AP/ATM/10
WP/16
11/04/05

International Civil Aviation Organization
UNDP/ICAO Regional Project RLA/98/003
Transition to the CNS/ATM Systems in the CAR and SAM Regions

Tenth Meeting/workshop of Air Traffic Management (ATM) Authorities and Planners of the CAR and SAM Regions

(Lima, Peru, 10 to 14 May 2005)

Agenda Item 3: Review of RVSM issues in the CAR/SAM Regions

d) Scrutiny Group (S/WG)

SCRUTINY WORKING GROUP, TERMS OF REFERENCE AND LARGE HEIGHT DEVIATION (LHD) ANALYSIS

(Presented by the United States)

Summary

This Working Paper presents background information on the establishment of a Scrutiny Working Group in the CAR/SAM Regions, the corresponding terms of reference, descriptions of the LHD database content criteria, and the RVSM codes used to identify vertical errors.

1. Introduction

1.1 ICAO Doc. 9574, Manual on Implementation of a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive, calls for regional review of large height deviations occurring in areas in which Reduced Vertical Separation Minimum has been implemented. In other regions a Scrutiny Working Group has been established to perform such review.

2. Background

2.1 In the report of the RVSM Task Force Safety and Airspace Monitoring Working Group, Agenda Item 3, of the 9th meeting of the CAR/SAM Air Planners and Air Traffic Managers (AP/ATM/9) the Group determined in **Conclusion AP/ATM/9/7** – *That GREPECAS establishes a scrutiny group to analyze the LHD with the terms of reference and composition shown in Appendix A to this part of the report.*

3. Discussion and Analysis

3.1 SAM/WG report of AP/ATM/9 meeting requested *To that effect and in order to obtain the formal approval of the States/Territories/International Organizations, the Secretary of GREPECAS will be requested to use the GREPECAS Administration Coordination Group (ACG) fast-track mechanism.*

3.2 **Appendix A** of this Working Paper contains the Terms of Reference and composition of the CAR/SAM RVSM Scrutiny Working Group (RVSM/SWG).

3.3 **Appendix B** of this Working Paper, titled *Large Height Deviation Database Contents and Analysis,* may be used as a guide for the work of the CAR/SAM RVSM/SWG. The RVSM/SWG will modify this guidance to meet situations that are specific to the CAR/SAM regions.

3.4 Discussion has revealed that the English phrase, "Scrutiny Working Group," does not easily translate into the Spanish language. The RVSM Task Force may want to devise a more suitable name for the group that will "identify large height deviation trends and to recommend remedial actions in order to improve safety". One option would be to use the name CAR/SAM "Safety Management Coordinating Group" harmonizing with the name adopted by the North Atlantic Region.

4. Action Suggested

a) That the member States/Territories/International Organizations listed in Appendix A, provide qualified individuals to meet during AP/ATM/10 to work in compliance with the Terms of Reference shown in **Appendix A**.

b) To address the difficulty of translating the English phrase, "Scrutiny Working Group," into the Spanish language and in keeping with emphasis of ICAO on System Safety, the RVSM Task Force considers changing the name of the Scrutiny Working Group to "CAR/SAM Safety Management Coordinating Group."

APPENDIX A

TERMS OF REFERENCE OF THE CAR/SAM RVSM SCRUTINY GROUP (RVSM/SWG)

a) To assemble subject matter experts, as needed, in air traffic control, aircraft operations and maintenance, regulation and certification, data analysis and risk modeling;

b) To analyze and evaluate large height deviations of 300 ft or greater as defined by ICAO Doc 9574;

c) To coordinate the assembly and review of large height deviation data with the Regional Monitoring Agency;

d) To produce an estimate of flight time away from the cleared flying level to be used a primary input in the preparation of an estimate of risk by the Regional Monitoring Agency;

e) To identify large height deviation trends and to recommend remedial actions in order to improve safety;

f) To report results to GREPECAS through the ATM/CNS subgroup;

g) To accomplish other tasks as directed by GREPECAS.

Composition: 1 State/Organization from the CAR Region, 1 State/from the SAM Region, United States, CARSAMMA, COCESNA, IATA, IFALPA, IFATCA.

Appendix B

Large Height Deviation Database Contents and Analysis

Description of Criteria

Note: *The following terms, expressions and definitions are not approved by the ICAO's Council and should be used for analysis of Large Height Deviation purpose only.*

Cleared Flight Level – the flight level at which the pilot was cleared or currently operating (e.g. Aircrew accepts a clearance intended for another aircraft and ATC fails to capture the read back error or aircrew conforms to a flawed clearance delivered by ATC)

Reference Flight Level – The altitude that would have provided at least the minimum separation (vertical or horizontal) required

That flight level from which the Height Deviation is calculated; this level may be different from the Cleared Flight Level and must often be determined by the Scrutiny Group operational experts from the data in the Large Height Deviation report

Event Flight Level – the flight level of error, the incorrect altitude of operation for an identifiable period of time without having received an ATC clearance

Height Deviation – any altitude variation of 300ft or greater from the assigned altitude or as planned by ATC, these variations can be the result of turbulence, equipment malfunction, ATC loop errors, etc.

ATC Loop Errors – any incident where there is a misunderstanding between the pilot and the controller, failure to properly coordinate altitude information or unable to maintain situational awareness

Total Deviation – the total amount of feet between the altitudes of current operation prior to the deviation and the point at which the aircraft is once again under ATC supervision, a deviation that resulted in an increase of altitude will be recorded as a positive number, a deviation that resulted in a decrease of altitude will be recorded as a negative number

Hazard Zone – 300ft buffer zone above and below each flight level (Diagram B-1).

Duration - length of time that an aircraft was level at an altitude that was not cleared by air traffic control, duration will be recorded in one second increments (Diagram B-1).

Levels Crossed – the total number of flight levels between the point that the aircraft exits the cleared flight level and is once again under ATC supervision (Diagram B-1).

Levels Final – the cleared flight level after the error/deviation.

Code – a category and a subcategory assigned to each event (Diagram B-2).

Rate of Descent		**Rate of Climb**	
Drift	1000 ft per minute	Minimum	500 ft per minute
Normal	1500+ ft per minute	Normal	750 ft per minute
Rapid	2500+ ft per minute	Expedite	1250 ft per minute

Diagram B - 1

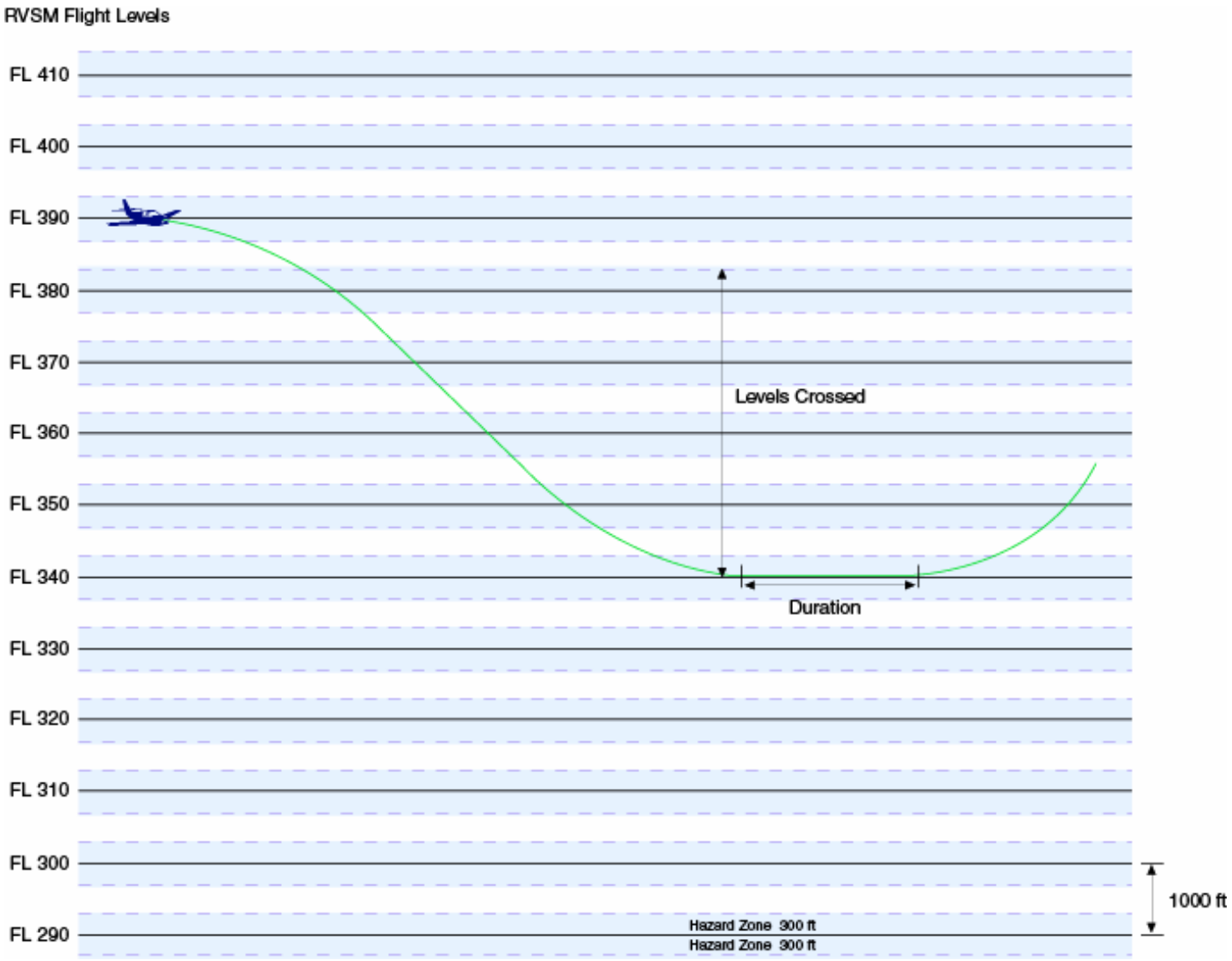
RVSM Flight Levels
FL 410
FL 400
FL 390
FL 380
FL 370
FL 360
FL 350
FL 340
FL 330
FL 320
FL 310
FL 300
FL 290
Levels Crossed
Duration
1000 ft
Hazard Zone 300 ft
Hazard Zone 300 ft

Diagram B – 2

Codes for Vertical Errors

Category	Description
1	Final level within RVSM airspace
2	Final level above RVSM airspace
3	Final level below RVSM airspace
Subcategory	**Description**
A	Contingency action due to engine fault
B	Contingency action due to pressurization failure
C	Contingency action due to other cause
D	Failure to climb/descend as cleared
E	Climb/descent without ATC clearance
F	Entry to RVSM airspace at an incorrect level
G	ATC FL re-clearance resulting in a loss of lateral or longitudinal separation
H	Deviation due to ACAS
I	Aircraft unable to maintain level
J	ATC failure to correctly record, coordinate, or follow through on FL changes an /or other clearances
K	Aircrew not maintaining level as cleared
L	ATC failure to capture incorrect read back of control instructions, fails to maintain situational awareness, or fails to resolve transposed call signs
M	Actions taken due to mechanical or equipment failure
O	Other
W	Weather