Ser 11.


48 Majid, Legal Status at 91–95 (cited in note 15).
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Safety of Air Navigation (1960 Agreement),\(^{49}\) was to last for an initial term of twenty years.\(^{50}\)

During its early years under the 1960 Agreement, Eurocontrol was charged with two responsibilities: to provide upper air traffic management services for its member nations\(^{51}\) and to collect route charges from airlines, which were then remitted back to its member nations. It was thought that because nations like Belgium or Luxembourg are so small, establishing separate air traffic centers within their borders would be inefficient. In advance of the first goal, Eurocontrol established the Maastricht Upper Area Control Centre (UAC) in 1972 as the first air traffic control center to manage the air traffic of more than one state—it covered Belgium, Luxembourg, the Netherlands, and northern Germany. However, early on, it was Eurocontrol’s route charge collection role that attracted the most criticism, and failed legal challenge, from private airlines.\(^{52}\)

Eurocontrol’s role continued to evolve in parallel with the development of technology enabling the current globalized air traffic environment.\(^{53}\) By January 1986, when a new Eurocontrol agreement came into force to replace the original 1960 Agreement, the focus of its regulation was no longer simply upper-air coordination, but also to serve as a mechanism to further European integration and a single system for European air traffic control.\(^{54}\) But by the 1990s, the airspace was as crowded and disorganized as ever.\(^{55}\) The brutal reality, according to Eurocontrol, was that “[o]ne-third of all flights experienced delays, with an average delay of 20 minutes and delays of several hours being not uncommon during peak traffic periods.”\(^{56}\) Thus, in 1997, another revised Eurocontrol agreement came into force, this time expanding Eurocontrol management over further aspects of European flight, including takeoffs and landings, formal rulemaking regulatory power in the EC, and, most critically for its legality,


\(^{50}\) Eurocontrol’s history and legal authority was explored in Majid, Legal Status at 91 (cited in note 15). See also Eurocontrol Home Page, Eurocontrol Official History (Aug 27, 2004), online at http://www.eurocontrol.int/dossiers/50-years-achievements (visited Apr 13, 2011).

\(^{51}\) With the rise of jet-powered civilian aircraft, Eurocontrol’s earliest responsibility included coordinating airplanes flying in the zone above twenty thousand feet altitude, an airspace at which, prior to this time, only military planes would travel. See Majid, Legal Status at 91 (cited in note 15).

\(^{52}\) Id at 93.

\(^{53}\) Id at 91–95.

\(^{54}\) Id at 94.

\(^{55}\) Dempsey, European Aviation Law at 138 (cited in note 9).

\(^{56}\) Id.
setting forth the formal accession of the European Community (now the European Union (EU), under the Treaty of Lisbon) to Eurocontrol. Accordingly, Eurocontrol has grown from a small agency handling air traffic control at a specified altitude (and to sovereigns who specifically request Eurocontrol ATM services) to an agency to which some countries delegate not only route management but also ATM.

Eurocontrol exercises this power through its Central Flow Management Unit (CFMU), which, while not serving a practical European air traffic control role, plays a broader coordinating role in assisting air traffic managers in route guidance, crisis management, utilization of capacity, and congestion problem solving. The major operational role of Eurocontrol is vested in CFMU, given its larger traffic coordination role. During the Icelandic crisis, the CFMU became the central problem solver in assisting sovereign air traffic managers making cancellation decisions, and became a hub for all European multilateral crisis management while the ash cloud was in the air.

C. Single Sky Reforms and the Role of Nations in the European Vision

Under the above framework, Europe (and the world) has gone through tremendous change in terms of how airlines are governed and regulated. The twenty-first century has brought a new world of air transport, and the European community has developed a series of regulations intended to bring European air travel regulation to a new level of integration.

Eurocontrol is unique as compared with most other air regulatory agencies around the world by serving a limited ATM services role, yet at the same time

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58 See Eurocontrol Home Page, 2010 and Beyond, online at http://www.eurocontrol.int/articles/2010-and-beyond (visited Apr 13, 2011) (detailing the future vision for Eurocontrol's role in air traffic management).


60 See Section III.C.

61 In the context of European deregulation, airlines mirroring Southwest in the US have risen, the most notable of which is Ryanair. For a popular account of their rise under the modernization of European air regulation, see generally Siobhán Creaton, Ryanair: How a Small Irish Airline Conquered Europe (Aurum 2004). For an academic consideration of the modern European air transport business, see generally Kenneth Button, Wings Across Europe: Towards an Efficient European Air Transport System (Ashgate 2004).
also playing a broader regulatory role. The Single European Sky (SES-I) reform packages of the last decade are the clearest evidence of the effect of the most recent technological advances in aviation on the evolution of European air traffic management and Eurocontrol’s dual role. In November, 2000, recognizing the need for a more advanced pan-European ATM system, a high-level group of the European Commission’s Directorate-General for Energy and Transport delivered a report on the future of integrated ATM in the EU, setting out a variety of goals for the future and a twenty-year timeframe for their implementation.

After Eurocontrol presented, and the parties negotiated and approved the SES-1 package of reforms, it officially came into being in 2004. The SES-I declaration of policy evokes the broad governance of ICAO, as it was said to have been developed “in line with the principles laid down by the 1944 Chicago Convention.” However, the changes implemented by Eurocontrol under the actual plan seem inconsistent with what the Chicago Convention actually meant (namely, a member state’s full retention of its sovereignty). As Eurocontrol itself says, “Europe eliminated frontiers on the ground with the 1985 single European market. It dismantled economic frontiers with the 1990 economic and monetary union. It is a view widely held that borders in the sky should not exist.” This is obviously a reflection of the European Commission’s efforts, at the time, to integrate Eurocontrol, then a separate multilateral organization, into the European Commission and to take control over all air traffic management in Europe—beyond high altitude coordination and into day-to-day civil aviation management.

Given the proposal’s breadth, Eurocontrol designed the original SES-I regulation for implementation in phases. The short term goals were to establish a definition of the actions to be taken and their scope, the accession of the

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62 Though obviously serving only one nation, the FAA is structured in a similar way, imbued with both ATM and regulatory responsibilities.


European Commission to Eurocontrol (which was, at that time, still an independent entity), improved civil/military cooperation, and support to national safety authorities for implementation of interim safety regulations. During the so-called medium term of implementation, goals included establishment of system optimization, organization to monitor system capacity, implementation of single European airspace, and proposals for enlargement of the European Aviation Safety Agency (EASA) (the European air safety regulator, with an exclusive safety focus, as opposed to Eurocontrol’s divided mandate) to cover future ATM safety. Finally, the long-term goal of the project was to set out EASA responsibility for safety regulation of ATM, relocate military operations (to alternate altitudes) through “suitable incentives,” and to introduce “new operational concepts for integrated management of airspace.”

Ultimately, this timeline of reforms faced persistent delays and implementation only began in 2004, with the same consistent goals—key among them being the establishment of a strong EU-wide regulator, “increasing synergy” between the EU’s regulators and Eurocontrol, and the development of new technologies. This technological project, the Single European Sky ATM Research (SESAR), is intended to serve as the practical method by which European skies are integrated under a unified ATM technology. SESAR involves transitioning from using ground and radio communications in air traffic control to satellite and global positioning system technology.

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68 Id at 38.
70 SESAR Joint Undertaking Home Page, online at http://www.sesarju.eu/about (visited Apr 13, 2011).

The GALILEO satellite radio navigation system, launched by the [EU] and the European Space Agency, is the first worldwide satellite positioning and navigation system specifically designed for civil purposes. It will not only complement the current (US military) GPS system, but also offer state-of-the-art services with increased performance in terms of accuracy, continuity and availability in comparison to today’s satellite navigation systems. The development and deployment of the GALILEO programme is fully financed by the European Commission (€3.2 billion) (including the construction and launch of thirty satellites and the setting up of the ground-based components) and is scheduled to start operating from 2013 onwards. Each aircraft in the Single European Sky will have to be equipped with new positioning capabilities: more precise and available everywhere even when there is no ground support (international water). In this sense, Galileo is the perfect candidate. The European Aviation System is moving towards a better performing environment and SESAR will play a key role in achieving the Single European Sky. For its part, GALILEO will provide an improved and
European version of NextGen, which is the US version of the same ATM radio-to-satellite policy. In 2010, Eurocontrol (under the mandate of the SES-I package) and the US Federal Aviation Administration (FAA) agreed to jointly pursue the SESAR/NextGen technology update.72

The broad scope of the technological mandates of the SES-I reforms would give rise to the suspicion that it would some day supplant the current system of sovereign ATM. However, regulation at the national level allows sovereign governments to retain the ability to establish their own independent safety and airline regulatory bodies. Ultimately, sovereigns have established their own crisis management, safety, and meteorological offices, and their own domestic flight safety agencies that provide the final say on whether to cancel flights during a given crisis.

Despite this retention of decision-making power, all sovereigns tend to follow in lockstep behind the guidance of Eurocontrol—particularly as it applied to the Icelandic crisis. Another major impediment to the retention of sovereignty under the Single Sky policy is that by delegating the synchronization of civil and military aircraft to Eurocontrol, sovereign European nations will essentially get out of the airspace management business, and, at least in the short run, will lose the ability to manage their own skies. This has caused some consternation among sovereigns, and has ultimately led to the delay of implementation of functional airspace blocks and the majority of post-Icelandic crisis reforms under SES-II.

This European ATM framework—from the broad regulations of ICAO, Eurocontrol and broad flow management role, EASA and its safety oversight, all the way down to the individual decision-making power and the ATM role of sovereigns—was exactly the framework in place during the Icelandic volcano crisis of 2010.

III. THE FRAMEWORK IN MOTION: THE ICELANDIC VOLCANO

The 2010 Icelandic volcano crisis provides an excellent lens through which to view how each sovereign and multilateral air traffic regulator set forth in Section II responded in a crisis setting. Section III.A provides background on the volcano and exactly how its eruption had the potential to disrupt air traffic over Iceland, Europe, and the rest of the world. Section III.B describes the

height of the crisis: the April 14th ascent of an ash cloud, which ended up resulting in the cancellation of European flights flown under instrument flight rules. Section III.B will also review the response by both multilateral and sovereign bodies at this point in the crisis. Section III.C reviews the ash cloud’s appearance, and the middle period of the crisis. Section III.D analyzes the crisis in light of the legal framework set out in Section III, and the response of other sovereign and multilateral ATM entities. As some observers have said, the volcano crisis undermined the idea of Eurocontrol’s powers by making it clear that it played no more than an advisory role in the airspace closures of April and May 2010. Yet whether this is true or not requires a more thorough analysis of the source of decision-making and its rationale for doing so during the height of the crisis.

A. The Beginnings of a Crisis

Given the profundity of its recent impact on European fliers, it may be surprising to learn that Eyjafjallajökull is one of the smaller ice cap volcanoes in Iceland’s southern region. Throughout history, it has been overshadowed by other nearby volcanoes, and prior to 2010, Eyjafjallajökull’s last eruption took place between 1821 and 1823, causing relatively minor damage. Despite this seemingly minimal past activity, the volcano is continuously monitored through evaluations of seismic activity and visual inspection by the Icelandic Meteorological Office (IMO). The IMO is responsible for “monitoring natural

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73 Kenneth P. Quinn, Editor’s Column, 23 Air & Space Law 3 (2010) (“[I]n mid-April [2010], for almost a week, national civil aviation authorities closed huge swaths of European airspace based on incomplete knowledge of the effects of Icelandic volcanic ash—belying the notion that EUROCONTROL actually controls European airspace.”).

74 The volcano immediately to Eyjafjallajökull’s east, Katla, is substantially larger and has experienced more frequent eruptions: its last eruption took place in 1918. It is widely thought that eruptions of Eyjafjallajökull are a harbinger of a Katla eruption. As of this writing, scientists are actively monitoring Katla for seismic activity that could be evidence of a future eruption even more dangerous than Eyjafjallajökull’s. However, it is Laki, another Icelandic volcano, that has caused the most damage in Icelandic history: when it erupted in 1783, a resulting famine killed a quarter of Iceland’s population and its atmospheric effects through the release of sulphurous gases were thought to have devastating consequences on livestock and crops as far as mainland Europe and atmospheric effects in the nascent United States. See Gunnar Karlsson, The History of Iceland 177-78 (2000). See also Roger Boyes, Iceland prepares for second, more devastating volcanic eruption, (The Times Mar 21, 2010), online at http://www.timesonline.co.uk/tol/news/world/europe/article7070239.ece (visited Apr 13, 2011). For a scientific perspective, see Ricardo M. Trigo, M.M. Vaquero, and R.B. Stothers, Witnessing the impact of the 1783-84 Laki eruption in the Southern Hemisphere, 99 Climactic Change 535, 538-39 (2010).

75 See Boyes, Iceland prepares (The Times, Mar 21, 2010) (cited in note 74).

76 Icelandic Met Office Home Page, online at http://en.vedur.is/ (visited Apr 13, 2011).
hazards in Iceland and conducting research in related fields, as well as participating in international monitoring and research.\(^{77}\) In December 2009, the IMO published a notice of increase in seismic activity during the years 2006–2009.\(^{78}\) Typically, increases in seismic activity on a volcano serve as a warning sign for volcanic eruption. Even so, the bulk of the threat posed by Eyjafjallajökull would typically only affect the local area around the volcano.\(^{79}\) Because the volcano is actually under a glacier, any lava that flows from the volcano will melt ice in the surrounding area, giving it the potential to cause tremendous flooding in the region.\(^{80}\)

Nevertheless, the IMO participates in international monitoring, by delivering data regarding all volcanic activity—regardless of the volcano’s historical legacy—to the London VAAC.\(^{81}\) As discussed in Section I above, the VAAC exists as the primary agency under the ICAO framework for worldwide volcano monitoring.\(^{82}\) The London VAAC also developed and manages the key formula, the Numerical Atmospheric-Dispersion Modeling Environment (NAME), which it uses to evaluate the extent of the potential harm to aircraft by monitoring the particle density in the air during a crisis, and stipulating limits for safe air travel.\(^{83}\) At the time of the crisis the London branch of the VAAC was responsible for monitoring all northeast Atlantic volcanic activity.\(^{84}\)

The so-called “effusive” phase of the Eyjafjallajökull eruption began on March 20, and lasted until April 12. During this time, the consequences of the


\(^{79}\) See, for example, Oddur Sigurosson, et al, *Flood warning system and jökulhlaups* (Icelandic Met Office), online at http://en.vedur.is/hydrology/articles/nr/2097 (visited Apr 13, 2011).

\(^{80}\) See, for example, Icelandic Met Office, *Increased glacial melt due to volcanic ash*, online at http://en.vedur.is/hydrology/articles/nr/2110 (visited Apr 13, 2011).

\(^{81}\) See VAAC Home Page, online at http://www.metoffice.gov.uk/aviation/vaac/ (visited Apr 13, 2011).

\(^{82}\) See Section IIA; notes 33–34 and accompanying text.

\(^{83}\) The UK’s Met Office originally developed the NAME model to track the movement of radiation in the wake of the 1986 Chernobyl disaster, and even today is not limited to volcanic ash or nuclear fallout, but rather any particulate-form threat to air travel. See VAAC, *Volcanic ash forecasting: How we work* (UK Met Office), online at http://www.metoffice.gov.uk/aviation/vaac/forecasting.html (visited Apr 13, 2011).

\(^{84}\) See Section III.B.
volcano were felt primarily locally in Iceland. On March 22, glacial flooding began in the areas immediately around the volcano, requiring evacuations of villages in the vicinity of the volcano. Both Icelandic and European authorities monitored the effusive phase of the volcano. There is no evidence that at this point in the eruption either Eurocontrol or other sovereign air traffic organizations were aware of the impending risk to aircraft.

B. The Ash Cloud’s Ascent

The volcanic ash cloud that rose into the sky on April 13 as a result of the eruptive phase of the volcano, though taking many by surprise, was not a rarity in history. Volcanic ash clouds, as may be expected, accompany any volcanic eruption. As happened during this crisis, a volcanic ash cloud is not always visible to the naked eye, and comprises so-called “abrasive particles,” including glass, sand, and other volcanic debris.

With the ICAO-empowered London VAAC monitoring, Eyjafjallajökull’s ash cloud rose as high as thirty thousand feet into the sky—a critical height at which modern jet aircraft travel—and entered directly into an unexpectedly

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85 Contrary to the standard popular image of a volcano exploding magma into the sky, an effusive eruption results primarily in the flow of lava outside of fissures in the sides of the volcano—in the case of a glacial volcano, this can have the result of mass flooding. For more details, see US Geological Survey, Effusive Eruption, online at http://volcanoed.usgs.gov/images/pglossary/effusive.php (visited Apr 27, 2011). In fact, flooding was the gravest official concern during the early effusive phase of the Eyjafjallajökull eruption. See Caistor children flee as Iceland volcano erupts (Grimsby Telegraph Mar 22, 2010), online at http://www.thisisgrimsby.co.uk/news/Children-flee-lives-volcano-erupts/article-1931098-detail/article.html (visited Apr 13, 2011) (highlighting the evacuation of 500 people in the area around the volcano).


87 Eurocontrol, European ATM network operations mobilised by the volcanic ash crisis, 3 (May 15, 2010), online at http://www.cfmu.eurocontrol.int/cfmu/gallery/content/public/news_2010/volcanic_ash/baa/volcanic_basis_pdf_low%20.pdf (visited Apr 14, 2011) (stating that on the day the explosive eruption began, a Eurocontrol tactical flow management officer was “called by the current supervisor on duty to say: ‘we have something for you; there is a volcanic eruption in Iceland’. ‘I thought they were joking’”).

88 In fact, the Icelandic ash cloud was not even the only one of 2010. In November, the eruption of an Indonesian volcano, Mount Merapi, created an ash cloud that forced President Obama to modify his travel plans on Air Force One. See Anggoro Rullyano, Flights to resume to Indonesia after volcanic ash cloud (Timesofmalta.com Nov 9, 2010) online at http://www.timesofmalta.com/articles/view/20101109/business/flies-resume-to-indonesia-after-volcanic-ash-cloud (visited Apr 14, 2010).
stable jet stream. While in the sky, an ash cloud causes a “sandblasting” effect due to the composition of the cloud, resulting in irreparable harm to jet engines. In 1982, a British Airways 747 traveling over Indonesia lost power in all four of its engines simultaneously while traveling directly through an ash cloud. Fortunately, it was able to make an emergency landing and tragedy was averted. Just months later, a second flight lost two of its engines in a similar cloud. After that point, airline regulators began to look into volcanic ash as a legitimate threat to air travel, and in line with its safety and standard-setting responsibilities, ICAO developed a series of guidelines for dealing with volcanic ash in flight. ICAO has remained in this role consistently since then and in 2007 published its most recent volcanic ash advisory memo.

C. The Crisis In Earnest

The crisis itself can be divided into two halves, fairly neatly arranged by month: first the initial April ash cloud, and then its May resurgence. Setting off the initial phase, the London VAAC’s reported to Eurocontrol early on April 14 that the volcano had transitioned from effusive to explosive, and the ash cloud began to rise into the air. This was the moment the volcano began to impact non-Icelandic European travelers and airlines, and this was when the decision was first made to restrict airspace. The explosive phase had begun, and less than twenty-four hours later, the ash cloud traveled the 900 miles toward Northern Europe. Once Eurocontrol received the information from London, it moved to communicate with the sovereign air traffic controllers and closed the airspace in Scotland, northern England, and over parts of Norway. While Eurocontrol conveyed this information, it was actually the Norwegian national ATM leadership that made the first decision to close its airspace. While, overall, the number of European flights was only slightly down from the previous week’s traffic, Eurocontrol began to set in motion its more

89 Contrary to many laypeople who thought that visibility issues led to flight cancellations, the safety concern was actually about engine operability issues.

90 The Icelandic ash cloud should also be distinguished from a volcano’s main eruption plume, flying directly through which can be tremendously hazardous to aircraft, particularly in comparison with most ash clouds.

91 For details on the difference between effusive and explosive eruptions, see note 85.


93 Id.

94 Id.
expanding crisis management response.\(^95\) By the end of the day on April 14, Eurocontrol implemented its first crisis regulations, mostly a simple transmission of guidance from the London VAAC, which quickly took the lead in the crisis.\(^96\) As it became clear that the ash cloud would not be moving quickly over Europe, Eurocontrol began a policy of communicating with the numerous sovereign ATM officials every few hours. These regulators were then empowered to make cancellation decisions on their own based on Eurocontrol guidance.

The following day set off a week of substantial cancellations. On April 15, the total number of flights through European airspace was at 20,842, down from 28,578 the week before.\(^97\) London’s Heathrow Airport and all of UK airspace was closed based on decisions made by the UK’s Civil Aviation Authority (CAA), with only very minor exceptions.\(^98\) Additionally, exacerbating panic concerning the crisis, a Finnish military test flight showed some evidence of engine damage from volcanic ash, leading to more widespread cancellations in the Scandinavian countries, in particular.\(^99\) For six consecutive days, the UK airspace, with some slight exceptions in southern England, was closed. Cancellations stretched beyond the UK, east to Germany and south as far as Italy.\(^100\) By April 18, flights in the UK continued to be canceled, and in light of major dislocations and uproar, the UK government held a major press conference, stating that the skies would only be opened when the conditions were again deemed to be safe.\(^101\)

Given this delay and the worldwide headlines betraying a lack of coordination between multilateral regulators, sovereigns, and airlines, the European Commission and its Spanish president took its own step to work

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\(^95\) For a helpful timeline, see Eurocontrol Home Page, *Volcanic Ash Cloud Chronology* (May 2010), online at https://www.eurocontrol.int/articles/volcanic-ash-cloud-timeline-2010-events (visited Nov 28, 2010).


\(^97\) See Eurocontrol Home Page, *Volcano Ash Cloud Timeline—April* (cited in note 92).

\(^98\) See Robert Booth, et al, *Volcanic ash keeps flights across Europe grounded* (The Guardian Apr 17, 2010), online at http://www.guardian.co.uk/world/2010/apr/16/volcanic-ash-air-travel-europe (visited Apr 14, 2011) (detailing the cancellations and a brief 30-minute window in which the Manchester airport was open).


\(^100\) Eurocontrol Home Page, *Volcanic Ash Cloud Chronology* (cited in note 95).

\(^101\) David Brown and David Byers, *UK 'no-fly zone' to last at least another day* (The Times Apr 18, 2010), online at http://www.timesonline.co.uk/tol/news/uk/article7101380.ece (visited Apr 14, 2011).
directly with the VAAC and Eurocontrol's operational unit. These stakeholders agreed on a more individualized nation-by-nation assessment of the risk under the NAME model, which "allowed for a more differentiated assessment of risk from the ash cloud, while still respecting safety concerns." However, the airlines were still restless and upset with the strict governmental "precautionary principle," and did not agree with more conservative governmental particle density requirements. In fact, on the day of the European Commission meeting, April 19, both British Airways and the Dutch airliner KLM flew test flights through the ash cloud in the hopes of convincing the UK government to relax the particle density threshold to be able to get commercial flights back into the air. Finally, on April 20, the UK let planes fly through ash for the first time. Later, on April 21, UK airspace re-opened as the ash cloud began to move away, east and south, towards continental Europe. On this same date, Iceland's southern skies were clear for the first time since the crisis began. Despite the UK's brief respite from closures, Europe's skies remained highly vulnerable to the ash cloud's movements. On April 23, the most cancellations occurred as the ash cloud continued to move south through Europe. Yet by late April, traffic was beginning to seem like it would return to normal—in fact, many media outlets began "wrapping up" their coverage of the crisis at this time and the first phase of the crisis concluded.

However, the media's optimism was short-lived. The UK's permission to allow flying for the end of April was cut short on May 3 when the ash cloud returned yet again and a second wave of cancellations began as the CAA temporarily closed the airspace again over much of the UK. The ash cloud shifted again in early May to cover southern Europe and, on May 9, select

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102 The operational entity within Eurocontrol is the CFMU. See Section II.B.
104 See Andrew Hough, et al, Volcanic ash cloud restrictions 'embarrassing', say airlines (The Telegraph Apr 19, 2010), online at http://www.telegraph.co.uk/travel/travelnews/7605794/Volcanic-ash-cloud restrictions-embarrassing-say-airlines.html (visited Apr 14, 2011). In response, after the daily Eurocontrol press conference, a release was sent out, saying that "in time, it should be possible to move towards an approach in which full discretion is given to Aircraft Operators." See Eurocontrol, Revised approach to air traffic affected by the volcanic ash cloud (Apr 19, 2010), online at http://www.eurocontrol.int/press-releases/revised-approach-air-traffic-affected-volcanic-ash cloud (visited Apr 14, 2011).
105 Interestingly, for the first time during the crisis, Iceland was forced to close its own airports. See Volcanic ash cloud: Iceland closes airports for the first time (The Telegraph Apr 23, 2010), online at http://www.telegraph.co.uk/travel/travelnews/7622585/Volcanic-ash-cloud-Iceland-closes-airports-for-first-time.html (visited Apr 14, 2011).
106 See, for example, Ash flights ban: UK airports permitted to reopen (BBC Apr 21, 2010), online at http://news.bbc.co.uk/2/hi/uk_news/8633597.stm (visited Apr 14, 2011).
airports in Portugal, Spain, and France closed entirely, and sporadic cancellations continued until May 12 throughout the Iberian Peninsula. By late May, the situation continued with fewer cancellations than during the mid-April phase, but with sporadic cancellations, which generally saw the ash cloud morph from a dreaded crisis to more of a source of bureaucratic frustration, in particular, by airlines. Eventually, however, the UK sovereign air regulator enabled the reopening of the skies with a doubling of the acceptable particle limit—something that could have substantially lowered the number of daily cancellations earlier in the crisis.

By the end of May, the last of the European countries fully re-opened their skies. In total, the result of the critical eight-day cancellation in April and the mid-May dislocations included over 100 thousand flights disrupted, 10 million passenger journeys affected, significant financial losses for airlines, and incalculable levels of global commerce interrupted. For every flight cancellation in one country, there was a boomerang effect whereby displaced passengers around the world required accommodations.

Though the immediate ash cloud crisis had long been over, Icelandic scientific officials officially declared the end of the volcanic eruption in October 2010. The volcano remains active, however, and the cooling-off period will take months; until that point, the volcano cannot be considered dormant. As the volcano itself fades from the headlines, the debate over the European air traffic response to this crisis has been pushed to the front page.

107 See, for example, Volcanic ash (cited in note 96).

108 Dan Milmo, Airports re-open after another day of frustration as watchdog relaxes volcanic ash cloud safety threshold (The Guardian May 18, 2010), online at http://www.guardian.co.uk/world/2010/may/18/volcanic-ash-uk-flight-disruption (visited Apr 14, 2011).

109 For a general discussion of the immediate implications of the crisis, see Alemanno, The European Volcanic Ash Crisis at ¶1 (cited in note 2).

110 At one point, after the six-day UK shutdown, cruise ships were sent to Spain to bring back stranded passengers. Volcanic ash cloud: cruise ship diverts to pick up Brits (The Telegraph Apr 20, 2010), online at http://www.telegraph.co.uk/travel/travelnews/7608886/Volcanic-ash-cloud-cruise-ship-diverts-to-pick-up-Brits.html (visited Apr 27, 2011).


112 BBC, Volcanic ash cloud on ‘pause’ (BBC News May 19, 2010), online at http://news.bbc.co.uk/weather/hi/news/newsid_8691000/8691795.stm (visited Feb 24, 2011) ("Only when the volcano has been ‘paused’ for three months will it then be regarded as being dormant.").
IV. EUROPE'S FUTURE UNDER A SINGLE SKY

During the crisis and in its immediate aftermath, calls were made for a solution—any solution—to allow for increased coordination, more effective evaluation of flight safety risks, and a broader, more efficient crisis management mechanism; all in the hope that fewer flights could be cancelled and fewer passengers would be left stranded across Europe in a future air travel crisis.113 As discussed above, at the time of the volcano crisis, SES-I had been implemented, but the second phase had only just passed and was still in the early stages of implementation.114 Therefore, public endorsement of the provisions of SES-II became the default crutch for European leaders looking for a ready-made solution to present to millions of enraged passengers.115

Section IV.A examines the reaction to the crisis from different quarters. Section IV.B looks at the provisions of SES-II, with a current implementation target of 2012. Finally, Section IV.C analyzes the legality of SES-II under the framework set out in Section II.

A. The Blame Game

Virtually no entity associated with air travel during the crisis was immune from media or popular criticism. To some outsiders, the key problem of the crisis was the inability to centrally mandate an airspace closure. Consequently, calls were widespread for further and quicker integration of European airspace into a “single sky” for the purposes of air traffic control and risk management.116 The European Commissioner responsible for air traffic management said, for example, that it was necessary to “fast track the Single Skies package”117 which

114 See Section II.
would align European air traffic management according to "traffic flows rather than national borders."\textsuperscript{118}

Despite these forceful calls for accelerated SES-II implementation, blowback against this proposal indicated that the threat to air travel from volcanic ash or other future disruptions would not be alleviated by additional supranational coordination of air traffic control.\textsuperscript{119} Airlines themselves desired the ability to make their own risk calculations, on the premise that they had the technological capabilities to test their own planes, and determine for themselves at what particle density they could safely fly.\textsuperscript{120} This was seen clearly in the preemptive KLM and British Airways test flights (though these were conducted with permission granted by state authorities). During the crisis, one admired model for future regulation was the US's, which allows individual airlines to make decisions to fly based on recommendations from the FAA.

Because of the unpopularity of the precautions taken by European multilateral and sovereign authorities during the crisis, the near-instantaneous calls for more rapid SES-II adoption and additional integration were not well received.\textsuperscript{121} Yet it was somewhat understandable that in the aftermath of the crisis European authorities would instantly defer to the Single Sky expansion as a default solution to the volcano crisis. Because EU integration does not yet extend to air traffic control, "[o]nly 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 ban."\textsuperscript{122} Many executives and lawyers think that it is necessary for sovereign governments to surrender any power over ATM to multinational authorities to facilitate superior service.\textsuperscript{123} The airline industry,

\textsuperscript{118} See, for example, Bruno Waters and Andrew Hough, Iceland volcano air restrictions are excessive, says European Commission (The Daily Telegraph Apr 19, 2010), online at http://www.telegraph.co.uk/travel/travelnews/7607216/Iceland-volcano-air-restrictions-are-excessive-says-European-Commission.html (visited Aug 31, 2010) (citing concerns over the effect of ash clouds on jet engines).


\textsuperscript{120} See Leo Cendrowicz, After the Ash: What Europe Can Learn from the Crisis (TIME Mag Apr 22, 2010), online at http://www.time.com/time/world/article/0,8599,1983806,00.html (visited Apr 14, 2011).

\textsuperscript{121} See, for example, Quinn, 23 No 1 Air & Space Lawyer at 3 (cited in note 73) (recommending that sovereign governments must "cede competency to transnational accident and air traffic control authorities"). For the statement of Carolyn McCall, CEO of European discount airline EasyJet on Fiscal Year 2010's Financials, see EasyJet FY10 Profit Rises (The Financial Nov 16, 2010) online at http://www.financechannel.com/news_flash/Travel_Biz_News/75639_EasyJet_FY10_Profit_Rises_ / ("The closure of European airspace because of volcanic ash and the wide scale air traffic control disruption across Europe have highlighted some of the weaknesses of the current policy
however, strongly believed that aircraft should have been flying sooner than national authorities would permit. Once the April ban had been in place for three days, the cries for a re-opening grew louder.\footnote{On April 24, Richard Branson, the head of Virgin Atlantic, “condemned flight restrictions as an ‘overreaction’ and blamed the UK government for grounding flights for six days when experts said there was no danger.” Later, during the second phase of the UK’s cancellations in May, Branson again went to the press with substantial criticisms of how the UK in particular was dealing with the crisis as compared with the rest of Europe. See \textit{Volcanic ash: timeline of the flight disruption} (The Telegraph May 16, 2010), online at http://www.telegraph.co.uk/travel/travelnews/7730428/Volcanic-ash-timeline-of-the-flight-disruption.html (visited Apr 14, 2011).}

The International Air Transport Association (IATA), the airline industry’s advocacy group, was also strongly against the airspace closures by the time it became clear that sovereign authorities were improperly quantifying the ash risk. In late May, when the UK airports were closed for the second time, the organization’s head stated,

Numbers show that the current system is flawed. . . . Over 200,000 flights have operated in European airspace identified by the VAAC . . . as having the potential presence of ash. Not one aircraft has reported significant ash presence and this is verified by post-flight aircraft and engine inspections. We must back the theory with facts gathered by aircraft to test ash concentration.\footnote{See Perry Flint, \textit{IATA slams European governments, regulators over airspace closures} (Air Transport World May 19, 2010), online at http://atwonline.com/international-aviation-regulation/news/iata-slams-european-governments-regulators-over-airspace-clos (visited Apr 14, 2011). At the same time, the IATA was strongly in favor of sovereign decisions to mitigate the closures by relaxing their particle density requirements for flight, essentially enabling airlines to fly into areas previously deemed to have reported ash. Id.}

One may draw a conclusion that the IATA was then in favor of a sovereign air solution to the crisis, but it was not. The same IATA leadership blasted individual states for using the same data as those with open airports to close their airspace.

The UK government, in turn, blamed the engine manufacturers for specifying levels of particle density that were too conservative.\footnote{See \textit{Volcano ash flight ban ‘might have ended sooner’} (BBC May 3, 2010), online at http://news.bbc.co.uk/2/hi/business/8654559.stm (visited Apr 14, 2011).} European airlines lauded the US system of air traffic management in the aftermath of the crisis as a solution: to defer questions of flying conditions to the individual framework. We are supporting efforts to put in place a European framework to deal with future crises.”) (visited Apr 14, 2011). See also Jon Robinson, \textit{How we learnt from the ‘unique’ experience of the volcanic ash cloud disruption} (Nottingham Post Dec 31, 2010), online at http://www,thisisnottingham.co.uk/news/learnt-unique-experience-volcanic-ash-cloud-disruption/article-3051653-detail/article.html (visited Apr 14, 2011).
private carriers in possession of all the data they can have.\textsuperscript{127} After all, it was these entities that ended up spearheading many of the test flights and making their own determinations of the safety. This is the model used by the FAA in the US, and it could lead to a more appropriate response. The airlines would have the best incentives to weigh most effectively safety issues against the desire to stem cancellations.

Others argued that a key problem with future integration as a cure-all is that Eurocontrol itself is not immune from massive technological problems, which are amplified when it serves as a single ATM provider for large swaths of Europe.\textsuperscript{128} In sum, the reaction to the crisis was swift and varied, from official pronouncements in favor of rapid Single Sky implementation, to those who placed the blame on Eurocontrol, to those who blamed the countries themselves for a slow crisis response and an inability to properly balance the disruption to passengers with the need for a focus on safety in air travel.

B. The Second Phase of Single Sky

The nations, which collaborated to pass SES-I in 2004, intended for gradual implementation as various stakeholders developed their institutional competencies and nations became more comfortable with the delegation of authority. Eventually, SES-I was to be supplanted by SES-II.\textsuperscript{129} In the aftermath of the volcano crisis, and in the face of withering criticism, early implementation of SES-II became the go-to reform touted by EU officials as a solution to future air traffic management crises.\textsuperscript{130} SES-II, announced by the European

\textsuperscript{127} According to one risk management firm, critics "have compared the alleged [European response] less than favorably to the American model in which authorities make available to individual airlines an outline of prevailing conditions, leaving the burden on them to decide whether or not to fly." \textit{iJET Intelligent Risk Systems, Press Release, Looking for a Silver Lining in Europe's Ash Cloud} (May 2010), online at \url{http://www.ijet.com/european_ash_cloud/SR-0392-01 Looking for a Silver Lining in Europe\%27s Ash Cloud.pdf} (visited Apr 14, 2011).

\textsuperscript{128} See, for example, \textit{Air Traffic Control Equipment Failure Disrupts Flights Over Northern Europe} (Aug 20, 2010), online at \url{http://nycaviation.com/2010/08/air-traffic-control-equipment-failure-disrupts-flights-over-northern-europe/} (visited Apr 14, 2011).


\textsuperscript{130} \textit{European Union Press Release, European measures to minimize disruption caused by volcanic ash} (May 21, 2010), online at \url{http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/601&format=HTML&aged=0&language=en} (visited Apr 14, 2011) ("The improved approach [policies supported by SES-II] will offer Member States greater flexibility in deciding how to manage their airspace, allowing for less flight disruption while still ensuring the highest level of safety.").
Commission in June 2008\textsuperscript{131} and adopted by the European Council in October 2009\textsuperscript{132} provides for a wholesale revision of SES-I policies as under the original high-level report.\textsuperscript{133} At the broadest level, the official goals of the new package include cutting the cost of flying in half, decreasing the environmental impact of flight by 10 percent through more efficient use of airspace and de-carbonization, and a three-fold increase in EU air traffic capacity while maintaining current safety standards.

More specifically, the second phase package includes establishment of the EU as the sole European air traffic regulator, increasing political and military support for the reforms, and broad cooperation between the defense ministers of the EU nations and Eurocontrol to ensure a smooth transition to organization of the European sky into functional airspace blocks (FABs), the entities whose implementation will allow SES-II to accomplish its key goals.\textsuperscript{134} A FAB is a block of multiple nations that will be expected to pool their air traffic management resources to create a “single sky” for that region, managed by a single air traffic control entity. FABs are a critical organizational component of the new SES-II proposal. Philosophically, they reject classical notions of sovereignty—they are explicitly created “regardless of State boundaries”\textsuperscript{135}—and embrace the idea that groups of nations eliminating their individual borders in the sky can lead to smoother air traffic management. Each EU member needs to be a member of a FAB by 2012 (there are only two in operational existence right now, though more are in the planning stages).\textsuperscript{136} This step—moving beyond just coordination or standard-setting in safety regulation—is far and away the most challenging practical step for SES-II, as it is the first major point at which

\begin{itemize}
\item \textsuperscript{131} European Commission Home Page, Single European Sky Second Package (SES II)—Q&A (cited in note 4).
\item \textsuperscript{132} Council Regulation 1070/2009, 2009 OJ (L 300/34) (cited in note 3).
\item \textsuperscript{134} Eurocontrol Home Page, Functional Airspace Blocks (FABs) and the Single European Sky (SES), online at http://www.eurocontrol.int/articles/functional-airspace-blocks-fabs-and-single-european-skies (visited Apr 15, 2011).
\item \textsuperscript{135} Eurocontrol Home Page, STATFOR Frequently Asked Questions, online at http://www.eurocontrol.int/statfor/public/faq/faq.html#qa07 (visited Apr 15, 2011).
\end{itemize}
nations have to actually consider the political and military constraints that air traffic centralization may impose.

The North European and Austrian Consortium (NORACON) FAB covers Northern Europe and Austria, controlling 13 percent of European instrument flight rules air traffic. The benefit of an FAB, for economic and environmental purposes, is that because it literally breaks down national borders in the sky, flights can travel in straight lines from point-to-point, conserving fuel and lowering the carbon footprint of each flight. Further, because one communication system governs each FAB, the flights would be made incrementally safer. FABs are made even more attractive because of the incentives states face. Sovereign nations may simply not care about air traffic management and view positively any way to outsource this role to multilateral organizations. Despite this view, and any cost savings it may entail, such a clear delegation of sovereignty, may lead to consequences of vital importance to many people outside the EU bureaucracy.

The SES-II package of reforms also calls for Eurocontrol to conduct a series of performance plans for national air traffic managers, which would then serve as a baseline for EU performance monitoring. Additionally, SES-II will be integrated with the EASA, which was established in 2003 to serve as a regulator of airport and ATM safety, and to serve as more of a regional standards organization (with a more localized footprint than ICAO) for EU aircraft maintenance and air traffic controller training and licensing. EASA seems to overlap with Eurocontrol in many functions, but they aim to agree on setting aside a separate portfolio for each.
Hardly a month before the volcano crisis began, the European Commission, Eurocontrol, and the Spanish government hosted a high-level conference in Madrid to discuss the launch of SES-II, which they originally planned to roll out in 2012, with a final integration goal date set for 2020.\(^1\) However, EU officials, in light of the Icelandic crisis, are seeking to accelerate the process of implementation.\(^2\) But would SES-II have changed anything during the Icelandic crisis? As stated above, the cancellations during the volcano crisis stemmed from a data transmission from VAAC to Eurocontrol, which then transmitted the data and made recommendations to sovereign ATM officials, who then, in concert with their national safety regulators, made the decision to close or to open the airspace.

Under SES-II, there would likely be quicker communication facilitated between VAAC and the individual FAB. While still unclear, it would be natural under the structure of an FAB (with no sovereign ATM agency) that the decision to close or open airspace would be shifted to the FAB itself. In a future crisis requiring continent-wide coordination, instead of permitting sovereign-level airspace closure decision-making, those judgments would instead be made at the FAB level. Future safety regulation research is needed to evaluate the efficacy of FAB, SES-II, and the ATM framework’s ability to manage the next crisis. But before that work can be done, is the SES-II framework even consistent with existing European law?

C. Conflict Between Single Sky Goals and the Legal Reality

Further ATM integration in Europe under SES-II structure must remain within the confines of the existing legal framework governing air traffic management.\(^3\) The Chicago Convention envisioned a world of air traffic management in which each nation retained its own sovereignty but shared uniform rules and standards governing air travel. The Single Sky package of European reforms, however, envisions a future in which all European air traffic management is merged into a single multilateral body—and this expansion of


\(^{3}\) See Section II.
multilateral authority may place Eurocontrol’s goals in conflict with the UN under the Chicago Convention.

A possible solution to this challenge may be that under the Chicago Convention and as a specialized agency of the UN, the ICAO can expand its authority in air transit regulation through the establishment of regional bodies.\footnote{Chicago Convention, Art 55(a), 61 Stat 1180.} This power, however, under Article 55(a) of the Chicago Convention, has been unused historically, and has given way to the development of the numerous independent agencies that make up modern air regulation today.\footnote{Id. See also Weber, \textit{Introduction} at 119-20 (cited in note 25) ("While a need was felt...[to establish regional subsidiaries of ICAO]...Article 55(a) was not used, mainly for political reasons.").} However, Article 83 of the Chicago Convention provides that states may take actions in air travel regulation on a multilateral basis, provided that the activities of any state do not undermine ICAO’s powers.\footnote{Id at Art 83.} As it says, “any contracting State may make arrangements not inconsistent with the provisions of this Convention.”\footnote{Id.} However, if the arrangement—such as SES-II—is inconsistent with the Chicago Convention, Article 82 would apply, as the Convention “abrogates all obligations and understandings between [nations] which are inconsistent with [Convention] terms, and [the contracting States] undertake not to enter into any such obligations and understandings.”\footnote{Chicago Convention, Art 82, 61 Stat 1180.} Therefore, it can be argued that any action which serves to undermine Article 1—the statement of national sovereignty—would be abrogated by the terms of ICAO.

The Chicago Convention’s Article I statement of national sovereignty\footnote{Chicago Convention, Art 1, 61 Stat 1180. Article 1 in its entirety says merely that “[t]he contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.”} has served as a bedrock principle of multilateral air regulation and, in fact, confirms a major tenet of public international air law: the continuing sovereignty of a nation over its airspace. The SES-II package, through the use of FABs, would seem to be inconsistent with this broad understanding. As has been said, "[t]raditionally and principally, ATM is a task that falls under the responsibility of States parties to the Chicago Convention on international civil aviation of 1944. Hence, it was regarded as a national affair."\footnote{Mendes de Leon, \textit{The Relationship Between Eurocontrol and the EC: Living Apart Together}, 4 Intl Orgs L Rev at 305 (cited in note 66) (emphases omitted).}

One response to this may be that the Chicago Convention anticipates the centralized management of air traffic. While the Chicago Convention contains

\footnotesize{\textit{Chicago Journal of International Law}}
no mention of air traffic management at all, Article 22 may provide the answer.\textsuperscript{151} By asking that “[e]ach contracting State . . . adopt all practicable measures, through the issuance of special regulations or otherwise, to facilitate and expedite navigation by aircraft between the territories of contracting States, and to prevent unnecessary delays to aircraft . . .” it may consider Eurocontrol-type operational agreements completely “practicable.”\textsuperscript{152} Further, in Article 37, the Convention urges participating states to “undertake[] to collaborate in securing the highest practicable degree of uniformity” in terms of air traffic “rules” and “practices.”\textsuperscript{153} However, Article 37 does not mention uniformity in the act of air traffic management itself. Rather, Article 37 only aims for uniform rules and standards across ATM providers of different nations. Article 37 also includes a catchall provision, which mentions uniformity in “other matters concerned with the safety, regularity, and efficiency of air navigation as may from time to time appear appropriate.”\textsuperscript{154} Any challenge to SES-II’s consistency with ICAO would likely start with Article 37.

However, in all of these cases, a clearer understanding of what sovereignty actually means under the Chicago Convention is necessary for the rules themselves to be internally consistent with the Convention’s own mandate for the maintenance of sovereign airspace. SES-II could be problematic under a traditional definition of sovereignty, in which the Eurocontrol nations would need to coordinate their airspace and ATM systems without a wholesale delegation of authority to Eurocontrol, while Eurocontrol’s own vision of sovereignty views the act of delegating state power to a multilateral body as an act of sovereignty itself. Under the traditional definition, ICAO’s role itself would likely not be consistent, though the modest goal of standard-setting could be seen as a middle ground, making such a role reasonable, while the wholesale delegation of ATM to a multilateral body—including military coordination—would be going too far in contravention of Article 1 to be permissible under the Convention.

SES-II itself at least grants ICAO policies and the key ICAO principles the weight of affirming rhetoric. Eurocontrol states that it is “necessary to establish a framework for the definition, implementation and enforcement of binding performance targets in key performance areas in line with the policies of [ICAO].”\textsuperscript{155} In return, ICAO maintains working relationships with Eurocontrol and two other organizations that provide similar air traffic management services

\textsuperscript{151} Chicago Convention, Art 22, 61 Stat 1180.
\textsuperscript{152} Id.
\textsuperscript{153} Id at Art 37.
\textsuperscript{154} Id Art 37.
to its member states—in Africa and in Central America.156 The question of whether or not Eurocontrol actually conforms with these international public law norms hinges clearly on the definition of "sovereignty" used by ICAO.

One way to judge the importance of Article I "sovereignty" in the ICAO context is to see how ICAO governs the areas that would overlap with Eurocontrol’s powers to implement Single Sky. In this case, it is how ICAO sets standards in air traffic management, and an evaluation of whether ICAO’s own powers actually intrude on a concept of sovereignty in the same way that this Comment uses the term. ICAO has powers under Article 37 of the Chicago Convention to establish standards.157 Pursuant to this power, ICAO has issued Procedures for Air Navigation Services (PANS).158 The PANS are, according to Ludwig Weber, “operating procedures applicable worldwide, which have not yet attained ‘a significant degree of maturity for adoption as International Standards and Recommended Practices . . .’”159 Essentially, these regulations provide more detail to nations regarding how their air navigation systems are to be managed—these are under the PANS-ATM, or Air Traffic Management, standard, which includes directives on satellite and other navigational technologies. However, as in the context of the Icelandic crisis, these standards would not set out a regime by which each country would need to delegate airspace closure decisions to a single centralized body.

These are not mandatory standards. Under Article 38 of the Chicago Convention, individual member-nations are permitted to opt out of a rule promulgated by ICAO. Article 38, titled "Departures from International Standards and Procedures" provides the rules whereby a nation can find a given "standard or procedure" to be "impracticable" and can adopt its own rule on point, with the only added procedure being a provision of notice to ICAO of the differences between the two standards, which is then communicated to the remainder of the member states.160 Thus, a conclusion can be drawn that, despite the limitations on national sovereignty which result from a mandatory regime of international rules and standards, ICAO expressly permits an opt-out by a member state without any judgment of the rationale behind the change. To apply this standard to Eurocontrol, it would seem that, despite its internal inconsistency with notions of state sovereignty, ICAO would accept the Single Sky plan as consistent with its own vision of Article 1.

157 Chicago Convention, Art 37, 61 Stat 1180.
159 Id.
160 Chicago Convention, Art 38, 61 Stat 1180.
The next consideration is whether SES-II is consistent with existing EU law. While it has been passed under EU law, and EU officials are clearly in favor of Eurocontrol’s proposals, it must be evaluated, as a technical matter, whether the proposal for air traffic integration reconciles with specific EU and national laws. As has been noted in regards to earlier iterations of Eurocontrol, “... the extended functions of EUROCONTROL necessarily result in a partial loss of [national] competency in ATM matters insofar as binding law- and decision-making is concerned.” Clearly the delegation of broad ATM authority under the FAB structure would include substantial shifts in decision-making authority to multilateral authorities.

Miscellaneous challenges against SES-II may remain from a European perspective. Similar to possible attacks by ICAO against SES-II, Eurocontrol has been challenged on the basis that it necessitates the surrendering of national sovereignty over air traffic management to FABs. Under Article 1 of the revised Eurocontrol Convention, “[t]he pursuit of these objectives shall not prejudice the principle that every State has complete and exclusive sovereignty over the airspace above its territory nor the capacity of every State to exercise its prerogatives with regard to security and defence in its national airspace.” This would seem to place SES-II in conflict with Eurocontrol’s very own charter.


The current European route network still is an amalgamation of national routes. The design of routes is in many cases the product of historical national considerations. Routes for intra-European flights are some 15% less efficient than domestic flight routes. In addition, the route network is not always well aligned with European traffic. The shortest available routes are underused due to the lack of precise, real-time information. Airspace is a scarce resource, which has to satisfy the requirements of both civil and military airspace users. Its efficient use depends on how all flight phases, including appropriate planning and preparation, are integrated within seamless air and ground operations and on how new users such as unmanned aerial vehicles or very light jets are served. Aircraft should thus use shorter and better routes to improve the sustainability of aviation. (citations omitted).

However, under the establishment of Eurocontrol and the assent to Eurocontrol by the EC, there seems to be a common understanding that the EU has a strong hand in these reforms. Judicial review of Eurocontrol has only come up in terms of route charges, and Eurocontrol’s powers have been affirmed. Further, adherence to Eurocontrol is mandatory for EU membership, and has become both a key part of the EU-accession process, and is generally understood to be a key part of the European Commission’s transportation-regulation function.

Finally, there are some labor concerns regarding the usage of air traffic controllers from private organizations at the expense of other states. Is it legal to supplant labor agreements in one Eurocontrol nation for an air traffic management framework managed by a multilateral one in which the controllers are hired through a different mechanism? Germany, for example, has avoided this problem by, first, privatizing its ATM service, and then, second, having this private entity sign on as an ATM provider for the Germany-inclusive FAB. While labor has been cause for political concern, under existing EU law, there does not seem to be a clear path for a challenge to Eurocontrol’s labor arrangements.

The most critical issue then, is whether the Single Sky proposals conflict in a meaningful way with the amorphous concept of state sovereignty.

V. A FALSE CHOICE BETWEEN SAFETY AND SOVEREIGNTY?

Consider two opinions. In 1996, before the proposal of SES-I, air law scholar Amir A. Majid predicted that in the future, “... EUROCONTROL is most likely to ... [scale] down further the dream of having a single [ATM] provider [for all of Europe] which requires a most trusting concept of sovereignty.” In a 2009 Eurocontrol study specifically concerning the issue of sovereignty as applied to European ATM reforms, another air law scholar, Pablo Mendes de Leon, wrote that “States can pool their resources in the exercise of their sovereign rights, without affecting the principle of sovereignty.” Essentially, Eurocontrol now argues that delegating sovereign rights to a multilateral organization is actually a manifestation of sovereignty, while the individual states are themselves reticent to let go of their sovereign control over the skies.

163 For a discussion of the scope of early European Community powers, see Martin Holland, European Community Integration 183–202 (St. Martin’s 1993).
164 Majid, Legal Status at 93 (cited in note 15).
165 Majid, Legal Status at 109 (cited in note 15) (capitalization in original).
166 Pablo Mendes de Leon, Sovereignty in Aviation, vi (Eurocontrol Apr 3, 2009), online at http://www.eurocontrol.int/mil/gallery/content/public/event_docs/Sovereignty%20in%20Aviation%20040309%20updated.pdf (visited Apr 15, 2011) (emphasis in original).
Whether this is a basic philosophical or political issue, a labor issue, a military issue, or some combination of all, is undefined.

Despite the EU’s official protestations to the contrary, the mere existence of Eurocontrol’s eighty-two page report undeniably illustrates that it is no overstatement that aviation itself poses a great philosophical challenge to more traditional conceptions of sovereignty. Sovereign concerns are justified. Because aviation reaches so easily across international borders—there are no fences in the sky—the very idea of air travel forces us to consider exactly what we mean by “sovereignty” or “multilateralism.” For sure, there are basic ideas upon which all can agree: next-generation technology and more integration and uniformity of computer systems is an inherent good. Better and more unified communication between air traffic controllers is also something we want. Yet when it comes to decision-making and crisis management, organized is superior to disorganized. But, does that imply deferring to a single centralized decision maker, as the EU might like? Or might there be some benefit in retaining the multitude of opinions so thoroughly criticized during the volcano crisis? As has been illustrated above, there are costs and benefits to increased centralization of decision-making in aviation, just as there are costs and benefits to any further amount of international integration. But in a practical sense, the sovereignty issue poses a unique challenge because not only is it a political hurdle, but the language of sovereignty is also infused into each of the foundational documents of air traffic integration.

Debates over the sovereignty and the power of the nation-state in Europe reach back to the very emergence of Europe as a group of nation-states following the Treaty of Westphalia in 1648. Nowadays, due to the interplay of politics within the broader framework, the idea of an integrated Europe will fail if it loses sight of sovereignty as traditionally defined—“supreme authority within a territory.” But what does this definition actually mean?

In his 1999 study on sovereignty, Stephen D. Krasner divided the concept of sovereignty into the four ways in which the term has been used. Krasner’s analysis, however, focuses on Westphalian sovereignty, or “political organization

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167 See generally id.

168 European Commission Home Page, Single European Sky Second Package (SES II)—Q&A (cited in note 4) (“Air traffic control is mistakenly related to national sovereignty. Obviously this is a complex argument, but, instead of prompting innovative solutions for exercising sovereignty, it has been used to block cross-border integration.”).


170 The four types of sovereignty are: (1) international legal sovereignty, (2) Westphalian sovereignty, (3) domestic sovereignty, and (4) interdependence sovereignty. See Stephen D. Krasner, Sovereignty: Organized Hypocrisy 3 (Princeton 1999).
based on the exclusion of external actors from authority structures within a
given territory." Westphalian sovereignty seems to have its roots closest to
what we would deem "classical" notions of sovereignty and provides helpful
insights to proposed European integration. By delegating the air traffic
management of its own skies, a nation surrenders some amount of sovereignty
under the Westphalian view if the air traffic management operator—in the
European case, Eurocontrol—is an external actor. This view of sovereignty
conflicts with the European idea that a delegation of internal political power to
external actors is actually a manifestation of sovereignty. Similarly, Krasner
deems the European Commission and the European Court of Justice to be
"supranational authority structures." Eurocontrol similarly fits into this rubric,
given the source of its authority and its envisioned operational role over its
member states. However, contrary to many of the edicts of the European Court
of Justice or trade regulations of the European Commission, the delegation of
operational airspace management is not an act that can easily be re-captured
by the sovereign nation. Once delegated, a massive infrastructure like that is often
nearly impossible to rebuild, making the grant of power to Eurocontrol far more
expensive than may be originally thought. One solution to this can be the
sovereign retention of substantial capabilities for military airspace management
even under the Eurocontrol FAB structure. Krasner argues that "... the
characteristics that are associated with sovereignty—territory, autonomy,
recognition, and control—do not provide an accurate description of the actual
practices that have characterized many entities that have been conventionally
viewed as sovereign states." This holds true for the delegation of air traffic
control. While the image of a pure delegation of control over a nation's
sovereign skies seems irreconcilable with Westphalian or other views of
sovereignty, all of the states would likely consider themselves to remain
sovereign—given their assent to other supranational authorities, like the EU.

Implicitly, as seen in the response to the volcano crisis, EU officials seem
to argue that the choice Europe faces is between a secure air traffic management
system on one hand, and a real destruction of a proper notion of national
sovereignty in airspace management on the other. Without making normative
claims about the benefit of retaining sovereignty in air traffic management, this
Comment again returns to the implications of the Icelandic volcano crisis.

171 Id at 4.
172 Westphalian sovereignty is the primary focus of Krasner's study as well. Id.
173 Id at 235.
174 Krasner, Sovereignty at 237 (cited in note 170).
A. Sovereign Air Traffic Management and the Single Sky

While international bodies have long served as standard-setting organizations, there has been no historic role for multilateralism in the governance of air traffic control itself. The power to direct which flights enter and exit a nation’s airspace has always remained with that sovereign. In the US, for example, the FAA serves as a regulator of all flights, with the exception of military traffic. In the UK, the CAA, a government regulator, governs most aspects of UK aviation. However, in 2002, the CAA delegated air traffic management authority to a private company, NATS, under a private-public partnership established in 1998. The CAA serves as the local UK agent responsible for implementation of both SES-I and SES-II. During the volcano crisis, it was the CAA that received updates from Eurocontrol, VAAC, and the Met Office and ordered NATS to cease serving commercial flights, instituting the flight stoppage.

As detailed above, the London outpost of the VAAC held monitoring responsibility for the ash cloud over Eyjafjallajökull and then provided its input to Eurocontrol, which then delivered analysis to sovereign air traffic managers who made decisions in consultation with their governments regarding the closing of their respective airspace—most of which fell precisely in line with the central regulator’s recommendations on the matter.

In Germany, the national air traffic manager is Deutsche Flugsicherung (DFS), a private entity in partnership with the German government, in an arrangement made in cooperation with Eurocontrol, which, through the Benelux FAB, manages the airspace of parts of Germany. DFS has been included in the plans to manage the FAB airspace under its contract with Germany. Under this new framework, with the DFS officials providing input alongside Eurocontrol, Germany had a different experience during the volcano crisis, with
briefer airspace closures than those in other countries, and more gradual reopening with authorities willing to accommodate flights at lower altitudes.\textsuperscript{182} Spain, on the other hand, through Aeropuertos Españoles y Navegación Aérea (AENA), its own sovereign air traffic regulator, fell in line with Eurocontrol recommendations.\textsuperscript{183} In May, when the ash cloud moved to the Iberian Peninsula, Spain was deeply affected.\textsuperscript{184} The standard communication occurred here between Eurocontrol and the sovereign ATM authority. This was identical to what happened in France during the same time period, when its sovereign ATM, DSNA, made similar decisions in line with Eurocontrol recommendations.\textsuperscript{185} In Italy, the sovereign ATM authority, Ente Nazionale per l’Aviazione Civile (ENAV), had been involved in ICAO volcano ash test procedures in the past\textsuperscript{186}—in fact, as recently as three months before the crisis.

While it may seem that some of these nations were able to create their own plans for dealing with the crisis based on recommendations specifically tailored for their respective airspace, many officials and experts remain convinced that were it not for an outmoded view of the nation-state in Europe allowing for these institutions in the first place, the integration towards a full Single European Sky would be complete.\textsuperscript{187}

\begin{itemize}
  \item See \textit{German airspace remains closed until Tuesday—DFS} (Reuters Apr 19, 2010), online at http://www.reuters.com/article/idUSLDE632BS20100419 (visited Apr 15, 2011) (highlighting the flexibility some flights were given at lower altitudes, in comparison with the UK cancellation experience).
  \item Id (noting 226 flights cancelled and 28,000 passengers stranded).
  \item Despite his own denials, for a view fully consistent with this, see Erwin von den Steinen, \textit{National Interest and International Aviation} 126–30 (Kluwer 2006).
\end{itemize}
B. Return to Chicago: Sovereignty as a Solution to Air Traffic Management

The Chicago Convention mandates that its own rules not intrude on Article I: the fundamental right of a nation to control its own airspace.\(^\text{188}\) Eurocontrol itself clearly has not ignored the sovereignty implications of the SES-II package of reforms, and Eurocontrol institutionally recognizes the sovereign response to some of its initiatives as a key challenge to full implementation of SES-II.\(^\text{189}\) While ICAO and Eurocontrol may simply be reaching for the expediency of a centralized system, they are effectively “defining down” the concept of sovereignty. In light of the Icelandic volcano crisis, a reappraisal of the value of much-maligned sovereignty may be in order. Pablo Mendes de Leon and Eurocontrol argued before the crisis that the delegation of sovereignty is actually just a manifestation of sovereignty, and that European nations should not have anything to be concerned about regarding further integration.\(^\text{190}\) As Eurocontrol states,

> [t]he system used in Europe to organise air navigation for civil and military air traffic is fragmented as it is based on national boundaries. In some instances, especially in Western and Central Europe, national airspaces have small dimensions whereas traffic in those airspaces is dense, and is expected to increase in the years to come. This fragmentation could be reduced by doing away with national boundaries.\(^\text{191}\)

Eurocontrol continues and goes even further: “[s]trategic deliberations are very often hampered or at least influenced by the use of the term ‘sovereignty’ as if it were a sacred dogma, particularly since military operations are frequently linked to this notion.”\(^\text{192}\) Eurocontrol also, in the Sovereignty study, essentially defines down sovereignty in an attempt to make it seem like Eurocontrol itself is a manifestation of sovereignty.\(^\text{193}\) Eurocontrol, perhaps understandably, argues that any action taken by a state is inherently an act of its own sovereignty. This argument is essentially backwards.\(^\text{194}\)

\(^{188}\) See generally Section IV.C.1.

\(^{189}\) See generally Mendes de Leon, Sovereignty in Aviation (cited in note 166).

\(^{190}\) Id. at v (“Even if sovereignty is a dynamic concept, States do not lose sovereignty by a transfer of sovereign powers to international organisations, or the pooling of their resources or creation of what could be termed ‘joint ventures’.”).

\(^{191}\) Id.

\(^{192}\) Id. at 1.

\(^{193}\) See Mendes de Leon, Sovereignty in Aviation at 14 (cited in note 166).

In 2001, Adrián Tokár tackled Eurocontrol’s argument indirectly, paraphrasing the agency as saying “that the [EU] member states accepted this state of affairs voluntarily and thus it *per definitionem* cannot be limiting their sovereignty, as member states are just exercising their sovereignty in a different way.”

Tokár went on to reject this argument, believing that such a view would lead to an impermissibly narrow and formalistic view of sovereignty.

For Eurocontrol to argue that a delegation of national sovereignty to a multilateral organization is essentially equivalent to retention of sovereignty is diametrically opposed to the concept of sovereignty embraced by the Chicago Convention. Voters in individual nations may dislike the idea of delegating their state sovereignty. Certainly, in response to criticisms, EU officials can argue that SES-II is not a permanent grant of power, and that states are free to reclaim this power. However, this is a mere rhetorical ploy: to cede competence in air traffic management from a sovereign to a multilateral body is not something one can reclaim at a moment’s notice. To rebuild a sovereign ATM system will require a tremendous amount of effort, during which time the only viable alternative would be the multilateral scheme already in place. Sovereignty in this area, once delegated, would be slow to return.

Beyond the broader philosophical disagreements, there are practical challenges SES-II may face. First, it is not the only proposal for the future of European ATM—there are many other proposals apart from SES-II to restructure the European sky. Second, the reliance on a single source of scientific data as the basis for the flight ban led to delays far in excess of what was necessitated by safety concerns. Ideally, the law will facilitate a multitude of regulatory options. For example, Easyjet, a discount European carrier, has developed its own ash warning system in light of the crisis. Europe should want to incentivize this sort of innovation. Overall, the airlines were not the only entities skeptical of the ban, as Honeywell, an engine manufacturer, conducted testing of its own to determine if the danger to travel in the ash cloud would

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196 Id.


198 There was a single source of scientific evidence used to decide on the four-day ban. See Bruno Waters and Andrew Hough, *Iceland volcano air restrictions* (cited in note 119).

actually deserve the same kind of caution that travel through a direct eruption
plume would legitimately merit.200

Even further, there are challenges to SES-II posed by sovereign militaries. While one of the main goals of SES-II is to achieve the buy-in of all defense ministries of its member nations, this is just one example where state sovereignty can trump multilateral desires for integration, and is indicative of a broader collective action or holdout problem faced by SES-II. Regardless of the bureaucratic endorsement that SES-II has received, there is something unsettling to national populations about the idea of surrendering air traffic management control over their own skies—despite any cost savings or air travel efficiencies that result.

Yet the broad Single Sky policy is not an idea foreign to either the conceptual or practical understanding of the EU or its role in the growth of modern global governance. It falls precisely in line with the same thinking that motivates the unification of Europe along political, commercial, and monetary lines. However, Single Sky is most certainly not immune from criticism because it just happens to be similar in these respects. Unimpeded integration is not, in and of itself, positive. Further, air traffic management is one of the key areas where a European nation stepping into the framework of SES-II will truly cede a large portion of what is historically defined as its sovereignty to the EU. However, as we saw in the light of the 2010 volcano crisis, what is needed is a sort of “jurisdictional competition” between nations, all providing concurrent independent research and insights as they apply to the volcanic eruption or other disaster. Certainly, national organizations can—and always will—influence the decisions of others, and there is certainly room within this structure for more narrowly-tailored multilateralism through joint monitoring or scientific competencies with more communications or standard unification.

Any effort, however, by the EU or other international organization to wholly limit the ability of a sovereign nation to govern its own airspace is not only inconsistent with the explicit directives of the Chicago Convention, but also should be rejected by any sovereign nation. The current structure of planned air traffic reforms under SES-II should provide some benefit, but there are also costs—the disincentives created for sovereign nations to develop their own air traffic management systems, which in actuality could lead to a dearth of crisis management opinions. As we saw in the volcano crisis, when a single entity dictates the policy under which the remaining sovereigns simply and

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unquestionably fall into line, we leave ideas and strategies that could be helpful off the table.

As this Comment has argued, the implementation of the SES-II reforms poses a more substantial threat to national sovereignty under the Westphalian view than most other recent EU integrations. While it seems that in light of the Icelandic crisis there is only more momentum pushing the reforms into place, there are areas remaining for European authorities to investigate in an attempt to better reconcile European ATM with sovereign ideals. One solution to improve safety and efficiency standards without denying nations the opportunity to build their own ATM infrastructure could include elements of the FAA model, which delegates cancellation decisions to airlines, while continuing to utilize functional airspace blocks for ease of air traffic control operability and airline communication. This scheme would bring Europe closer to the more seamless structure of a single territorial regulator, but by pooling technological resources and allowing for the nations to be closer to the FAB, it allows them to retain a better sense of control over their own skies, even while accruing the benefits of the next generation of air traffic management technology. This structure would be closely in line with what is already in place regarding SES-II but without the final step towards complete abandonment of national borders.

Another potential option, which may offer better protection to sovereign interests, can include the utilization of private air traffic operators, as is done currently in Spain and Germany. This method of organization would use consistent standards to permit more seamless travel across borders but without the wholesale repudiation of national borders as SES-II is now organized. It would take the currently-existing ICAO standard-setting role and apply it broadly to air traffic management, but with implementation at the national level. As was seen during the Icelandic crisis, the ideal air traffic operator would be able to delegate its own decision-making to the entities that are closest to the information and in the position to make the best decision. In this case, it was the airlines that had arguably more to lose than the sovereign regulators, yet at the same time were using the press to convey their own dissatisfaction with the blanket bans on traveling recommended by Eurocontrol.201

VI. CONCLUSION

The 2010 Eyjafjallajökull eruption and subsequent air traffic shut-down has been popularly labeled—even in this Comment—as an “Icelandic” volcano

201 See Section IV.A.
Yet this nomenclature only conveys half of the story. In reality, the volcano crisis was a pan-European one. The structure of European air traffic management allowed the crisis to progress to the point where a single regulator’s excessive caution and inability to quantify properly the threat led to the preemptive cancellations of thousands of flights by numerous sovereign nations relying on data derived from that single source—all in opposition to the interests and desire of the airports and airlines with the most to lose from flying through the ash cloud. Yet paradoxically, in the aftermath of this crisis, the default EU position is to expand the scope of European integration to air traffic management; to provide for a single organization that will dictate the EU’s future air traffic management and crisis response. Despite the technological and coordination gains that may be derived from this integration, at the same time, there are costs that must be addressed—including the corresponding decrease in the ability for states to manage their own airspace.

This view of the costs and benefits of centralization stands in stark contrast to the official European perspective on the Icelandic volcano crisis. This European perspective sees the mass cancellations as a consequence of disunity, and views SES-II as the only hope for improving future air safety and efficiency. However, with its focus on integration, the European view fails to consider that future air crises may also be alleviated by permitting individual sovereigns to delegate the cancellation decision to the airlines, or failing that, to small, regionally-focused, multilateral organizations making decisions based on the entity’s interpretation of the best information available. This sort of decentralization may be reconciled with the framework of the Single European Sky reforms through the use of FABs, and does not mean that Europe has to rely on either twenty-seven small sovereign regulators or one gigantic regulator. Rather, the FAB solution to improve air traffic coordination is already foreseen by the SES-II package of reforms, but must include an opt-out regime, which the Chicago Convention demands. States can more reliably delegate some, but not all, air traffic management and crisis decision-making to FABs, as opposed to going all the way to a single regulator.

Intertwined in this argument are the sovereignty implications of the delegation of air traffic management to centralized authorities: these implications must be considered, in some ways, to be a heavy cost to the member states. While countries may see short term benefits resulting from a plan such as SES-II, including more advanced technologies, fewer flight delays, and less carbon dioxide emissions, these are not cost-free gains. Most critically, a country that

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delegates management authority over its sky to a central authority will lose the ability to manage its own skies for the foreseeable future. The vast infrastructure required to manage air traffic is not like other forms of integration in that it, unlike extradition, arms control, or monetary policy, cannot be reacquired by the sovereign at a moment’s notice. While this may seem like a slight cost right now, the official European move toward future airspace integration must take these challenges into account.

In the context of Europe’s future, further integration seems to be the default solution to every problem. Yet, thinking beyond European air traffic management, if any broader lessons may be drawn from the 2010 volcanic ash cloud crisis, it is that the benefits of sovereignty, decentralized regulatory authority, and competing institutions with the benefit of low information costs and strong incentives for risk management, should not be overlooked.