

Navigation Errors on the North Atlantic



The ICAO North Atlantic Working Groups composed of industry, ATC and state regulators have noted repetitive oceanic errors. These include Gross Navigation Errors (25nm or more), Large Height Deviations (300 feet or more) and Erosion of Longitudinal Separation and, as a result, have issued an Oceanic Errors Safety Bulletin (OESB). This OESB is intended for distribution to industry and training centers. The OESB will also be posted on various websites to enable broad distribution and rapid updates. In addition, the OESB should be used in conjunction with the guidance detailed in the current edition of the NAT MNPS Operations Manual (Sept. 2005) <http://www.nat-pco.org>.

The following are recommendations to reduce oceanic errors that should be addressed in initial and recurrent ground training:

Gross Navigation Errors (GNE's)

1. A reclearance scenario is the prime cause for most navigational errors. Crews must ensure they correctly copy the RECLEARANCE, reprogram (and execute) the FMS (or Long Range Navigation System, LRNS), update the Master Computer Flight Plan (CFP) and update the plotting chart. The FMS crosschecks for the clearance should include distance and track checks between the new waypoints.
2. Crews must follow a RECLEARANCE (and not the previous flight plan). The captain should assure that all flight crew members are aware of the details of the RECLEARANCE by briefing all non-flying flight crew members.
3. Ground crosschecks of the Long Range Navigation System (LRNS) should include distance and track checks between waypoints. Enroute procedures must also include distance and track checks when passing a waypoint.
4. The crosscheck of the FMS coordinates should include comparing the expanded coordinates against the flight plan.
5. Mandatory use of the plotting chart should include a 10 min plot noting the coordinates and time on the chart. Compare all oceanic waypoints on the chart against the Master CFP.



Standard Operating Procedures (SOPs) for LRNS must include independent clearance copy, data entry, and independent crosschecks to verify that the clearance is correctly programmed.

6. Fly the clearance - not the flight plan.

7. Standard Operating Procedures (SOPs) for LRNS must include independent clearance copy, data entry (Coordinates and/or waypoints), and independent crosschecks to verify that the clearance is correctly programmed. These procedures must also be used when en route changes are entered. This task cannot be delegated.

8. There should only be one computer flight plan on the flight deck and it should be labeled the Master.

9. Crews must be alert for similar sounding named oceanic boundary waypoints (e.g. PITAX versus BERUX) when receiving the ATC clearance.

Large Height Deviations

1. Each Flight Level change must be specifically approved by ATC. A filed flight plan with a requested change in Flight Level is not a clearance to initiate the change in altitude.

2. Crews must ensure a **CORRECT** understanding of when a climb or descent should be initiated or completed.

3. Crews must be cautious and ensure a clear understanding when ATC uses the terms “by” or “at” when referring to a longitude crossing (for example when to make a Flight Level change).

4. Crews must be alert for situations when ATC issues clearances that have only a longitude rather than a latitude and longitude. The clearance should be clearly understood as to when to make a Flight Level change.

5. Crews must ensure they are following the correct contingency procedure in case of lost communications. **Unlike other oceans**, the NAT lost communications procedure is to

maintain the last assigned Flight Level. **ATC approval is required for all Flight Level changes.**

6. Crews should ensure they obtain an OCEANIC clearance level prior to oceanic entry, enter the ocean at the cleared Flight Level and establish a post entry point altitude check.

Erosion of Longitudinal Separation

1. Crews must communicate to ATC any ETA's that change by **3 minutes or more**. This is an ICAO requirement and the information is used to modify ground-based ATC flight tracking systems.

2. Crews should verify the accuracy of ETA's or ATA's (particularly the hour) forwarded to ATC to prevent an error of one hour.

3. Crews must ensure they advise ATC in a timely manner of any change in their ETA for the oceanic entry point.

4. Crews must ensure that the aircraft master clock is set using an approved calibrated time source to be used for all ETA's and ATA's.

Flight Planning

1. Dispatchers and Flight Planners must ensure the filed routes around the oceanic boundary do not include crossing multiple oceanic entry/exit points.

2. Pilots must ensure they know current conditions to include NOTAMS (e.g. forecast turbulence in RVSM airspace) and weather documents (e.g. ETP's and alternate airports). In addition, pilots must be knowledgeable in the information on the computer flight plans and do basic crosschecks of fuel, winds and groundspeeds.

Controller Pilot Data Link Communications (CPDL)

1. Crews should be cautious with CPDLC clearances (message sets) that are delayed.

2. Crews should be cautious with clearances when communicating via CPDLC and HF radio simultaneously. CPDLC is the primary communication means when it is operating. The clearance is received from that [CPDLC] source only.

3. Crews should avoid using the free-text mode

4. Crews should be sure that HF SELCAL is working even when CPDLC is functioning properly – do a SELCAL check prior to oceanic entry.

Crews must ensure they are following the correct contingency procedure in case of lost communications. Unlike other oceans, the NAT lost communications procedure is to maintain the last assigned Flight Level. ATC approval is required for all Flight Level changes



General

1. Radio operators relay for/to controllers. The majority of oceanic communications such as position reports or crew requests 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.
2. The use of the terms “**expect**” or “**able**” by ATC is NOT a clearance. Typical phraseology is to use, “**ATC clears...**”.
3. Dual checking of oceanic clearance **MUST** be SOP (avoid physiological breaks or distractions near the oceanic boundary or when copying and reprogramming enroute reclearances). Changes must be communicated clearly to non-flying flight crew members so that they understand RECLEARANCES when they relieve flying flight crew members.
4. Relays of ATC instructions between aircraft **MUST** be accurate. Ensure a correct read back is received from every communication link in the relay.
5. Always read from the LRNS or the plotting chart back to the master source (i.e. CFP). This is a human factors issue that could prevent the pilot from seeing what he/she expects to see.

SLOP – Strategic Lateral Offset Procedure

1. Crews should be aware of this procedure for use in oceanic and remote airspace. SLOP should be a SOP, not a contingency, and operators should be endorsing the use of lateral offsets for safety reasons on all oceanic and remote airspace flights.
2. Crews should be aware of the “coast-out to coast-in” operational use of the procedure.
3. Crews should only offset 1 nm or 2 nm **RIGHT** of centerline.

NOTE: Operators are reminded that the current SLOP is designed to mitigate the effects of wake turbulence as well as to enhance flight safety.

Contingencies

1. Crews are reminded to execute the correct contingency procedure in case of an emergency descent, turbulence, etc. It is important to minimize the risk to you and other aircraft.
2. Crews should be aware that there is more than one contingency maneuver and should be familiar with the recommended procedure for each in-flight occurrence type.



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