ATM STRATEGY OF BOSNIA AND HERZEGOVINA

Safety Assessments

Vlado Juric, Safety Coordinator

Lisbon, 14- 16September 2010.

AGENDA

1.CURRENT SITUATION

- SARAJEVO FIR - GEOGRAPHICAL SCOPE
- ATS RESPONSIBILITY FOR UPPER AND LOWER AIRSPACE IN FIR SARAJEVO
- AIRSPACE CLASIFICATION
- TMAs

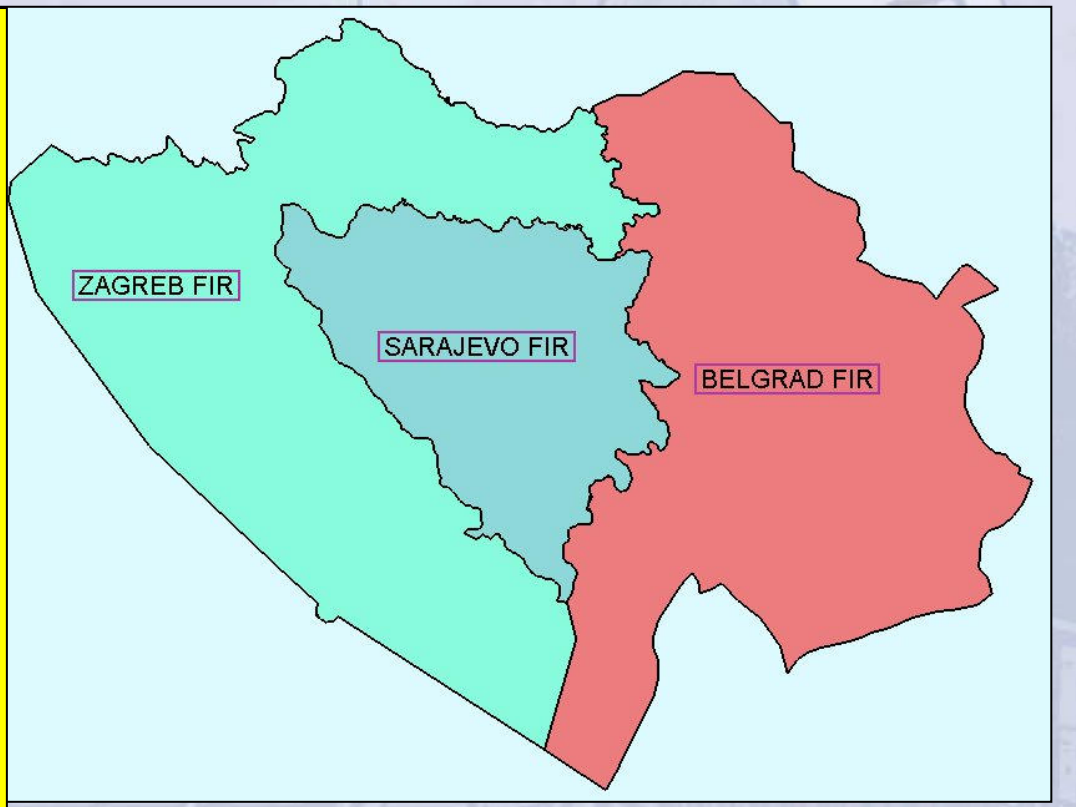
2. CHANGE

- ATM STRATEGY OF BOSNIA AND HERZEGOVINA
- AIRSPACE ORGANISATION
- BH RTS 2
- ATM INFRASTRUCTURE
- ATM SYSTEM – SERVICES
- RADAR COVERAGE
- SAFETY ACTIVITIES

SARAJEVO FIR - GEOGRAPHICAL SCOPE

Sarajevo FIR encompasses the entire airspace over Bosnia and Herzegovina land areas and territorial waters adjacent thereto (European Regional Air Navigation Plan, Doc. 7754).

Sarajevo FIR is surrounded by Zagreb FIR and Belgrade FIR.



ATS responsibility for Upper airspace in FIR Sarajevo

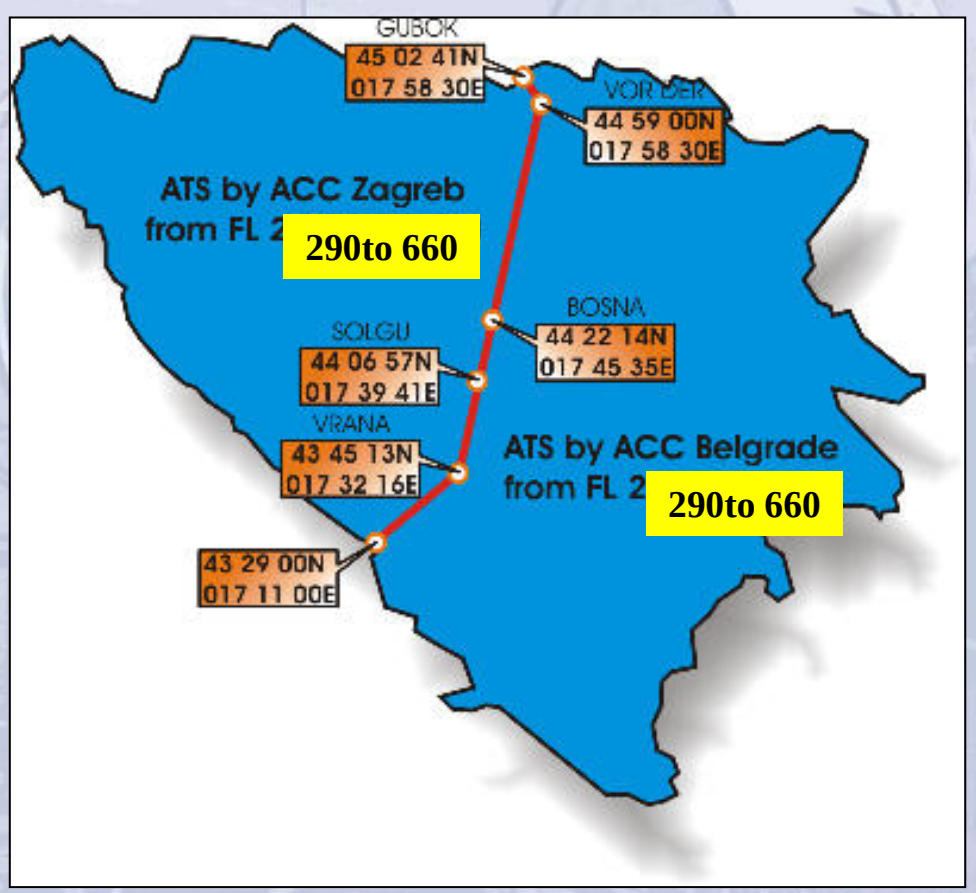
(FL 290 – FL 660)

The provision of ATS within Sarajevo FIR **from FL 290 to FL 660** both included is delegated to both Zagreb ACC and Belgrade ACC, based on the "Temporary Agreement on Delegation of Responsibility for the Provision of Air Traffic Services in the Upper Airspace of BiH"; where the airspace over BiH, within the limits of Sarajevo FIR, is divided by the straight lines connecting the following coordinates:
450241N 0175142E,
445900N 0175830E,
442218N 0174554E,
440700N 0174000E,
434518N 0173218E,
432900N 0171100E.

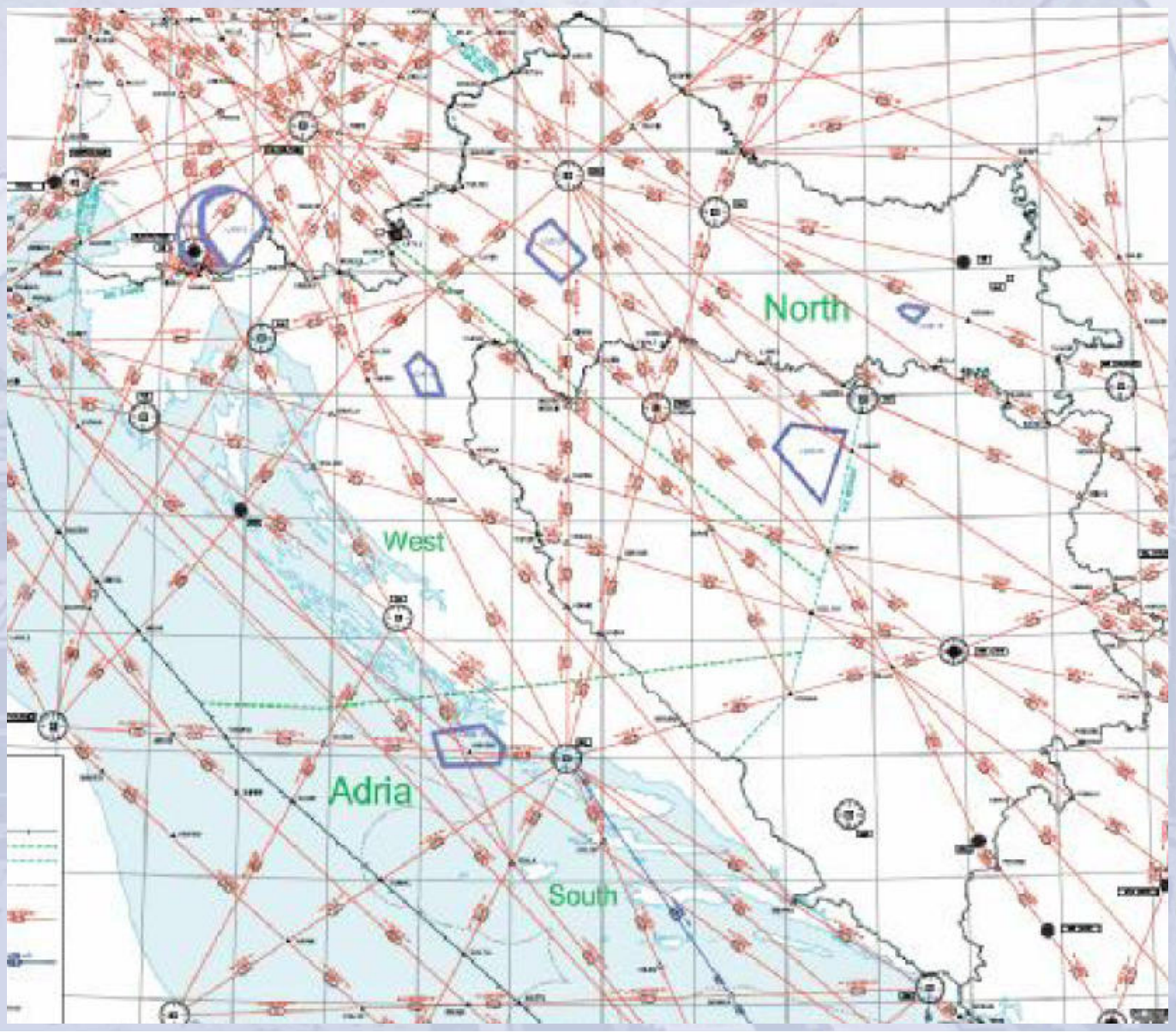
Belgrade ACC is responsible for the provision of the ATS in the upper airspace of BiH east of the defined line.

Zagreb ACC is responsible for the provision of the ATS in the upper airspace of BiH west of the defined line.

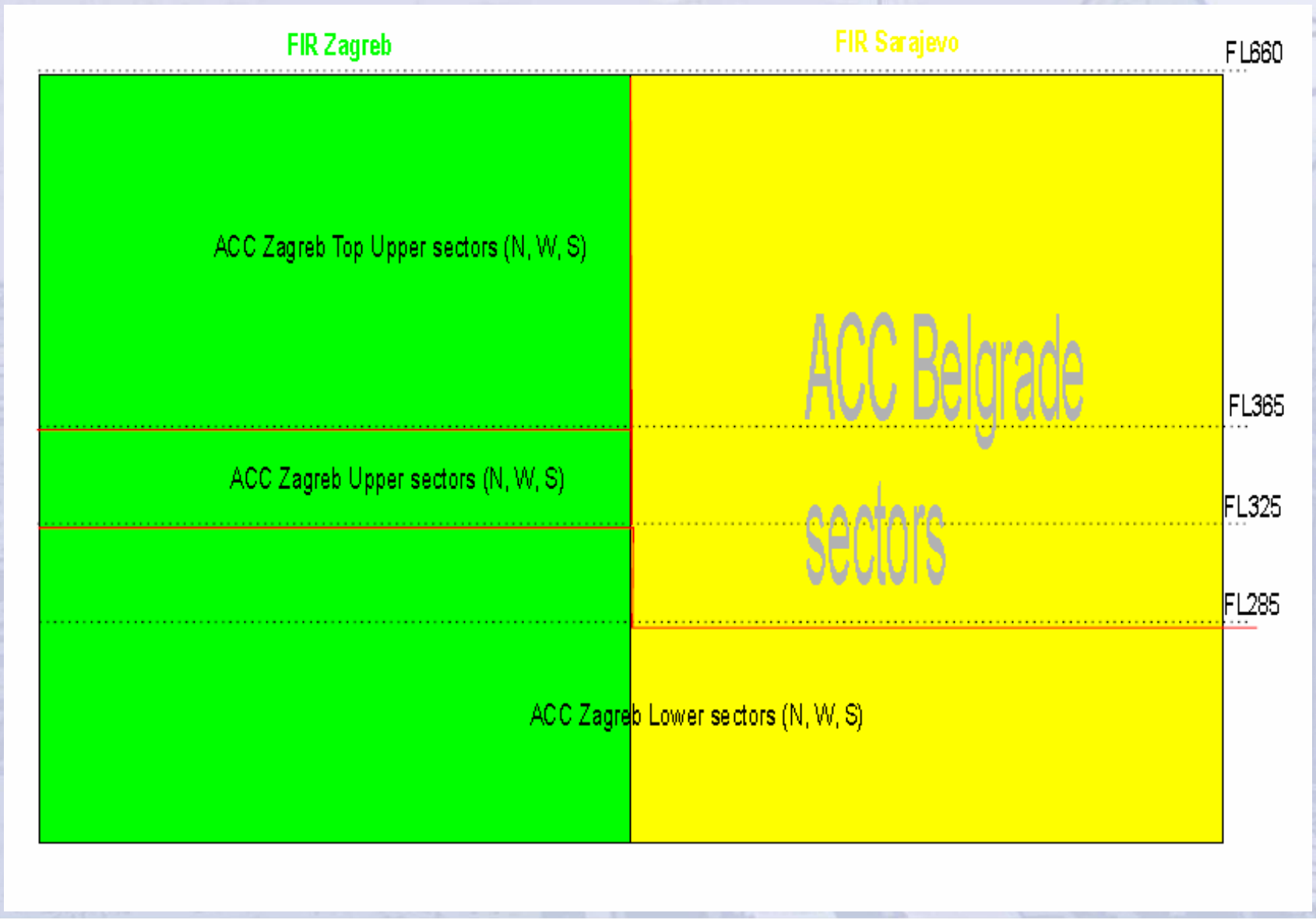
The airspace is classified as Class C.



Upper and Top Upper airspace in FIR Zagreb and FIR Sarajevo with CCL sectorisation (FL 290 – FL 660)



Lower, Upper and Top Upper airspace in FIR Zagreb and FIR Sarajevo -Vertical Division

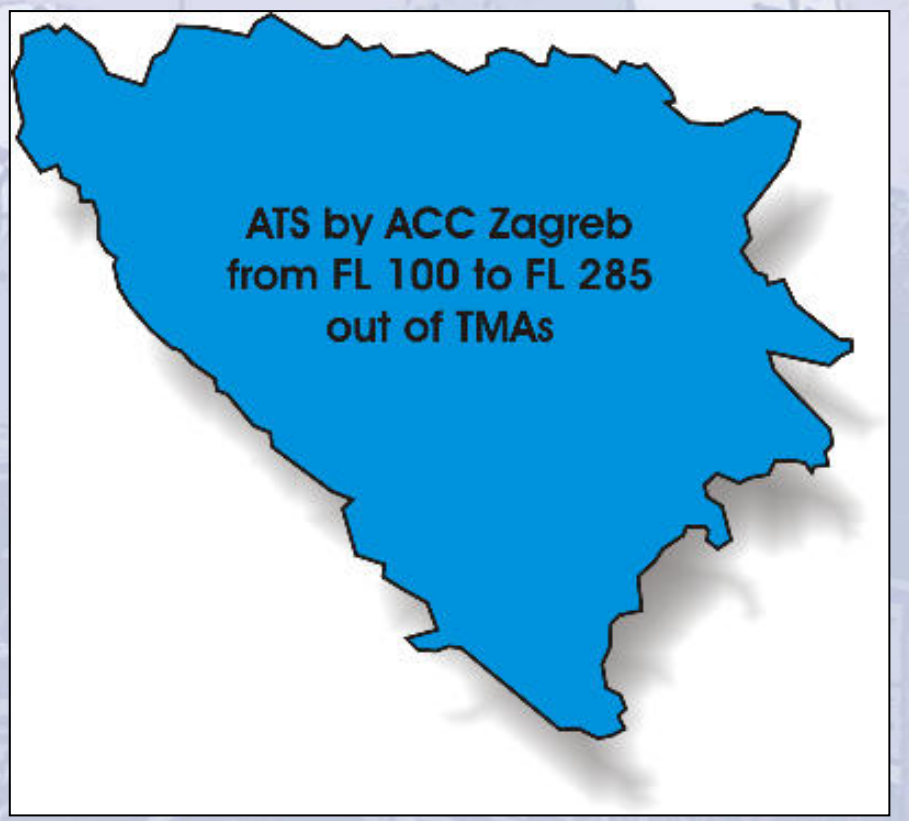


ATS responsibility for Lower airspace in FIR Sarajevo

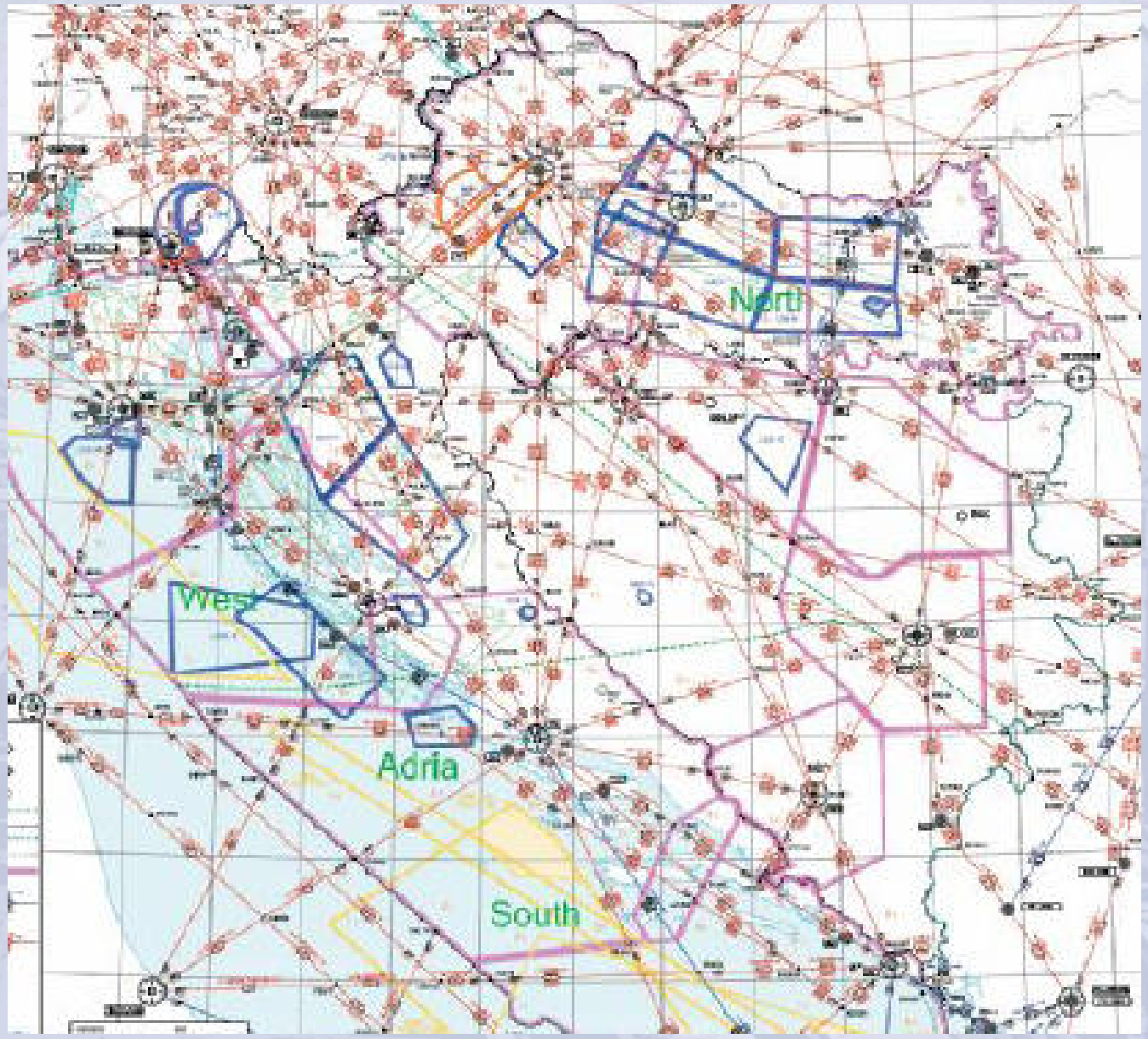
(FL 100 – FL 285)

According to the agreement on the delegation of responsibility for the provision of air traffic services within the airspace of BiH, the ATS provision within the airspace of Sarajevo FIR **from FL 100 to FL 285** both included and outside the TMAs (as described in annex B) has been delegated to CC Ltd (Zagreb ACC)

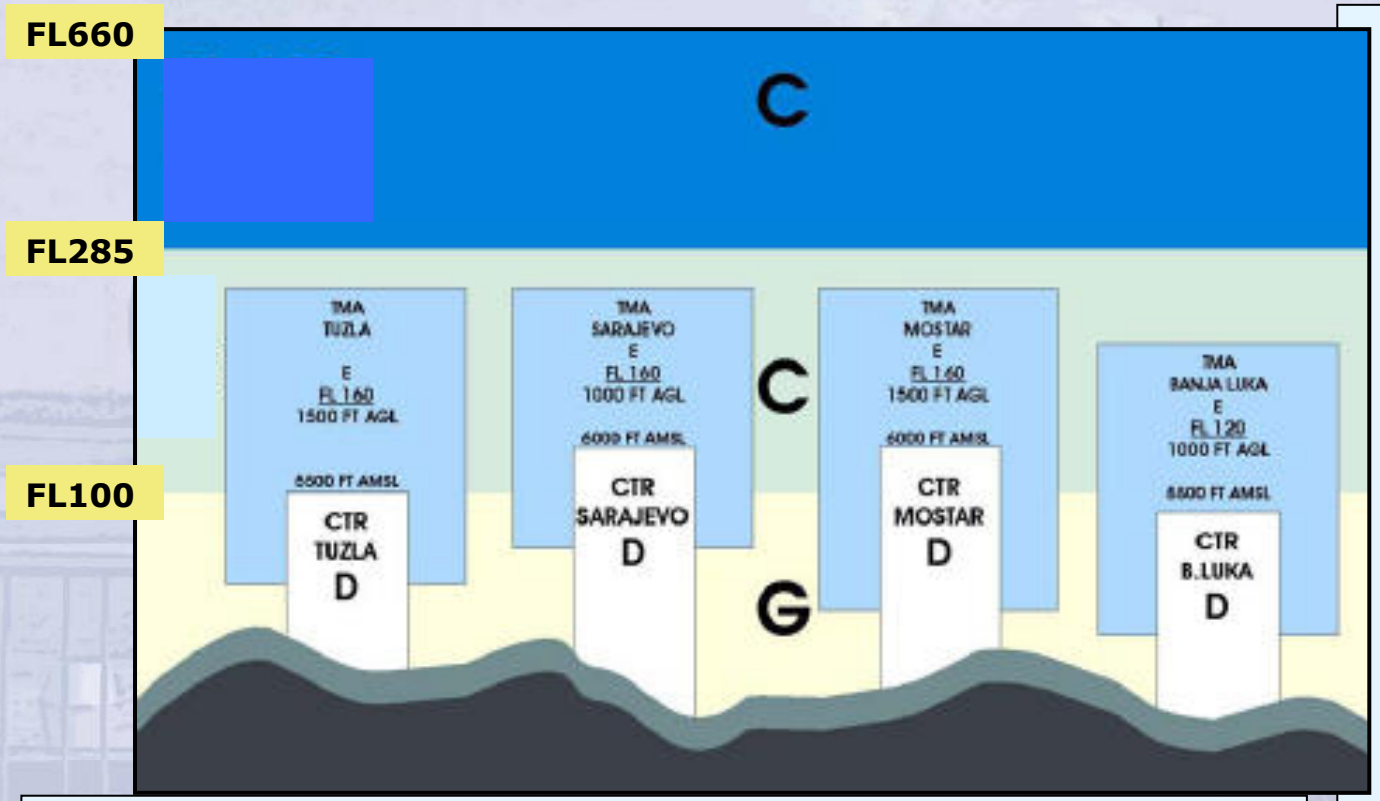
The airspace is classified as Class C.



Lower airspace in FIR Sarajevo with CCL sectorisation (FL 100 – FL 285)



BOSNIA AND HERZEGOVINA - AIRSPACE CLASSIFICATION



Airspace class "G" applied to: Inside FIR Sarajevo from ground to 10 000FT/FL100 out of: Sarajevo, Mostar Tuzla and Banja Luka CTRs and TMAs, Banja Luka CTA, LQ R2 Manjača, LQ R21 to LQ R37

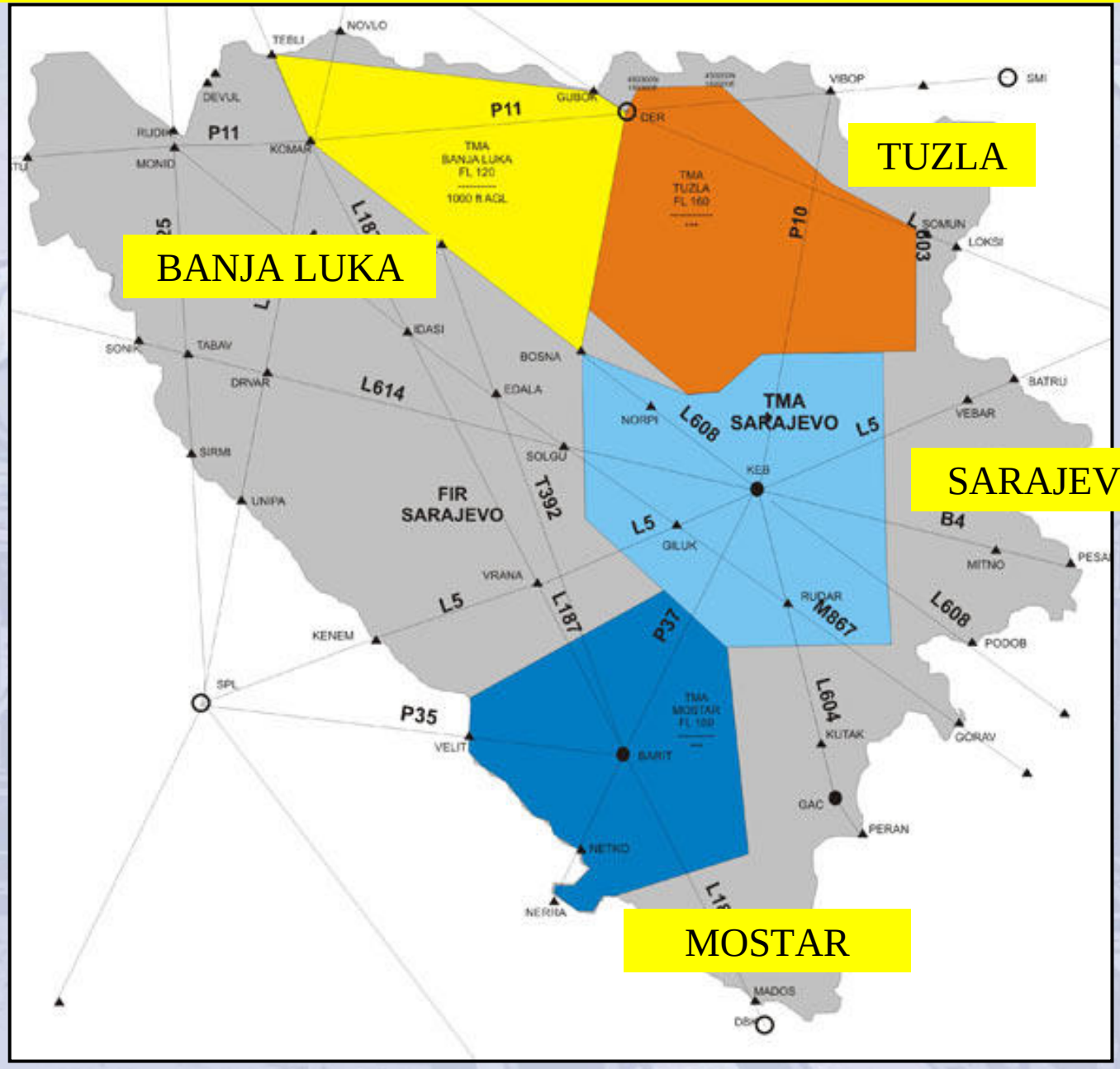
Airspace class "D": Sarajevo, Mostar, Banja Luka, Tuzla CTRs, and Banja Luka CTA

Airspace class "E": Sarajevo, Mostar, Tuzla and Banja Luka TMAs,

Airspace class "C": Control Area inside FIR Sarajevo from FL 100 to FL 660

* The height of transition altitude is 9500 FT AMSL, so FL 100 is use in lieu of 10000 FT.

TMAs in FIR Sarajevo



BIH AIRSPACE SUMMARY

BHDCA

BiH DCA — **ZAGREB ACC**

UPPER AIRSPACE
FL 660
FL 290

BELGRADE ACC

BiH DCA

LOWER AIRSPACE
FL 285
FL 100

ZAGREB ACC

8000ft AMSL

UNCONTROLLED AIRSPACE – Class “G”
FL 100
SFC

B&H responsibility

From 20 April 2007

BiH AIRSPACE – SUMMARY (2)

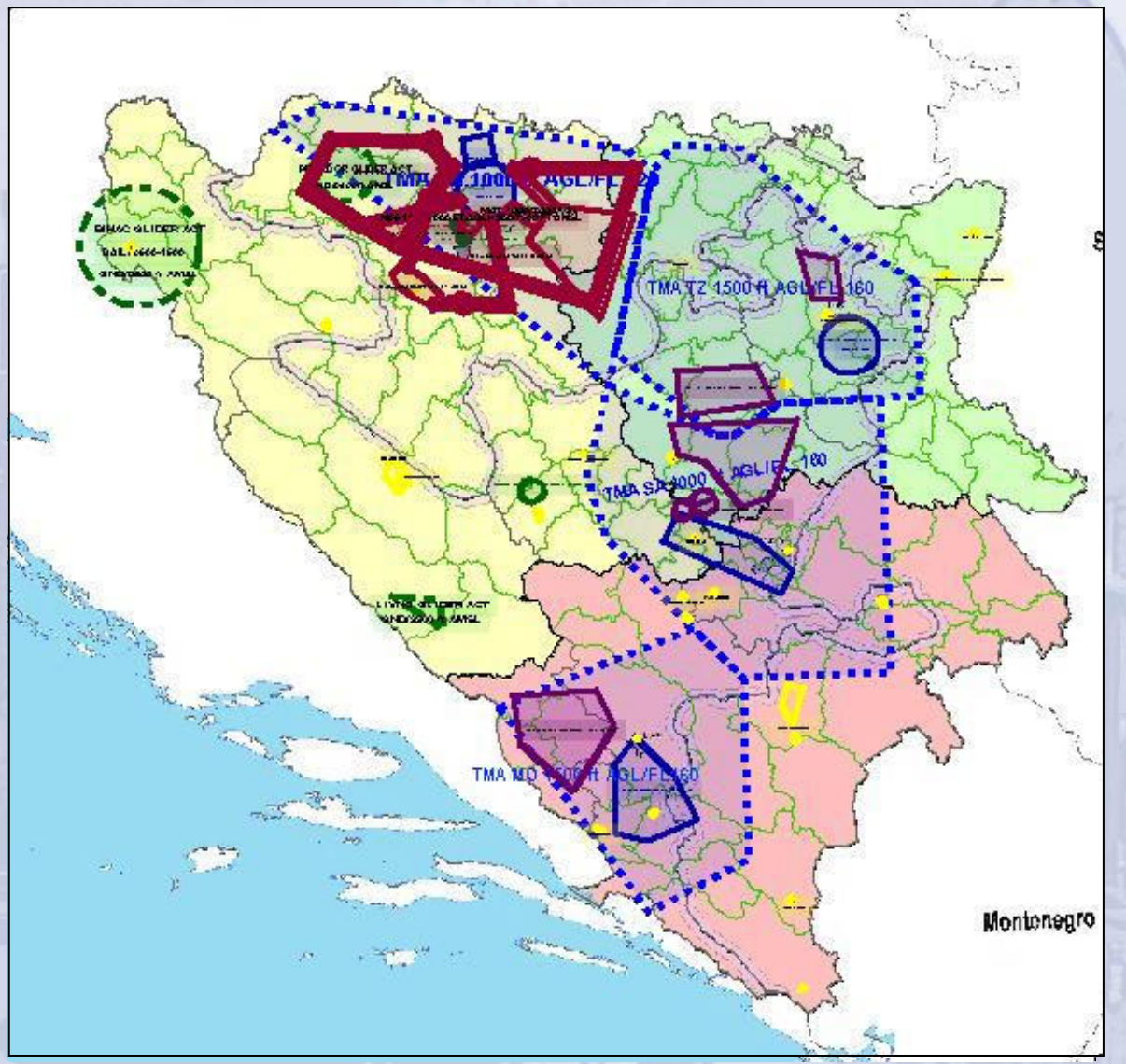
CTR/CTA

TMA

Civil activities

Military training zones

Restricted/ Danger areas




BHDCA
CHANGE

ATM STRATEGY OF BOSNIA AND HERZEGOVINA

The overall objective of the BH Air Traffic Management (ATM) strategy is to establish a national ATM system to facilitate air traffic within the entire Sarajevo flight information region (FIR) in order that the international obligation with respect to an efficient provision of national air traffic services (ATS) is fulfilled.

ATM STRATEGY OF BOSNIA AND HERZEGOVINA (2)

Implementation of ATM Strategy of Bosnia and Herzegovina involves the following main areas:

a) Technical systems and equipment;
b) Human Resources development;
c) Procedures and methods of working;
d) Airspace Plan development;
e) Civil works;
f) Institutional framework establishment;
g) Safety Activities.

ATM STRATEGY OF BOSNIA AND HERZEGOVINA – RTS 2 PARTICIPANTS AND SIMULATED ORGANISATIONS

Participants: BH DCA, CCL and SMATSA,
Place: CRDS Budapest, December 2009

Three different airspace organisations were selected for RTS.

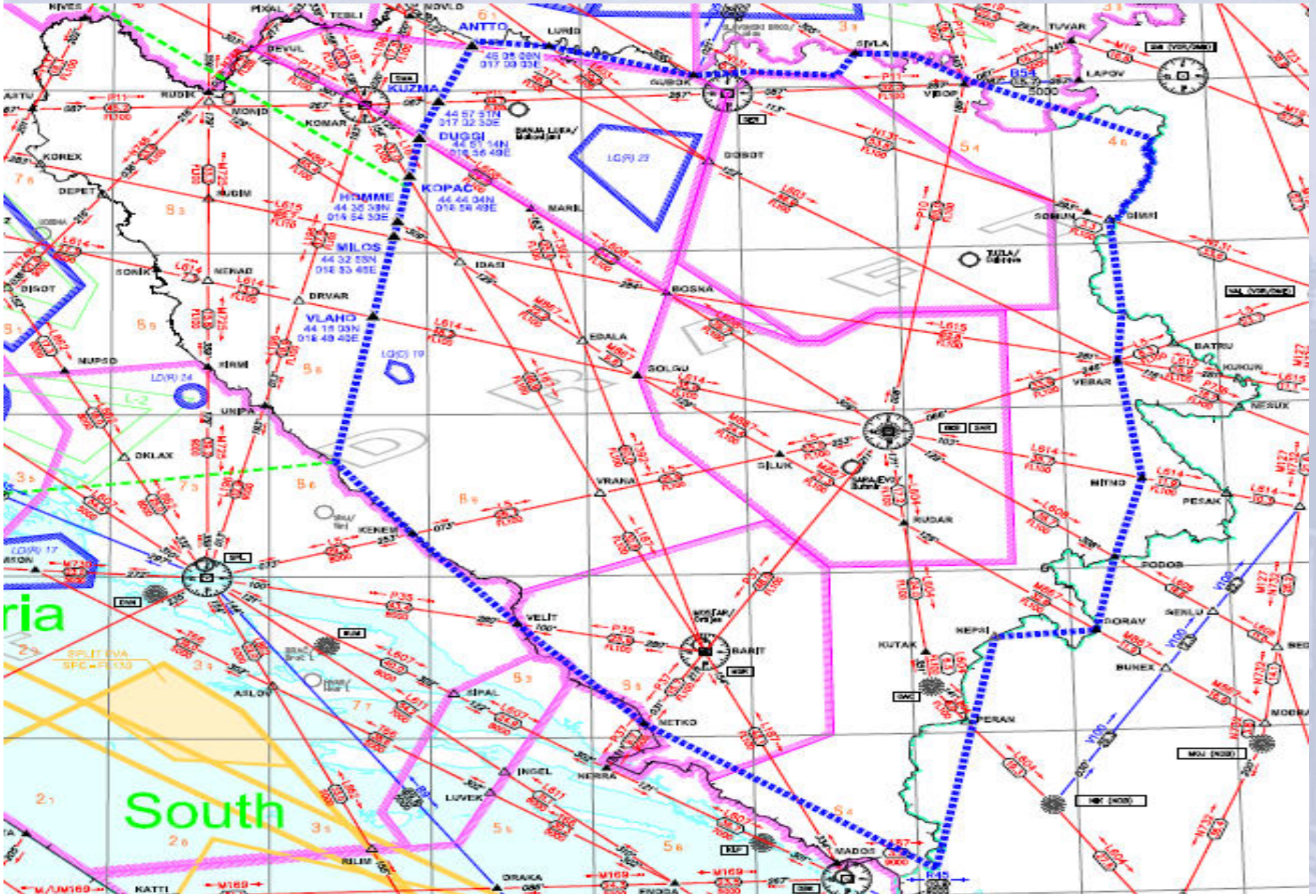
Organisation 1 (DFL 285 and DFL 325)
Organisation 2 (DFL 285 and DFL 325)
Organisation 3 (DFL 285 and DFL 325)
The major difference between Organisation 1 and 2 is the shape and form of the simulated sectors.
BH DCA was responsible for work on LOWER and TMA.

For the FAB CE transition plan:
Organisation 3
BH DCA was responsible for work on Lower, Upper,Top Upper and TMA

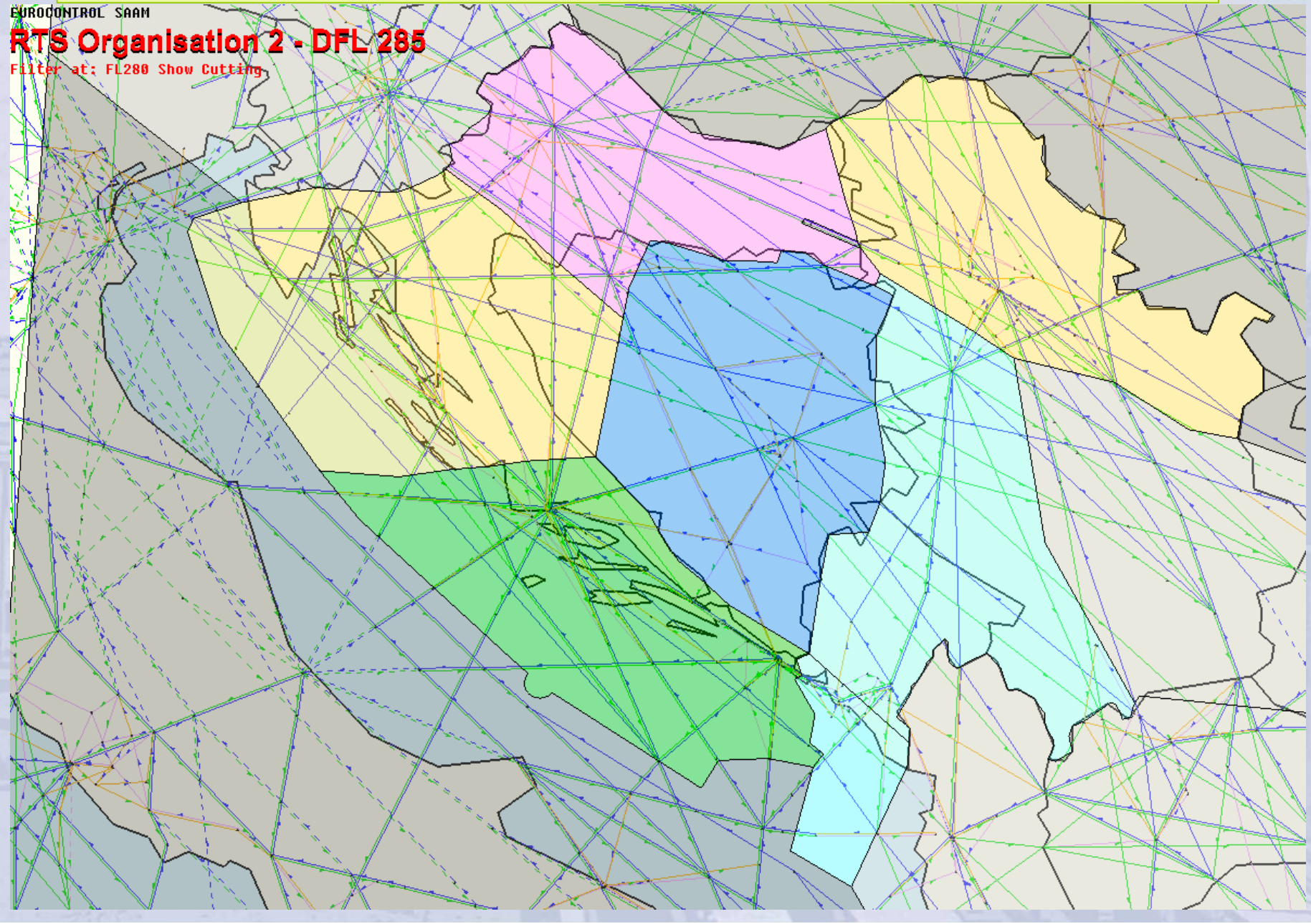
The traffic samples (13th June 2009 - Saturday) - provided from the CFMU Data Base, converted to IPAS using SAAM.

The traffic sample(s) was the peak traffic of the region on 13.06.2009 from 09.00 until 11.00 UTC.

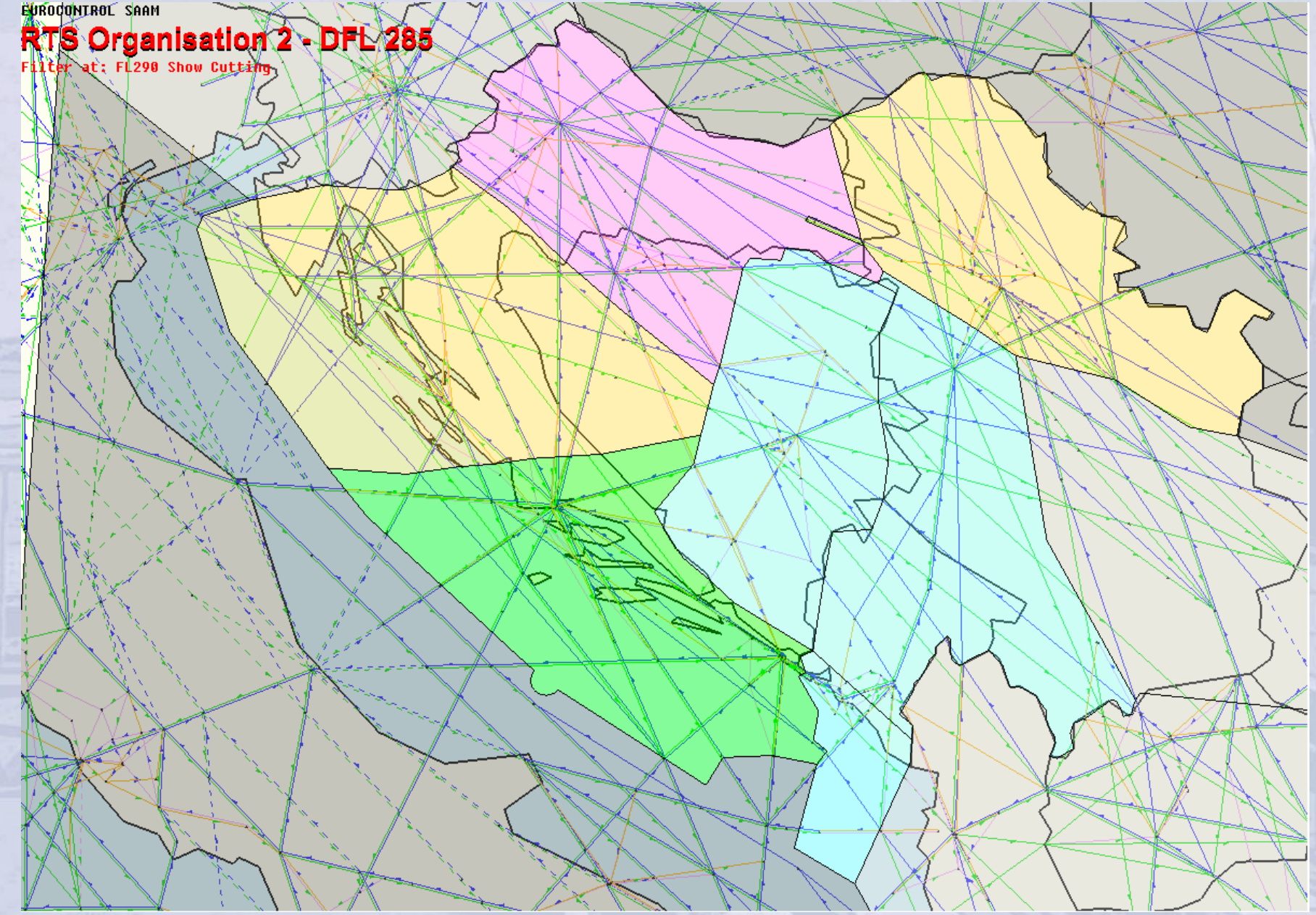
Chosen Organisation: B&H Sectors Lower-ORG2



DFL 285 LOWER (GND – FL285)



DFL 285 UPPER (FL285 – FL325)

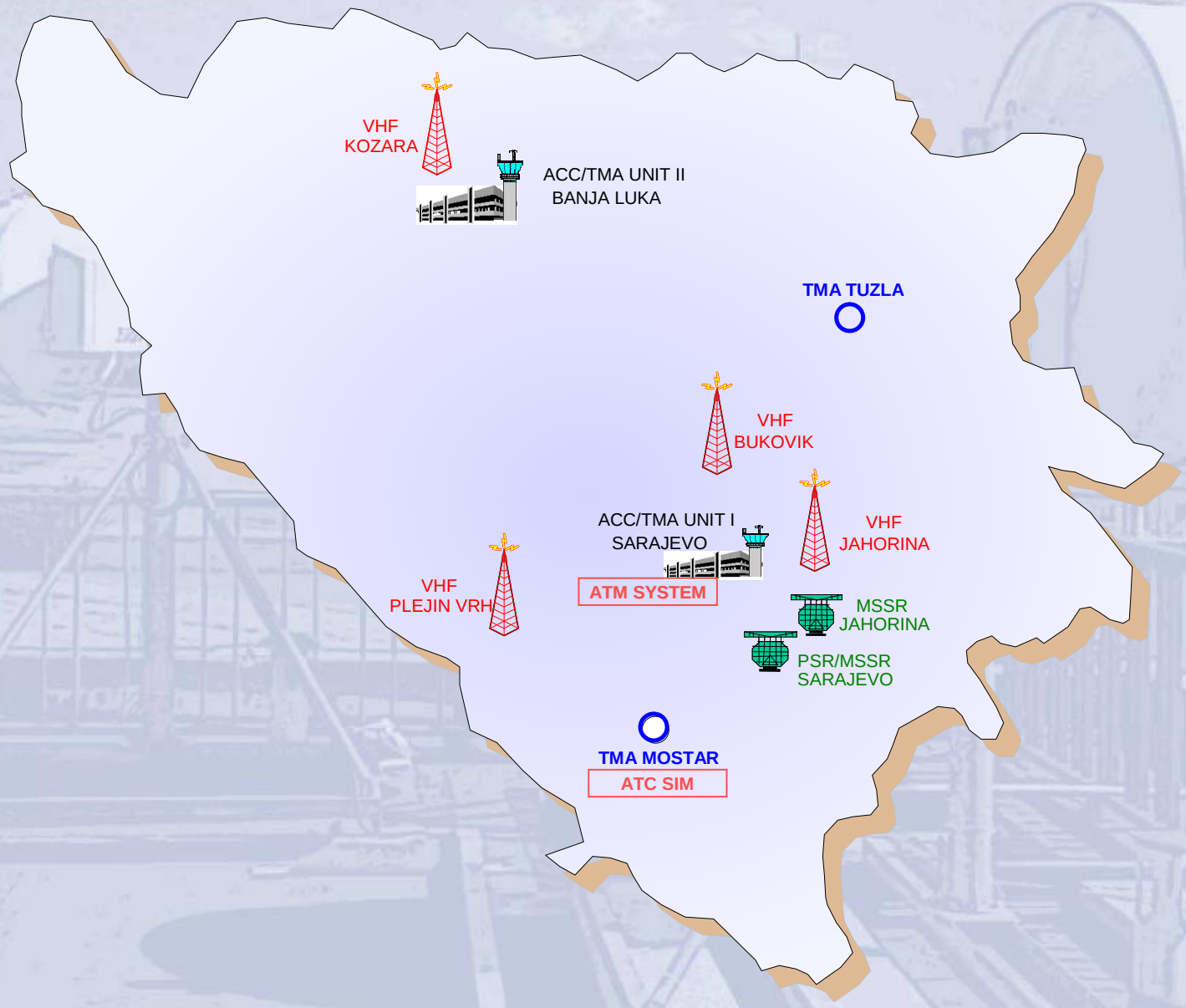


ATM STRATEGY OF BOSNIA AND HERZEGOVINA – FINAL AIRSPACE ORGANISATION

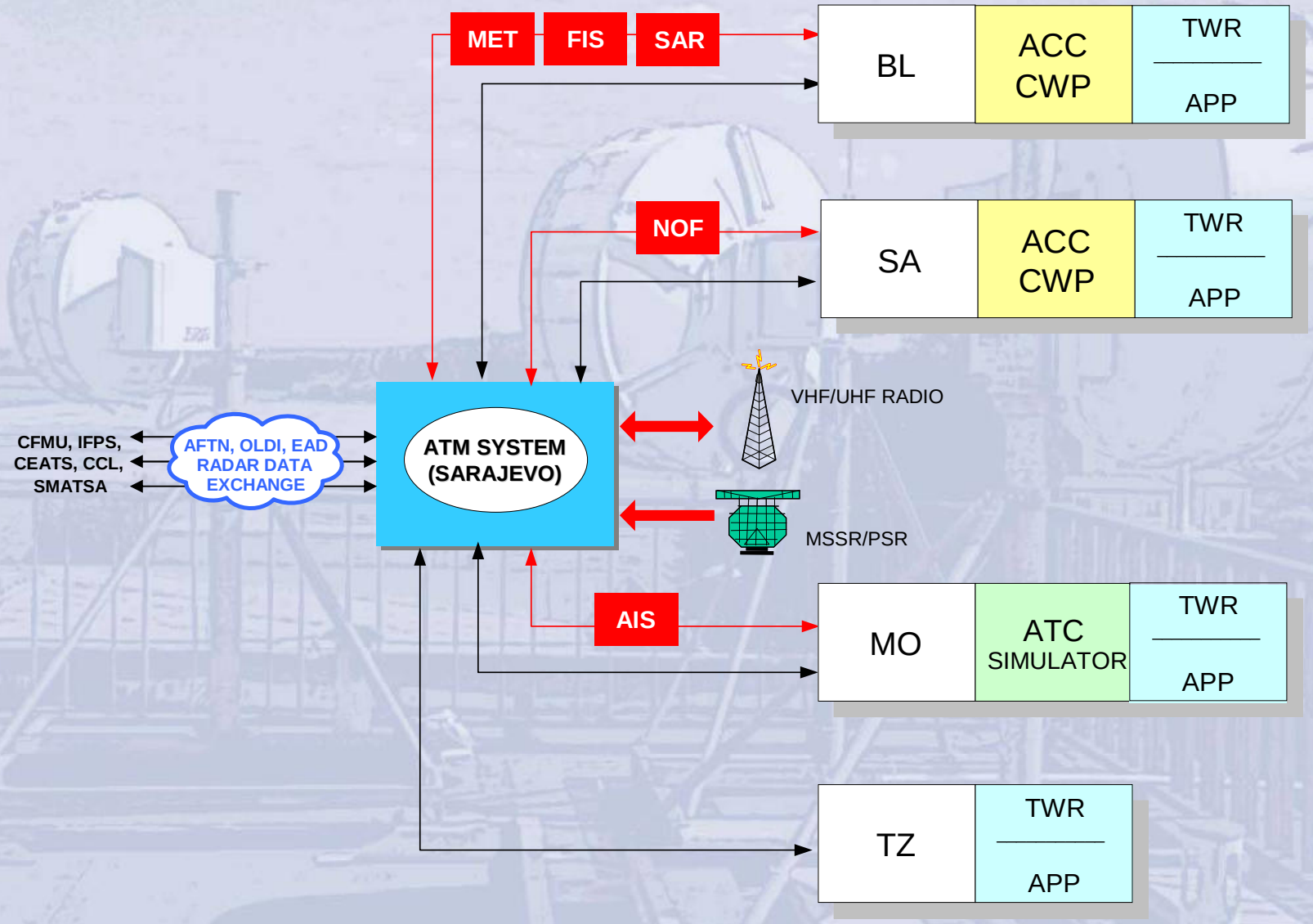
The final airspace organisation of BH is depending on the results of the co-ordination with Croatia and Serbia.

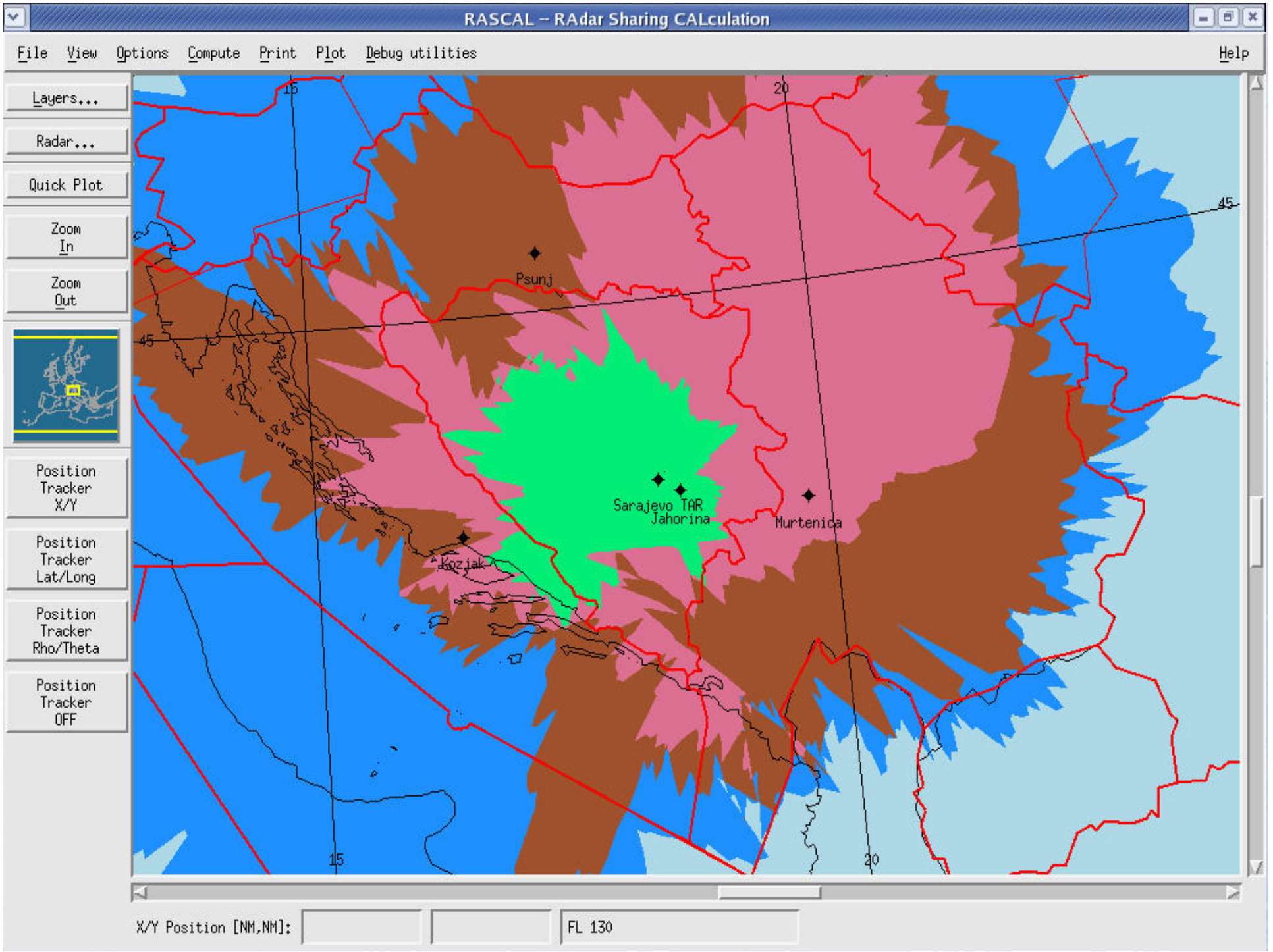
The full interface between BH airspace and its neighbors, as well as the surrounding sectorisation, must be identified and agreed in order to provide the full operational context into which the implementation of the new BH airspace will take place and to take into account European ATM network implications.

ATM - INFRASTRUCTURE



ATM SYSTEM - SERVICES




RASCAL – RAdar Sharing CALculation
File
View
Options
Compute
Print
Plot
Debug utilities
Help
Layers...
Radar...
Quick Plot
Zoom In
Zoom Out
Position Tracker X/Y
Position Tracker Lat/Long
Position Tracker Rho/Theta
Position Tracker OFF
Psunj
Sarajevo TAR
Jahorina
Murtenica
Kozjak
15
20
45
X/Y Position [NM,NM]:
FL 130

SAFETY ACTIVITIES

ATM STRATEGY OF BOSNIA AND HERZEGOVINA – SAFETY ACTIVITIES

Safety activities include the implementation of Safety Management System – SMS and the development of Project Safety Cases.

The implementation of SMS includes the review and merge Safety Management Manual s of the two CADs into one according to the new institutional and legal framework and regarding a minimum set of procedures required to go into the operations.

The Project Safety Cases include the development of Safety Cases for technical systems, procedures, airspace design, and buildings. They also include the development of Unit Safety Case.

ATM STRATEGY OF BOSNIA AND HERZEGOVINA

COOPERATION BETWEEN EUROCONTROL AND BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina through BH DCA and EUROCONTROL signed a contract concerning EUROCONTROL's assistance during implementation of ATM Strategy of Bosnia and Herzegovina. The agreement covers ten (10) work-packages corresponding to BHDCA relevant projects as follows:

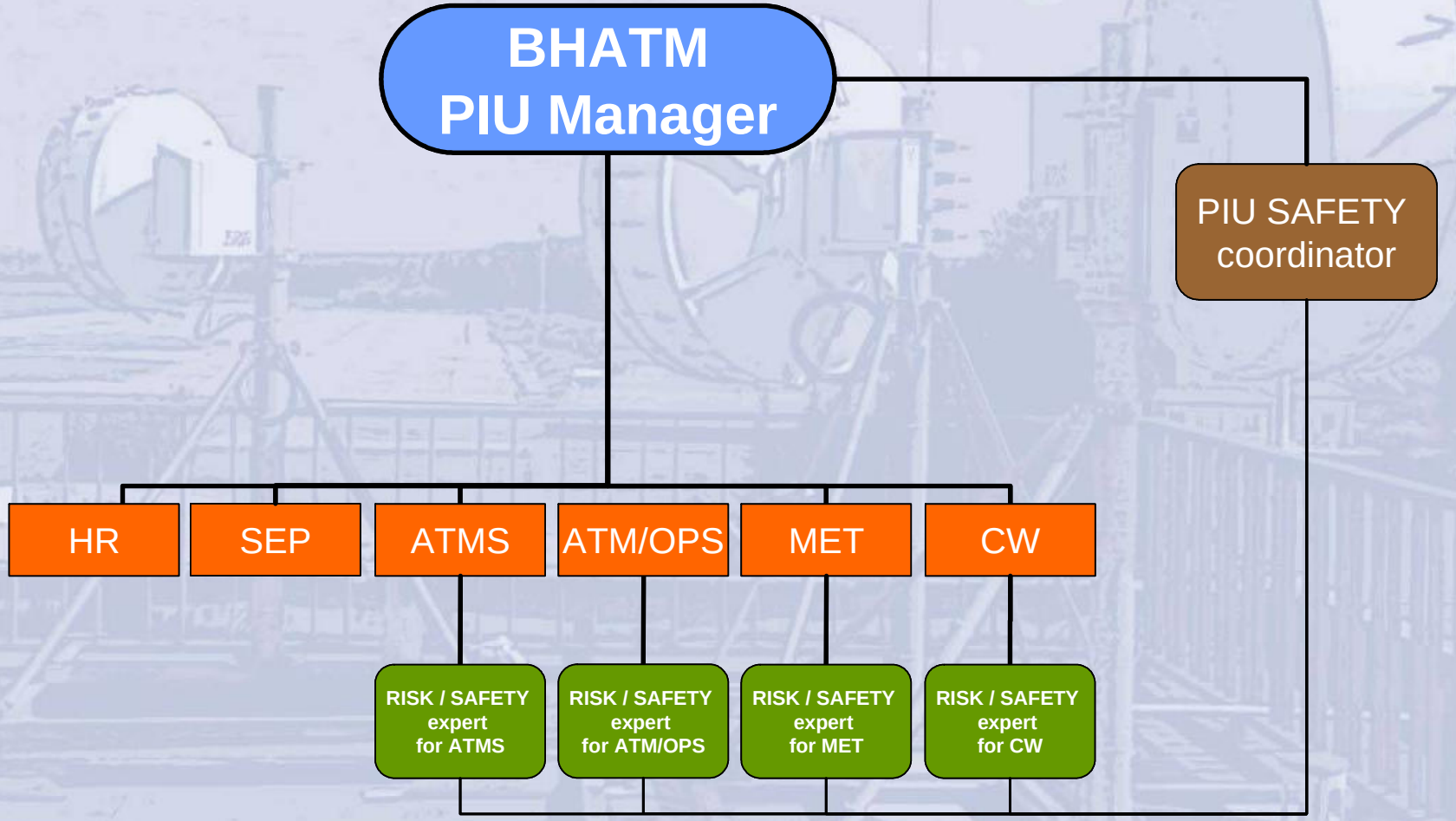
- *WP0 - Project management;*
- *WP1 - ATM DPS;*
- *WP2 - TRS, VCS, VRRS;*
- *WP3 - Jahorina MSSR;*
- *WP4 - VHF Radios;*
- *WP5 - Communications Backbone;*
- *WP6 - Operations and ATC Training;*
- *WP7 - Civil Works;*
- *WP8 - Airspace organisation and Sectorisation;*
- *WP9 - Instrument Flight Procedures Design;*
- *WP10 - Safety Management System - Safety Assessment.*

ATM STRATEGY OF BOSNIA AND HERZEGOVINA

COOPERATION BETWEEN EUROCONTROL AND BOSNIA AND HERZEGOVINA

The objective of WP10: “Safety assessments” is to establish a safety management function in the future BHANSA, to supply the documentation and support implementation of SMS in compliance with EUROCONTROL Safety Regulatory Requirements additional safety management elements required for certification according to EU Common Requirements for ANSP.

Safety Organisation within BHATM Programme



Safety Responsbilities within BHATM Programme

BHATM PIU Safety Coordinator

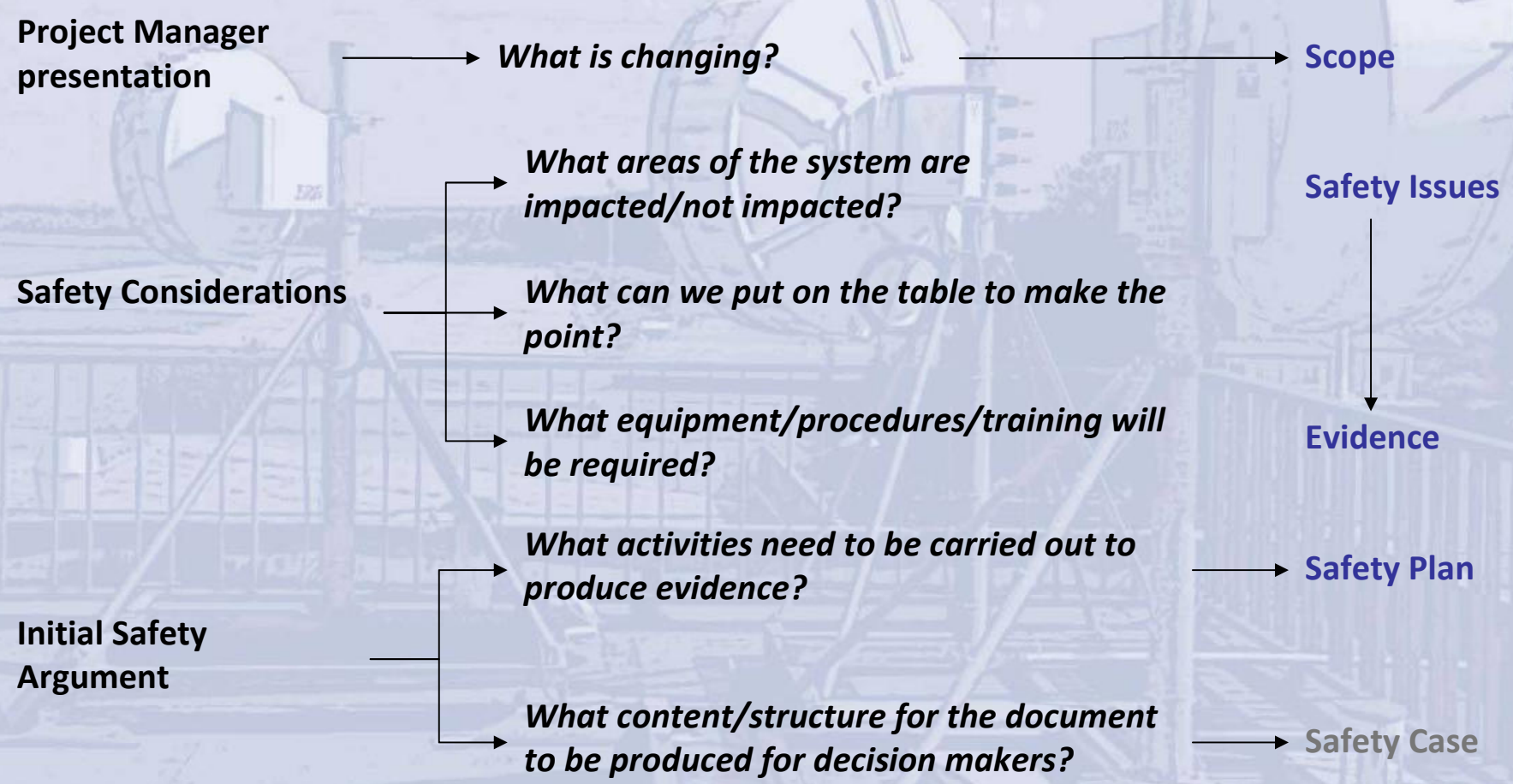
The role of the coordinator is to take part in the meeting of the Project Implementation Unit (PIU), to be the link between the top management of the project and the safety experts who are in sub-projects (MET, ATMS, ATM/OPS, CW, SEP and HR).

BHATM Project Team Safety Expert/s

Safety Experts are responsible for the day to day management of the BHATM sub-project safety activities and performs various operational safety tasks.

SAFETY ASSESSMENTS METHODOLOGY

Safety Consideration



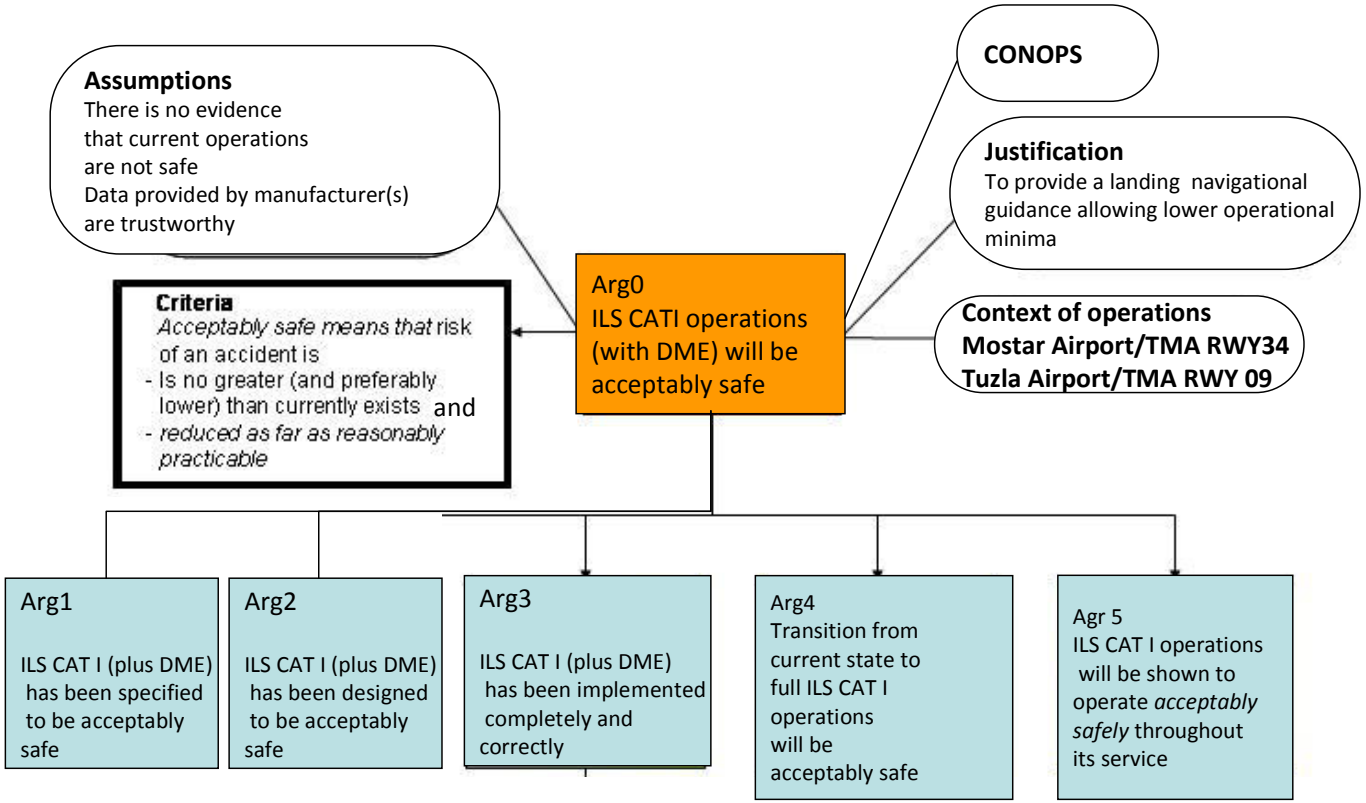
What is changing?

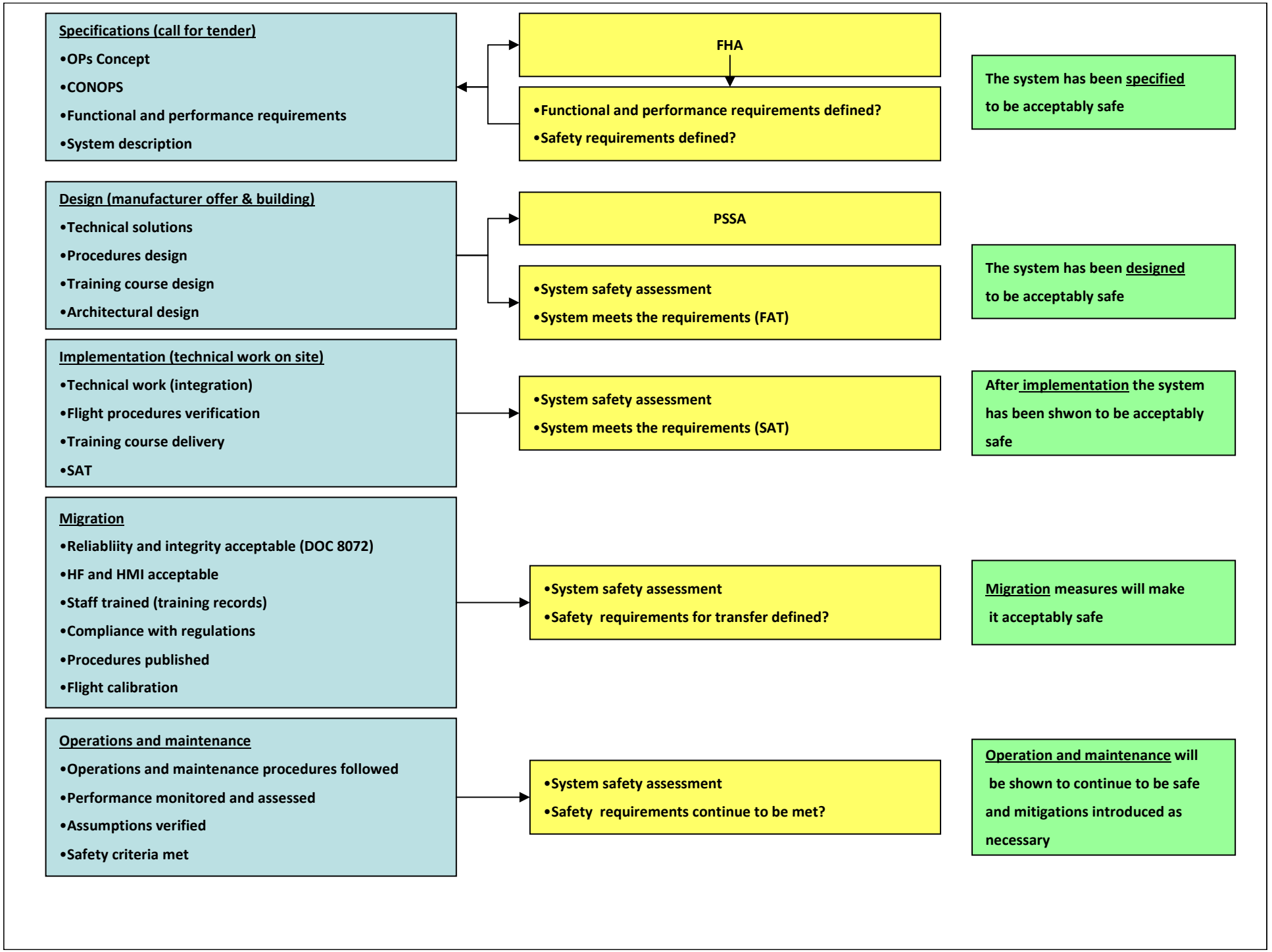
Presentation of the change by Project Manager

Safety considerations

Microsoft Excel
Worksheet

What structure for the document to be produced for decision makers?
ILS Mostar - example




Specifications (call for tender)
•OPs Concept
•CONOPS
•Functional and performance requirements
•System description
FHA
•Functional and performance requirements defined?
•Safety requirements defined?
The system has been specified to be acceptably safe
Design (manufacturer offer & building)
•Technical solutions
•Procedures design
•Training course design
•Architectural design
PSSA
•System safety assessment
•System meets the requirements (FAT)
The system has been designed to be acceptably safe
Implementation (technical work on site)
•Technical work (integration)
•Flight procedures verification
•Training course delivery
•SAT
•System safety assessment
•System meets the requirements (SAT)
After implementation the system has been shwon to be acceptably safe
Migration
•Reliabliity and integrity acceptable (DOC 8072)
•HF and HMI acceptable
•Staff trained (training records)
•Compliance with regulations
•Procedures published
•Flight calibration
•System safety assessment
•Safety requirements for transfer defined?
Migration measures will make it acceptably safe
Operations and maintenance
•Operations and maintenance procedures followed
•Performance monitored and assessed
•Assumptions verified
•Safety criteria met
•System safety assessment
•Safety requirements continue to be met?
Operation and maintenance will be shown to continue to be safe and mitigations introduced as necessary

Safety Plan

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
7.1.1 Safety Criteria	Defined safety criteria for use STCA in ATM operations. [Arg 0].	(1) Show that the criteria by which the safety of STCA in ATM operations can be checked have been defined.	Confirm by review that acceptable criteria have been defined and are consistent with the assurance objectives.	L: ANSP Management D: ANSP Management C: Incident data base and other ANSPS I: Safety Manager	Criteria defined and documented in safety case
7.1.2 Policy	Defined policy justifying the need for STCA. [Arg 0]	(1) Show that a clear and unambiguous policy regarding use of STCA has been produced (2) Show that the policy is consistent with regulatory requirements for safety nets.	Confirm by review that STCA policy exists and that it is consistent with NSA regulatory requirements and EUROCONTROL specification.	L: ANSP Management D: ANSP Management C: NSA I: Safety Manager	STCA Policy and results from review documented in safety case

Role	Responsibility	Responsibility
Lead:	Responsible for ensuring the assurance and evidence is provided	Safety Case Owner Project Manager
Do:	Responsible for providing assurance and evidence	Manufacturer
Consult:	Who should be consulted in the process	Head TECH Dept
Inform:	Who should be informed of the outcome	Safety manager

I

Safety Case for the implementation of ILS at airport XX

	[illegible]	:	0.1
	[illegible]	:	[illegible]
	[illegible]	:	[illegible]
	[illegible]	:	[illegible]

ATM STRATEGY OF BOSNIA AND HERZEGOVINA

SAFETY ASSESSMENT

Produced documents

BHATM Safety Documents produced Project Team ATMS

- ATMS Safety Plan v.0.3;
- FHA Report for DPS v.1.0;
- FHA Report for VCS v.0.1;
- FHA Report for VCS-VHF-UHF v.1.0;
- PSSA Evaluation Report for DPS v.0.1;
- PSSA Evaluation Report for VCS-VHF-UHF v.0.1.

BHATM Safety Documents produced Project Team CW

- FHA Report for Civil Work sites:
  - Sarajevo, v.0.2;
  - Banja Luka, v.0.2;
  - Jahorina, v.0.2;
  - Mostar v.0.2;
- PSSA Report for Civil Work sites:
  - Sarajevo, v.0.2;
  - Banja Luka, v.0.2;
  - Jahorina v.0.2.

BHATM Safety Documents produced Project Team CW (2)

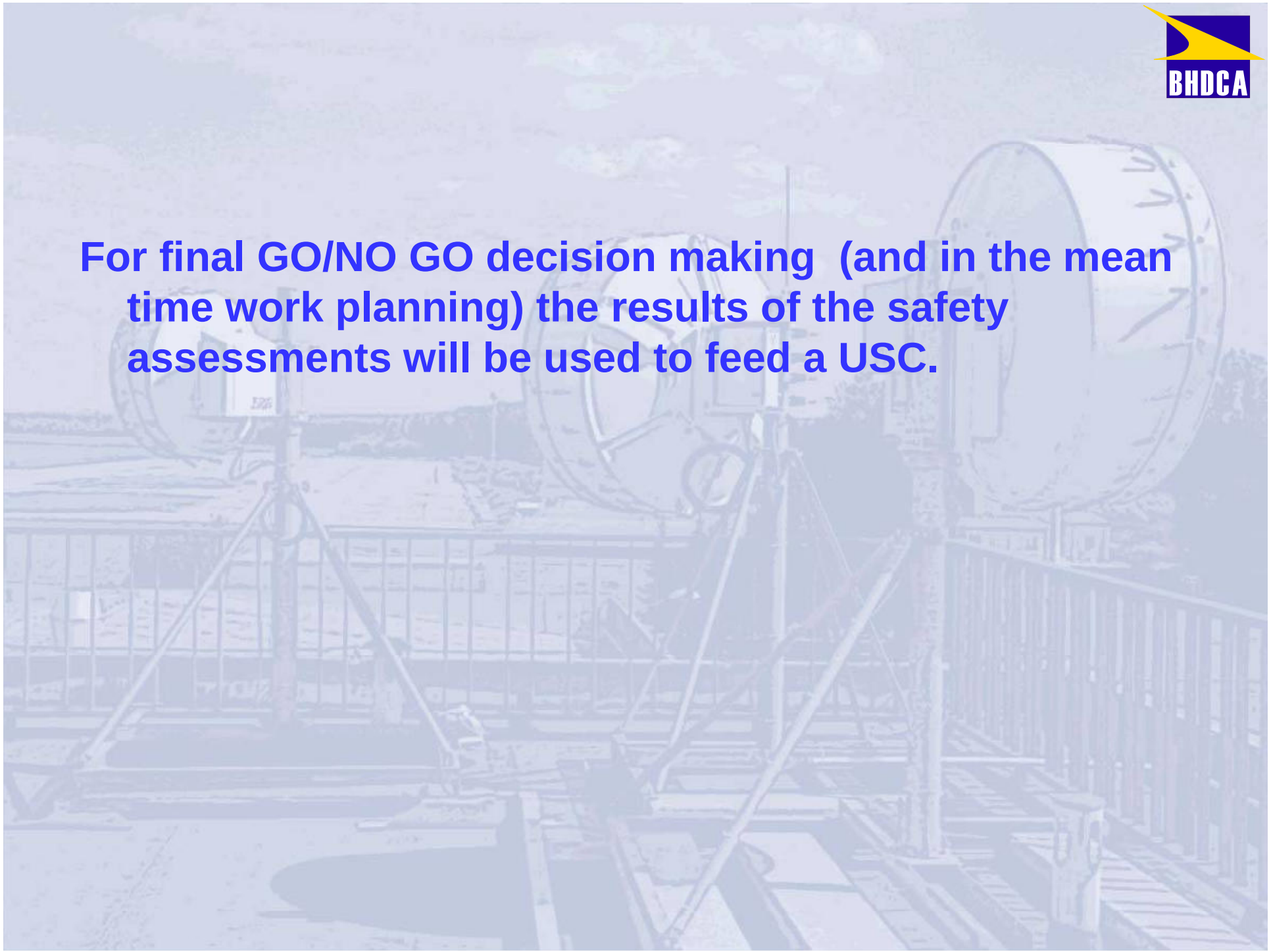
- Safety Case Report's for Civil Work sites:
  - Sarajevo, v.0.2;
  - Banja Luka, v.0.2.

BHATM Safety Documents produced Project team MET

- FHA Report for MET v.0.1.

BHATM Safety Documents in the development

- BHATM ATM/OPS Safety Case;
- BHATM ATMS Safety Case;
- BHATM ATMS-DPS Safety Case, v.0.1;
- BHATM FHA/PSSA Report for BIHAN.
- Unit Safety Case



For final GO/NO GO decision making (and in the mean time work planning) the results of the safety assessments will be used to feed a USC.

Thank you for your attention

QUESTIONS?

THE END!


Bosna i and Hercegovina
Federacija Bosne i Hercegovine
BHDCA