

CIVIL MILITARY COOPERATION

FLEXIBLE USE OF AIRSPACE (FUA)

“PHASE 1”

ROYAL SAUDI AIR FORCES

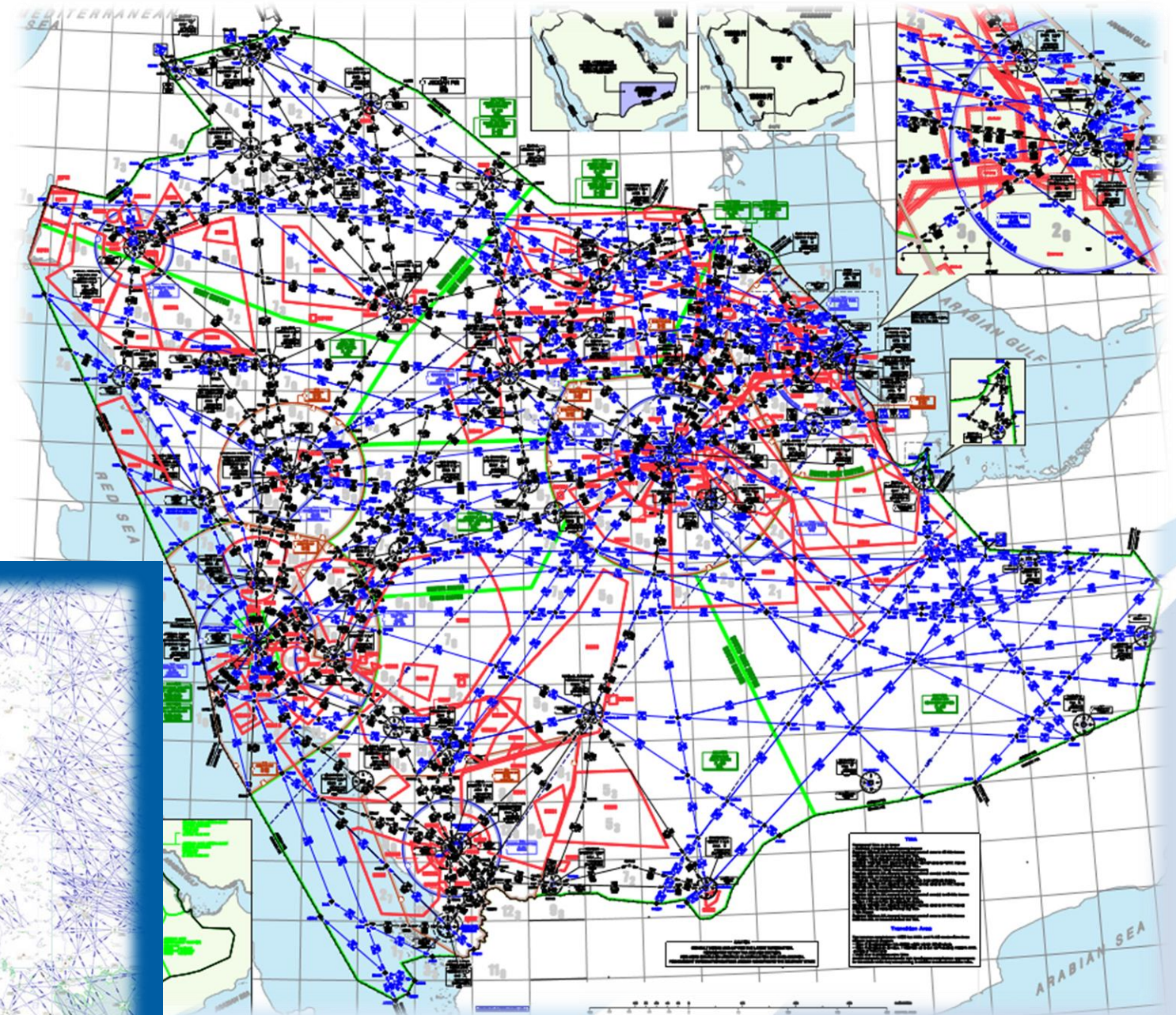
“Managing sky,
Securing lives”



SFAC

Saudi Future Airspace Concept

- **NTP**
National Transformation Program
- **Airspace Optimization**
ATS Routes
Re-sectorization
- **CNS/ATM Master Plan**
3RP
15 Years
- **ATFCM**
Local
Regional



Saudi Vision 2030

Building a unique regional logistical hub

Achieving Environmental Sustainability

Focusing our efforts to serve Umrah visitors

A restructured King Abdullah financial district

2. Efficient Operation

2.1 Optimize
 Airspace

2.1.1
FUA

Phase |
RSAF

Airspace
 Study



Evaluate
 out come



Direction

Increase Airspace Capacity
 Prerequisite for SFAC Project



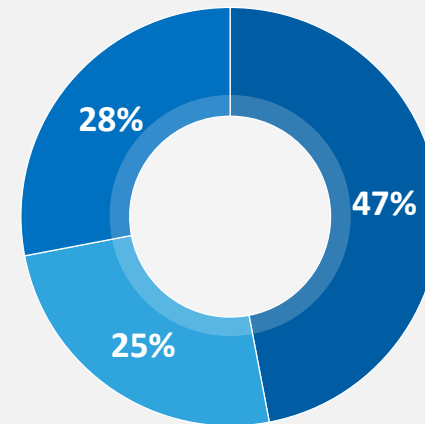
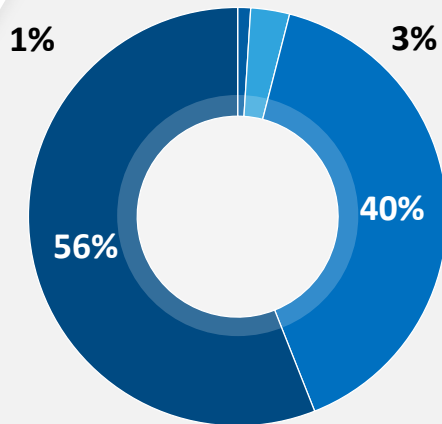
GACA initiative has been assigned to SANA

Only 56% of our airspace is fully utilized and used freely

Airspace Study

Phase 1

Prohibited **12**
Danger **55**
Restricted **60**



■ P ■ D ■ R ■ Available Airspace

■ Permanent ■ Time based ■ By NOTAM

Owner	%
Ministry of Defense	40.20%
Ministry of Interior	1.08%
Ministry of National Guard	0.11%
Saudi Airlines Academy	0.52%
Holy areas	0.10%

↓

Air Forces	35%
Ground Forces	4%
Navy	0.91%
Air Defense	0.29%





Air Forces

OER 05

Size (NM*2)

Location

ALT

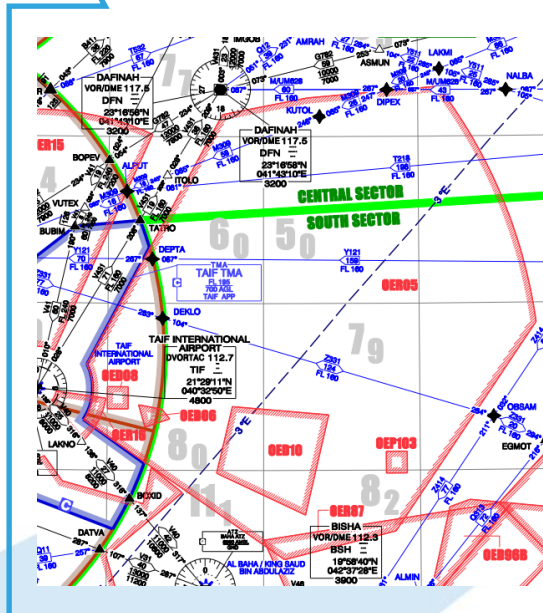
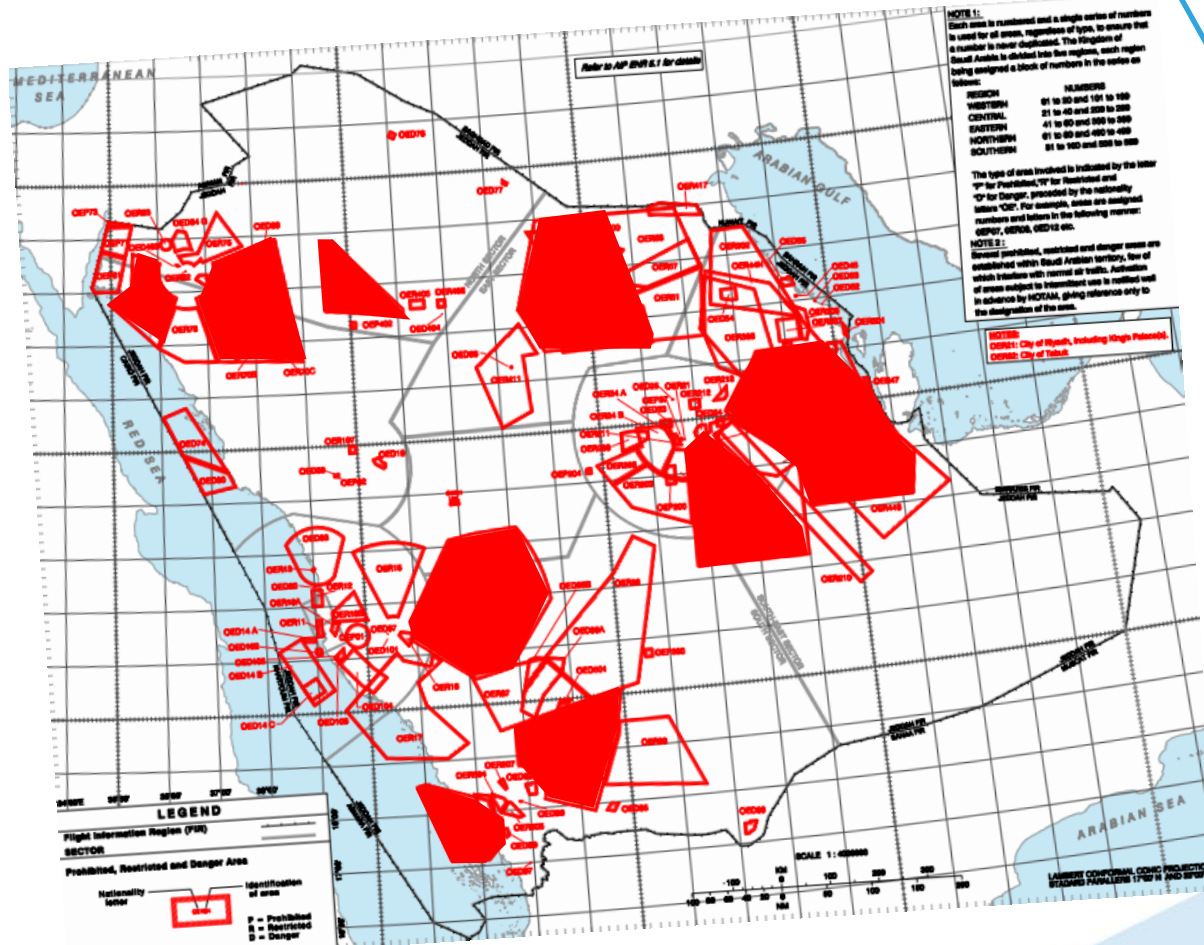
18,708.6

King Fahad Base – Taif

UNL / SFC

Activation

ACT DLY BTN 0300-1500 EXC FRI & SAT & official HOL



Jeddah DCT Riyadh

400 Flights X 30 NM
X 356 Days



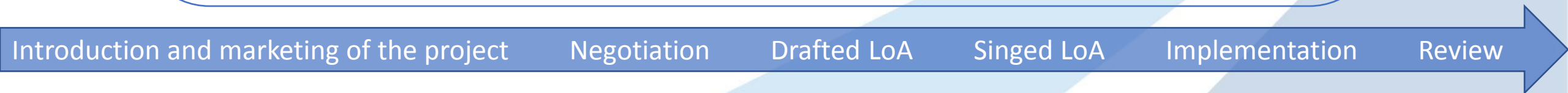
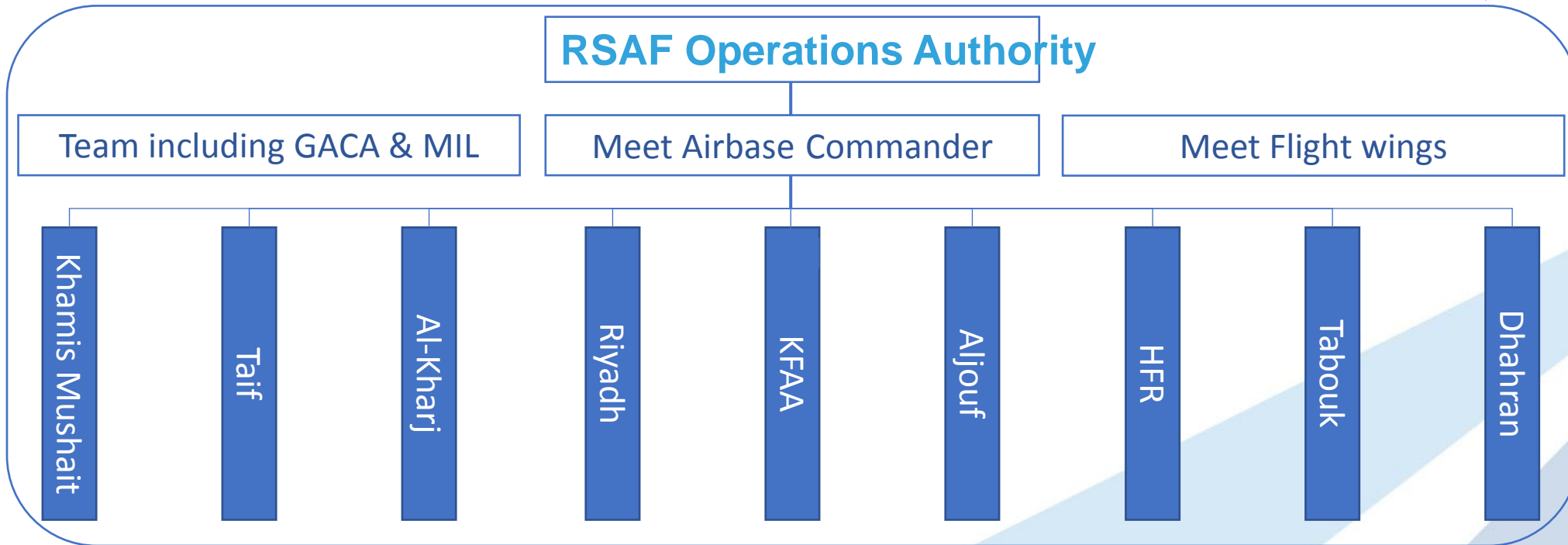
4,272,000
NM/Year



FUA

- Steps Taken

Escalation





FUA

- Agreements Levels

Level 1

- Strategic agreement between Air Force Operations Authority and Saudi Air Navigation Services (SANS) to regulate airspace reservation for any areas established serving Air Force Operations.

Level 2

- Agreement between each Air base and SANS | ATM (Air Traffic Management) regulate how to reserve areas needed for operations includes time (Hours & Days) and size (Horizontal & Vertical).

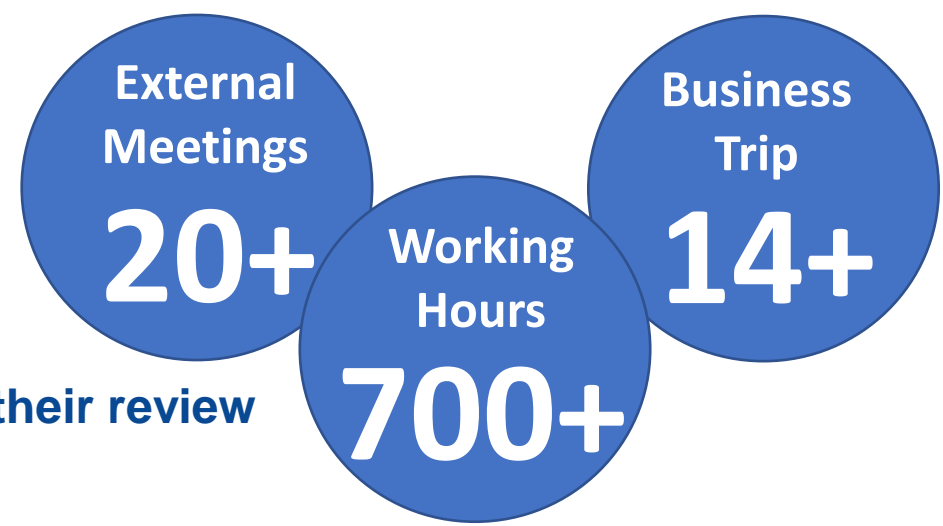
Level 3

- Agreement between Air Force Operations Authority (Air bases) and ATM | ATC Center/Unit to set procedure to\from reserved areas and air bases to facilitate civil and Air Force Operations.



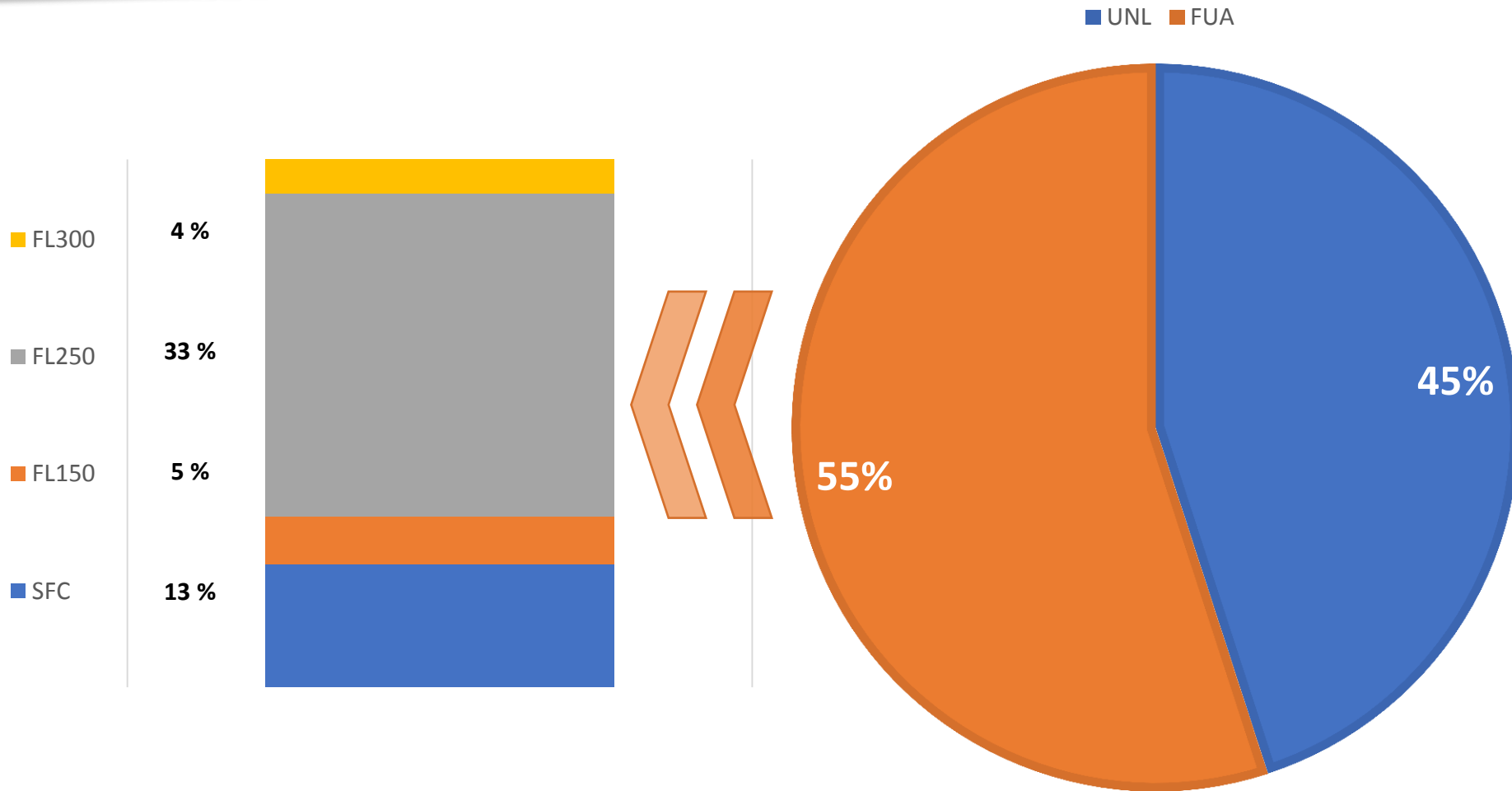
FUA

• (Phase 1) Where we are..

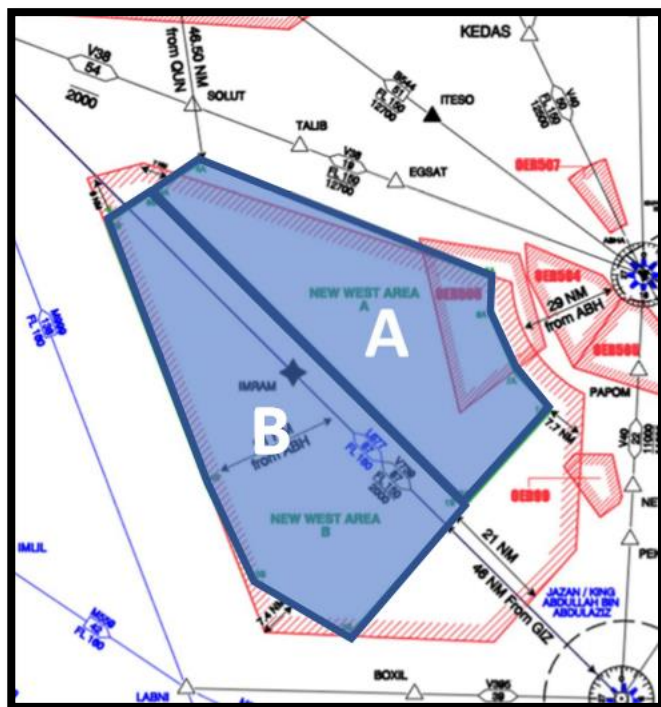


- LoA with RSAF Operations Authority as Main (draft) **sent** for their review
- The Appendixes LoAs with airbases status as follow:

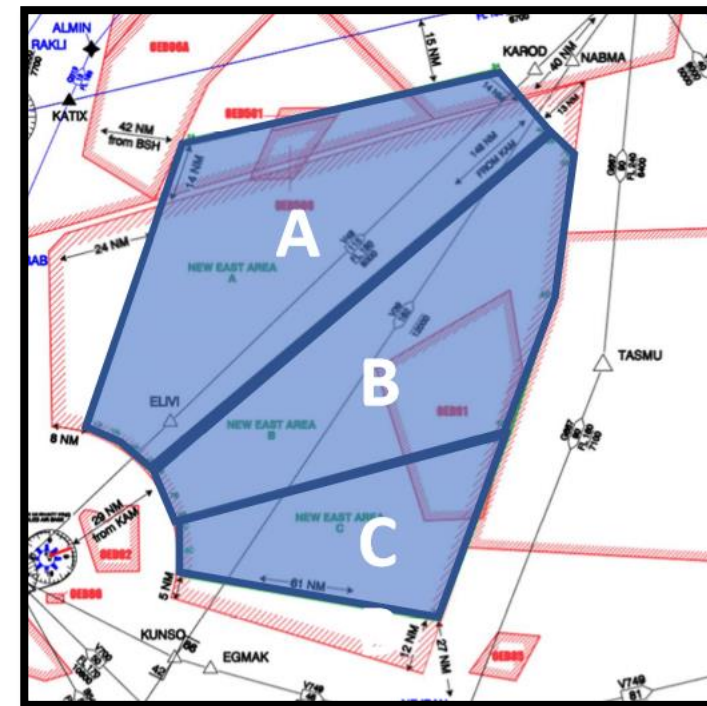
Airbase	Visit	Negotiation	Drafted LoA	Signed LoA	Implementation
King khalid	Done	Done	Done	Done	Planned
King Fahad	Done	Done	Done	Done	QW
Prince Sultan	Done	Done	Done	Done	QW
King Salman	Done	Done	Done	Done	Planned
King Faisal Academy	Done	Done	Done	Done	Planned
Aljouf	Done	Done	Done	Done	QW
King Saud	Done	Done	Done	Done	QW
King Faisal	Done	Done	Done	Done	QW
King Abdulaziz	Done	80%	80%	Planned	Planned



Sector	%
Air Forces	35
Ground Forces	4
Navy	0.91
Air Defense	0.29



Area	Time	Level
OER 84 A	0500-0700	SFC-450
	0700-2000	SFC-150
OER 84 B	0500-0700	SFC-230
	0700-1100	SFC-450
OER 84 C	1100-2000	SFC-230
	0500-1100	SFC-450
	1100-1500	SFC-230
OER 93 A	1500-2000	SFC-450
	0500-1100	SFC-450
	1100-2000	SFC-150
OER 93 B	0500-1100	SFC-150
	1100-2000	SFC-450





FUA – Quick wines

- Flight cost benefit estimation

From (OVR)	To (OVR)	Via	Condition	Savings per flight			Frequency per month	Savings (SAR)	
				Distance (NM)	Time (Min)	SAR		per month	per year
RUH	JED	M309		3.4	0.49	493	2,267	1,117,631	13,411,572
East	JED	T218		19	2.71	2,755	2,272	6,259,360	75,112,320
RUH	AQI	N694		80	11.43	11,600	4	46,400	556,800
DMM	West	T540		10	1.43	1,450	291	421,950	5,063,400
DMM	East	new	National	296.5	42.36	42,993	60	2,579,550	30,954,600
East	RUH	M440		40	5.71	5,800	607	3,520,600	42,247,200
TOTAL									176,620,092

	Recently Implemented
	Partially implemented
	On progress
	Planned



KEY WORDS



Trust

Vision 2030

High Management Support

Goals

Adopting and building the concept of strategic partnership to achieve the Saudi Vision 2030 by activating the optimal use of the airspace and benefiting from the national project **SFAC**

Re-study the reserved areas:

- No affect on requirements of air forces training
- Achieve the objectives of civil aviation

Reservation of areas based on actual use of :

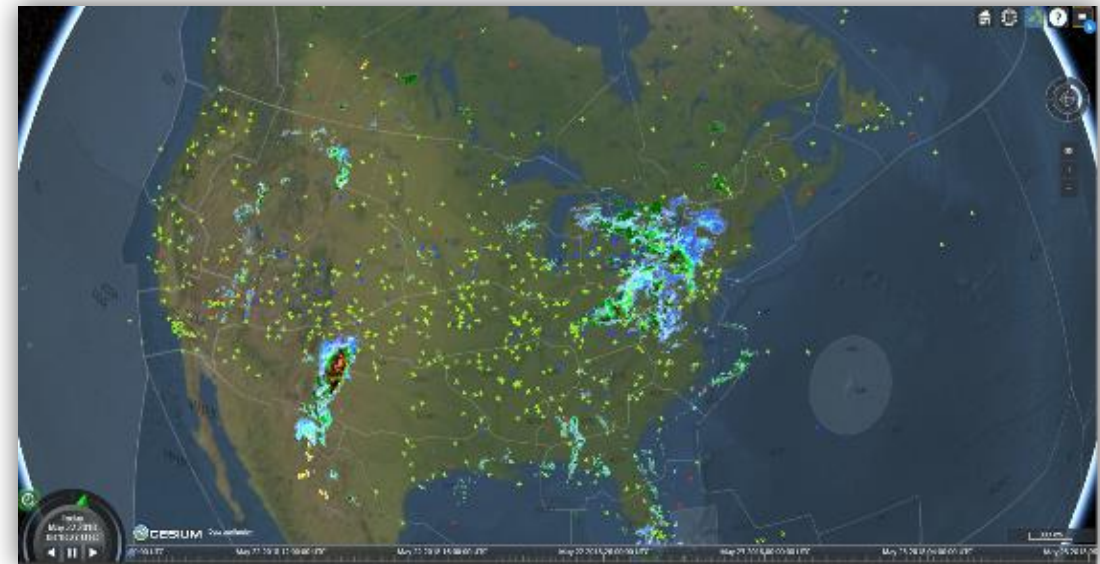
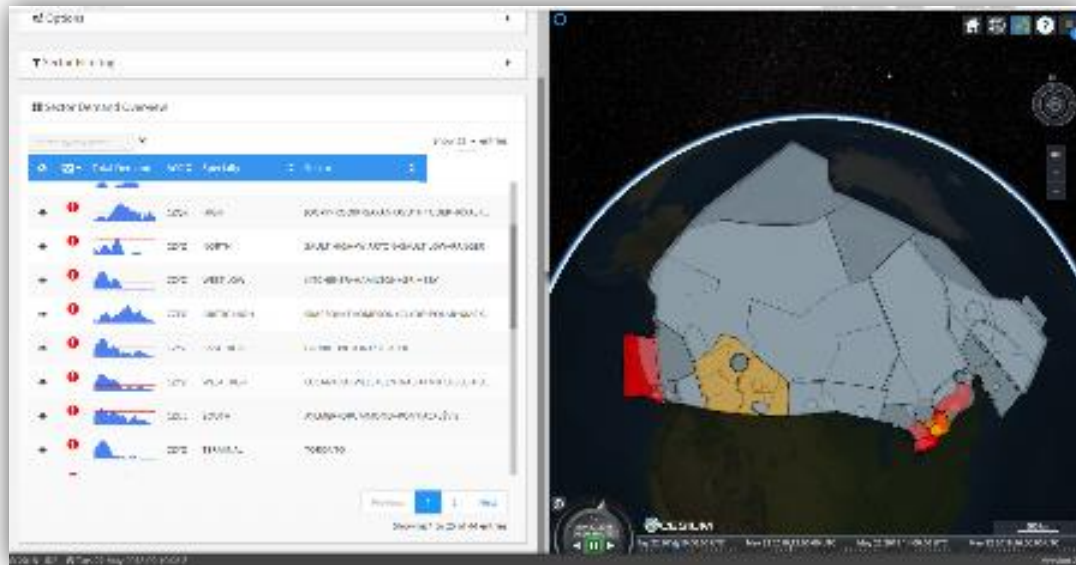
- Vertical (Altitude)
- Time
- Horizontally (size)

Exchange of visits and cooperation in the field of training and workshops with a view to applying the concept of Flexible Use of Airspace FUA

AIRSPACE MANAGEMENT TOOLS (AIRSPACE BOOKING SYSTEM)

“Managing sky,
Securing lives”

- Fully web based ASM
- User-friendly interface
- Tabular & 3D Map views



Airspace Coordination

Airspace Booking form (Selection)



The image displays a software interface for Airspace Booking. On the left is a dark sidebar with navigation options: Home, ATFM, Airspace Coordination (selected), Dashboard, Analysis, Timeline, Calendar, Booking, Booking List, Settings, and Help. The main content area is titled "Booking" and contains a "New Booking" form. The form includes a search field for "Airspace" with a dropdown menu listing options: BG R10 (PITUFFIK), KR4803 (FALLON), KR3602B (MANHATTAN), KR5121 (FORT WINGATE), KR4301 (CAMP RIPLEY), KR5314B (DARE COUNTY) (highlighted), and KR5314G (DARE COUNTY). Below this are fields for "To Date", "To Time" (with a UTC toggle), "Activity Type", "Buffer In" (Mins), "Buffer Out" (Mins), "Number of Aircraft", "Aircraft" (dropdown), "Comments", and "Comments" (text area). At the bottom of the form are buttons for "PREVIEW IMPACT MAP", "PREVIEW IMPACT", and "SUBMIT". A "Mission Parameters" dropdown is visible at the very bottom of the form area.

On the right side of the interface is a 3D satellite-style map of North America. The map shows various colored polygons representing booked airspace. A circular control panel at the bottom left of the map shows a clock icon, a play/pause button, and a time display: "15000r", "Feb 8 2017", "10:06:20 UTC". A timeline at the bottom of the map shows "Feb 2 2017 16:00:00 UTC" and "Feb 2 2017 20:00:00 UTC". The top right corner of the map area has icons for search, home, globe, and settings.

At the bottom left of the entire screenshot, there is a footer: "© 2015 - IDS © Thu, 02 Feb 2017 14:02:26 Z". At the bottom right, it says "Version 2.0".

Airspace Coordination

Airspace Booking form for collaboration
(Selection From Map)



The screenshot shows a web-based interface for airspace booking. On the left is a dark sidebar with navigation options: Home, ATFM, Airspace Coordination, Dashboard, Analysis, Timeline, Calendar, Booking, Booking List, Settings, and Help. The main area is titled "Booking" and contains a "New Booking" form. The form fields are as follows:

- Airspace:** KR5313A (LONG SHOAL POINT)
- Status:** (Dropdown menu)
- Lower (FL) / Upper (FL):** Lower FL and Upper FL (Text input fields)
- From Date / From Time:** Date and Time (Text input fields with calendar icons) and UTC (Radio button)
- To Date / To Time:** Date and Time (Text input fields with calendar icons) and UTC (Radio button)
- Activity Type:** (Dropdown menu)
- Buffer In / Buffer Out:** Mins (Text input fields)
- Number of Aircraft / Priority:** (Text input fields)
- Aircraft:** (Dropdown menu)
- Comments:** (Text area)

At the bottom of the form are buttons for "PREVIEW IMPACT MAP", "PREVIEW IMPACT", and "SUBMIT". Below the form is a "Mission Parameters" dropdown menu. To the right of the form is a 3D map showing a coastal area with several colored, semi-transparent rectangular volumes representing booked airspace. A "Feature Information" panel is open over the map, displaying the following details:

AIRSPACE_PK	8971
TYP	R
IDENT	KR5313A
NAM	LONG SHOAL POINT
UPPERLIMIT	18000
LOWERLIMIT	0
Select Airspace	<< Select
Airway Impact	Display
Flight Plans	Q O O

The bottom of the interface includes a map navigation control with a zoom level of 15000x, a timestamp of Feb 14 2017 05:18:03 UTC, a playback control, and a timeline showing Feb 2 2017 16:00:00 UTC and Feb 2 2017 20:00:00 UTC. The footer contains the text "© 2015 - IDS © Thu, 02 Feb 2017 14:03:11 Z" and "Version 2.0".

Airspace Coordination









































Booking List



Booking List

Bookings

Search Bookings 10

Action	Airspace ID	Status	Detail	From - To	FL	User
   	952	REJECTED		2016/12/14 04:00 - 2016/12/14 18:00	FL0 - FL999	Administrator
   	KR5121	APPROVED	text	2016/12/14 06:00 - 2016/12/14 13:00	FL100 - FL200	Administrator
   	CYR223	APPROVED		2016/12/14 05:00 - 2016/12/14 19:00	FL122 - FL1222	Administrator
   	CYR222	COUNTER_PROPOSED	32	2016/12/14 01:00 - 2016/12/14 02:00	FL100 - FL500	Administrator
   	KR4803	COUNTER_PROPOSED		2016/09/28 19:00 - 2016/09/28 20:00	FL0 - FL320	Administrator
   	BG R10	SUBMITTED		2016/09/26 08:00 - 2016/09/26 21:00	FL0 - FL450	Administrator
   	CYR607	APPROVED		2016/09/20 05:00 - 2016/09/20 08:00	FL100 - FL4000	Administrator
   	1007	APPROVED		2016/05/30 08:00 - 2016/05/30 14:00	FL11 - FL455	Administrator
   	KR4803	APPROVED		2016/08/18 09:00 - 2016/08/19 04:00	FL1 - FL222	Administrator
   	CYR502	SUBMITTED	aeasd	2016/08/18 06:00 - 2016/08/19 04:00	FL22 - FL333	Administrator

Showing 1 to 10 of 11 entries

Previous **1** 2 Next

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Airspace Coordination

Airspace Booking Calendar



The screenshot displays the Airspace Booking Calendar interface. On the left is a navigation sidebar with options: Home, ATFM, Airspace Coordination, Dashboard, Analysis, Timeline, Calendar, Booking, Booking List, Settings, and Help. The main content area is titled "Calendar" and shows a "Booking Calendar" for "September 2016". The calendar grid includes the following bookings:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8

Bookings shown in the calendar:

- 5a CYR607(100-)
- 8a BG R10(0-45)
- 7p KR4803(0-32)

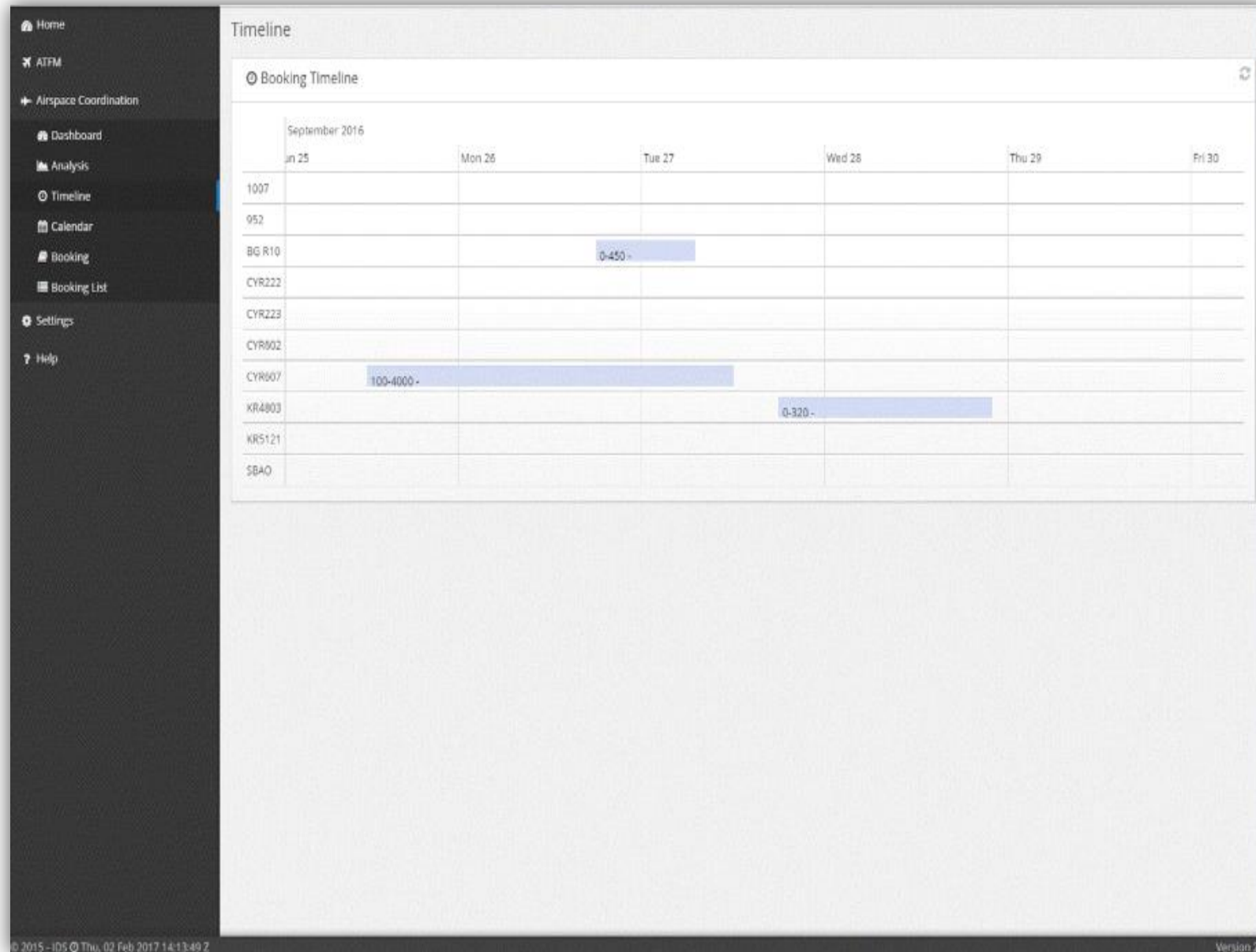
On the right, a 3D map view shows a terrain-based map with a yellow-outlined polyhedral volume representing an airspace. A "Feature Information" panel is open, displaying the following details:

- AIRSPACE_PK: 14055
- TYP: R
- IDENT: CYR607
- NAM: BAGOTVILLE
- CODEACTIVITY: MILOPS
- UPPERLIMIT: 17999
- LOWERLIMIT: 6000
- Select Airspace: << Select
- Airway Impact: Display
- Flight Plans: Search, Stop, Refresh icons

At the bottom of the map view, a circular control shows "15000x", "Feb 16 2017", and "20:30:07 UTC". A timeline at the bottom indicates "06:00:00 UTC", "Dec 14 2016 08:00:00 UTC", "Dec 14 2016 10:00:00 UTC", and "Dec 14 2016 12:00:00 UTC". The footer text reads "© 2015 - IDS © Thu, 02 Feb 2017 14:10:29 Z" and "Version 2.0".

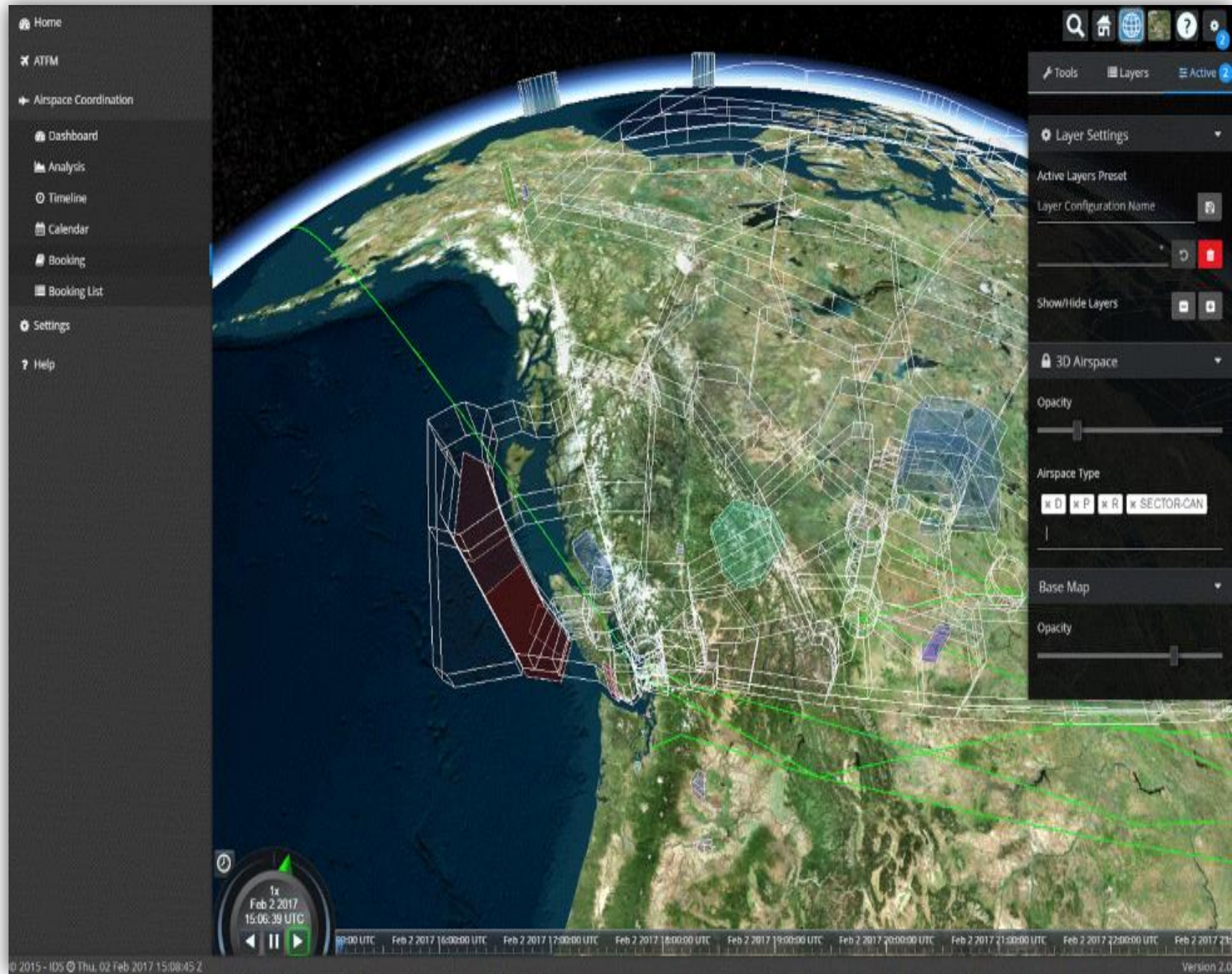
Airspace Coordination

Airspace Booking Timeline



Airspace Coordination

Impact On Planned Traffic



Airspace Coordination

Booking Statistics



- Home
- ATFM
- Airspace Coordination
- Dashboard
- Analysis
- Timeline
- Calendar
- Booking
- Booking List
- Settings
- Help

Dashboard

TOTAL BOOKINGS

5

TODAY / YESTERDAY

0 / 0

0%

DURATION TODAY

0 mins

0%

Booking Statistics

Status	Percentage
Submitted	27.3%
Counter_Proposed	18.2%
Approved	45.5%
Rejected	9.1%

Airspace Usage

Airspace	Lower	Upper
KR6121	0	~200
CYR223	0	~1200
CYR607	0	~4000
1007	0	~400
KR4803	0	~200

Feature Information

AIRSPACE_PK	14055
TYP	R
IDENT	CYR607
NAM	BAGOTVILLE
CODEACTIVITY	MILOPS
UPPERLIMIT	17999
LOWERLIMIT	6000

Select Airspace: << Select

Airway Impact: Display

Flight Plans: [Search] [Play] [Stop]

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15000x
Dec 8 2017
08:47:14 UTC

06:00:00 UTC Dec 14 2016 08:00:00 UTC Dec 14 2016 10:00:00 UTC Dec 14 2016 12:00:00 UTC

Version 2.0

Thank You!

