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SAT OPS BULLETIN

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*The purpose of South Atlantic Operations Bulletin **2024-002_Revision 001** is to promulgate the Oceanic Errors Safety Bulletin (OESB).*

Any queries about the content of the attached document should be addressed to SAM Office: icaosam@icao.int.

NOTICE

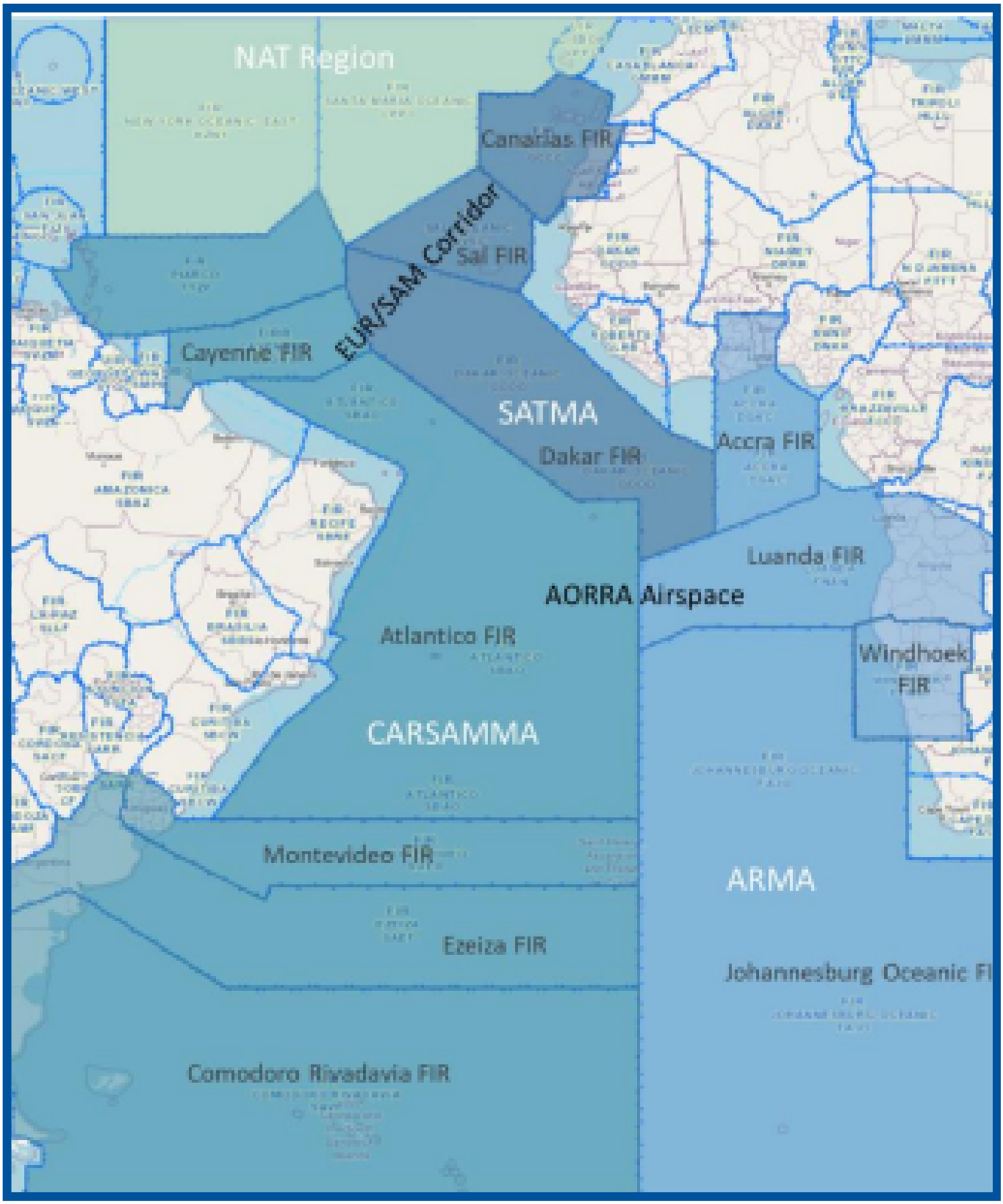
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ICAO SAM HOMEPAGE

SAFETY SNAPSHOT



SAFETY SNAPSHOT

The OESB is intended to assist air operators transiting South Atlantic oceanic airspace to avoid making operational errors. These include lateral deviations, Gross Navigation Errors (GNEs) (lateral deviations of 10 NM or more), Large Height Deviations (LHDs) (300 feet or more) and Erosion of Longitudinal Separation. Repeated errors presented a recurrent hazard and pose a threat to planned reduction in separation and overall flight safety. The following recommendations, resources, and tips may be useful in preventing certain errors and should be addressed in initial and recurrent ground training. . The Global Operational Data Link Document (ICAO Doc 10037, GOLD Manual) addresses CPDLC and ADS-C procedures. Additional recommendations address General considerations such as:

- Top Tips for Operators
- General (FIR boundary coordination issues);
- Oceanic Procedures Best Practices;
- Operations in the EUR/SAM Corridor;
- Safety Culture;
- Large height deviations (LHDs);
- Contingency procedures; and
- SLOP.

TOP TIPS FOR OPERATORS

Pilots are encouraged to remain vigilant when approaching **FIR boundaries**, be aware that **ATC may not** be able to **approve** any **change request** in these areas.

Request **weather deviations** early. If ATC clearance cannot be obtained or is denied, advise ATC and execute published weather deviation procedure, changing altitude 300 ft when ≥ 5NM Left or Right of course.

Pilots must receive approval/clearance for any **flight level** or **speed change**. **A filed flight plan with a requested change** in flight level (step climb) or speed **is not a clearance**.

At any time, if there is confusion about an ATC clearance, ask for clarification IMMEDIATELY.

Pilots are **strongly encouraged to voluntarily report safety issues** and hazards which are critical to identifying safety risks.

SLOP should be applied after oceanic entry. The **flight must return to centerline by the oceanic exit** (otherwise authorized by the appropriate ATS authority or directed by the appropriate ATC unit).

Once radar coverage is terminated and oceanic procedures start, the EUR/SAM corridor uses **ADS-C** and **CPDLC** service that will increase safety levels along the different FIRs. Be familiar with its use and corridor data link procedures.

GENERAL

The following general considerations can help flight crews avoid deviations in oceanic airspace:

1. Both pilots checking the clearance MUST be standard flight deck procedure. Flight crews should avoid any distractions when near the oceanic boundary or when copying and reprogramming route amendments. Any route amendments must be communicated clearly in flight crew changeover briefings.
2. All HF voice oceanic communications go through a radio operator. The radio operator is not an air traffic controller. Radio operators must relay all reports and requests to ATC for approval and processing. The pilot read-back to the radio operator MUST be verbatim.
3. Relays of ATC instructions between aircraft MUST be accurate. Ensure a correct read-back is received from every communication link in the relay.
4. Always read the route loaded in the FMS first and then compare it to the Master Document. This mitigates against “expectation bias,” where pilots see what they expect to see.

OCEANIC ENTRY PROCEDURES

1. Clearance Verification – verbalize each element of the ATC clearance to the pilot flying (PF) in a challenge – response manner.
2. FMS and appropriate flight deck controls and indicators:

a. verify and verbalize each element of the clearance is set as required, in response to the pilot monitoring (PM);

b. expand unnamed waypoints contained in the clearance to verify the full lat/long;

c. ensure altitude, or fixed Mach are correctly loaded; and

d. **report any variation from last position report related to speed, estimate or flight level requested.**

3. When surveillance service is terminated:

a. Set Comm radios (VHF, CPDLC and HF) - if VHF direct controller pilot comm (DCPC) established;

VHF 1 - ATC freq, VHF 2 - 121.5

- Absent DCPC - VHF 1 - 123.45, VHF 2 - 121.5

b. Set speed - assigned speed/Mach as required

c. Set SLOP - 0, 1NM or 2NM RIGHT ONLY

d. RNP – verify

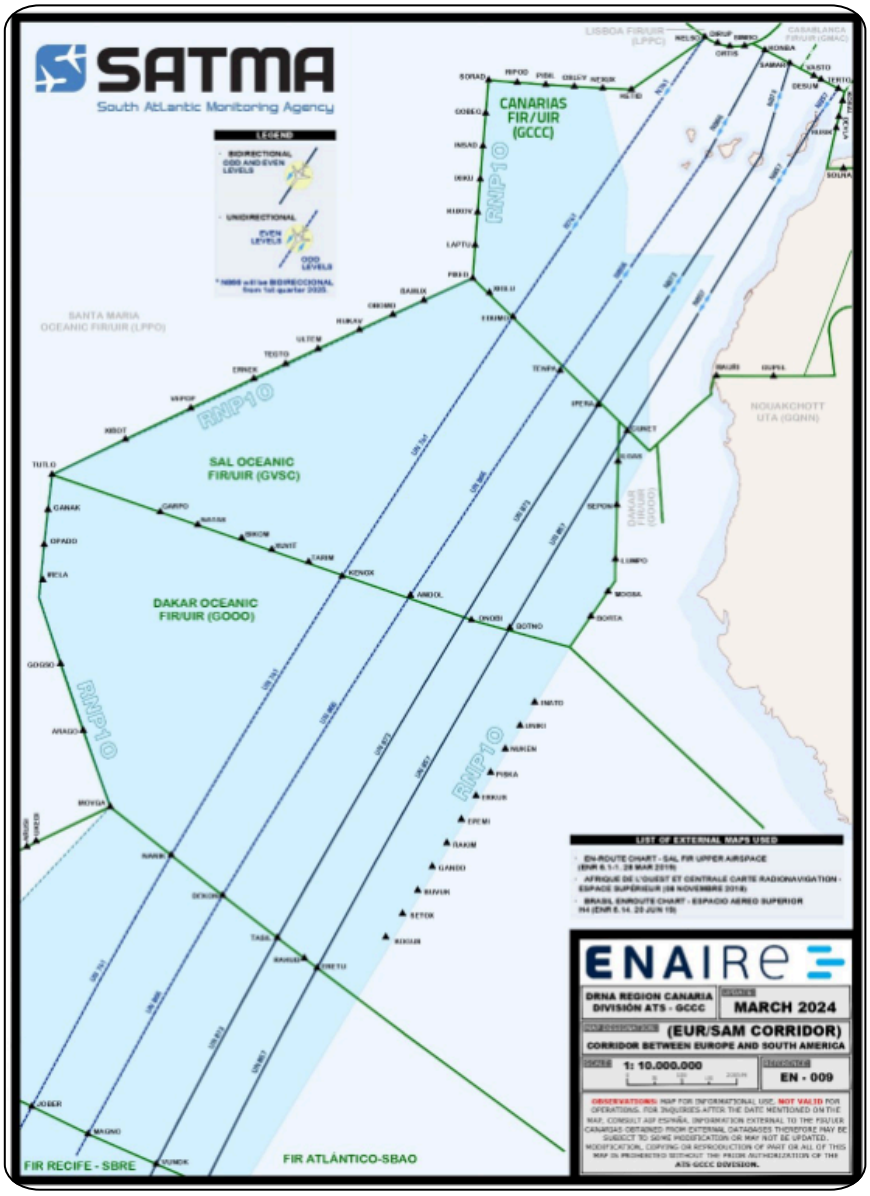
e. Set Transponder- as required

OPERATIONS IN THE EUR/SAM CORRIDOR

The following considerations can help flight crews operating in the EUR/SAM Corridor.

Flight crews should expect even altitudes southbound, and odd altitudes northbound on bi-directional airways. All altitudes are available on unidirectional airways.

For southbound traffic, extreme congestion is common between 00:00 and 03:00 UTC and reroutes may be necessary to accommodate altitude change requests.



SAFETY CULTURE

- Safety culture is essential to the airline industry. Accident investigations have identified that a positive safety culture is a critical factor in the prevention of accidents and incidents.

- Pilots are strongly encouraged to voluntarily report safety issues and hazards which are critical to identifying safety risks. Use your company's safety reporting channels to submit individual detailed incident reports from all involved crew members.

- Safety incident reporting is one of the main sources for discovering vulnerabilities and deficiencies. They serve to identify and determine risk areas and support efforts to integrate and prevent incidents. It is critically important to support an open and robust reporting system. Incident reports are an essential enabler for safety improvement and the continuous evolution of safety culture.

LARGE HEIGHT DEVIATION (LHD)

1. Flight crews must be diligent in reviewing aircraft climb and cruise capability to avoid either requesting or accepting clearance to flight levels outside of the aircraft performance envelope.

NOTE: Flight crews must carefully consider the significant temperature inversions that can occur over the Atlantic Ocean. This is particularly important with aircraft operating near maximum gross weight and when requesting flight levels approaching oceanic entry points. Flight crews should refer to the Flight Management System (FMS) to assess aircraft performance. Failure to attain flight levels as assigned can result in a loss of planned separation between aircraft and a Pilot Deviation. In addition, requests for flight level changes prior to a FIR boundary should be avoided if possible.

2. If maintaining an assigned flight level becomes unsustainable due to degrading performance (e.g., when encountering low temperatures affecting fuel, or high temperatures affecting aerodynamics), it is imperative to coordinate a flight level change with ATC as soon as possible. If ATC clearance is not clear, confirm via voice or CPDLC. Reception in Oceanic areas may be distorted. If a climb or descent must be made without ATC clearance, apply the 5 NM lateral offset contingency procedure to mitigate risk.

3. Flight crews must be alert for conditional clearances, especially where a climb or descent is not to be done immediately.

4. Flight crews must ensure they are at their assigned flight level at all times.

LARGE HEIGHT DEVIATION (LHD)

5. Common causes of LHDs to be aware of include:

a. an error in the altimetry or automatic altitude control system of an aircraft;

b. turbulence and other weather-related phenomena;

c. the flight crew not following established contingency procedures during an emergency descent by an aircraft;

d. the response to airborne collision avoidance system (ACAS) resolution advisories;

e. not following an ATC clearance, resulting in flight at an incorrect flight level;

NOTE: Pilots are encouraged to have heightened awareness of assigned flight levels when transitioning between FIRs.

6. To ensure safety and minimize large height deviations, flight crews should adhere to the following in-flight procedures:

a. Maintain Assigned Flight Level: by ensuring that ATC clearances are fully understood and complied with. Do not depart from assigned flight level without ATC clearance, except in emergencies.

b. Avoid overshooting or undershooting the new flight level by more than 150 feet. Verify the altitude-hold/capture mode is engaged during level cruise. If disengagement is necessary (e.g., due to turbulence), maintain cruise altitude.

c. Ensure the altitude-alerting device is operating and engaged.

d. Conduct hourly Altimeter Cross-Checks. And ensure a minimum of two RVSM compliant systems agree within 200 feet. Report any discrepancies to ATC.

LARGE HEIGHT DEVIATION (LHD)

e. Ensure the operating altitude-reporting transponder corresponds with the RVSM compliant altimetry system currently in use.

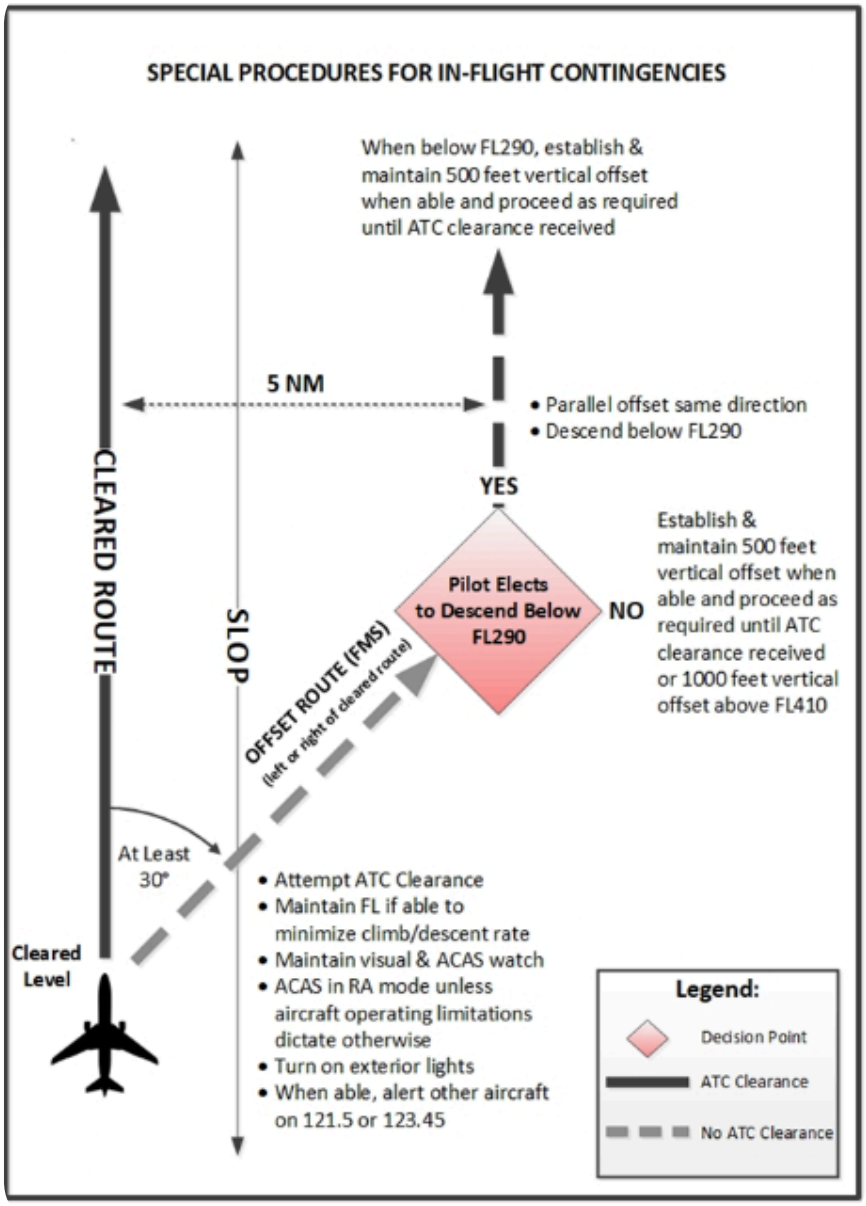
f. Perform Oceanic Entry Equipment Check:

- Before entering RVSM airspace, verify the normal operation of:
- Two altitude measurement systems.
- At least one altitude-reporting transponder (if required).
- One altitude-alerting device.
- Request a new clearance if any equipment fails prior to entry.

CONTINGENCIES

The following considerations can help flight crews avoid deviations associated with in-flight contingency procedures.

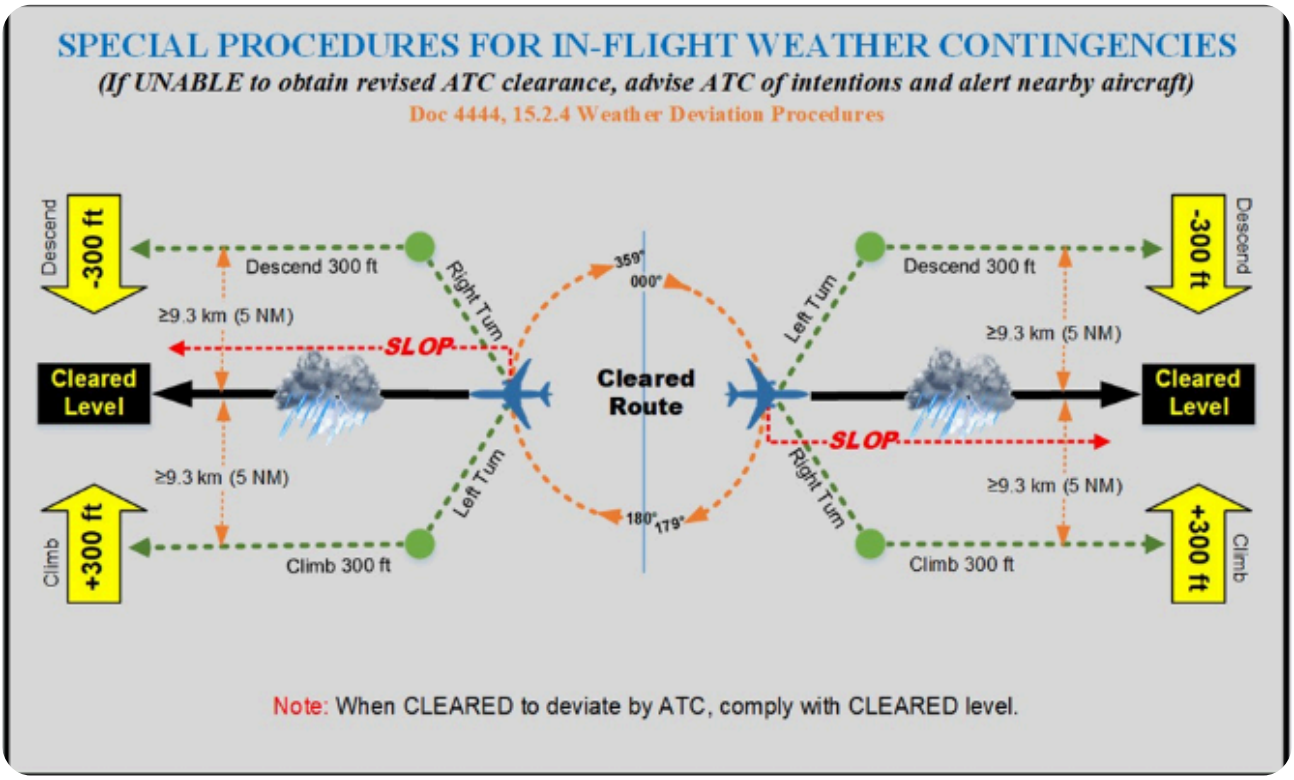
1. Flight crews are reminded that the ICAO Doc 4444 contingency procedures include a request for clearance from ATC as the first step before executing the 5 NM lateral offset contingency procedures.



CONTINGENCIES

2. Weather Deviation Procedures using a vertical displacement of +/- 300 feet when reaching or exceeding 5 NM offset from the cleared track are published in ICAO Doc 4444. The Weather Deviation Procedure is a contingency and should only be flown when an ATC clearance cannot be obtained. It is also important to understand that any ATC clearance to deviate for weather should be done at the ATC-cleared altitude, without any vertical displacement. Also, if ATC clears a pilot to deviate for weather and instructs the pilot to "REPORT BACK ON ROUTE," do not make this report until re-established on the original routing. Alternatively, the pilot could request new, direct routing, which if approved would supersede the "REPORT BACK ON ROUTE" instruction.

NOTE: For weather deviations, even less than 5 NM, the pilot must request clearance from ATC. However, if ATC clearance cannot be obtained and a deviation becomes necessary, pilots must follow published ICAO Weather Deviation Procedures described above.



STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

The following SLOP considerations may assist flight crews with mitigating the effects of operational risk, reduce the risk of collision and avoid wake turbulence.

1. Pilots are highly encouraged to use SLOP in all oceanic airspace. SLOP should be standard procedure, not a contingency.

NOTE: SLOP offsets in 0.1 NM increments, up to 2 NM right of centerline, are authorized in the SAT, in accordance with Doc 4444 provisions. Consult the applicable State AIP for further details.

2. The objective of SLOP is to reduce the risk of collision by randomly distributing flights across the offset options. Operators should clearly communicate this concept in flight crew standard operating procedures. In airspace with bi-directional air traffic flow, maintaining centerline incurs more risk than offsetting.

3. SLOP should also be considered in random route airspace due to the high traffic density and limitations of aids such as TCAS/ACAS.

4. Pilots may apply an offset outbound at oceanic entry and must return to centerline before oceanic exit unless otherwise authorized by the appropriate ATS authority or directed by the appropriate ATC unit.

5. SLOP authorize offsets to the right of the centerline only; Offsets to the left of centerline are NOT authorized under SLOP.

STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

6. Pilots should not inform ATC when they use SLOP, and its use does not affect the applied separation standard.

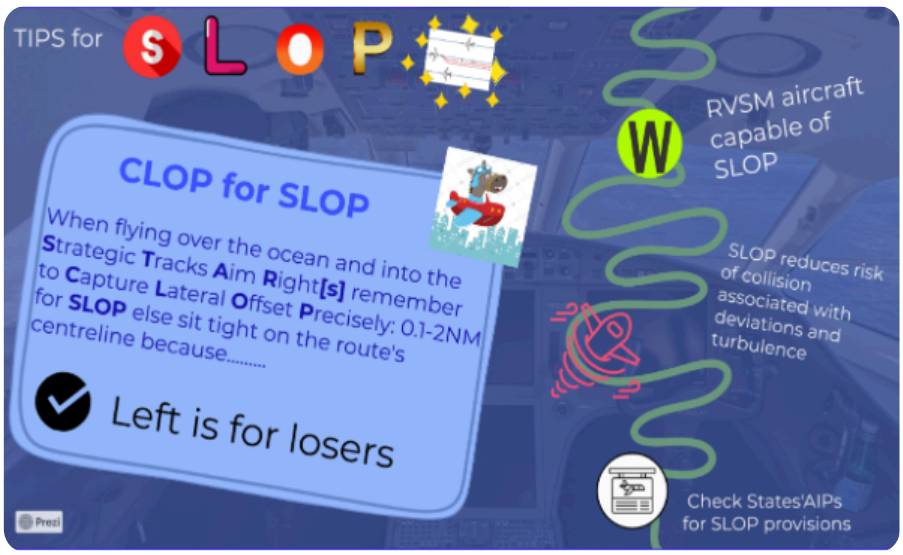
7. Pilots should use sound management of automated flight guidance systems when establishing offsets. It is crucial to avoid using "HDG" mode and ensure proper engagement of "LNAV/NAV" mode to maintain accurate track adherence during offset maneuvers.

8. Pilots should ensure the “TO” waypoint is correct after entering SLOP. With some avionics, when executing an offset near the active “TO” waypoint, the FMS can sequence to the “next + 1” waypoint— skipping a point.

9. Guidance on SLOP is available in the video found at this link: https://www.youtube.com/watch?v=-_rigf7UngN0

QR code to youtube video

NOTE: All SLOP operations must align with current regulatory standards outlined in ICAO Doc 4444 and respective State AIPs, ensuring compliance with international aviation safety protocols.



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