

# JCAB and FAA Joint Paper

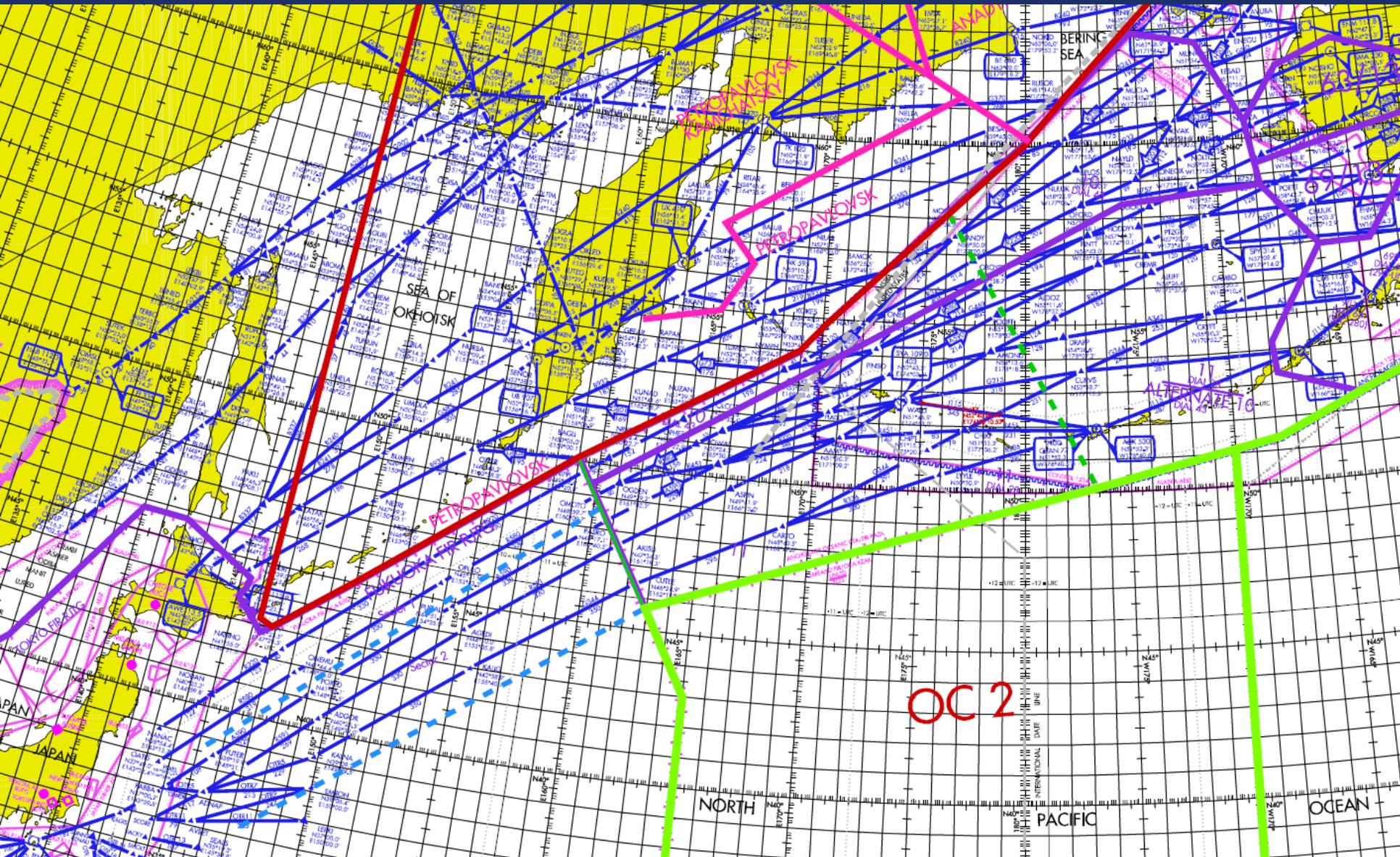


## NOPAC PBCS Redesign

# NOPAC Restructure

- **The FAA and JCAB plan to implement 23 NM lateral PBCS separation.**
  - JCAB will be ready to implement 23 NM PBCS lateral separation in the near future.
  - COVID-19 has delayed the FAA implementation
- **NOPAC Aircraft Fleet**
  - 97% FANS Equipped
  - PBCS Approvals are much lower
  - IPACG 45, IATA reported that the majority of aircraft in NOPAC would be PBCS approved by July 2020 to Jan 2021.

# NOPAC CURRENT STATE





# NOPAC Redesign Phase 1

## R220

- Westbound
- FL340 to FL400 PBCS Only
- FL330 & below + 410 & above Non PBCS aircraft

UPRs and PACOTS 50 NM south of A590

# NOPAC Redesign Phase 1

- Westbound PACOTS
- R220, R580, 50 NM SOUTH OF A590

- Eastbound PACOTS
- A590, 50 NM SOUTH OF A590

## Criteria to move to Phase 2:

- Any negative safety effects, mitigated
- R220 PBCS requirements complied with
- PBCS approval rate is 90% or higher
- Safety Case Study completed

# NOPAC Redesign Phase 2

## R220

- Westbound
- FL340 to FL400 PBCS Only
- FL330 & below + 410 & above Non PBCS aircraft

25NM

## R580

- Eastbound
- FL340 to FL400 PBCS Only
- FL330 & below + 410 & above Non PBCS aircraft

## M1 New Route

- Westbound
- FL340 to FL400
- Unavailable FL330 & below Also 410 & above
- PBCS Required FL340 –FL400

- A590 no PBCS requirement
- UPRs and PACOTS 50 NM south of A590
- TRK 1 may be on R580 or A590

# NOPAC Redesign Phase 2

- Westbound PACOTS
- R220, M1 and 50 NM south of R580

## Eastbound PACOTS

- R580, A590 and 50NM south of A590

## Criteria to move to Phase 2:

- Any negative safety effects, mitigated
- Phase 2 PBCS requirements complied with
- Safety Case Study completed

# NOPAC Redesign Phase 3

## R220

- Westbound
- FL340 to FL400 PBCS Only
- FL330 & below + 410 & above Non PBCS aircraft

## M1 New Route

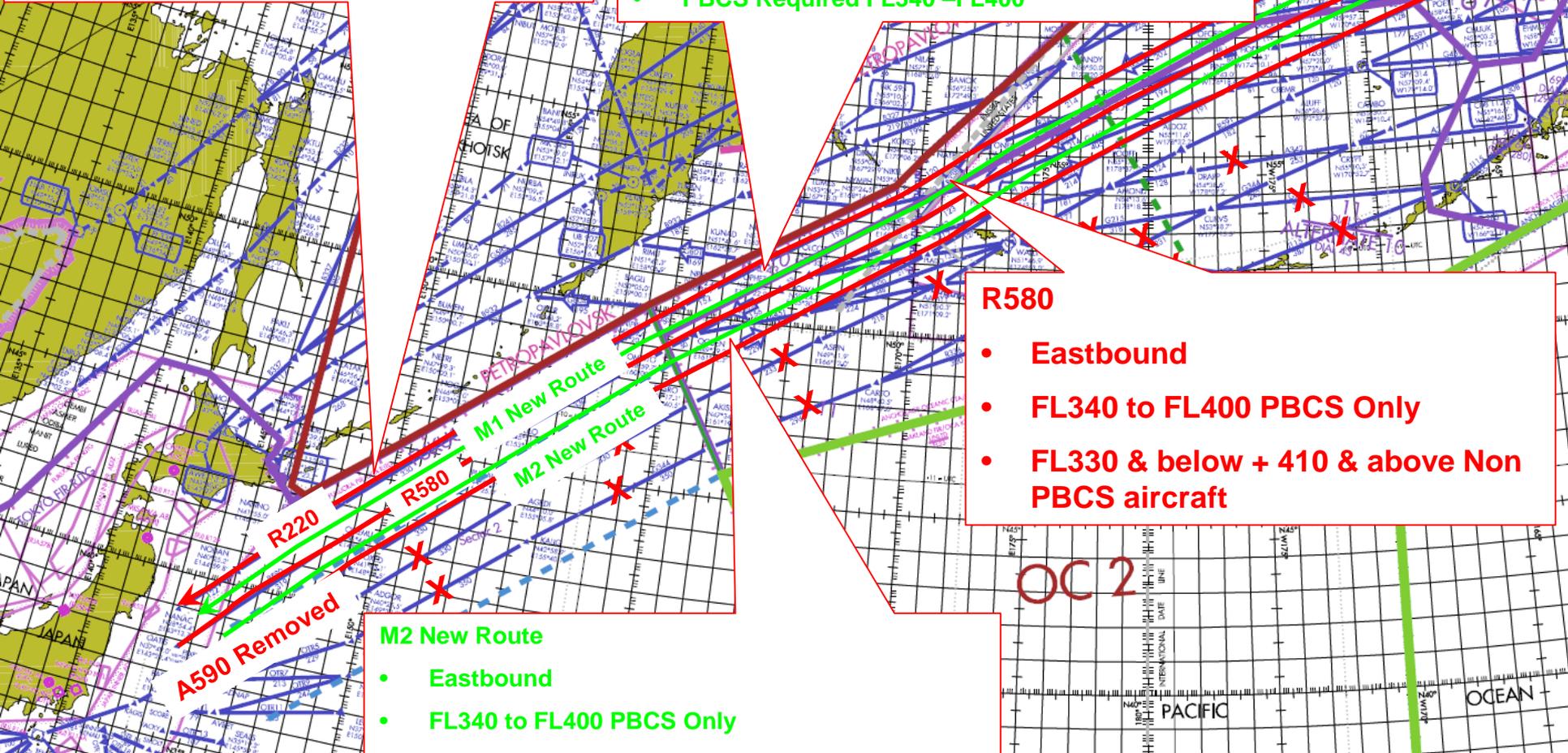
- Westbound
- FL340 to FL400 PBCS Only
- Unavailable FL330 & below Also 410 & above
- PBCS Required FL340 –FL400

## R580

- Eastbound
- FL340 to FL400 PBCS Only
- FL330 & below + 410 & above Non PBCS aircraft

## M2 New Route

- Eastbound
- FL340 to FL400 PBCS Only
- Unavailable FL330 & below Also 410 & above
- PBCS Required FL340 –FL400



# NOPAC Redesign Phase 3

- Westbound PACOTS
- R220, M1 and 25 NM south of M2 i.e. "old A590"

- Eastbound PACOTS
- R580, M2 and 25NM south of M2 i.e. "old A590" & 50NM south of "old A590"

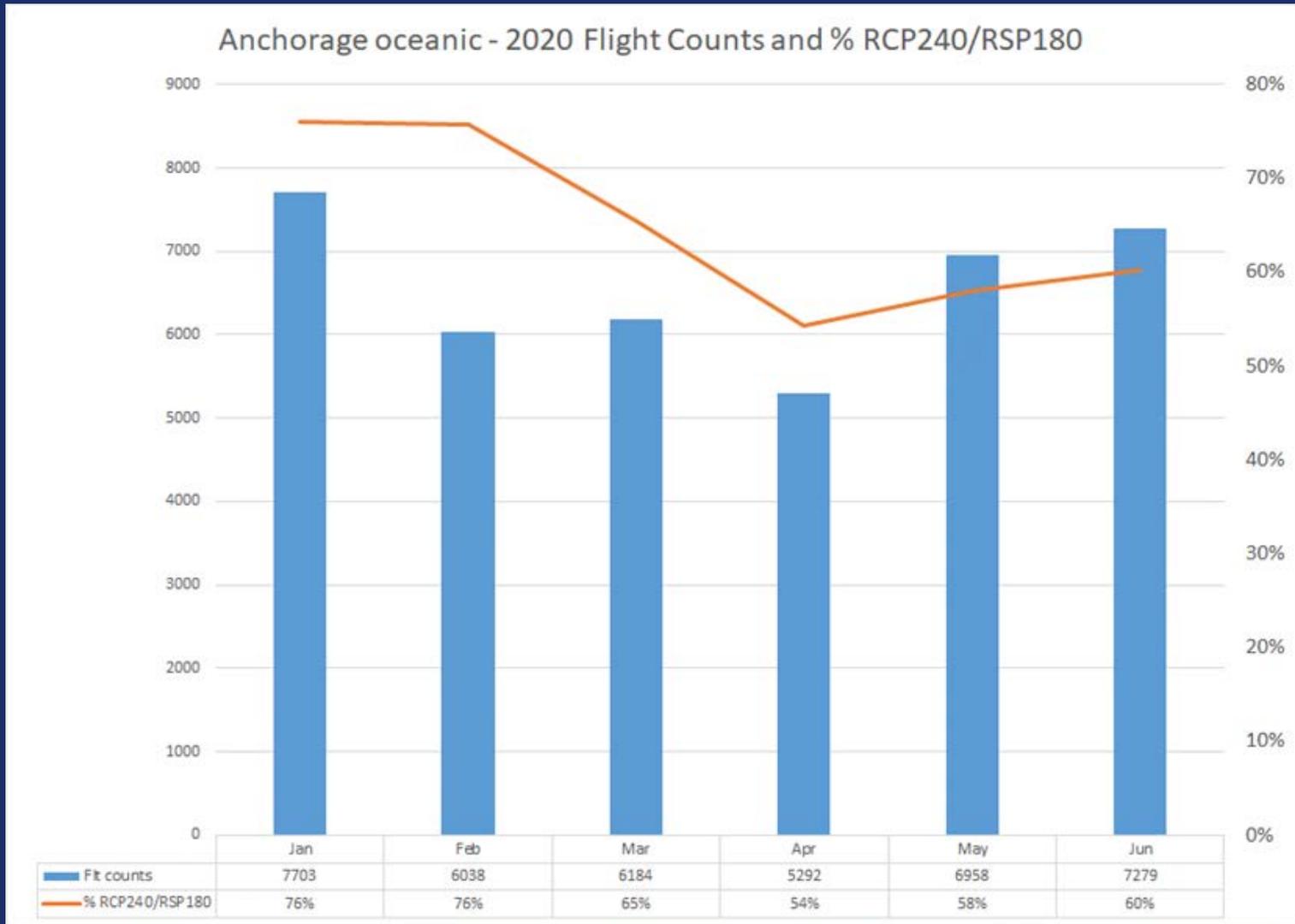
# **NOPAC Restructure**

- **Initially Phase 1 of the restructure was scheduled to begin first quarter of 2021.**
- **The COVID-19 Pandemic has likely delayed Phase 1 of the NOPAC restructure 1 to 2 years.**

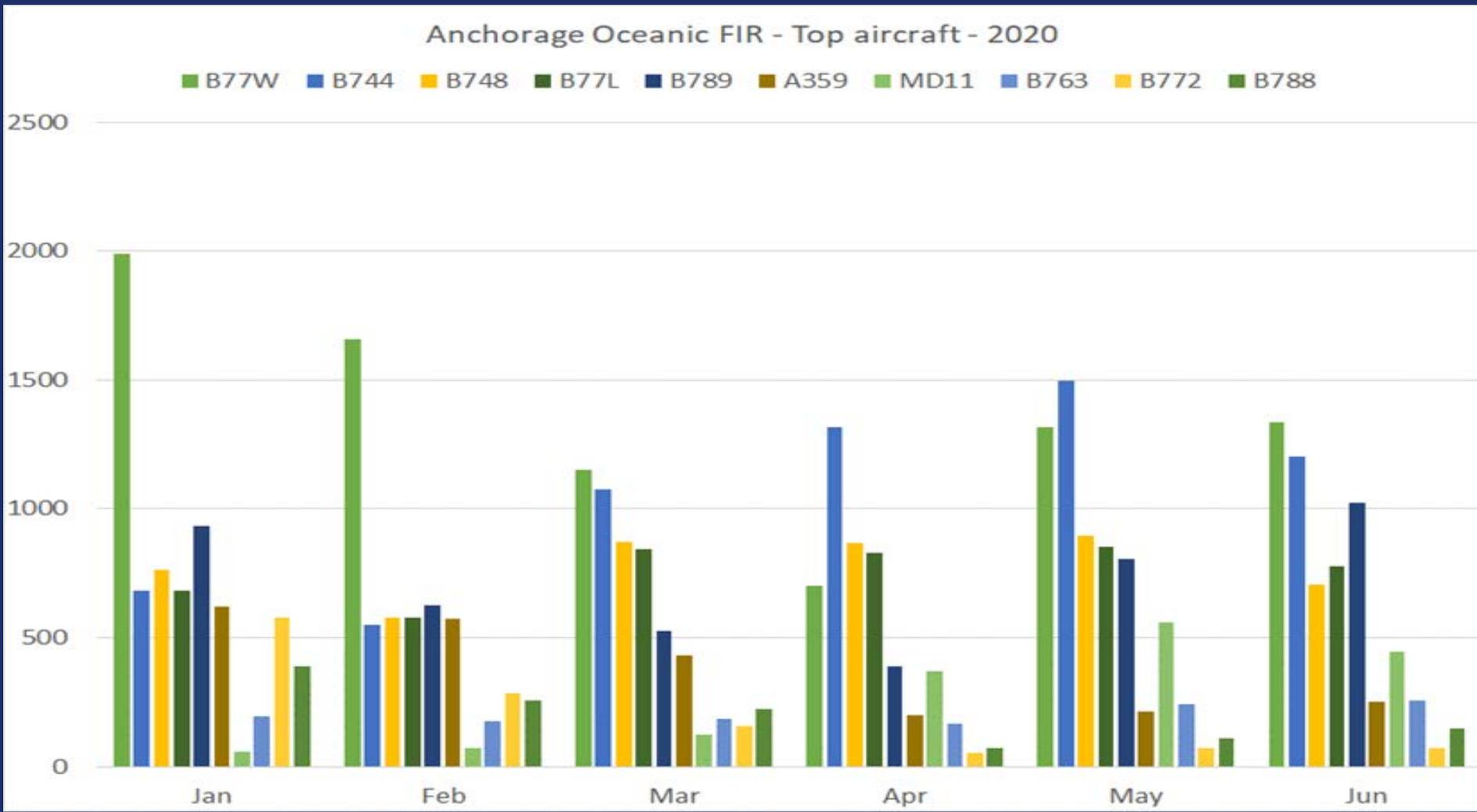
# NOPAC Restructure

- **IATA Supports the NOPAC PBCS restructure.**
- **Non-IATA Members NOPAC Survey**
  - 39K flights reviewed Jan – July 2019.
  - 12 Non-IATA members with 10 flights or more and the US Military advised of the NOPAC Plans and requested their input.
  - 6 of the 12 Non-IATA Operators provided comments, only one expressed initial concerns.

# NOPAC PBCS Approval levels



# NOPAC Aircraft type makeup



# NOPAC 2020 B744 PBCS approval

<b>Anchorage FIR</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Grand Total</b>
<b>Total B744 flts</b>	680	550	1073	1316	1497	1201	6317
<b>B744 with RCP240/RSP180</b>	78	50	128	142	193	148	739

# Phase 3 Correlated route

Current Route	Restructure Route	Identify Non Compliance with Phase 3 requirements
R220	R220	R220 requires PBCS FL340 to FL400
R580	M1	M1 requires PBCS FL340 to FL400 and unavailable outside those altitudes
A590	R580	R580 requires PBCS FL340 to FL400
R591	M2 or UPR	M2 requires PBCS FL340 to FL400 and unavailable outside those altitudes. Aircraft on R591/UPR 50 NM south of A590 have no PBCS requirements
G344	UPR	No PBCS requirements.

# January 19, 2020 Traffic Study

- **R220 Phase 1/2/3: PBCS required FL340-FL400**
  - 56 aircraft flew R220 on January 19, 2020
  - 10 of the aircraft were not PBCS approved
  - 2 of the 10 aircraft now are PBCS approved
  - 5 of the 8 Non-PBCS aircraft entered NOPAC at FL320 and were compliant with the Phase 3 restrictions.
  - 2 of the 8 Non-PBCS aircraft entered NOPAC at FL340. Those 2 aircraft would be assigned FL330.
  - 1 B788 Non-PBCS aircraft entered NOPAC at FL380. That aircraft would have to be at FL410 or North or South of NOPAC.

# January 19, 2020 Traffic Study

- R580 is M1 in Phase 2/3.
- M1 Phase 3: Open FL340-FL400, PBCS required.
  - 3 PBCS approved aircraft flew R580 on January 19, 2020.
  - The aircraft would have been on M1
  - One aircraft entered R580 at FL300; that aircraft would have to be at FL340 or on R220.

# January 19, 2020 Traffic Study

- **A590 in Phase 3 has 3 Flight Planning options**
  - R580 becomes eastbound in Phase 2
  - M2 new eastbnd route in Phase 3 open FL340-400
  - Waypoints of A590, PBCS required FL340-400
- **R580 Phase 2/3: PBCS required FL340-FL400**
- **89 aircraft flew A590 on January 19, 2020.**
- **28 of the aircraft were not PBCS approved.**
- **7 of the 28 Non-PBCS aircraft did not comply with the Phase 3 PBCS requirements.**
  - All 7 were B744/B748 at FL340/350 and would have to be on A590/B580 at FL330 or south of NOPAC

## Routes

# January 19, 2020 Traffic Study

- R591 and G344 are removed starting in Phase 1, but their waypoints are retained.
- The airspace of R591 and south is open to UPRs with no PBCS requirements.
- 23 aircraft flew R591 and G344 on January 19, 2020
- 1 of the aircraft was not PBCS approved, but there are no PBCS requirements.

# January 19, 2020 Traffic Study

- The PBCS altitude stratum of FL340-400 in NOPAC was chosen to provide the most benefit with limited impact.
- The traffic on January 19, 2020 appeared to validate the concept.
- There were 37 non PBCS flights in NOPAC
- 29 of the 37 aircraft met the PBCS requirements
- 8 of the 37 aircraft could be accommodated slightly lower or on an adjacent route.
- One B788, would have to fly north or south of the Phase 3 NOPAC Routes.

# August 10-16, 2020 Traffic Study

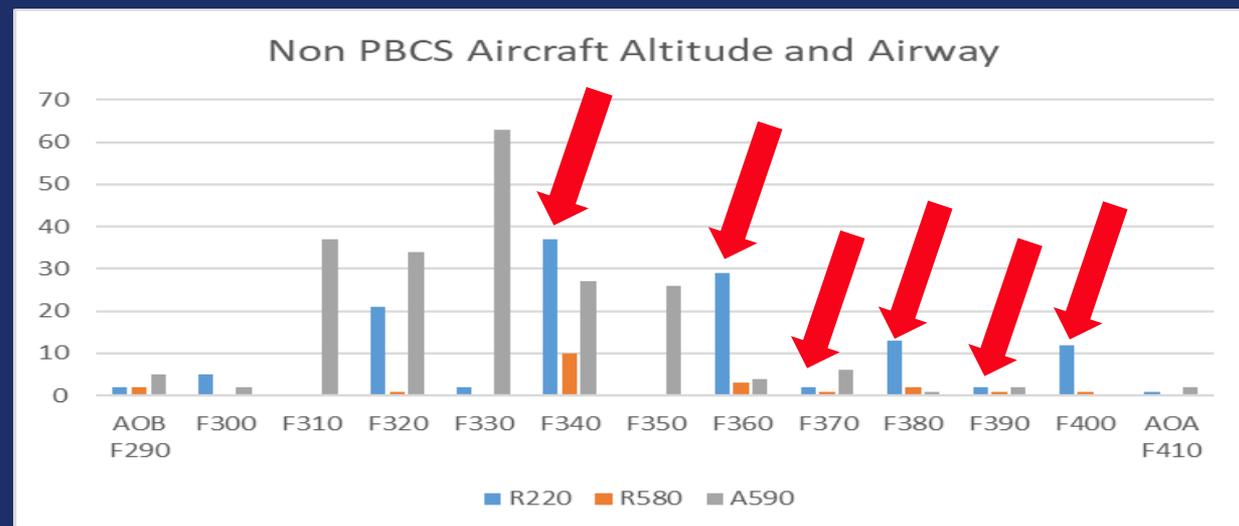
- The NOPAC aircraft fleet make up has changed since COVID-19.
- A second traffic study was completed to look at the differences/impacts.
- August 10-16, 2020, 1142 flew the NOPAC Routes.
  - These aircraft were compared against the Phase 3 NOPAC route restructure as was completed in the January 19, 2020 Traffic Study

# August 10-16, 2020 Traffic Study

- **R220 Phase 1/2/3: PBCS required FL340-FL400**
  - 532 aircraft flew R220 on August 10-16, 2020
  - 126 of the aircraft were not PBCS approved
  - 31 of the 126 aircraft would have complied with the Phase 3 PBCS requirements
  - 37 aircraft entered R220 at FL340 and would have to be at FL330
  - 46 aircraft entered R220 at FL350 to FL390 and would have to be at FL330 or FL410 or North or South of the Phase 3 NOPAC Routes.

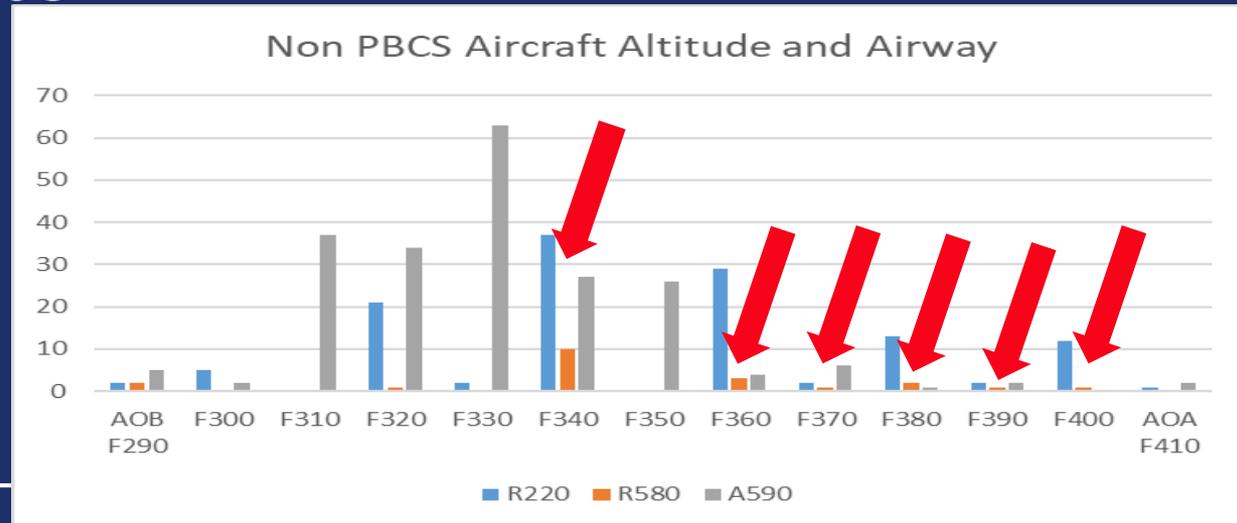
# August 10-16, 2020 Traffic Study

- R220 Phase 1/2/3: PBCS required FL340-FL400
- Impact was greater in the August study
- 13.6 flights a day impacted vs 8 in January.
- The altitude/routing impacts are greater.



# August 10-16, 2020 Traffic Study

- R580 Phase 2/3 moves to M1:
- Open FL340-FL400, PBCS required
  - 61 aircraft flew R580 on August 10-16, 2020
  - 19 of the aircraft were not PBCS approved
  - The 19 aircraft would have to flight plan R220 at FL330 or below or North/South of the Phase 3 NOPAC routes

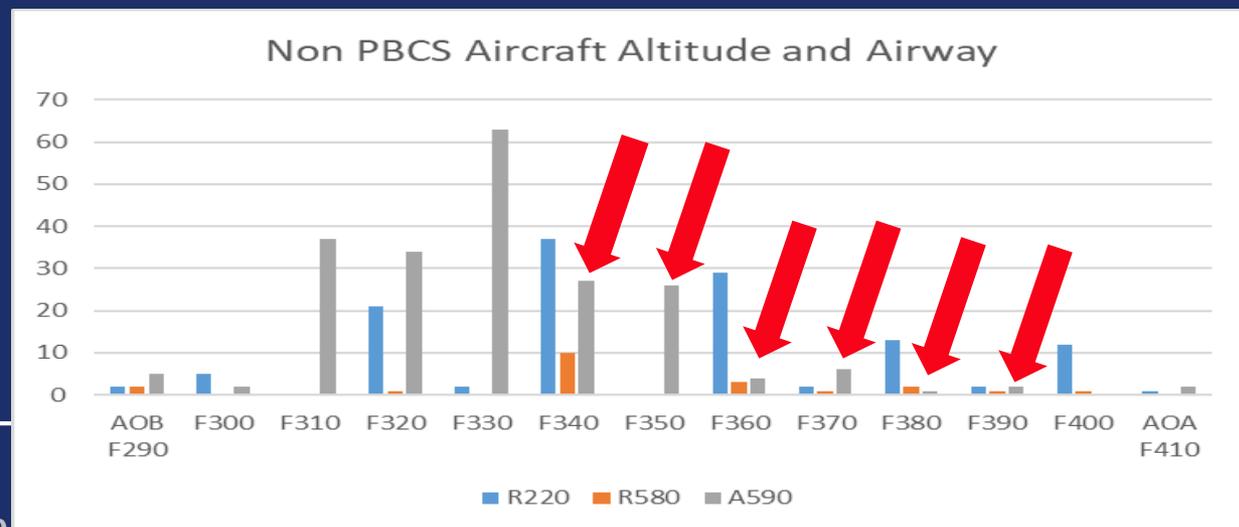


# August 10-16, 2020 Traffic Study

- **A590 in Phase 3 has 3 Flight Planning options**
  - R580 becomes eastbound in Phase 2
  - M2 new eastbnd route in Phase 3 open FL340-400
  - Waypoints of A590, PBCS required FL340-400
- **R580 Phase 2/3: PBCS required FL340-FL400**
- **437 aircraft flew A590 on January 19, 2020.**
- **209 of the aircraft were not PBCS approved.**

# August 10-16, 2020 Traffic Study

- 66 of the 209 wouldn't have complied with the Phase 3 requirements.
- 53 aircraft were at FL340/FL350 and would have to be at FL330 or North/South of the Phase 2 NOPAC Routes
- 13 aircraft were at higher altitudes and would have had greater impacts.

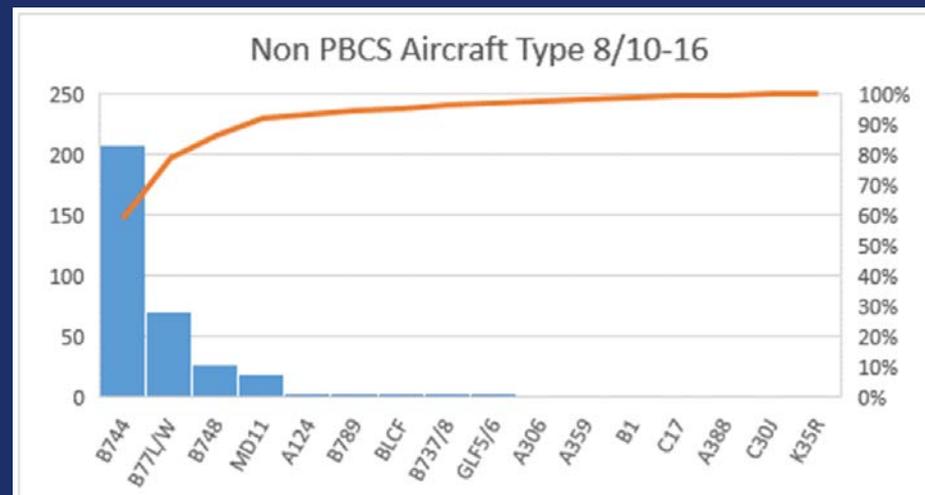


# August 10-16, 2020 Traffic Study

- R591 and G344 are removed starting in Phase 1, but their waypoints are retained.
- The airspace of R591 and south is open to UPRs with no PBCS requirements.
- 112 aircraft flew R591 and G344 on August 10-16, 2020
- There are no PBCS requirements and those aircraft could have flight planned a UPR without restrictions.

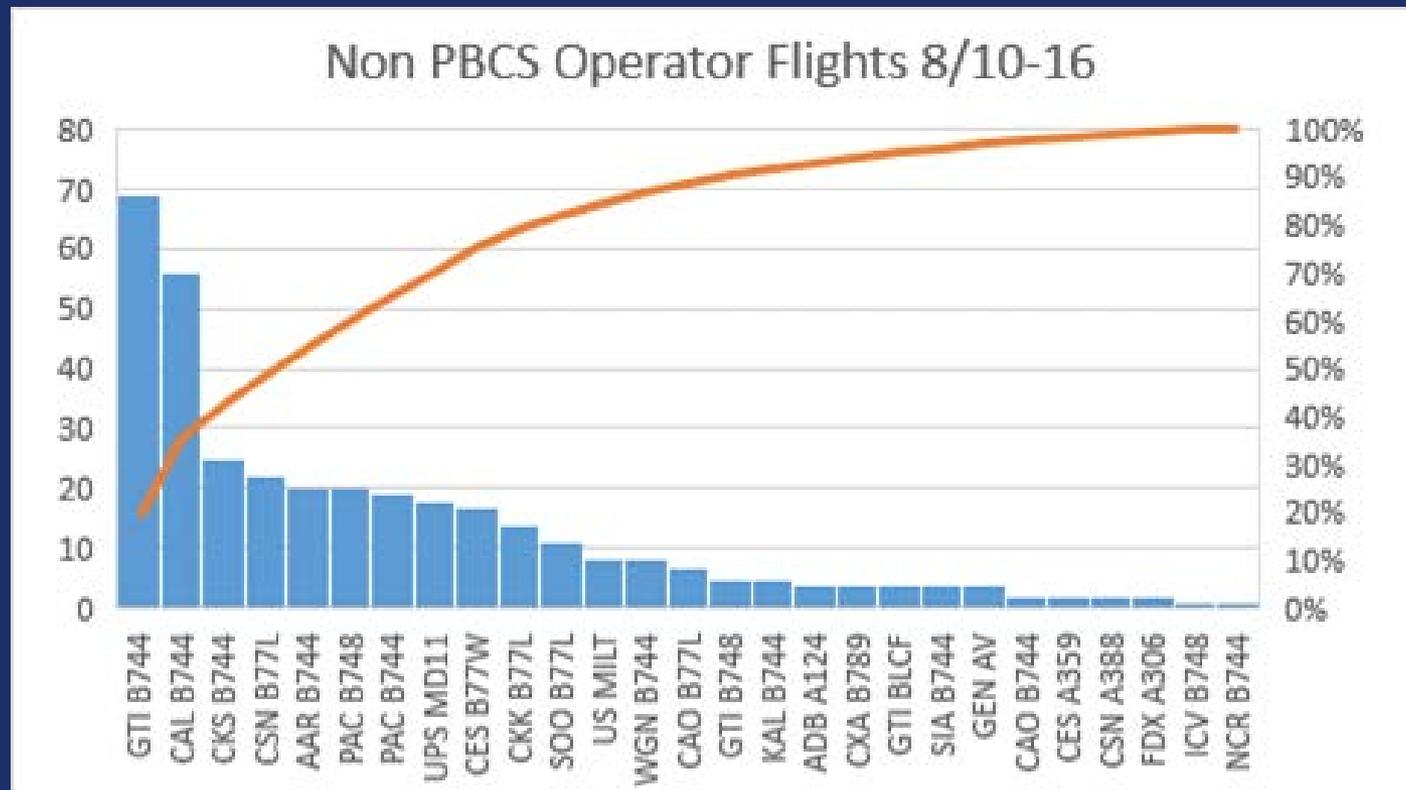
# August 10-16, 2020 Traffic Study

- Looking deeper at the August 10-16 traffic data, we can identify some facts.
  - 208 of the 354 Non PBCS flights were B744 aircraft which require FMS upgrades to obtain PBCS approval.
  - The next highest Non-PBCS aircraft type was the B77L and B77W.



# August 10-16, 2020 Traffic Study

- The slide below shows the breakdown of Non PBCS operator flights



# August 10-16, 2020 Traffic Study

- The impacts on Non PBCS flights seem much greater in the August 10-16 traffic study.
- The PBCS approved rate in the August traffic study was 65.6%.
- The COVID-19 Pandemic has moved us farther from our PBCS approval goals and increased the impacts.

# August 10-16, 2020 Traffic Study

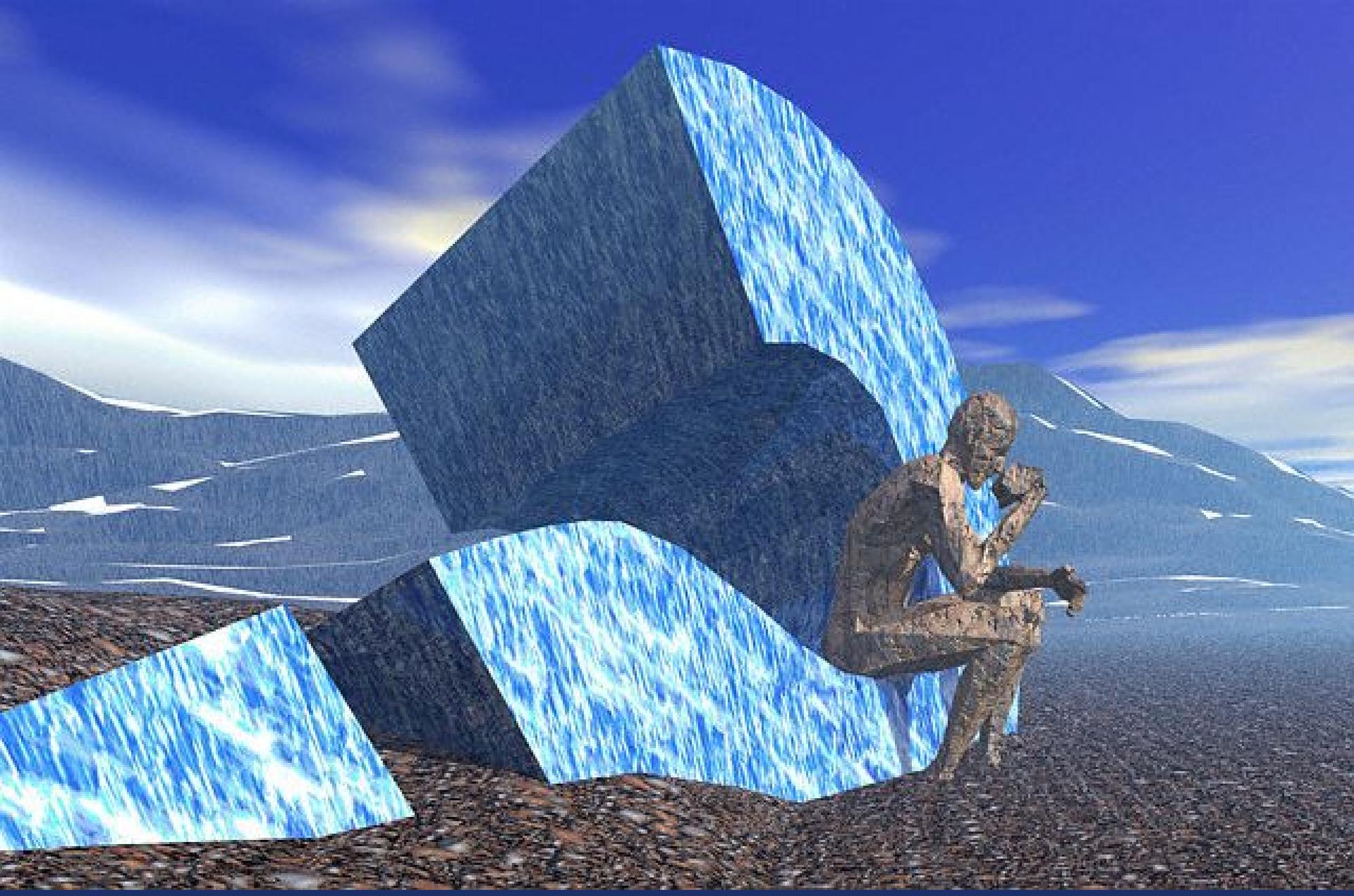
- JCAB and the FAA had previously discussed that the level of PBCS approved flights in NOPAC must be 90% or higher to move to Phase 2.
- Lower levels of PBCS approvals in Phase 2 and 3 cause:
  - Higher Controller workload
  - Traffic Congestion at or below F330
  - Greater impact on Non-PBCS approved aircraft
- JCAB and the FAA would like to hear from the operators at what the PBCS approval level should be before moving to Phase 2.
- Safety Risk Analysis will determine at what minimum PBCS approval level can be supported.

# **NOPAC Restructure Discussion**

- **Discuss the NOPAC COVID-19 Traffic changes.**
- **Will the NOPAC aircraft makeup changes continue after COVID-19 pandemic?**
- **Will the PBCS approval rate improve? Will the PBCS approval rate in NOPAC reach 90%?**
- **Are there any plans for the B744 Non\_PBCS aircraft operators to obtain their PBCS approvals.**

# **NOPAC Restructure Discussion**

- **Prior to the COVID-19 Pandemic, the Jan 19, 2020 data supported the planned phased implementation.**
- **The COVID-19 pandemic has caused changes to the NOPAC Route System operations.**
- **Implementing the NOPAC PBCS restructure with the current COVID-19 NOPAC operational makeup would have a significant impact on many operators.**
- **JCAB and the FAA will carefully study the proposed NOPAC PBCS restructure to develop an informed plan forward based on data, IATA/operator input and careful safety analysis.**
- **JCAB and the FAA would like to work with the operators to safely implement the NOPAC PBCS restructure with an acceptable level of negative impact.**



IPACG 46 Meeting  
Virtual  
Date October 19-22, 2020