Cuestión 4 del Orden del Día: **Reporte de actividades y entregables del GESEA y Subgrupos**

MARCO PARA LA GESTIÓN DE CONTINGENCIAS ATM EN LAS REGIONES CAR/SAM (CAR/SAM RACF)

(Preparado por Relatora del GT PLAN LOA ATS del SG1)

RESUMEN

Esta Nota de Estudio (NE) tiene por objeto introducir el borrador del nuevo documento denominado "Central American, Caribbean and South America Region Air Traffic Management Contingency Framework (CAR/SAM RACF)". Adicionalmente, describe los aspectos clave resultantes del análisis comparativo con el actual "Plan Marco para Contingencias ATS de la Región SAM (MCATS/SAM)", destacando la evolución conceptual de este nuevo marco y proponiendo a la reunión la conformación de un Grupo de Trabajo Ad Hoc en la Región SAM para su revisión integral antes de su adopción formal por el GREPECAS.

Referencias:

- Anexo 11 — Servicios de Tránsito Aéreo
- Doc 7030 — Procedimientos Suplementarios Regionales
- LAR 211 – Gestión del Tránsito Aéreo
- Plan Marco para Contingencias ATS de la Región SAM (MCATS/SAM) - Amendment 1: SAMIG /27 – 3 June 2022
- Borrador del CAR/SAM Region Air Traffic Management Contingency Framework (CAR/SAM RACF) - V 2.0

1. Antecedentes

1.1 El Anexo 11 —Servicios de Tránsito Aéreo— establece en su numeral 2.32 que los Estados contratantes de la OACI deben elaborar y promulgar planes de contingencia para el espacio aéreo bajo su responsabilidad, con el fin de aplicarlos en caso de interrupción o eventual interrupción de los servicios ATS y sus servicios de apoyo conexos. Asimismo, el Adjunto C de dicho Anexo ofrece directrices relativas a la preparación, promulgación y ejecución de tales planes.

1.2 Durante el año 2020, el Subgrupo 1 del Grupo de Estudio e Implantación del Espacio Aéreo SAM (GESEA), trabajó en la elaboración del Plan Marco para Contingencias ATS de la Región SAM. Como resultado de ese trabajo, en el VIGÉSIMO QUINTO TALLER/REUNIÓN DEL GRUPO DE IMPLANTACIÓN SAM (SAM/IG/25) - llevado a cabo, de manera virtual, del 02 al 04 de noviembre de 2020 -, dicho Subgrupo presentó el documento denominado "*Plan Marco para Contingencias ATS de la Región SAM (MCATS/SAM)*", el cual fue incluido en el Informe Final de la SAM/IG/25 como Apéndice B. El mismo fue aprobado por la reunión como documento de referencia para la estandarización de los planes de contingencia ATS de los Estados miembros de la Región SAM.

1.3 En el año 2022, se efectuó la primera enmienda al MCATS/SAM, que contempló la modificación del *Apéndice E – TÉRMINOS DE REFERENCIA DEL EQUIPO DE COORDINACIÓN DE CONTINGENCIA (CCT) –*, y la introducción del *Apéndice I - PROCESOS DE ARMONIZACIÓN PARA LOS PLANES DE CONTINGENCIA ATS NIVEL 2*. Dicha enmienda se aprobó en la SAM/IG 27, realizada de forma virtual, del 31 de mayo al 3 de junio de 2022.

1.4 Del 1 al 5 de junio de 2026, en la ciudad de Panamá, se llevó adelante el "*Taller sobre el Marco de Gestión de Contingencias ATM de la Región CAR/SAM*", propiciado por las Oficinas Regionales de Sudamérica (SAM) y Norteamérica, Centroamérica y Caribe (NACC) de la OACI, con el apoyo de la sede de la OACI y la Autoridad de Aviación Civil de Panamá.

1.5 El objetivo principal de dicho Taller fue sociabilizar el documento denominado "*CENTRAL AMERICAN, CARIBBEAN AND SOUTH AMERICA REGION AIR TRAFFIC MANAGEMENT CONTINGENCY FRAMEWORK (CAR/SAM RACF)*" y abordar su revisión, con el fin de presentarlo posteriormente ante el Grupo Regional de Planificación y Ejecución CAR/SAM (GREPECAS) para su aprobación y difusión. Dicho documento estipula lineamientos clave para la gestión del espacio aéreo durante interrupciones a gran escala – ya sean causadas por desastres naturales, conflictos bélicos o incidentes técnicos - que deriven en la suspensión total o parcial de la prestación de los Servicios de Tránsito de Aéreo, y que afecten a dos o más Estados o Regiones.

1.6 Cabe destacar que este Taller se realizó en cumplimiento de las conclusiones de la Decimocuarta Conferencia de Navegación Aérea (AN-Conf/14) y la 42ª Sesión de la Asamblea de la OACI, vinculadas a la apremiante necesidad de reforzar la resiliencia global a través de la gestión eficiente de crisis y contingencias, y de armonizar las estrategias de respuesta regionales para salvaguardar la seguridad y continuidad del tránsito aéreo internacional. La Recomendación emitida por la AN-Conf/14 - Recomendación 1.1/2 – Resiliencia del sistema de navegación aérea - dispone:

> *"(...) que la OACI (...) c) junto con los Estados y la industria, elabore orientación global sobre la gestión de contingencias del tránsito aéreo, incluida la fase de recuperación, así como marcos regionales, para apoyar la implantación del Anexo 11 — Servicios de Tránsito Aéreo. (...)".*

1.7 Asimismo, el Consejo de la OACI ha identificado siete áreas prioritarias, entre las cuales se destaca la "*Preparación y respuesta ante crisis*". Su propósito para el trienio 2026-2028 es la creación de un programa integral y adaptable de respuesta ante crisis en el ámbito de la OACI, destinado a apoyar a los Estados en el cumplimiento de sus obligaciones del Convenio de Chicago y en coordinación con otros sectores, fortaleciendo así sus capacidades de respuesta frente a contingencias ATS, emergencias sanitarias y crisis humanitarias.

1.8 En tal sentido, se están desarrollando distintos talleres vinculados a la gestión de contingencias ATS a nivel regional en MID; NACC y SAM; APAC y AFI, con el fin de elaborar marcos de referencias estándares a nivel mundial. Se prevé que cada una de estas Regiones disponga de su propio marco de contingencias ATS para finales de 2027, tras la correspondiente revisión y aprobación por parte de sus PIRG.

2. Análisis

2.1 El documento **"CENTRAL AMERICAN, CARIBBEAN AND SOUTH AMERICA REGION AIR TRAFFIC MANAGEMENT CONTINGENCY FRAMEWORK (CAR/SAM RACF)"** propicia el **abordaje integral y sistémico** de las contingencias ATS. Dicho abordaje implica:

- la gestión de los Servicios de Tránsito Aéreo y de aquellos que tienen incidencia en el control y la recuperación de las operaciones aéreas ante una contingencia ATS;

- fomentar la toma de decisiones en colaboración (CDM) mediante la participación de todos los stakeholders – incluso en la elaboración de los Planes de Contingencia ATS -, adoptándose, así, un enfoque sistémico de la seguridad operacional;

- la planificación global, regional y nacional de las respuestas a las contingencias ATS; y,

- el fortalecimiento de las acciones de coordinación entre las partes interesadas a través de la conformación de los equipos de contingencias (CCT; CCC; y ACG).

2.2 En consonancia con lo expuesto en el párrafo precedente, el marco de referencia establece tres niveles de gestión de una contingencia ATS, a saber:

- **Nivel 1**: Evento de contingencia que se mantiene dentro del espacio aéreo delimitado del Estado y que se puede gestionar a nivel local;

- **Nivel 2**: Evento de contingencia transfronterizo que requiere la colaboración entre dos Estados adyacentes; y,

- **Nivel 3**: Evento de contingencia transfronterizo a nivel subregional, regional o interregional que requiere la colaboración de más de dos Estados.

2.3 En el mismo sentido, dicho marco estipula la constitución de los siguientes comités y grupos de trabajo para abordar las contingencias ATS, determinando, además, sus roles, funciones responsabilidades:

- **CCC** – Comité de Coordinación de Contingencias (Contingency Coordination Committee);
- **ACG** – Grupo de Contingencia ATM (ATM Contingency Group); y,
- **CCT** – Equipo de Coordinación de Contingencias (Contingency Coordination Team).

2.4 Además, introduce el **"Ciclo de Gestión de Contingencias ATM (ATM CM CYCLE)"** para asegurar que la gestión de contingencias constituya un proceso continuo y cíclico. Bajo este enfoque, la gestión no se limita a responder ante la interrupción de los Servicios de Tránsito Aéreo (ATS) y su posterior recuperación, sino que exige una progresión activa a través de cuatro fases diferenciadas e interconectadas. La aplicación sistemática de estas fases fortalece la resiliencia, la seguridad operacional y la continuidad de los ATS y las operaciones aéreas. Tales fases son:

1°) Planificación y preparación (Planning and Preparedness);
2°) Respuesta (Response);
3°) Recuperación (Recovery); y
4°) Evaluación posterior (Post-assessment).

2.5 Por otra parte, y con el propósito de aplicar medidas de contingencia acordes al escenario operativo resultante, se propone el análisis de dos (2) aspectos y se los clasifica de acuerdo a su alcance e impacto potencial en los flujos de tránsito aéreo: grado de prestación de los ATS y disponibilidad del espacio aéreo de jurisdicción. En virtud de ello, se determina la categoría de contingencia reinante: **CATEGORÍAS A; B; C; D; E y F.**

2.6 Tal como se indicó en el párrafo 2.1, se promueve que los arreglos y procedimientos de contingencias se establezcan de forma colaborativa y **que el personal involucrado sea entrenado de manera continua** respecto a los mismos a través de – entre otras actividades de capacitación – la realización de ejercicios de escritorio (TABLETOP) y el desarrollo de talleres (WORKSHOP) a nivel nacional; subregional; regional; e interregional.

2.7 Se propicia la creación de un **"Registro Regional de Riesgos",** con una periodicidad de actualización de al menos dos (2) años. Este registro compilará los riesgos asociados a las contingencias ATS para determinar su nivel de impacto mediante la evaluación de su probabilidad de ocurrencia y gravedad. El documento estará disponible para su consulta en los sitios web de las Oficinas Regionales NACC y SAM de la OACI.

2.8 Por otra parte, el RACF estipula el uso de **procedimientos de radiodifusión de información en vuelo sobre el tránsito aéreo (TIBA)**. En consecuencia y de acuerdo al Anexo 11 de la OACI, es necesario establecer una frecuencia radiotelefónica (RTF) VHF para poner sobre aviso a los pilotos de otras aeronaves que se encuentren en las proximidades. El LAR 211 prevé como tal la frecuencia 123,45 MHz. No obstante, se advierte que el Documento 7030 de la OACI no prevé el uso de dicha frecuencia, como sí lo está para las regiones Oriente Medio/Asia (MID/ASIA) y Pacífico (PAC). En consecuencia, dado que este marco normativo se aplicará también en la Región CAR, resulta imprescindible acordar de manera conjunta la frecuencia de referencia entre ambas regiones.

2.9 Si bien el MCATS/SAM también aborda la materia desde un enfoque integral, presenta ciertas diferencias respecto del RACF. En primer lugar, clasifica las contingencias en solo tres tipos (Alpha, Bravo y Charlie) en función de la disponibilidad y la seguridad del espacio aéreo, y circunscribe su alcance exclusivamente a la Región SAM.

2.10 Por su parte, el RACF incorpora previsiones específicas para contingencias ATS derivadas de cenizas volcánicas. Asimismo, a diferencia del MCATS/SAM —que incluye el árbol de llamadas dentro de la propia documentación—, el RACF dispondrá y actualizará dicho esquema directamente en el sitio web de las Oficinas Regionales NACC y SAM de la OACI.

2.11 Finalmente, tal como se señaló en el párrafo 2.5, el RACF establece el «Ciclo de Gestión de Contingencias ATM (ATM CM CYCLE)» como un proceso de mejora continua que contribuye a la preparación y al abordaje adecuado de estas situaciones, e introduce una plantilla modelo para consignar las medidas a aplicar según la categoría de la contingencia de que se trate.

2.12 Es importante considerar que el RACF sustituirá a los actuales Marcos y Planes para Contingencias ATM de las Regiones CAR y SAM.

2.13 Por todo lo expuesto, es necesario adoptar las acciones necesarias para la transición de la aplicación del MCATS/SAM – que alcanza exclusivamente a la Región SAM – a la adopción y ejecución de las previsiones del CAR/SAM RACF – que incluye, además, a la Región CAR. A tal fin, se considera pertinente conformar un Grupo de Trabajo Ad Hoc compuesto por cinco (5) especialistas ANS de la Región SAM. Este equipo se abocará a:

a) Realizar la revisión integral del borrador del CAR/SAM RACF, el cual se dispone en idioma inglés;
b) Evaluar la armonización de la frecuencia TIBA regional; y,
c) Presentar una propuesta consolidada de la Región SAM a fin de continuar su tratamiento con especialistas de la Región CAR.

3. Acciones sugeridas

3.1 Se invita a la Reunión a:

- Tomar nota de la información proporcionada en la presente nota de estudio; y
- Emitir los comentarios que considere necesarios respecto al RACF (adjunto como Apéndice a la presente Nota) y a la determinación de la frecuencia TIBA de aplicación regional y,
- Aprobar la conformación de un grupo ad hoc que aborde la revisión de dicho marco.

FIN

INTERNATIONAL CIVIL AVIATION ORGANIZATION

CENTRAL AMERICAN, CARIBBEAN AND SOUTH AMERICA REGION AIR TRAFFIC MANAGEMENT CONTINGENCY FRAMEWORK

(CAR/SAM RACF)

Version 1.0, June 2026

Approved by GREPECASX and published by
the ICAO NACC and SAM Regional Offices

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The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any State, territory, city or area or its authorities, or concerning the delimitation of its frontier or boundaries.

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CENTRAL AMERICAN, CARIBBEAN AND SOUTH AMERICA REGIONS ATM CONTINGENCY FRAMEWORK

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FOREWORD

Guidelines for contingency measures for application in the event of disruptions of air traffic services (ATS) and related supporting services were first approved by the Council on 27 June 1984 in response to Assembly Resolution A23-12, following a study by the Air Navigation Commission and consultation with States and international organizations concerned, as required by the Resolution. The guidelines, published in Attachment C to Annex 11 — *Air Traffic Services*, were subsequently amended and amplified in light of experience gained with applying contingency measures in various parts of the world and differing circumstances.

This document provides guidelines to ensure the safe and orderly flow of international air traffic across the ICAO Central American, Caribbean (CAR) and South America (SAM) Region in the event of disruptions of ATS or related supporting services, when they may lead to contingency events, and to preserve the availability of major (ATS) routing in such circumstances. This document replaces and supersedes the CAR and SAM Region ATM Contingency Plans. To support air navigation services providers (ANSPs) in developing their national contingency and emergency plans, a National ATM Contingency Plan Template, air traffic services (ATS) Emergency Response Template and Tower Emergency Plan Template are available on the ICAO NACC and SAM Offices websites [link].

This document describes the regional contingency framework, including the arrangements and procedures to support effective regional collaboration, minimize the impact of disruption, and ensure the continued safety of flight operations, in accordance with the provisions of Annex 11—

Implementing the regional framework will prepare the region to respond to and manage contingency events effectively. States are responsible for ensuring they comply with the ICAO provisions concerning contingency and emergency planning and implementation.

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ABBREVIATIONS AND ACRONYMS

ACC	Area Control Center
ACG	ATM Contingency Group
AIS	Aeronautical Information Service
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
APP	Approach
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
ATS unit	Air Traffic Services Unit
BPE	Basic Planning Elements
CA	Contingency Arrangements and Procedures
CAA	Civil Aviation Authority
CAT	Contingency Category
CCC	Contingency Coordination Committee
CCT	Contingency Coordination Team
CDM	Collaborative Decision-Making
CNS	Communications, Navigation, Surveillance
CR	Contingency Route
CTA	Control Area
FIC	Flight Information Center
FIR	Flight Information Region
FIS	Flight Information Service
FLAS	Flight Level Allocation Scheme
FPL	Flight Plan
GNSS	Global Navigation Satellite System
IATA	International Air Transport Association
IVATF	International Volcanic Ash Task Force
LoA	Letter of Agreement
MET	Meteorological
RACF	Regional ATM Contingency Framework
RCC	Rescue Coordination Center
RSC	Rescue Sub-centre
SAR	Search and Rescue
SMS	Safety Management system
SRA	Safety Risk Assessment
TWR	Tower
VAAC	Volcanic Ash Advisory Centre

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Chapter 1

INTRODUCTION

1.1 The CAR/SAM Region Air Traffic Management (ATM) Contingency Framework has been developed to assist in providing for the safe and orderly flow of international air traffic in the event of disruption or potential disruption of air traffic services (ATS) and related supporting services and infrastructure in the CAR/SAM Region, in accordance with the provisions of ICAO Annex 11 – *Air Traffic Services*, Chapter 2, 2.32 and its Attachment C. This framework will assist States, air navigation service providers (ANSPs), and involved aviation stakeholders in developing their own national contingency plans. It must be noted that Airports and associated Airport Emergency Plans are not in the current scope of the framework, but can be added in a future version of the RACF.

1.2 The framework includes contingency arrangements and procedures (CA) – a set of predefined contingency scenarios with their associated pre-agreed contingency arrangements and procedures between adjacent area control centers (ACCs), and relevant ATS units when required, that would be applied in most contingency events – to be implemented in cases when the airspace users decide to circumnavigate airspace(s) due to contingency-related events such as armed conflict, adverse weather, natural disasters, or public health emergencies. The framework also includes scenarios when the ATS are disrupted due to events such as ATM system failure, industrial actions, security, or pandemic, which might significantly affect traffic routing and increase air traffic movements in other airspace(s) and require cross-border coordination.

Note. Where the ATS are provided from a centralized area control center based on multilateral agreements among States, arrangements should be implemented to ensure that contingency management is part of such agreements, and special procedures may be required for the relevant ATS units, such as approach and towers in the States concerned. In this context, the term ACC encompasses the ATS units involved in contingency management.

1.3 The framework adheres to the full ATM contingency management cycle, which consists of four Phases: Planning and Preparedness, Response, Recovery, and Post-assessment.

1.4 The framework defines the roles, responsibilities and functions of the Contingency Coordination Committee (CCC), and the ATM Contingency Group (ACG) that manage contingency events from the State side. The framework also describes the role and responsibilities of the Contingency Coordination Teams (CCTs), as a mechanism used with ICAO's support, to ensure effective regional coordination and collaboration in responding to and managing contingency events.

1.5 The framework supports preparedness to address contingency events at the national, regional and inter-regional levels through guidelines on the planning aspects and the arrangements and procedures to be implemented. It also provides guidance on the roles of each stakeholder and the process to be followed.

1.6 The ICAO NACC and SAM Regional Offices will coordinate with ICAO Headquarters and the Regional Offices concerned about any amendments to the RACF and its components.

1.7 The relevant ICAO Regional Offices will distribute this document to all States and international organizations within their regions.

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1.8 This version and its updates are available on the ICAO NACC and SAM Offices websites [link].

1.9 To help keep this document up to date, Stakeholders are encouraged to send their comments/suggestions for improvements to the ICAO NACC or SAM Regional Offices (icaonacc@icao.int or icaosam@icao.int).

1.10 The Framework comprises two main aspects: national and regional, as reflected in **Figure 1**. It also describes the regional ATM contingency planning principles and the basic planning elements.

Scope and scale of contingency response and event

1.11 To establish operational clarity, the RACF delineates the scope of disruptions across three distinct thresholds:

Crisis: The baseline term defining any macro-event (e.g., natural disasters, public health outbreaks) with a major, destabilizing impact on standard operations.

Emergency: A localized, abnormal act or failure directly impacting specific facility or aircraft operations.

Contingency: The specific ATM classification used when a crisis or an emergency degrades service levels or limits airspace availability, requiring a coordinated operational response. Not all emergencies or crises require a contingency response, particularly if they have no impact on regional traffic flow.

Escalation Example: A localized technical emergency, such as a catastrophic power failure resulting in an 'ATS Zero' at a major ACC, can rapidly escalate into a Level 3 contingency event by disrupting traffic flows across multiple neighboring Flight Information Regions (FIRs).

1.12 The following three levels describe the **scale** of a contingency :

Level 1: contingency event remained within the State's delineated airspace that can be managed locally;

Level 2: cross-border contingency event requiring collaboration between two adjacent States; and

Level 3: cross-border contingency event requiring collaboration of more than two States.

1.13 To specify more clearly the necessary mitigation measures for any contingency scenario, the possible degradation of ATS could be due to human resources or any supporting services is presented in 4 statuses:

- ATS Normal,
- ATS Degraded – ATC available with limitations,
- ATS Degraded – FIS and Alerting Service available; and
- ATS Degraded – ATS Zero (complete loss of ATS).

The airspace availability is described in three statuses:

- Airspace Available (full access to the whole airspace),
- Airspace Partially Available (access limited to the portion of the airspace impacted by the contingency event, but aircraft can operate in the other portion of the airspace), and

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– Airspace Not Available (the airspace is closed or avoided by the airspace users, irrespective of whether the ATS is Normal or Degraded).

1.14 The following are the categories of contingency events that identify the **scope** of the event and its potential impact on traffic flows. These categories are based on combinations of airspace availability and status of air traffic services:

Category A – Airspace Available and ATS Degraded – ATC available with limitations.

Category B – Airspace Partially Available and ATS Normal.

Category C – Airspace Partially Available and ATS Degraded – ATC available with limitations.

Category D – Airspace Available or Partially Available and ATS Degraded – FIS and Alerting service available.

Category E – Airspace Available or Partially Available and ATS Degraded – ATS Zero

Category F – Airspace Not Available or Avoided by airlines and ATS Normal or Degraded

1.15 The matrix in **Table 1.** provides the combinations of airspace availability and status of air traffic services:

	ATS Normal	ATS Degraded ATC partially available	ATS Degraded FIS	ATS Degraded Zero ATS
Airspace Available	**Normal Situation**	CAT A	CAT D	CAT E
Airspace Partially Available	CAT B	CAT C	CAT D	CAT E
Airspace NOT Available	CAT F	CAT F	CAT F	CAT F

Table 1. Matrix between airspace availability and status of air traffic services

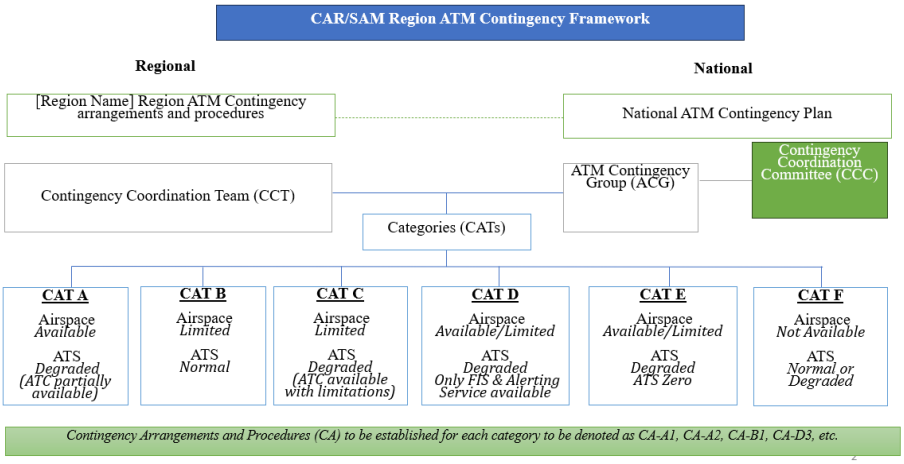

Figure 1. CAR/SAM Region ATM Contingency Framework

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1.16 Contingency events that would impact the availability of airspace and/or the provision of ATS include: industrial action, pandemic, earthquake, adverse weather, ATM system failure, volcanic ash, nuclear emergency, military activity, national security, political unrest, conflict zones, complete loss of facility operational capability, loss of manpower, global navigation satellite system (GNSS) radio frequency interference (RFI), cyber security, major events.

1.17 The relations of different contingency events with the national, regional, and global focus are provided in Table 2, for illustrative purposes (Reference ICAO EUR Doc 031).

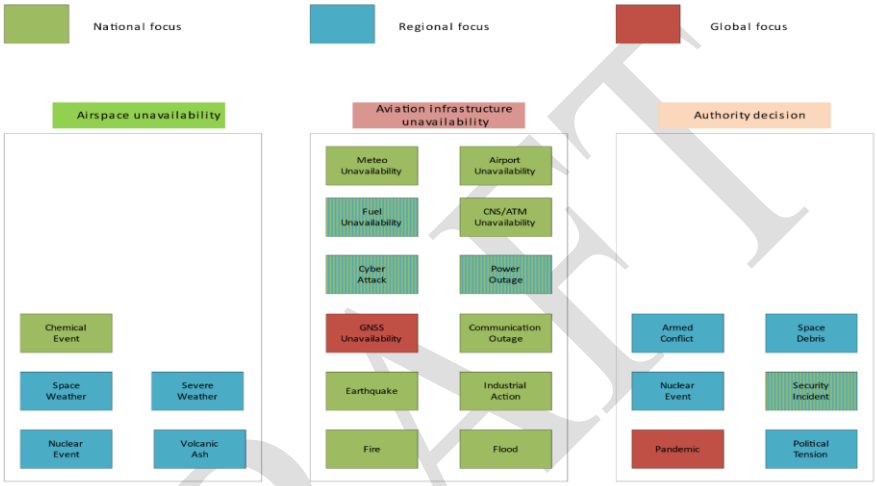

Table 2. Rrelations of different contingency events with the national, regional, and global focus

ATM Contingency Planning Principles

1.18 The ATM contingency planning principles in **Appendix A** form the basis for the development of contingency responses and management of any contingency event including bilateral and multilateral States contingency arrangements and procedures (CAs).

ATM Contingency Basic Planning Elements

1.19 The Basic Planning Elements (BPE) in **Appendix B** define the minimum recommended considerations for inclusion in contingency responses, such as those related to Administration, Plan Management, Airspace Management, ATM Procedures, Pilot/Operator Procedures, Communications Facilities and Procedures, Aeronautical Support services including AIS and MET, and Contact Details of involved facilities and focal points in contingency response and management.

1.20 ANSPs should establish and implement a mechanism to determine the safety and operational impacts of a contingency event promptly to ensure an effective and rapid response to such an event

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1.21 States and ANPSs should include aspects of contingency management in the training programme of all personnel involved in contingency management including those related to the RACF and its components. Workshops and exercises at national, sub-regional, regional and inter-regional levels should be conducted annually to raise awareness and prepare the regions for effective response to contingency events.

CAR/SAM Region ATM Contingency Focal Points

1.22 The list of CAR/SAM Region ATM Contingency Focal Points is available on the ICAO NACC and SAM Offices websites [link]. States and international organizations are urged to keep the contact details of their focal points up to date by contacting the ICAO NACC or SAM Regional Offices (icaonacc@icao.int or icaosam@icao.int).

CAR/SAM Region ATM Contingency Monitoring Mechanism

1.23 The monitoring mechanism and status of CAR/SAM Region's readiness to respond to contingency events are available at the ICAO NACC and SAM Regional Offices websites [links].

MID Region Contingency Risk Register

1.24 A risk registry for contingency events that reflects the assessment of the impact of such events based on their severity and probability should be conducted by the relevant regional group, periodically, but not more than two years apart. The registry is to be maintained on the ICAO NACC and SAM Regional Offices websites [link].

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CHAPTER 2

NATIONAL

2.1 In accordance with Annex 11, air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

2.2 Preparatory actions should include the initial development of contingency plan that covers responses to contingency events categories A to E that are likely to affect the availability of airspace for civil aircraft operations and/or the provision of air traffic services and supporting services.

2.3 The responsibility for appropriate contingency action for airspace over the high seas continues to rest with the State(s) normally responsible for providing the services until, and unless, that responsibility is temporarily reassigned by ICAO to other State(s) in accordance with the provision of Annex 11, 2.32.

2.4 States are required to review their national ATM contingency plan and coordinate any amendments with neighbouring States and ICAO NACC and SAM Regional Offices periodically. Copies of the latest version of the National ATM Contingency Plan should be provided to the ICAO CAR and SAM Regional Offices for posting on their respective websites [link].

2.5 Guidance material, an ATM Contingency Plan Template, and an Emergency Checklist have been developed to support States in developing their national ATM Contingency Plans and responding to contingencies and emergencies. These documents are available on the ICAO NACC and SAM Regional Offices websites [link].

2.6 States are urged to conduct training for the personnel involved in contingency management as well as periodic contingency management tabletop exercises, as these are key elements for effectively responding to and managing a contingency event, supported by ICAO as required.

2.7 States should establish an ATM Contingency Group (ACG) responsible for planning, responding to and managing contingency events. During a contingency event, the ACG introduces contingency arrangements and procedures (in full adherence to CDM principles) and be able to provide up-to-date information at national and regional levels on the situation and associated contingency measures until the situation resumed to normal operation. The ACG should perform its tasks based on an established communication policy and coordination mechanism to communicate with internal and external stakeholders.

2.8 A National Contingency Coordination Committee (CCC), comprising high-level representatives from aviation and non-aviation key stakeholders, should be established to serve as the central authority for information exchange and strategic coordination during disruptions. As the primary decision-making body, the CCC supports the ACG in executing contingency and recovery workflows. The ACG shall maintain a continuous feedback loop with the CCC, providing updates on the situation, the status of implemented measures, operational challenges, and required high-level interventions. If a State possesses an existing national crisis and disaster management entity, a distinct CCC is unnecessary, provided the roles and functions defined in this framework are formally adopted by that entity.

2.9 The terms ACG and CCC are used as indicative names. States might elect to use different terms, especially if already-established entities perform the same tasks.

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2.10 The ACG should be composed of the following as a minimum, other experts and representatives may be invited to join as required:

a) ACC Manager as Lead;

b) Head of or their delegates: AIS, CNS, MET, RCC; Airspace Planning; CAA/ANS (regulator); facility maintenance; airport operation;

c) Military Liaison Officer;

d) Managers or supervisors of other ATS units, as required;

e) Representative(s) of aerodrome, as required; and

f) Representatives of local air operators, as required.

2.11 The ACG functions should include, but not be limited to, the following:

a) develop national ATM contingency plan in coordination with all stakeholders;

b) ensure that all personnel involved in contingency management are competent and well trained;

c) conduct table-top exercises, local, national and cross-border exercises to test the preparedness for responding to contingency events;

d) convene promptly to exchange information to support the assessment of the situation responding to a contingency event;

e) identify which Contingency Arrangements and Procedures (CA) to apply;

In cases when the event is not covered in a CA, then the ACG must explore contingency arrangements and procedures to be implemented;

f) advise and coordinate with adjacent ATS units, ICAO Regional Office, and airspace users (IATA), if no other unit is in place to do so;

g) inform the CCC of the situation and indicate actions required from the CCC, if any;

h) activate the national ATM contingency plan and initiate the implementation of the associated contingency arrangements and procedures as reflected in the relevant CA;

At this stage required NOTAMs should be issued by all the States concerned.

i) keep always updated on the contingency situation;

j) review and update the contingency arrangements and procedures, as required;

k) participate and contribute to the discussions of the contingency coordination team (CCT) when established by ICAO and provide required information and updates;

l) exchange up-to-date information with the adjacent ATS authorities concerned to coordinate contingency measures;

m) notify the designated organizations of the contingency situation sufficiently in advance and/or as soon as possible thereafter;

n) take necessary action to issue NOTAMs in accordance with the contingency plan or as otherwise required by the particular contingency situation. NOTAMs Templates should be prepared in advance and used as far as possible. In the case of foreseeable

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disruption, the advance notice should in any case not be less than 48 hours;

o) prepare actions for the recovery phase - resumption of normal operations;

p) assess and confirm if the situation is rectified and normal operations can be resumed;

q) agree on the deactivation of the contingency plan and advise the CCT, if established, ;

r) cancel the NOTAMs related to the contingency situation; and

s) conduct a post-event assessment for lessons learned

2.12 The CCC should include high-level representation from the following as necessary:

a) Civil Aviation Authority as Lead;

b) ANSPs;

c) Military Authorities;

d) Airport Operators;

e) Airspace users (Commercial air transport, business aviation, general aviation, cargo, state aircraft operations);

f) Meteorological Authority if not part of ANSPs;

g) Search and rescue (RCC, RSCs, and mission control facilities);

h) Ministry of Defence/National Security;

i) Ministry of Finance;

j) Ministry of Interior Affairs;

k) Ministry of International Affairs;

l) Ministry of Health;

m) Ministry of Transportation;

n) Ministry of Communication

o) Other relevant authorities/agencies.

2.13 The CCC functions should include, but not be limited to, the following:

a) convene rapidly to exchange information and provide high-level support and resources to the ACG in responding to and managing contingency events, as required;

b) take actions, such as mobilizing resources for the provisions of ATS;

c) facilitate coordination between civil and military authorities for the effective management of the airspace, including the establishment of contingency routing as applicable;

d) coordinate internally and with the States and organizations concerned for actions that require high-level decision-making, as necessary.

2.14 The following provides the step-by-step actions to be taken in case of a contingency event:

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Note. The title "ACC Manager" is used throughout this document for illustrative purposes; in some States, these functions may be performed by an equivalent position. Additionally, these tasks may be delegated to designated staff acting on behalf of the Manager

1- The ACC supervisor to action as per the applicable standards of operations;
2- ACC supervisor to inform the ACC Manager to assess the situation;
3- ACC Manager as the Lead calls for the ACG;
4- The ACG decides which CA to apply;
5- The ACG Lead advises the adjacent States, ICAO Regional Office and IATA;
6- The ACG Lead informs the CCC, indicating if actions are required from the CCC;
7- ACG Activate the contingency plan (arrangements and procedures to be implemented);
8- NOTAM issuance by all the States concerned (affected FIRs), as applicable;
9- Contingency Response goes Live – ACG to call for meetings (in-person or via video conference);
10- ACG monitors and continuously assesses the situation;
11- ACG reviews and introduces adjacements to the contingency arrangements and procedures as needed;
12- Contingency event ceased – ACC Manager advises the adjacent States and ICAO Regional Office and the CCC;
13- Deactivation of contingency plan (Cancellation of NOTAMs)
14- ACG to carry out a post-implementation assessment for improvements.

2.15 When informing the ICAO Regional Office (ref. step 5) or based on information received by ICAO, a Contingency Coordination Team (CCT), as described in Chapter 3, may be established and follow the following steps:

1- To assess the situation, the need, and the scope of the CCT, the ICAO Regional Officer/ATM (RO) coordinates with the following:
   a. ICAO Headquarters and other Regional Offices concerned;
   b. Contingency Focal Points of States concerned;
   c. IATA; and
   d. Other organizations as needed.
2- ICAO Regional Office activates the CCT and calls for the first CCT Meeting
3- CCT agrees on the implementation of contingency arrangements and procedures (CA);
4- CCT monitors and continuously assesses the situation;
5- ICAO arranges for periodic meetings (usually via web conference) of the CCT;
6- ICAO shares the outcome of CCT meetings and updates received;
7- Contingency event ceased – ICAO deactivates the CCT. In the event of a long running but stable contingency, the CCT may be put into monitoring status; and
8- CCT members carry out post-implementation assessments for improvements.

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CHAPTER 3

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3.1 A Contingency Coordination Team (CCT) would be established with the support of the ICAO NACC and SAM Offices to effectively respond to and manage a contingency event involving more than one State (Level 2 or 3). CCT is a forum for exchanging information related to a contingency event and for agreeing on the implementation of necessary contingency arrangements and procedures in a collaborative manner.

3.2 A Contingency Coordination Team (CCT) should be established from the following members:

- ICAO (Headquarters and Regional Offices);
- States concerned (CAA and ANSPs);
- IATA (representing airspace users affected by the contingency events); and
- other organizations and agencies as deemed necessary.

3.3 The main functions of the CCT are not limited to the following:

- continuous monitoring of the information from all relevant sources;
- initiate action for the activation/deactivation of the contingency arrangements and procedures determined for the contingency event;
- arrange for the constant exchange of relevant information to the ICAO Regional Offices and Headquarters;
- and
- enable the exchange of up-to-date information among States directly concerned and States that would be potentially involved in contingency response; and

3.4 Tactical ATC considerations during periods of overloading may require re-assignment of routes or portions thereof, which might be coordinated through CCT.

3.5 CCT should facilitate the agreement on alternative routes to maximize the use of existing available airspace, level of ATS, and communication, navigation, and surveillance.

3.6 In the event that ATS is disrupted, NOTAM should be published indicating the following:

a) time and date of the beginning of the contingency measures;

b) airspace available for landing and overflying traffic and airspace to be avoided;

c) details of the facilities and services available or not available and any limits on ATS provision (e.g., ACC, APP, TWR and FIS), including an expected date of restoration of services if available;

d) information on the provisions made for alternative services;

e) ATS contingency routes that have been activated as alternate routes;

f) procedures to be followed by neighbouring ATS units;

g) procedures to be followed by pilots; and

h) any other details with respect to the disruption and actions being taken that aircraft operators may find useful.

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3.7 In the event that the State/ANSP is unable to issue NOTAMs, arrangements will be made for another NOTAM Office to issue the required NOTAMs.

3.8 **Draft NOTAMs** are included as templates in each CAs to be used in case of a contingency event.

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3.9 **Contingency Routes (CRs)** might be developed in advance and be included in the Contingency Arrangements and Procedures in case the traffic cannot be accommodated on the current ATS route structure.

3.10 Where possible, aircraft on long-haul international flights should be given priority with respect to cruising levels.

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3.11 It is recognized that operators may incur economic penalties during a contingency event. Therefore, air traffic flow management (ATFM) measures should be implemented to the extent possible to make operations more predictable.

Traffic Information Broadcast by Aircraft (TIBA) Procedures

3.12 Traffic Information Broadcast by Aircraft (TIBA) procedures shall be applied in accordance with ICAO Annex 11 – *Air Traffic Services*, Attachment B. The TIBA frequency for the CAR/SAM Region is XXXXMHZ.

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CHAPTER 4

Contingency Arrangements and Procedures (CA)

4.1 Contingency Arrangements and Procedures (CAs) are designed to bridge the gap between the planning and implementation phases. They may include a set of pre-agreed contingency arrangements and procedures to be implemented by ATS units in response to contingency events.

4.2 The CAs should be developed and maintained based on a determination of the airspace availability and the status of air traffic services to be provided. The matrix below illustrates the link of each CA with the contingency category:

	ATS Normal	ATS Degraded ATC partially available	ATS Degraded Only FIS	ATS Degraded Zero ATS
Airspace Available	**Normal Situation**	CAT A CA-A[number]	CAT D CA-D[number]	CAT E CA-E[number]
Airspace Partially Available	CAT B CA-B[number]	CAT C CA-C[number]	CAT D CA-D[number]	CAT E CA-E[number]
Airspace NOT Available	CAT F CA-F[number]	CAT F CA-F[number]	CAT F CA-F[number]	CAT F CA-F[number]

Table 2. Contingency Arrangements and Procedures (Cas) Matrix

4.3 The CAs therefore cover a comprehensive range of contingency events; however, appropriate contingency arrangements and procedures might be required to address other contextual factors. Therefore, ANSPs are required to effectively engage with their neighboring States, airspace users (IATA) and ICAO, if needed, via the CCT, to agree on the specific CAs for such events.

4.4 CAs are required when the normal arrangements and procedures agreed upon in the ATS letters of agreement (LoAs) between adjacent ATS units cannot be applied, hence they are temporary in anature and should be periodically reviewed and updated as needed.

4.5 The following CAs, that should be detailed utilizing the template in Appendix C, can be populated and reused as required during contingency events. The CAs can be provided on a web-based platform or an app for easy access and utilization:

CA-A1:
Airspace is available as usual, but ATS is degraded due to events such as industrial action, pandemic, earthquake, nuclear emergency, adverse weather, ATM system failure, and GNSS RFI, which would affect the provision of ATS to some extent. In this kind of event, traffic will have access to the entire airspace; however, the ATS unit will be limited in providing services as usual.

CA-B1
ATS is normal; however, the airspace is limited due to contingency events such as Volcanic Ash, nuclear emergencies, military activity, and weather. In this kind of event, traffic would not have access to the affected portion of the airspace; accordingly, the ATS unit will have to accommodate traffic in the available airspace by introducing changes to the ATS route structure.

CA-C1
Airspace is limited, and ATS are degraded due to contingency events such as Volcanic Ash, nuclear emergencies, military activity, ATM system failure and adverse weather. This kind of event requires procedures to circumnavigate traffic away from the affected airspace, taking into consideration the limitations of ATS.

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CA-D1

Airspace is available or limited, but no air traffic control (ATC), only flight information services can be provided, due to a contingency event such as a pandemic, national security, industrial action, or ATM system failure. In this kind of event, air traffic control is affected, but other ATS will remain available or arranged. One contingency measure would be changing the airspace classification to Class G.

CA-E1

Airspace is available or limited, but ATS is unavailable (Zero ATS) due to a contingency event, such as a complete loss of facility operational capability, total loss of manpower, or security. In this kind of event, ATS could not be provided; however, traffic might still have access to, or operate within, the affected uncontrolled airspace. This may require neighboring ATS units to reroute traffic to avoid the affected airspace.

CA-F1

Airspace is not available or avoided due to an imposed closure by the State or when airlines avoid the airspace due to adverse weather, military activities, or natural disaster, despite the status of ATS (normal or Degraded). This kind of event requires neighboring ATS units to reroute traffic to avoid the airspace.

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Chapter 5

Contingency Management Cycle

5.1 The contingency management should be a continuous, cyclic process recognizing that the effective management of disruptive events does not merely begin when air traffic services are lost and ends when the circumstances cease; however, it requires an active progression through four distinct, interconnected phases as illustrated in **Figure 2**:

Phase 1: Be Ready (Prepare/Plan)

Phase 2: Respond

Phase 3: Recover

Phase 4: Review & Improve

Figure 2. Contingency Management Cycle

5.2 By systematically applying these four phases, the region ensures that the aviation network maintains the maximum possible resilience, safety, and continuity during non-normal operations.

Phase 1: Be Ready (Prepare/Plan)

5.3 The foundational phase of the regional contingency loop focuses on proactive risk management, capability building, and vulnerability reduction.

5.3.1. Airspace Contingency Planning and Agreements:

a) Promulgation of Plans: States must establish, promulgate, and maintain proactive contingency plans to address anticipated threat levels before an emergency unfolds.

b) Bilateral and Multilateral Frameworks: States should establish formal cross-border understandings and regional coordination mechanisms to handle localized or widespread

airspace closures effectively.

5.3.2. Threat and Safety Risk Assessments (SRA):

5.3.3. Hazard Identification: Regions must implement dynamic Hazard Identification and Risk Assessment (HIRA) processes to scan the horizon for geopolitical conflicts, severe weather, volcanism, public health crises, and system vulnerabilities.

a) The "Three Rs" Principle: Planners must integrate Redundancy, Robustness, and Resiliency into critical ATM/CNS network layers. This includes preserving a Minimum Operational Network (MON) to safeguard navigation against primary system failures or signal degradation (e.g., systemic GNSS RFI).

5.3.4. Training, Testing, and Joint Exercises:

a) Contingency management should be included in the training programmes of all personnel involved in contingency management.

b) Simulations and Desktop Exercises: Airspace authorities, ANSPs, and aircraft operators must participate in desktop scenario training, computer simulations, and live "stress test" exercises.

c) Regional Validation: Multi-national coordination exercises must be conducted at least once every two years with adjacent flight information regions (FIRs) to identify single points of failure and validate cross-border handling procedures.

Phase 2: Respond

5.4 The response phase is triggered when an unusual, hazardous, or disruptive event alters nominal service levels or compromises regional airspace integrity.

5.4.1. Contingency Coordination Team (CCT) Activation

a) Level 1 Contingency will be managed by the ACG, keeping the ICAO Regional Office apprised of the development as required.

b) Operational Bridging for Level 2 or 3: Upon a severe regional disruption, a CCT is activated to serve as an operational bridge between affected ANSPs, adjacent States, and international operators (including IATA).

c) Tactical Flow Management: The CCT exchanges information among its members and coordinates contingency arrangements and procedures as required to ensure the safety and continuity of the traffic flow.

5.4.2. Civil-Military Cooperation and Dynamic Airspace Management

a) Airspace avoidance: in case of hazardous activities to civil aircraft, safety protections must be implemented immediately through the temporary designation of restricted areas over a State's sovereign airspace or only danger areas over high seas.

b) Promulgation of Constraints: All critical route adjustments, security constraints, and service degradations must be immediately broadcast via standardized, explicit NOTAM templates to maintain absolute network transparency.

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c) Dynamic airspace management: through effective civil-military cooperation, manage the restricted areas (releasing them or changing their dimensions and time), allowing for the prompt establishment of contingency routing to support avoiding the affected airspace.

5.4.3. Interface with ICAO Headquarters Crisis Management Framework

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a) Escalation and Verification: If a disruption exceeds standard localized coping procedures or involves massive UN humanitarian responses, Regional Offices will interface with the ICAO Crisis Manager to verify and formally declare a designated crisis.

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b) Unified Communications Protocol: To prevent misinformation, all official communications and public statements during an officially designated crisis must be funneled exclusively through the ICAO Manager and senior legal/external relations teams.

Phase 3: Recover

5.5 The recovery phase manages the orderly transition from emergency/degraded contingency configurations back into normalized, baseline air traffic management operations.

5.5.1. Infrastructure Restoration and Stabilization

a) System Re-verification: Prior to restoring normal flight routing parameters, verification should be conducted for the infrastructure and facilities if they were impacted by the contingency events.

b) Workforce readiness: verification of the readiness of all personnel involved in the provisions of ANS.

c) Notification: ensure aeronautical information is published well in advance to provide airspace users sufficient time to accommodate the changes in their operations.

d) Handling Priority Air Traffic: During the recovery curve, priority should continue to be given to handling, parking allocation, and logistical provisioning to arriving or departing international humanitarian, search and rescue (SAR), and relief operations.

5.5.2. Stabilization of Contingency Teams

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a) Gradual Deactivation: CCT and regional response components must remain active and accessible via a stable deactivation curve rather than shutting down abruptly. Oversight bodies must verify that the regional operational environment has permanently stabilized before formal deactivation occurs.

b) Deactivation: Once it has been concluded that the operation is normal, the CCT will be deactivated by the ICAO Regional Office.

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Phase 4: Review and Improve

5.6 As shown in **Figure 2.,** the loop connects the end of an operational cycle back to preparedness through comprehensive debriefing and systemic modification.

5.6.1. Post-Event Analysis and Just Culture

a) Non-Punitive Systemic Debriefing: As soon as practicable following a contingency deactivation, a rigorous post-event evaluation must collect comprehensive feedback from all

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participating ANSPs, regulators, military stakeholders, and aircraft operators.

b) Focus on Learning: Consistent with a Just Culture, the evaluation must avoid individual finger-pointing or blaming human errors. Instead, it must look structurally at system interfaces, procedure omissions, and latent technical holes.

5.6.2. Build Back Better" and Documentation Revision

a) Integrating Lessons Learned: Findings from the review process must be incorporated into updated regional policies, organizational manuals, and local emergency frameworks to proactively mitigate future cost, safety, and efficiency degradations.

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b) Regulatory Compliance Reporting: To evaluate the ongoing success of these modifications, States within the region must complete and submit updated contingency plans to their accredited Regional Office at least once per calendar year.

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CHAPTER 6

CAR/SAM ATM VOLCANIC ASH CONTINGENCY PLAN

6.1. The ICAO Air Traffic Management Volcanic Ash Contingency Plan Template provides information on terminology related to volcanic ash contingency responses, and the *pre-eruption*, *start of eruption*, *on-going eruption* and *recovery* phases of volcanic ash cloud events. Information is also provided on air traffic services procedures, and on-air traffic flow management procedures.

6.2. The phases of volcanic eruption activity may be summarized as follows:

Pre-Eruption Phase: a volcanic eruption is expected.

Start of Eruption Phase: commences with the outbreak of the volcanic eruption and entrance of volcanic ash into the atmosphere.

On-going Eruption Phase: commences with the issuance of the first volcanic ash advisory (VAA) containing information on the extent and movement of the volcanic ash cloud.

Recovery Phase: commences with the issuance of the first VAA containing a statement that no volcanic ash is expected.

6.3. The actions to be taken by relevant Volcanic Observatories, Volcanic Ash Advisory Centres (VAAC), MWOs, AIS Units and ACCs are described in ICAO Doc 9766 – *Handbook on the International Airways Volcano Watch (IAVW)*.

6.4. Operators are required by ICAO Annex 6 – *Operation of Aircraft* to implement appropriate mitigation measures for volcanic ash in accordance with their safety management system (SMS), as approved by the State of the Operator/Registry. This document assumes that ICAO requirements regarding safety management systems have been implemented by all States and aircraft operators. Detailed guidance on Safety Risk Assessments (SRAs) for flight operations with regard to volcanic ash contamination can be found in the manual on *Flight Safety and Volcanic Ash – Risk Management of Flight Operations with Known or Forecast Volcanic Ash Contamination* (ICAO Doc 9974)

6.5. States' regulatory provisions and arrangements should be reviewed to ensure that, in accordance with the guidance provided in ICAO Doc 9974:

a) Aircraft operators are required to include in their safety management system (SMS) an identifiable safety risk assessment for operations into airspace forecast to be, or at aerodromes known to be, contaminated with volcanic ash

b) Safety oversight procedures are used for the evaluation of operators' capability to conduct flight operations safely into airspace forecast to be, or aerodromes known to be, contaminated with volcanic ash.

6.6. States' airspace and airport management policies and procedures should be reviewed to

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ensure that (in accordance with the guidance provided in ICAO Doc 9974 – *Flight Safety and Volcanic Ash* and the provisions of ICAO Doc 4444 – *PANS-ATM*, 15.8.1c and Note 2):

a) Airspace affected by volcanic ash cloud should not be 'closed'.

b) Specification in NOTAM of alternate routing or other air traffic flow management (ATFM)[1] measures to manage airspace constraints arising from volcanic ash cloud should be solely for the purpose of ensuring the predictability and regularity of air traffic, and should be based on an assessment of capacity and demand in airspace affected by volcanic ash and/or or by aircraft avoiding the volcanic ash cloud

c) NOTAM specifying alternate routing or other ATFM measures related to a volcanic eruption or volcanic ash cloud should be issued separately from the ASHTAM/NOTAM issued in accordance with Annex 15, 5.1.1.1, r and u;

d) Aerodromes should only be closed by NOTAM for periods of observed volcanic ash contamination of the surface of the aerodrome movement area;

e) Airport capacity limitations of alternate aerodromes, including apron capacity, should be considered, and recommendations for the use of other alternates considered for inclusion in NOTAM (in c, above);

f) If required by State regulations, any declaration of a Danger Area or Restricted Area should be confined to the pre-eruptive or erupting volcano and the area containing its forecast or observed ejecta[2].

6.7. To ensure effective volcanic ash information, coordination and collaboration, States should:

a) Establish a mechanism to provide regular and timely updates of information during a volcanic eruption and/or ash cloud event to ensure all stakeholders are up to date with current information, situation reports and contingency planning;

b) participate in volcanic ash exercises; and

c) consider establishing an internal crisis management centre, where applicable, to support the collaborative and timely sharing of information such as volcanic eruptions or other crises that will have a significant impact on airport and/or airspace management

Note: This is supplemental to the provisions of Annexes 3 and 15.

6.8. AIS units are required under the provisions of Annex 15 to issue information relating to volcanic ash cloud. Information may be issued in either NOTAM or ASHTAM format. Annex 15 specifies that ASHTAM shall include *Item E — Color code for level of alert indicating volcanic activity*. Color-coded levels for volcanic activity are not provided by all volcanic observatories and/or Volcanic Ash Advisory Centres (VAACs) in the Asia/Pacific Region, and only one State issues ASHTAM. NOTAM format should be used to disseminate volcanic ash cloud information.

6.9. NOTAM issued for volcanic eruption or volcanic ash cloud should include all items of information listed in the ASHTAM format except item I (closure of airspace and/or air routes). Color-

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coded activity level information may be included in NOTAM if available.

6.10. Each State should ensure that a list of volcanoes relevant to the State is maintained at all International NOTAM Offices, with volcano name, number and nominal position.

6.11. ICAO Doc 9691 *Manual on Volcanic Ash, Radioactive material and Toxic Chemical Clouds* Appendix E – *Cross reference list of volcanoes and navigation aids* provides a list of ICAO registered volcanoes. The information provided includes the following note:

> *Note: Doc 9691 Appendix E requires that another list, the List of Volcanoes of the World for VAAC Use, available at http://www.volcano.si.edu/projects/vaac-data/ and maintained by the Global Volcanism Program of the Smithsonian Institution, should be used in case of any discrepancy between the Smithsonian database and the list published in Doc 9691 Appendix E.*

6.12. The List of Volcanoes of the World for VAAC Use (Smithsonian Institution) should be considered the definitive list of volcanoes for use in the CAR/SAM Region. The List of volcanoes is updated frequently, without notification. States should ensure that relevant NOTAM Offices include in their local procedures provisions for frequent checks of the list to ensure any changes are recorded and used in ASHTAM/NOTAM and NOTAM Templates.

6.13. The CAR/SAM Region Volcanic Ash Plan is available on the ICAO NACC and SAM Regional Offices websites [Link].

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APPENDIX A: ATM CONTINGENCY PLANNING PRINCIPLES

1. Area Control Centres (ACCs) and Flight Information Centres (FICs) should have a National ATM Contingency Plan to ensure the safe transit of international traffic in the event of disruption or potential disruption of ATS and related supporting services in the airspace for which they are responsible. ATM Contingency arrangements and procedures" would refer to measures with cross-border aspects (Level 2 or 3 of the RACF).

2. The overriding principle is that safety has primacy over efficiency and optimal levels and routes;

3. Contingency Operations might necessitate lower than normal airspace capacity to ensure safety.

4. System and ATC service redundancy are the most effective contingency capability.

5. Contingency Plan should define the following where applicable:

   a. Contingency Routes supported by Flight Level Allocation Scheme (FLAS) and minimum navigation and height-keeping (e.g. RVSM or non-RVSM) capability for access;

   Note: Contingency Route and/or FLAS need not be defined as the Contingency Plan states that all routes and/or levels remain available during contingency operations.

   b. provisions for tactical definition and coordination of additional routes/FLAS and priority for access to accommodate selected non-scheduled operations such as humanitarian, medical evacuation and flood and fire relief (FFR) flights;

   c. priority determination for routine scheduled and non-scheduled flights;

   d. flights excluded from operations in contingency airspace, and minimum navigation and height keeping (RVSM) capability required for access to the contingency airspace;

   e. specified minimum longitudinal spacing between consecutive aircraft entering the contingency airspace on non-separated ATS contingency routes;

   f. Contingency communication arrangements including means of communication within contingency airspace and communications transfer arrangements for aircraft entering and leaving the airspace;

   g. Details of delegation of air traffic services arrangements (if any);

   h. Contingency points of contact

6. Contingency arrangements and procedures (arrangements between neighboring administrations) should be included in bilateral or multilateral agreements between States in all cases where the activation of the Contingency Plan would impact upon a neighboring State.

7. Close cooperation between neighboring administrations, together with supporting mechanisms for the tactical definition and promulgation of contingency routes.

8. Contingency routes must be vertically separated whenever lateral route spacing is less than the minimum specified by the State for contingency operations.

9. FLAS planning should include consideration of allocating the optimum flight levels to routes used by long haul aircraft, depending on the traffic density on the route, wherever practicable.

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10. Spacing between contingency ATS routes should be in accordance with the applicable separation described in the *Procedures Air Navigation Services – Air Traffic Management (Doc 4444) and Regional Supplementary Procedures (Doc 7030).*

11. Minimum longitudinal separation between aircraft operating on the same contingency route and not vertically separated should be 15 minutes or 120 NM. However, this may be reduced to 10 minutes or 80 NM in conjunction with application of the Mach number technique authorized by the relevant authority and agreed in the appropriate LoAs or other contingency arrangements and procedures.

12. Contingency ATS routes and FLAS, and contingency procedures, should be agreed between geographically grouped neighboring States to form sub-regional contingency plans.

13. Contingency ATS routes should be published in the State AIP to permit the storing of route details in airspace users' navigation databases. Contingency arrangements and procedures should include the sovereign and, if applicable, also the High Seas part of the airspace.

14. Airspace classifications for ICAO Classes A, B, and C airspace should remain unchanged as practicable during contingency operations to facilitate managed access to the airspace in accordance with the contingency plan. Classes D and E airspace may be reclassified as Class C or higher where necessary to preclude VFR operations.

15. Ground and airborne navigation requirements should be defined if necessary

16. Alternate aerodromes should be specified where necessary for the readiness of the airport control towers, approach units and airport operators.

17. Airspace affected by volcanic ash cloud should not be closed to international civil aviation, where operators comply with the relevant ICAO provisions.

18. Amended ATS routes, whether published or promulgated ad-hoc, may be prescribed as part of the air traffic flow management (ATFM) response to expected demand and capacity imbalance caused by aircraft avoiding volcanic ash cloud.

19. Aerodromes should only be closed by NOTAM for periods of observed volcanic ash contamination of the surface of the aerodrome movement area.

20. Closure of airports affected by volcanic ash deposition should be supported by a safety assessment conducted in collaboration between airport operators, aircraft operators and the air navigation service provider, in accordance with their respective safety management systems.

21. Civil aircraft operations over or near conflict zones should be in accordance with ICAO Doc 10084 and ICAO Doc 9554.

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APPENDIX B: BASIC PLAN ELEMENTS of a Contingency Plan

Element 1: Administration

a) Record of signatories, version control and records of amendment.

b) Definition of the objectives, applicable airspace and operations, and exclusions.

Element 2: Plan Management

c) List of States and FIRs affected, and the agreed methods of notification in the event of pre-activation, activation and termination of the plan.

Contingency events may arise with insufficient advance notice to permit pre-activation of contingency plans

d) Details of the arrangements in place for management of the plan, including:

i. Establishment of ATM Contingency Group (ACG) for 24-hour responding to and management of contingency and coordination of operational and supporting activities under the contingency plan; and

ii. establishment of a Contingency Coordinating Committee composed of high-level representatives from aviation and other stakeholders to act as a central agency for the purpose of exchanging information and coordinating activities during disruption. The CCC provides required high-level support to ACG and takes necessary action to restore the situation.

e) Details of testing, review and reporting actions:

i. schedule of desktop and simulator testing;

ii. post-activation review (PAR) requirements:

- a preliminary PAR report within 28 days of any activation or testing of contingency plans, including any recommendations to address deficiencies and implement improvements in contingency plans, arrangements, procedures and training.
- a more comprehensive PAR report should be prepared for major contingency events, or any contingency event involving an air safety incident investigation.

A full PAR analysis of major events could take many months to complete.

- input to the PAR from all parties affected by or involved in the response to the contingency is actively sought and considered;
- bi-lateral or multi-lateral PAR for activation or testing of Level 2 and 3 contingency arrangements and procedures;

iii. timely reporting to ICAO APAC RO and other affected States of anticipated or experienced disruptions requiring activation of contingency plans.

f) inclusion of contingency plans, arrangements and procedures in ATS and other involved personnel etraining and refresher training programmes;

g) raising awareness of all parties involved in contingency.

Element 3: Airspace

h) Procedures for dynamic management of the airspace;

Guidance on the dynamic management of restricted, prohibited and danger areas as well enhanced flexible sue of airspace are contained in the ICAO manual *on Civil-Military in Air Traffic*

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Management (Doc 10088).

i) Criteria for airspace classification changes and associated separation;

j) CNS status and performance requirements; and

k) Implementation of oriented track system in collaboration with neighbouring ACCs.

l) Procedures for the Prior Permission Required (PPR) aeronautical information publication when required to access the airspace.

Element 4: ATM Procedures

m) Details of re-routing to avoid the whole or part of the airspace concerned, normally involving establishment of:

i. strategic and tactical collaborative oriented track system providing additional routes or route segments with associated conditions for their use; and/or

ii. a simplified route network through the airspace concerned, together with a FLAS, to ensure that a standard minimum vertical separation is applied where less than a specified minimum lateral separation exists between routes.

n) details of how domestic traffic, departing and arriving flights and SAR, humanitarian and State aircraft flights will be managed during the contingency period.

o) procedures for transition from normal services levels to contingency services, and resume normal service.

p) procedures for joining or departing a contingency route.

q) details of reduced levels of service, if any, within the affected airspace.

r) establishment of arrangements for controlled access to the contingency area to prevent overloading of the contingency system, utilizing allocated airspace entry times or, where ATFM capability exists, tactical ATFM measures.

s) procedures for adjacent service providers to establish longitudinal spacing at the entry point, and to maintain such separation through the airspace;

t) reassignment of responsibility for providing air traffic services, to the extent possible, in non-sovereign airspace and to international aircraft transiting sovereign airspace; and/or

u) coordination and communications transfer procedures for aircraft entering and leaving the affected airspace.

Element 5: Pilot/Operator Procedures

v) requirements for flight plan submission during the contingency period, including contingency route planning requirements, and arrangements if airspace is restricted or not available and no contingency route is available;

w) emergency procedures, including TIBA and/or in-flight requirements for broadcast of position and other information, and for continuous listening watch, on specified pilot- pilot and GUARD VHF frequencies;

x) requirements for display of navigation and anti-collision lights;

y) requirements for climbing and descending well to the right of the centerline of specifically identified routes;

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z) requirements for all operations to be conducted in accordance with IFR, including operating at IFR flight levels from the relevant Table of Cruising Levels in Appendix 3 of Annex 2, except when modified by a FLAS.

Element 6: Communications Facilities and Procedures

aa) provision and operation of adequate air-ground communications, AFTN and ATS direct speech links;

bb) specification of radio frequencies to be used for particular contingency routes.

cc) log-on and connection management for CPDLC aircraft, where appropriate;

dd) use of ADS-C automatic position reporting in lieu of voice position reporting to ATS.

Element 7: Aeronautical Support Services including AIS and MET

ee) AIP Information regarding the Contingency Planning, and notification by NOTAM of anticipated or actual disruption of air traffic services and/or supporting services, including associated contingency arrangements, as early as practicable and, in the case of foreseeable disruption, not less than 48 hours in advance.

ff) reassignment to adjacent States of the responsibility for providing meteorological information and information on status of navigation aids.

Element 8: Contact Details

gg) contact details for the RCC responsible for the affected FIR(s), and coordination arrangements.

hh) contact details of adjacent States ANSPs and other international organizations participating in the contingency plan.

ii) prior notification requirements for adjacent FIR activation of Level 2 and 3 contingency arrangements.

Note: The first priority response to any short notice contingency response should be the immediate handling of the air situation, followed by the activation of the contingency plan.

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[ACC]

Contingency Arrangements and Procedures (CA-A1)

This CA contains arrangements to ensure the continued safety of flight operations during the disruption. The plan has been prepared in accordance with ICAO Annex 11 ─ *Air Traffic Services,* Chapter 2, paragraph 2.32 and Attachment C to provide the ATS procedures, contingency route structure, and other arrangements, to be used on a temporary basis, while air traffic services are being provided from **[ATS Unit NAME]** but with some limitation than normal situation.

Point of Contact Name:	**Contact details:**	**Agreed Date:**

Airspace Status	**ATS Status**	**Level of Response**

Airspace	Available	Partially Available	Not Available

ATS	Normal	ATC available with limitations	FIS and Alerting services are available	Zero ATS

	States
Level 1 – One State	
Level 2 – Two adjacent States	
Level 3 – more than two States	

Events details

Due to: (select from risk register what to apply)	Date:	Start Time:

Example:
ATCO shortage (or strike)
ATM System failure
VAC
Natural Disaster
Power supply/infrastructure failure

GNSS interference/spoofing
Cyber attack
Weather
Airport unavailability
Other (e.g. SWX space weather, Pandemic, fuel shortage)

	Status
COM	
SUR	
NAV	
Aerodrome	

Conditions: (depending on the percentage of impacted ATS operations, a description of "What has to be done to solve the issue by whom and when " has to be defined)	Description
Explain the cause:	

Actions		**Status**
Adjacent ACCs	Contact	
ACC A		
ACC B		
ACC C		
IATA		
ICAO		
ATS OPERATIONAL PROCEDURES		

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Issuing NOTAM		
Rerouting scheme		
Separation standards LAT LONG		
Separation standards Vertical		
ATFM Flow Control		
Capacity Restrictions/Limitations		
Level Restrictions or FLAS		
Airspace Classification		
Transfer of Control		
Position Reporting TIBA		
Overflight Permissions		
Instructions for Overflying traffic		
Procedures for flights to/from airports inside [Name of States]		
Filing of flight plans		
Pilot operating procedures		
Prior Permission Required (PPR)		
Interception of civil aircraft		
Airport impacts		

— END —

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