International Civil Aviation Organization
Eastern and Southern African Office

Eleventh Meeting of the APIRG Air Traffic Services, Aeronautical Information Services and Search and Rescue Sub-Group (ATS/AIS/SAR/SG/11)
[Nairobi, Kenya 26 – 30 April 2010]

Agenda Item 5: RVSM Operations and Monitoring

- **Implementation of Strategic Lateral Offset Procedures in the AFI Region**

(Presented by IATA)

SUMMARY

The 10th Meeting of APIRG ATS/AIS/SAR Sub-group (Dakar, May 2009) requested AFI States to implement strategic lateral offset procedures (SLOP) as a means of enhancing safety by reducing the risk of collision in case of loss of vertical separation.

This working paper recommends an immediate application of SLOP procedures for en-route operations within the AFI Region, based on experience gained in other ICAO Regions and lessons learnt from AFI RVSM safety assessments.

REFERENCES:

- ICAO Annex 2 and Doc 4444 - PANS-ATM.
- ATS/AIS/SAR/SG/10 Report.

1. INTRODUCTION

1.1 ICAO has developed guidance material for strategic lateral offset procedures (SLOP), which are contained in ICAO Doc 4444 – PANS/ATM, Paragraph 15.2.4. Annex 2, 3.6.2.1.1, requires authorization for the application of strategic lateral offsets from the appropriate ATS authority responsible for the airspace concerned (see **Appendix A** to this paper). Such procedures, which are particularly relevant in an RVSM environment, have already been implemented in other Regions, including in some AFI FIRs (EUR/SAM Corridor). Strategic lateral offsets are being used by operators in the AFI Region, in an uncoordinated manner.

1.2 After noting the successful implementation of RVSM in the AFI Region on 25 September 2008, APIRG ATS/AIS/SAR Sub-group agreed to step forward with the application of SLOP procedures in the AFI region in order to increase air navigation safety (Conclusion 10/03 refers). The Sub-group particularly requested AFI States to implement strategic lateral offset procedures in selected areas.

2. DISCUSSION

Characterization of AFI airspace

2.1 In many flight information regions (FIRs), further extension of VHF or radar coverage cannot be implemented due to natural obstacles or difficulties in accessing preferred facility locations (forests, deserts, and oceanic areas). For this reason, AFI FIRs are generally characterized as remote continental areas for planning purposes. In the performance-based navigation (PBN) domain, the same navigation specifications which are applicable to oceanic and continental remote areas, i.e. RNP10 and RNP4, have been retained as the appropriate navigation specifications for en-route operations in the AFI Region.

Risk Mitigating Effect of Strategic Lateral Offset Procedures (SLOP)

2.2 RVSM safety assessment shows that the precision of lateral navigation is an important factor with regard to vertical collision risk. A general assumption is that 50% of the flying time is being made with GNSS navigation and the remaining 50% with VOR/DME navigation, while an extended use of GNSS navigation should have a risk increasing effect. For example: an increase of the GNSS flight time proportion to 75% would cause the estimate of the technical vertical risk to increase by a factor of approximately 1.5.

2.3 Therefore, the risk mitigating effect of strategic lateral offset procedures (SLOP) cannot be overemphasized.

Recommended Air-to-Air Frequency for SLOP Coordination between Pilots

2.4 It is proposed that pilots use VHF Frequency 126.9 MHz to coordinate SLOP procedures (instead of 123.45 MHz as specified in Doc 4444). This would avoid proliferation of air-to-air frequencies in AFI airspace where IATA In-Flight Broadcast Procedure (IFBP) is applied in most FIRs. In doing so, AFI States should indicate this fact in their AIPs, Part 1 (GEN), as a ‘significant difference’ to the PANS-ATM as described under Annex 15, 4.1.2-c. It should also be reflected in ICAO Doc 7030 - *Regional Supplementary Procedures*.

3. ACTION TO BE TAKEN BY THE MEETING

3.1. The meeting is invited to request:

1) That AFI States:

a. Authorize the application of special procedures for strategic lateral offsets for en-route operations in oceanic and remote continental airspace within AFI Region;

b. Publish in their AIPs the special procedures for strategic lateral offsets, as contained in ICAO Doc 4444 – PANS/ATM, Paragraph 15.2.4, for applicability as from 29 July 2010 (AIRAC);

c. Consider the use of the air-to-air frequency 126.9 MHz instead of 123.45 MHz, and accordingly file a 'significant difference' to the PANS-ATM as described under ICAO Annex 15, 4.1.2-c; and

2) That ICAO initiates an amendment proposal to Doc 7030 – Regional Supplementary Procedures, to specify the use of the air-to-air frequency 126.9 MHz for SLOP coordination in the AFI Region.

Appendix A

Special procedures for strategic lateral offsets in Oceanic Controlled Area (OCA) and remote continental airspace within AFI Region

Note. — The following incorporates lateral offset procedures for both the mitigation of the increasing lateral overlap probability due to increased navigation accuracy, and wake turbulence encounters.

1. The use of highly accurate navigation systems (such as the global navigation satellite system (GNSS)) by an increasing proportion of the aircraft population has had the effect of reducing the magnitude of lateral deviations from the route centre line and consequently increasing the probability of a collision should a loss of vertical separation between aircraft on the same route occur.

2. The application of lateral offsets to provide lateral spacing between aircraft, in accordance with the procedures specified in 3 and 4, can be used to mitigate the effect of this reduction in random lateral deviations, thereby improving overall system safety.

Implementation considerations for ATS authorities

3. The application of lateral offsets requires authorization from the ATS authority responsible for the airspace concerned. The following considerations shall be taken into account by the ATS authority when planning authorization of the use of strategic lateral offsets in a particular airspace:

a) Strategic lateral offsets shall only be authorized in en-route oceanic or remote continental airspace. Where part of the airspace in question is within radar coverage, transiting aircraft should normally be allowed to initiate or continue offset tracking.

b) Strategic lateral offsets may be authorized for the following types of routes (including where routes or route systems intersect):

1) Uni-directional and bi-directional routes; and

2) Parallel route systems where the spacing between route centre lines is not less than 55.5km (30 NM).

c) In some instances it may be necessary to impose restrictions on the use of strategic lateral offsets, e.g. where their application may be inappropriate for reasons related to obstacle clearance.

d) These offset procedures should be implemented on a regional basis after coordination between all States involved.

e) The routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, shall be promulgated in aeronautical information publications (AIPs).

f) Air traffic controllers shall be made aware of the airspace within which strategic lateral offsets are authorized.

Lateral offset procedures to be applied by pilots

4. In the application of strategic lateral offsets, pilots should take the following points into consideration:

a) Offsets shall only be applied in airspace where this has been approved by the appropriate ATS authority.

b) Offsets shall be applied only by aircraft with automatic offset tracking capability.

c) The decision to apply a strategic lateral offset is the responsibility of the flight crew.

d) The offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight.

e) The strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1 NM or 2 NM right offset) shall be used.

f) In airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied.

g) Aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

5. Pilots may, if necessary, contact other aircraft on the air-to-air frequency 126.9 MHz, unless otherwise advised, to coordinate offsets.
