



Saudi Arabia

ATM SG/10TH AND CNS SG/13TH
MEETINGS

2024

20 - 23 October

Saudi Arabia, Jeddah, Ritz Carlton



- **Airspace and ATM enhancements projects within Saudi Arabia**

- **OLDI/AIDC**
- **Reduction of longitudinal separation**
- **FUA**
- **Riyadh redesign**

- **SFAC**

- **SAR implementation update**



Saudi Arabia

Airspace and ATM enhancements



Saudi Arabia Reduction of longitudinal Separation

Application of **minimum longitudinal radar separation** with following FIRs:



Bahrain FIR **10NM**



UAE FIR **10NM**



Baghdad FIR 10 MIN



Muscat FIR 20NM (10NM)



Cairo FIR 15NM



Doha FIR from **10NM**



Amman FIR **10NM**



Kuwait FIR **10NM**



Phase I: CTAs

Jeddah CTAs

Dammam CTA

Riyadh CTA

Abha CTA



Phase II: Sectors

Central Sector

(Planned on 2024)



East Sector

(Planned)

Northeast Sector

(Planned on 2024)

SFAC changed the priority by using FTS and focus shifted to balance the traffic and modernizes JED FIR and applying 5 NM in next phase



■ Realigned ■ Created ■ Removed



Saudi Arabia

Optimization of Riyadh IFPs



RNAV STARs improvement :

- Introduction of the trombone structure:
- Enhance arrival sequencing flexibility.
- Reduces holding time.
- Reduce vectoring.
- New Entry Points/CDO consideration

RNAV SIDs improvement :

- Implementation Simultaneous departure from parallel runways:
 - Increase runways capacity.
 - Reduce delay.
 - Improve operational efficiency.
- CCO consideration



IAPs improvement :

- Redesign of ILS or LOC approaches.
- Redesign of RNP approaches.
- Implementation of RNP to ILS approaches

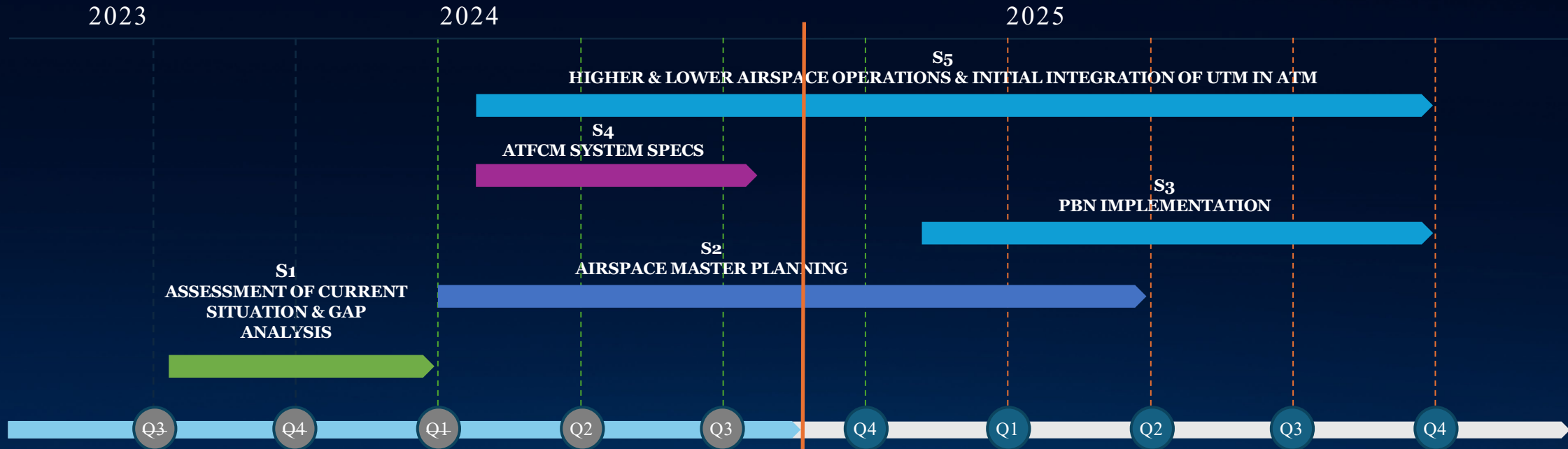


Saudi Arabia

Saudi Future Airspace Concept (SFAC)



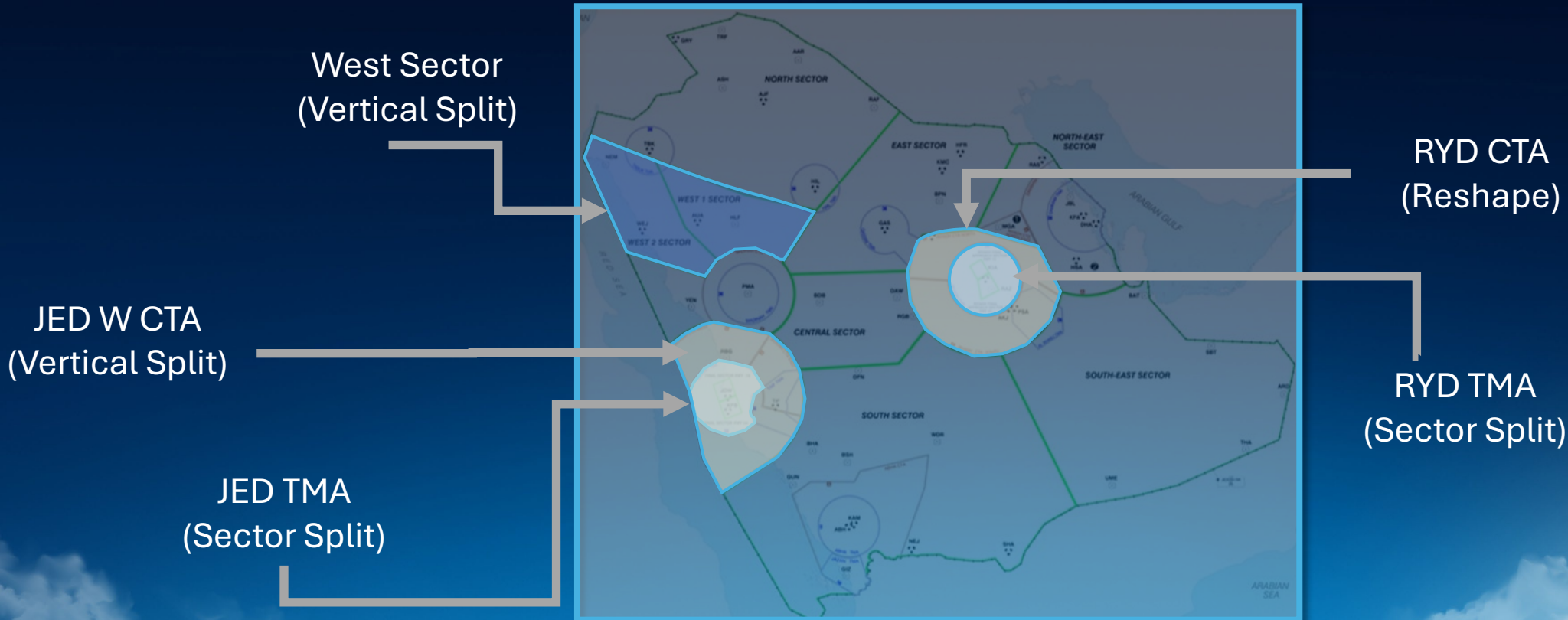
Saudi Future Airspace Concept (SFAC) Timeline



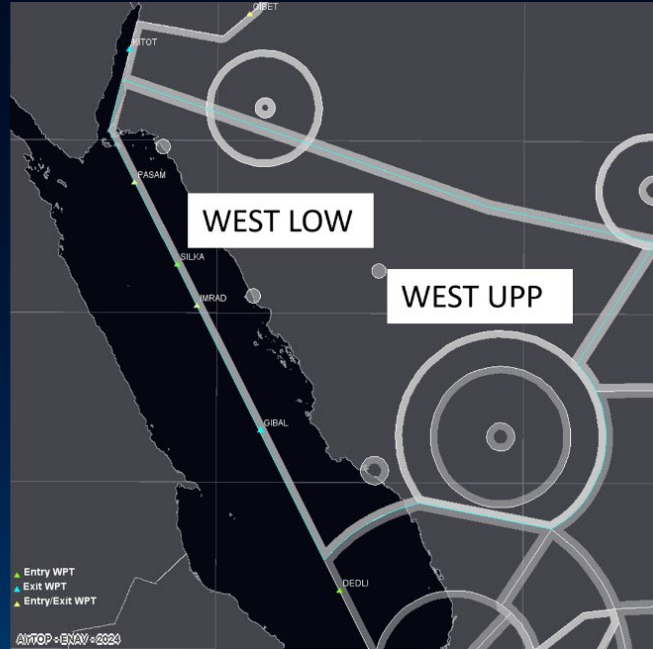
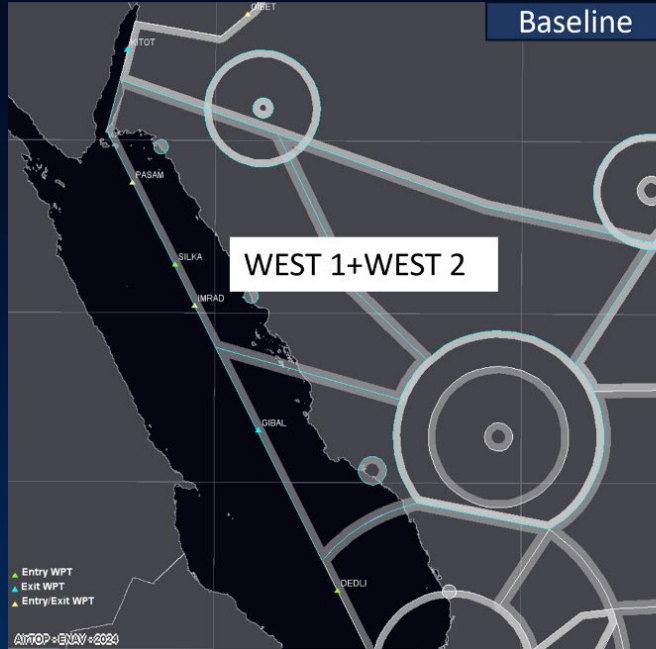
Saudi Future Airspace Concept (SFAC)	1	Current situation & GAP analysis	Completed <input type="radio"/>
	2	Airspace Master Planning	On-going <input type="radio"/>
	3	PBN Implementation	Not started <input type="radio"/>
	4	ATFCM specifications	On-going <input type="radio"/>
	5	Integration of UTM operations	On-going <input type="radio"/>



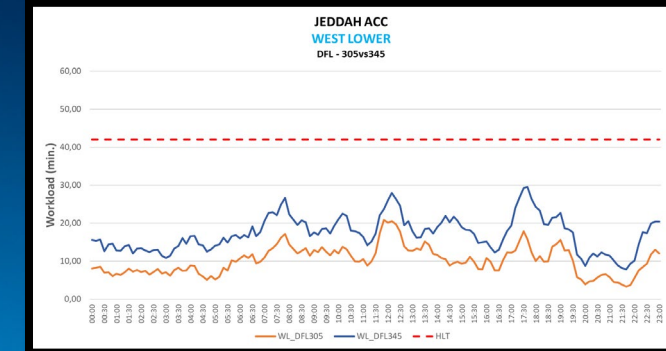
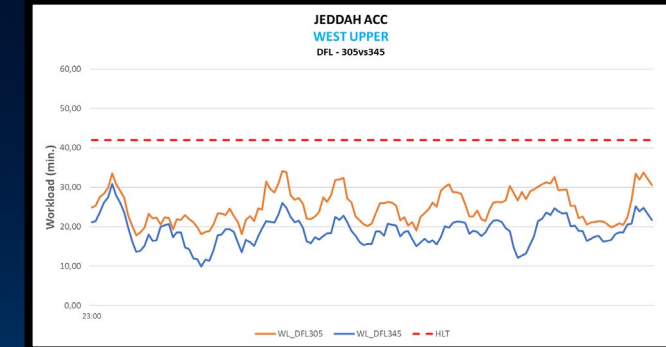
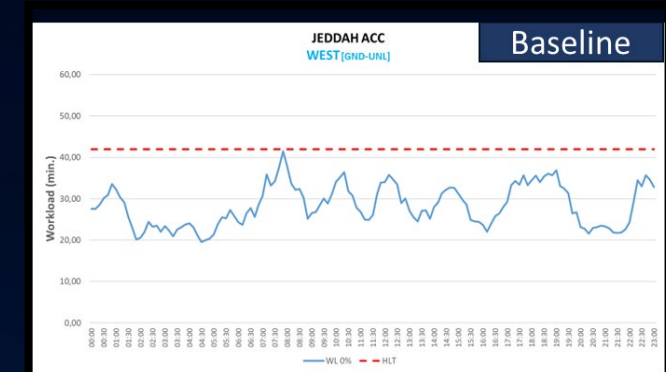
Based on the current assessment report SFAC has put in place 'Five Quick Wins' to increase the capacity of the airspace and ensure that the workload is distributed uniformly among the ATC positions . The purpose of these strategies is to come up with solutions that will be in position to have quick actions while **complete the planning for a roadmap** that meet future needs.



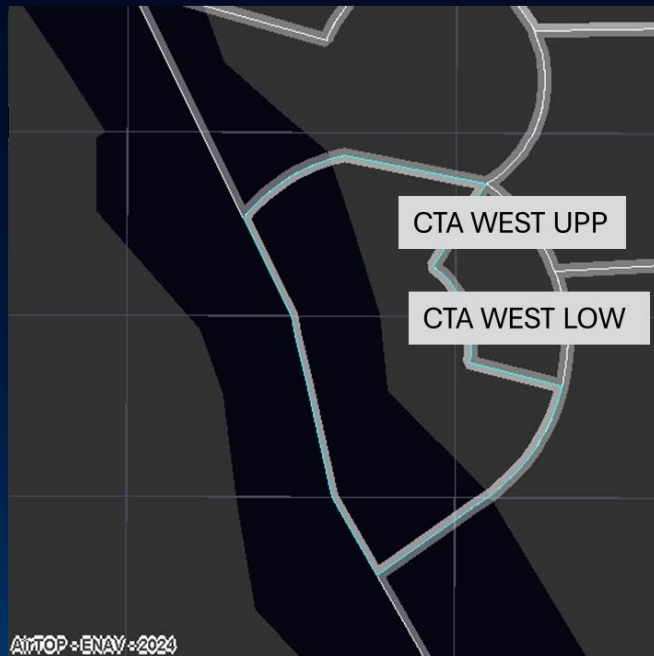
Saudi Future Airspace Concept (SFAC) West Sector Vertical Split



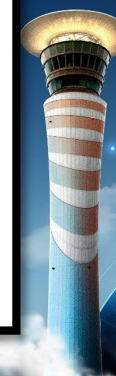
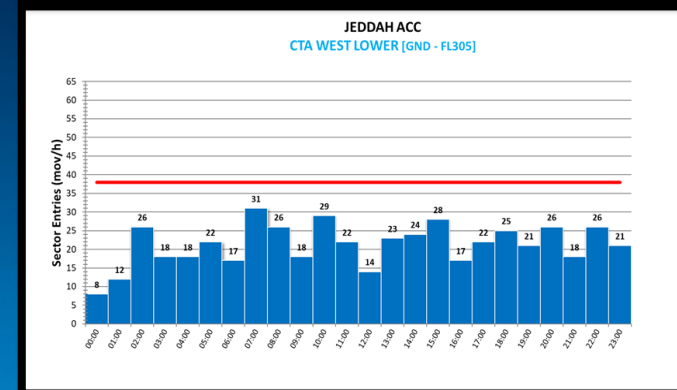
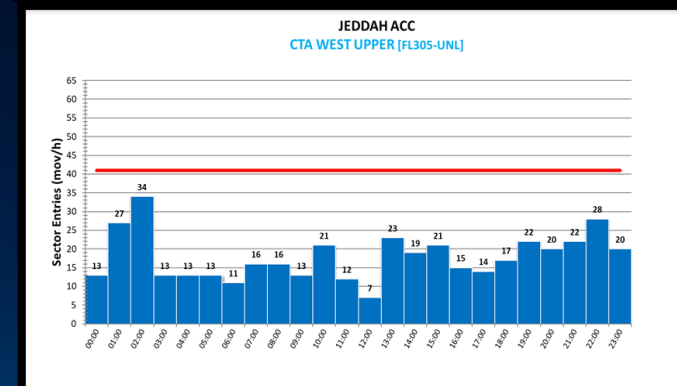
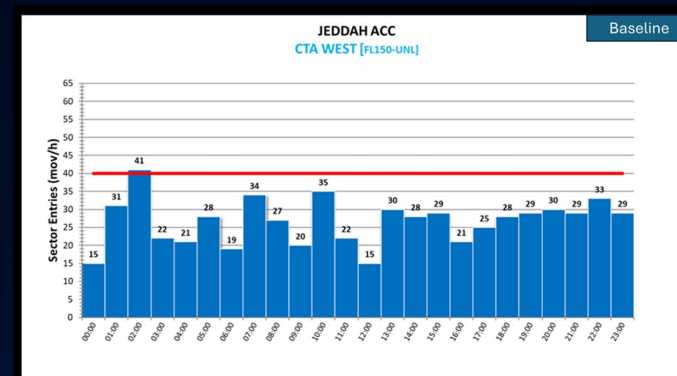
Scenario	ATC Sector	Sector Entries 345	Sector Entries 305
QW 1 West	WEST UPPER	428	556
	WEST LOWER	448	303
BASILINE	(WEST1+WEST2)	633	



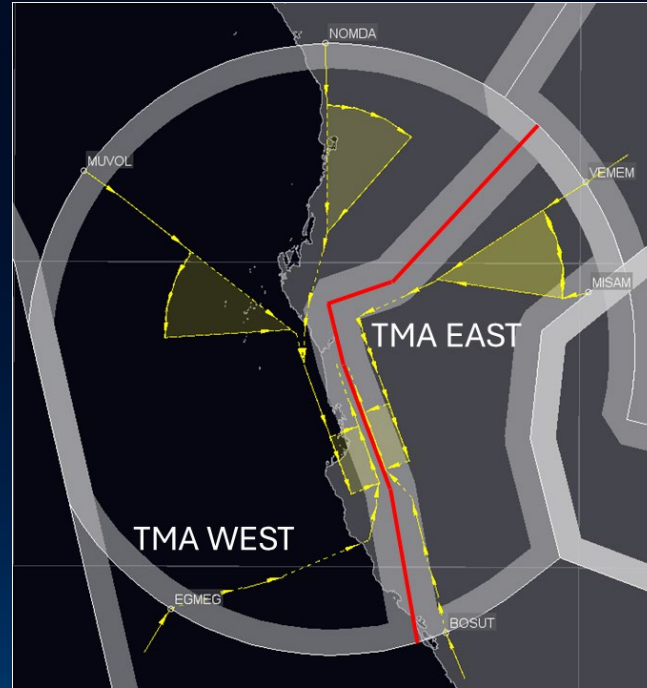
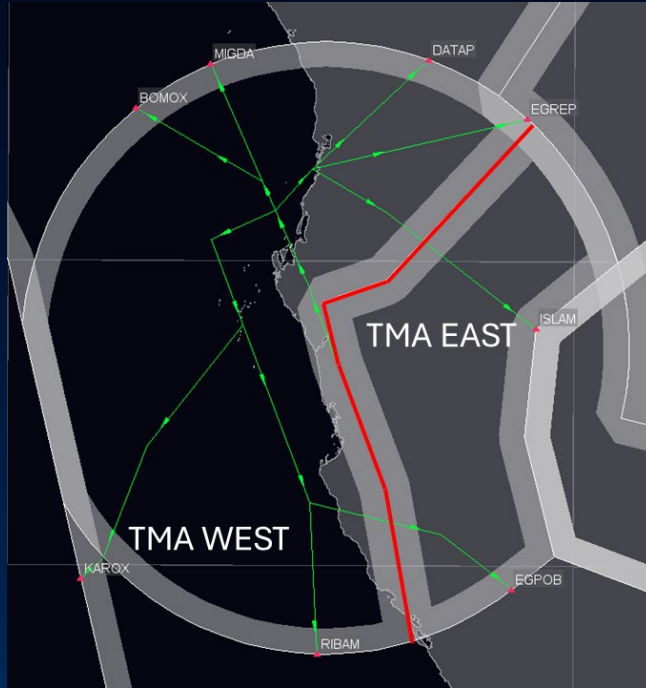
Saudi Future Airspace Concept (SFAC) JED CTA West Vertical Split



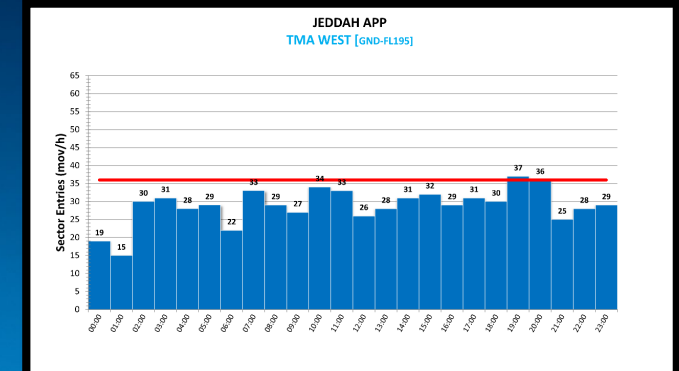
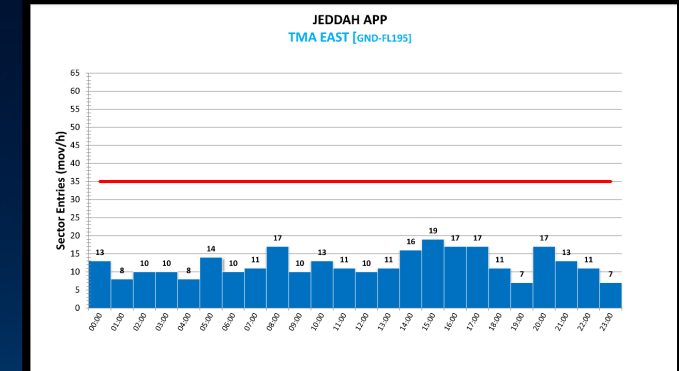
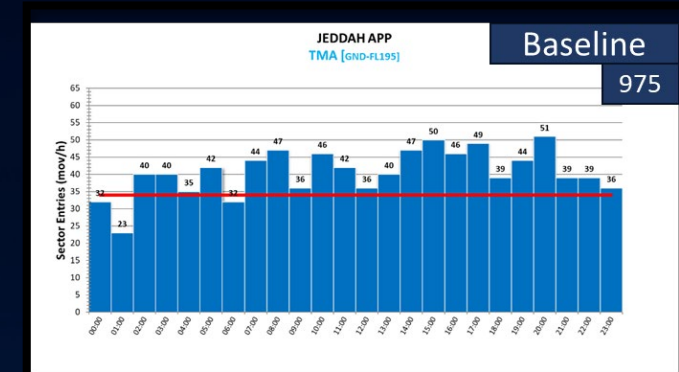
Scenario	ATC Sector	Sector Entries
QW 2 CTA West	WEST UPPER	430
	WEST LOWER	512
BASELINE	CTA WEST	641



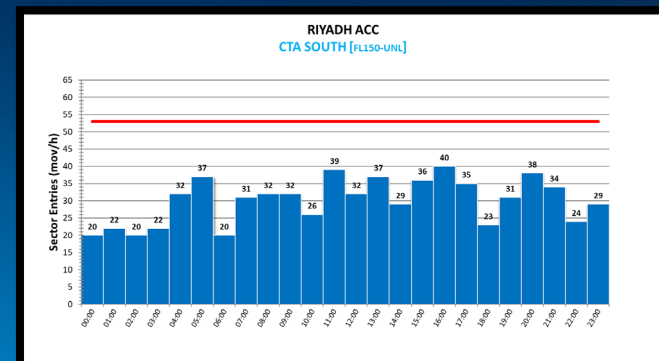
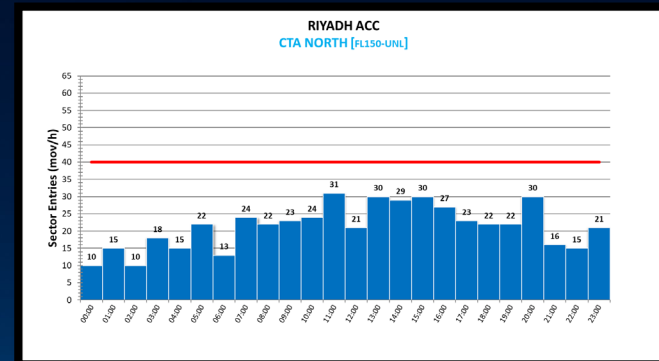
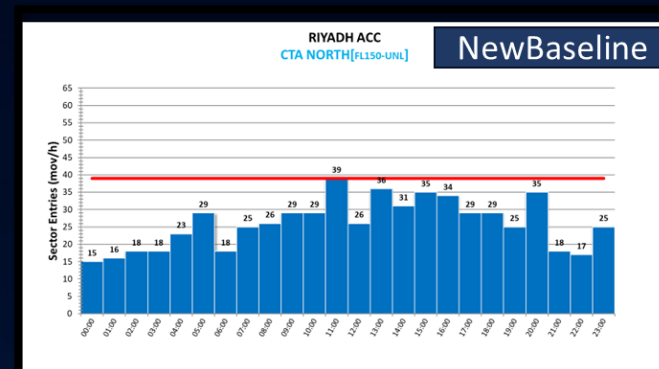
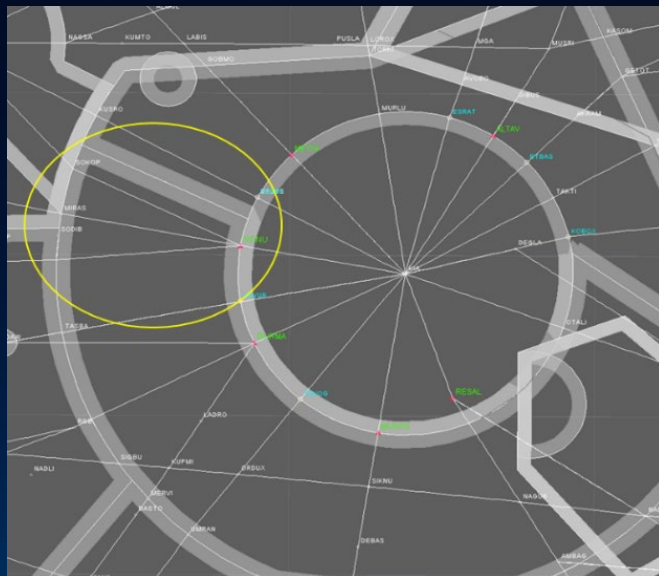
Saudi Future Airspace Concept (SFAC) JED TMA Horizontal Split



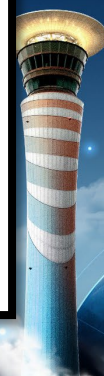
Scenario	ATC Sector	Sector Entries GND - 195
QW 3 JED TMA	JEDDAH TMA EAST	291
	JEDDAH TMA WEST	692
BASELINE	JEDDAH TMA	975



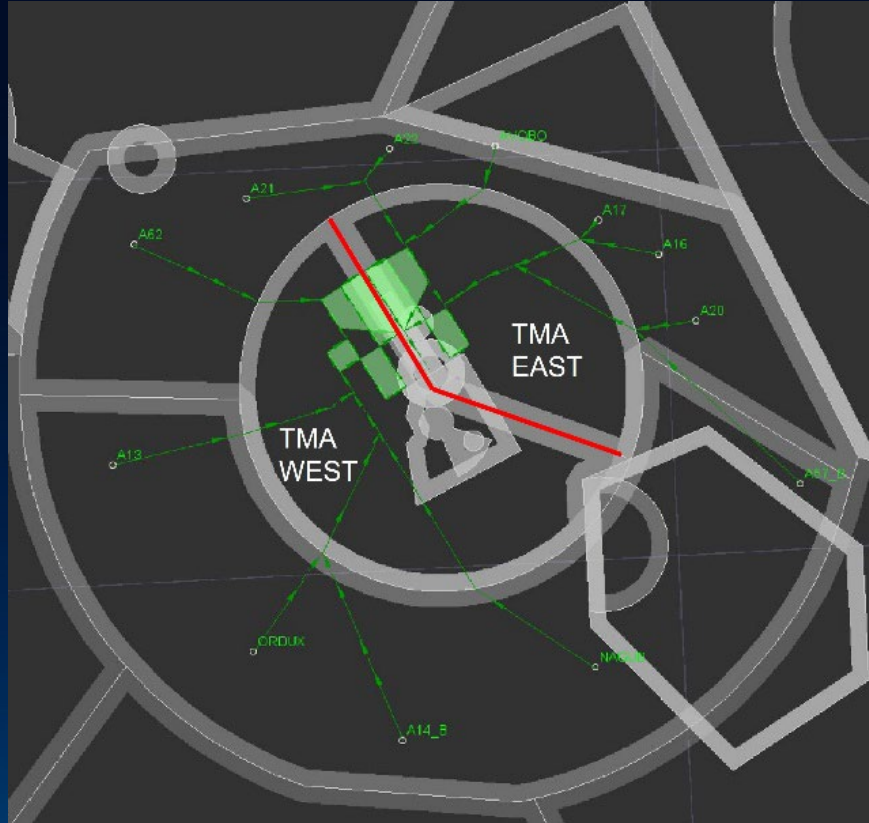
Saudi Future Airspace Concept (SFAC) RYD CTA Reshape



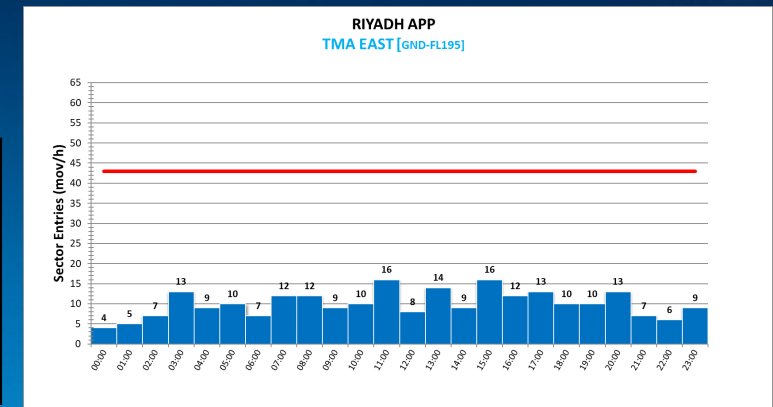
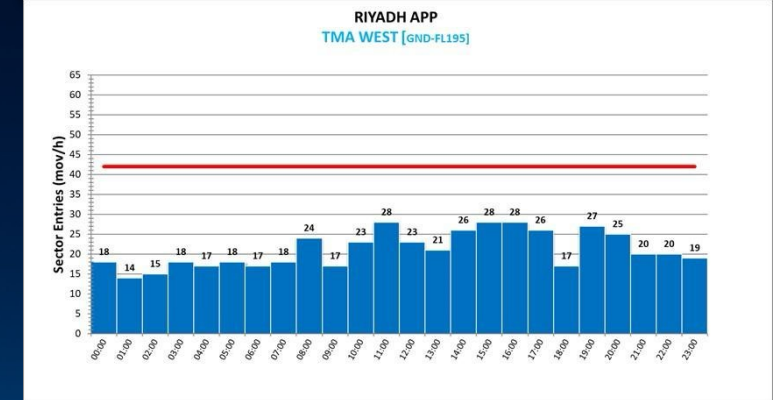
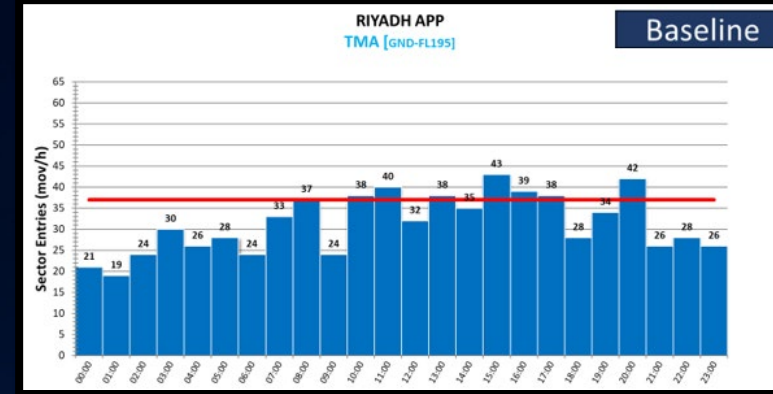
Scenario	ATC Sector	Sector Entries GND-150	Baseline
QW 4 RYD CTA	NORTH	625	513
	SOUTH	603	720



Saudi Future Airspace Concept (SFAC) RYD TMA Horizontal Split



Scenario	ATC Sector	Sector Entries GND - 195
QW 5 RYD TMA	RYD TMA EAST	241
	RYD TMA WEST	507
BASELINE	RYD TMA	746



Saudi Future Airspace Concept (SFAC) Airspace Master Planning

The second part of the project will lead to the developing and delivering a process of Master Planning as well as developing the SFAC Master Plan. The SFAC Master Plan shall cover requirements for modernization of Saudi airspace over the coming **15 years (2040)** , divided in three RPs.

Airspace System Development

Airspace Development Plan will include

- Ops Concept
- Airspace design alternatives
- FUA
- Simulations (RTS and FTS)
- BC, Emergency and DR plans
- ENV
- Safety impact
- Compatibility
- Business Cases

Airspace Operational Requirements

Operational Requirements must cover:

- Operational requirements and procedures
- Operational staffing requirements.
- Training and qualification requirements for operational staff.
- Induction training for operational and technical staff during the second phase on the new concepts and technologies presented in the master plan for the future Saudi airspace.

Airspace Technical Requirements

Technical Requirements including:

- Communication plan.
- Navigation plan (navigational aids).
- Control plan (navigational reconnaissance).
- ATM capabilities plan, including capacity
- Plan FIM capabilities.
- Air Traffic Management performance specifications.
- ATM-CNS budget estimation methodology.
- Technical staffing requirements & training



Saudi Future Airspace Concept (SFAC) Airspace Master Planning

The new airspace solution will simplify and optimize the current KSA airspace organization, allowing the implementation of solutions focused and tailored on En-route and Approach scenarios.

Main common **pillars** driving proposed solutions on both scenarios will be:

ATM Capacity and Scalability, to manage traffic safely and efficiently, even during peak traffic growth or stagnant/declining growth.

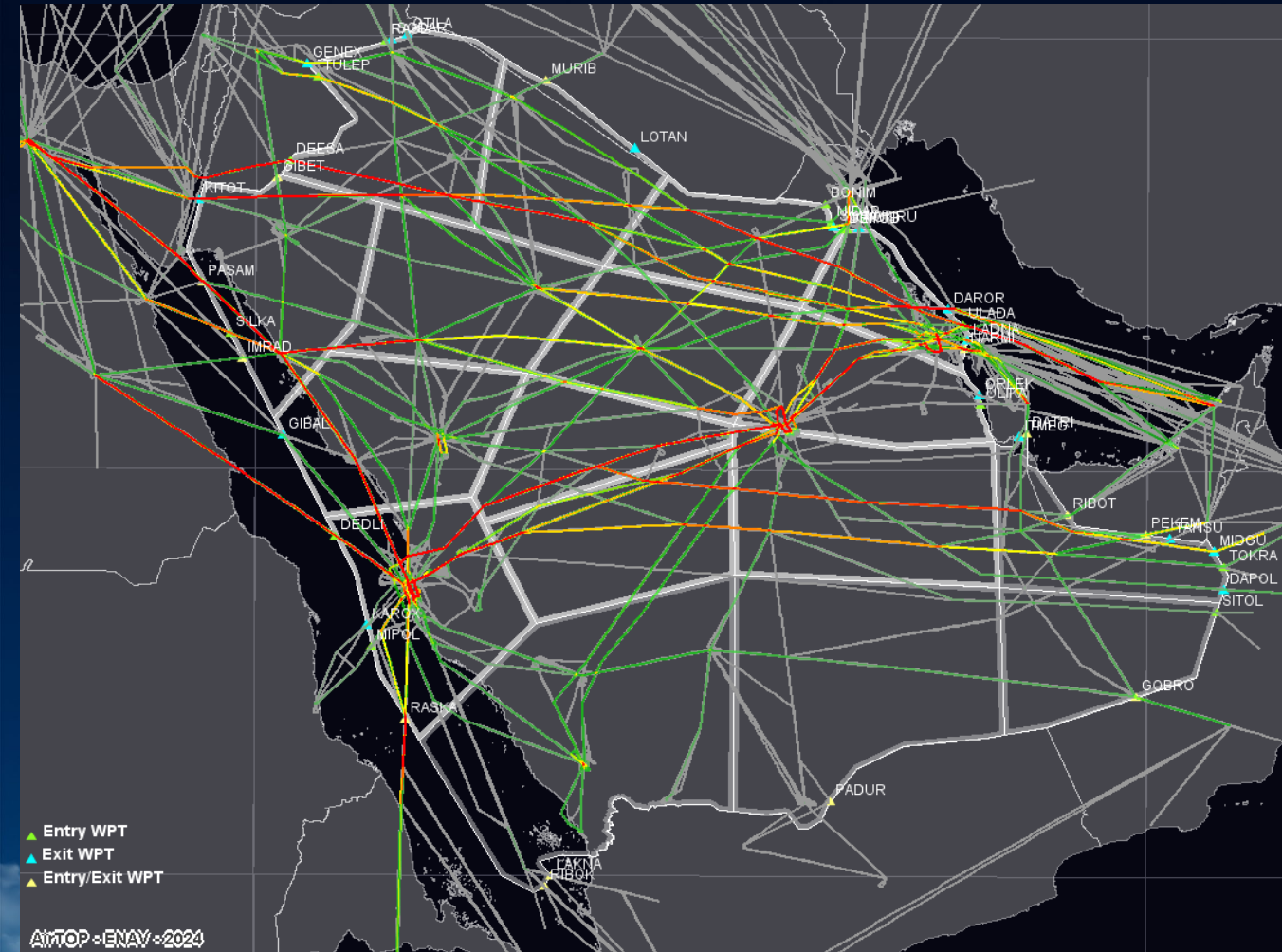
User-Preferred Routes, to enable Users to plan and fly trajectories that can ensure optimal performances both on cruising and during approach and departure.

System Resilience, to increase the overall flexibility of the system to respond to all types of incidents, enhancing safety and efficiency.

Civil and Military Access.



Saudi Future Airspace Concept (SFAC) Routes Network



- More Sectors to allow Dynamic Sectorization
- Reduce complexity by maintaining **hotspot (not more than two for each sector)** and ATS routes crossing point in the center of each sector:
 - to facilitate ATCO monitoring, and
 - to reduce the need for tactical coordination in critical position.

Longitudinal dimension of each sector **max 200 NM** to allow ATCOs an improved presentation to better appreciate the distance among tracks when applying **5 NM separation**.



Saudi Future Airspace Concept (SFAC) Routes Network

- JED FIR re-designed with the aim of :
- Division Flight Levels Proposed to support Vertical split of each Sector (if needed):
 - FL305
 - FL345

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
UNL																	
345																	
305																	
245 GND																	



- Projects under SFAC that will be deployed within the 1st Reference Period and represents the backbone of the SFAC.
 - New Sectorization
 - New Airspace Design
 - ATFCM
 - FUA
 - Free Route
 - Dynamic Sectorization
 - PBN
 - Flight Information Centre (FIC)
 - VFR Corridors
 - SOIR
 - HIRO
- Other solutions will be considered for implementation according to **GANP, SNAP and SANS strategies** within the **appropriate reference periods**.



This phase will build the detailed operational and technical requirements for an Air Traffic Flow and Capacity Management (ATFCM) service and system. As well as developing scope of work, RFP, and cost estimate of procurement and installing the ATFCM system as specified in the SFAC Master Plan.

Step1 National Coverage

Legislative Framework

Infrastructure Development

Training and Skill development

Data collection and Analysis

Operational Coordination

Operational Manuals

Technical Manuals

Public Awareness

Step 2 Cross-Border FIR Integration

International Agreements

Data Sharing and Interoperability

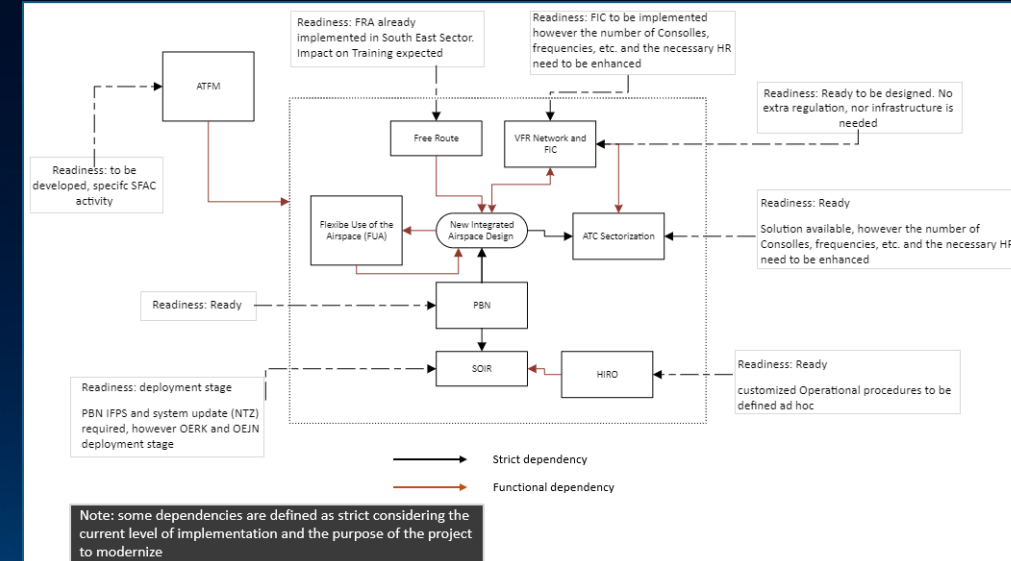
Operational Harmonization

Joint Training and Exercises

Cross-Border Coordination Centres



	RP1	RP2	RP3
New Integrated Airspace Design			
New ACC AoR			
Terminal Airspace Systems			
Improving Enroute Airspace Efficiency			
Air Traffic Control (ATC) Sectorization			
ATC Sectorization (Short term – 2030 demand)			
ATC Sectorization (Mid term – 2035 demand)			
ATC Sectorization (Long term – 2040 demand)			
Free Route			
FRA FL305 above			
FRA cross border with other FIRs			
FRA FL195 above			
Felixable Use of the Airspace (FUA)			
FUA			
A-FUA			
Dynamic Sectorization			
Multi Sector Planner (MSP)			
Low IFR Network (Helicopter)			
VFR network and FIC implementation			
Very Low Level Operations (VLL)			
Remotely Piloted Aircraft System (RPAS)			
Higher Airspace Operations (HAO)			



Saudi Future Airspace Concept (SFAC) Airspace Roadmap

Airport and TMA Operation

	RP1	RP2	RP3
Simultaneous Operations on Parallel or Near-Parallel Instrument Runways			
Simultaneous Parallel Dependent Approaches (OEJN – OERK – OEMA – OEDF)			
Simultaneous Parallel Independent Approaches (OEJN – OERK – OEMA – OEDF)			
Simultaneous Close Parallel PRM Approaches (OEJN – OERK – OEMA – OEDF)			
High Intensity Runways Operations (HIRO) (OEJN – OERK)			
Wake Turbulence Re-Categorization (RECAT)			
Time based Separations (TBS)			

TBO

	RP1	RP2	RP3
Trajectory Based Operations (TBO)			
Air Traffic Flow Management (ATFM)			
Advanced Traffic Separation Management (CORA)			
Performance Based Navigation (PBN)			
PBN Procedures for All Airports			
GBAS (GLS Procedures)			

Virtualization

	RP1	RP2	RP3
Virtual and Remote ATS Facilities			
Remote Tower Centre and Remote Tower Service			

Saudi Arabia

SAR implementation



- Respond to 344 Distress , 18 of them are Real Distress, saving 59 persons.
- Responded to space Derbies (European Satellite (ERS-2) Return, Shenzhou 17 Shenzhou 17 and, Chinese Rocket CZ-2D and Small asteroid)
- Conduct 6 Awareness sessions regarding the implementation of GADSS/LADR to , Airlines ,SAR, ATS and ATM Safety



Saudi Arabia

Is hosting the 71st meeting of the CSC
Program for satellite-based search and rescue

With **45** States and organizations

— The meeting is —
a recognition of the Kingdom's role in the international aviation sector
and search and rescue

— The Saudi Arabia Mission Control Centre —



THANK YOU

2024

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Saudi Arabia, Jeddah, Ritz Carlton

