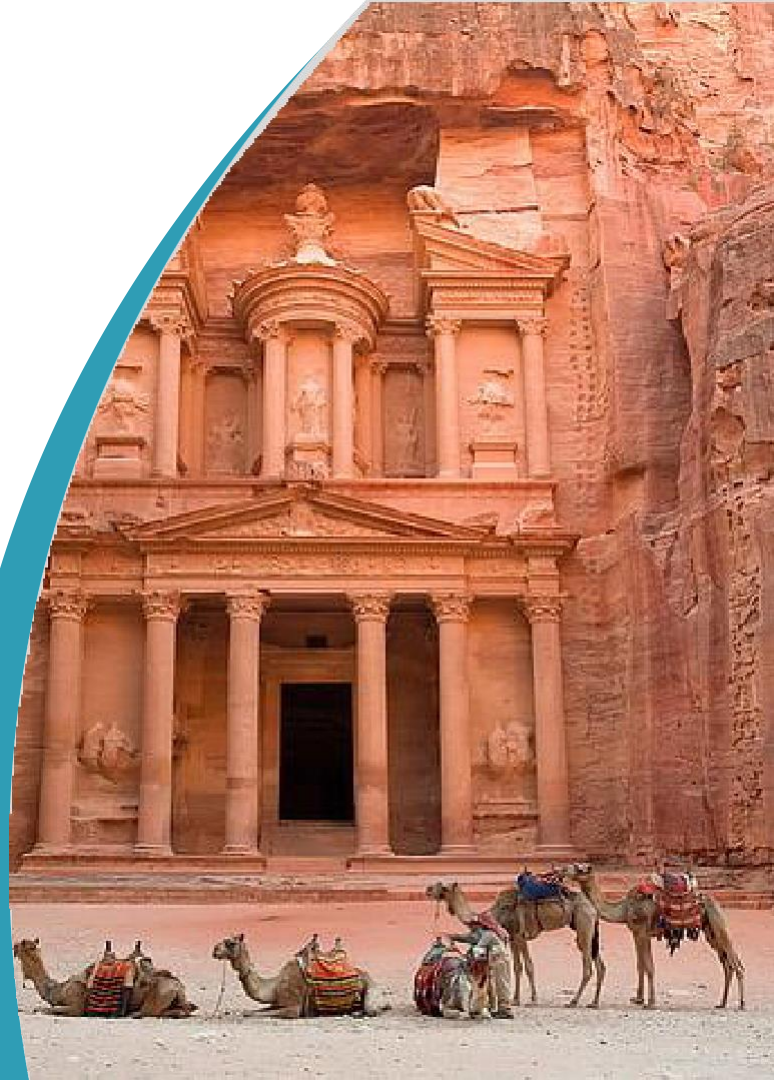
Jordan Surveillance System Presentation

Sep 2022



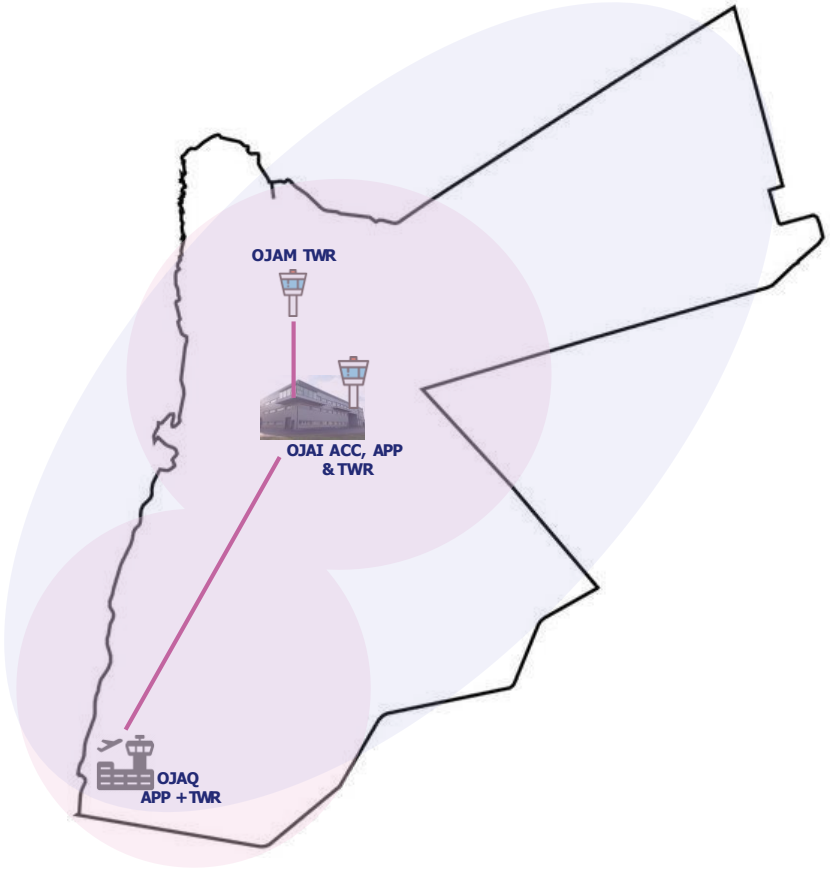
Surveillance Techniques & strategy

- The provision of ATS has placed increasing reliance on SSR based radar services and applications. Almost all states comply with the requirement for the carriage and operation of transponders using civil Mode A, military Mode 3 (Mode 3/A) together with Mode C altitude reporting for aircraft flying in controlled airspace.

- Within the last decade, increasing traffic growth has stretched the capacity and capability of the ATC infrastructure and, in particular, has highlighted the inherent limitations of existing SSR based ATS.

- To ensure the efficient handling of increasing traffic volumes in a safe, orderly and expeditious manner, progressive implementation of SSR Mode S, in conjunction with other system improvements, is necessary to satisfy the medium to long term surveillance requirements .

Jordan CARC Air Traffic Services



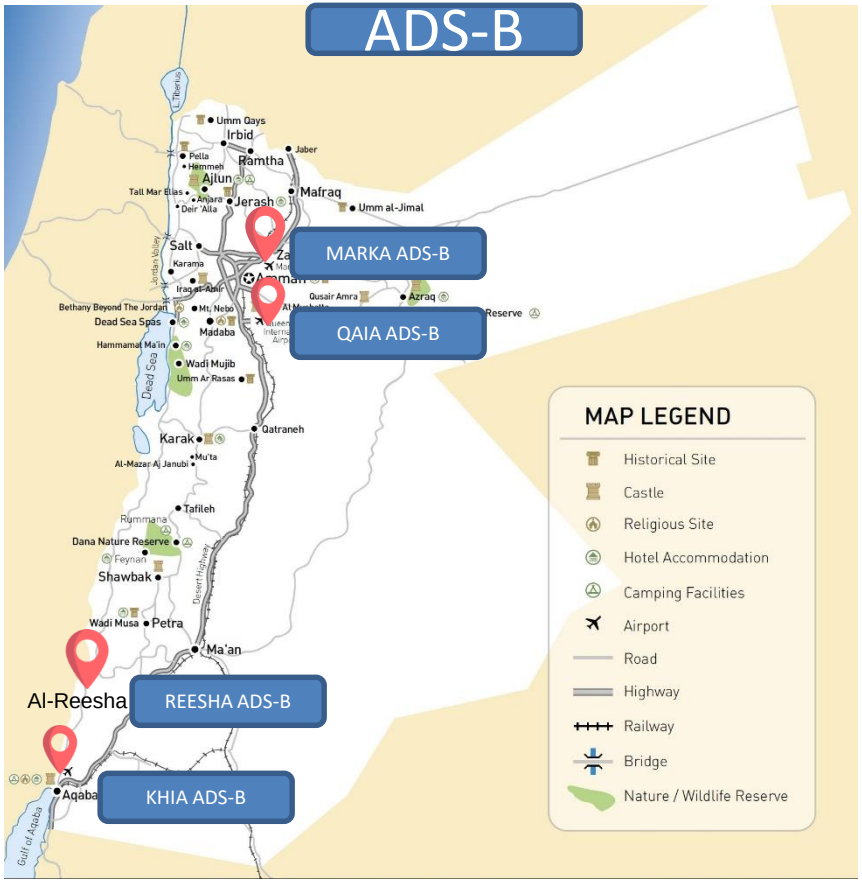
Radar Sensors Capability for Jordan FIR

Mode-S Radar imbedded with ADS-B manufactured by ELDIS (CZECH) Near Queen Alia International Airport

Mode-S Radar System manufactured by INDRA (SPAIN) at Queen Alia International Airport

MSSR Radar System manufactured by THALES (FRANCE) at Queen Alia International Airport

Automatic Dependent Surveillance – Broadcast (ADS-B)

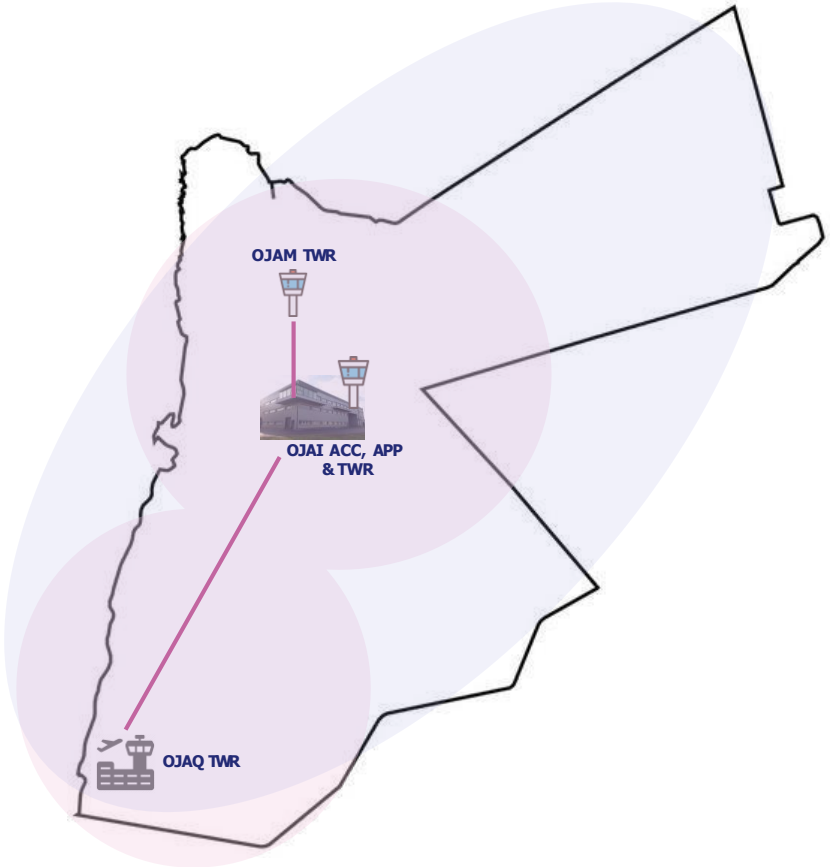


ADS-B Capability for AMM FIR

- Queen Alia Control Centre provided by 4 ADS-B Sites

✓ Queen Alia International (**QAIA**)
✓ King Hussein International Aqaba (**KHIA**)
✓ Marka International Amman (**MARKA**)
✓ AL-Reesha Site,south of Jordan (**REESHA**)

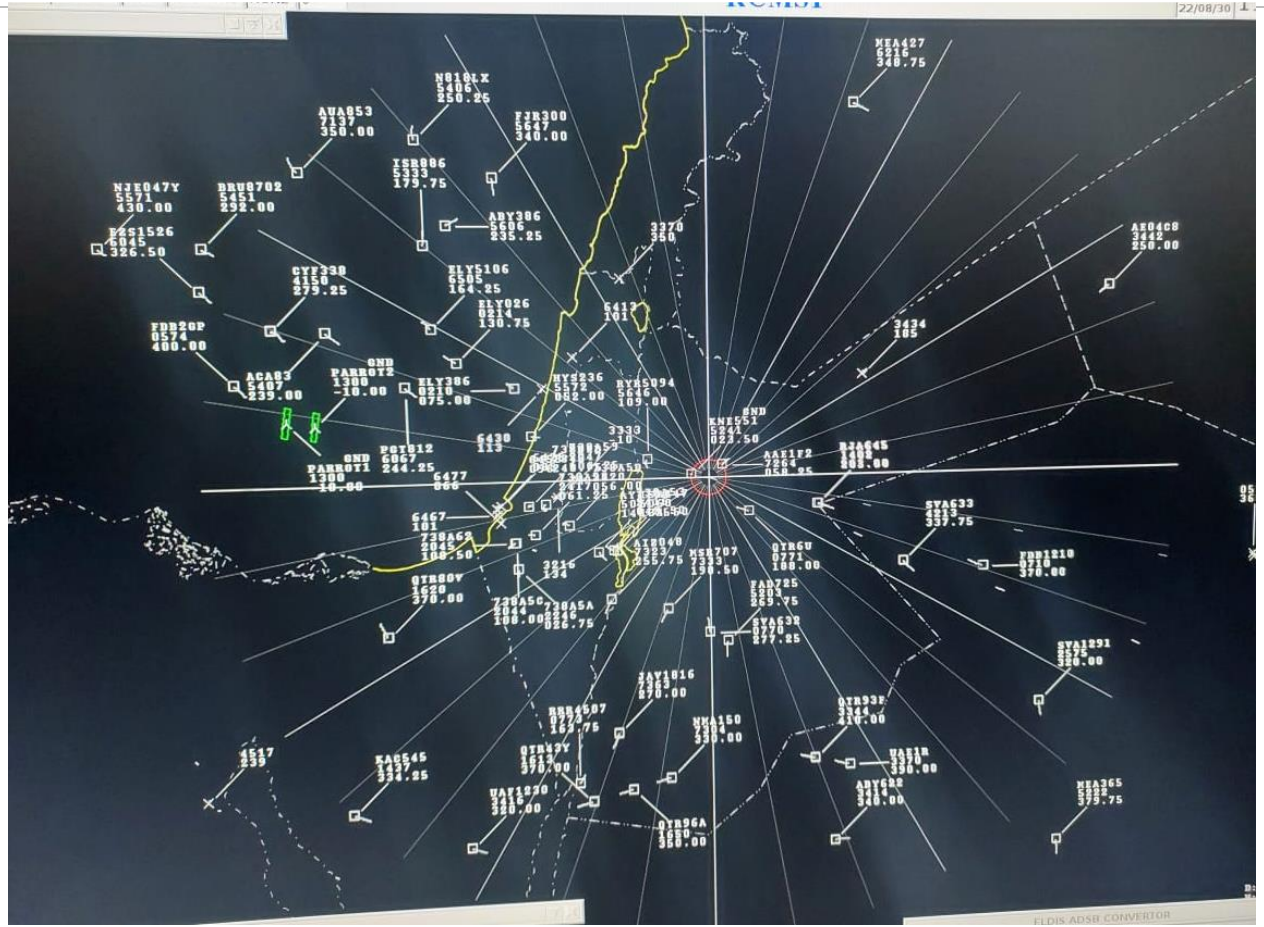
Jordan Air Traffic Services



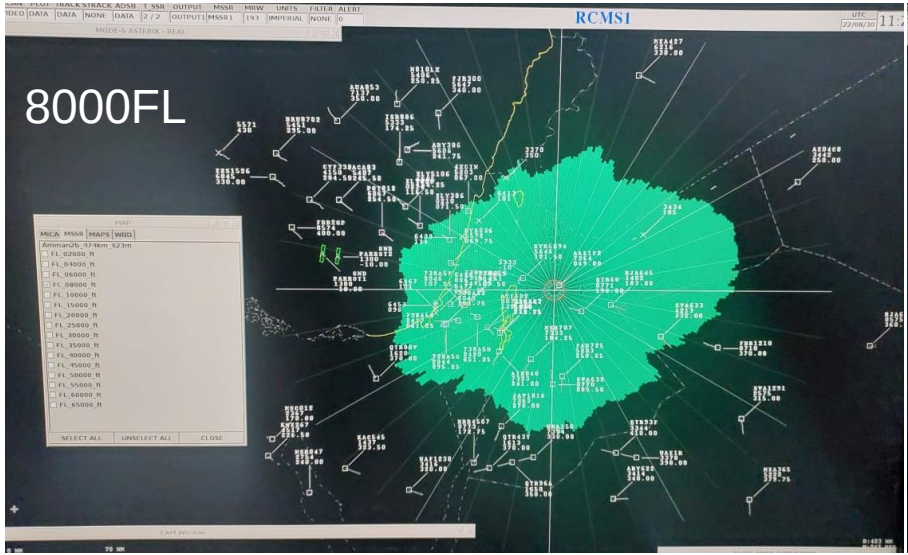
ATM Capability for AMM FIR

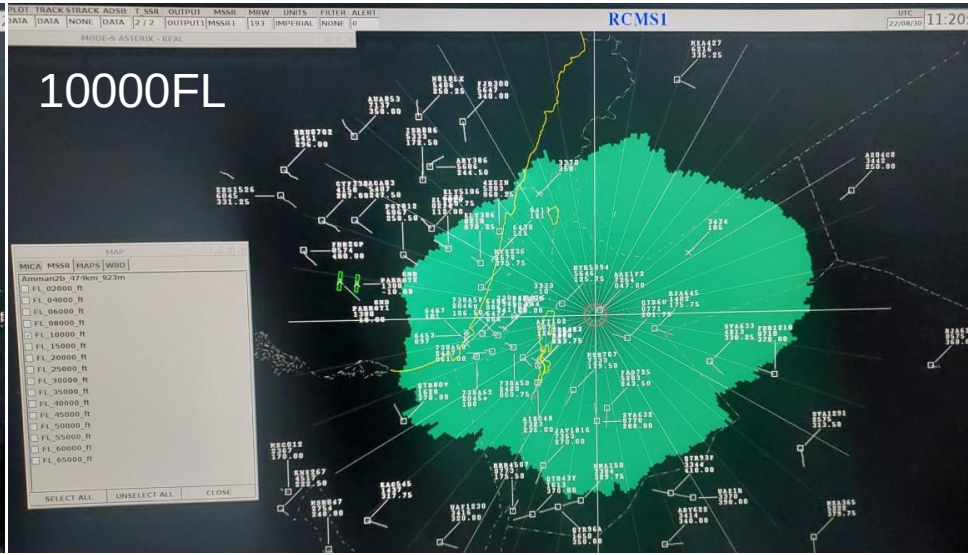
- Queen Alia Control Centre manufactured by Indra used for ACC, APP & Training
- 52000 mvmt/year - 2021
- Three Civil Airports
  - ✓ Queen Alia International Amman (**OJAI**)
  - ✓ King Hussein International Aqaba (**OJAQ**)
  - ✓ Marka International Amman (**OJAM**)

RADAR COVERAGE



RADAR COVERAGE





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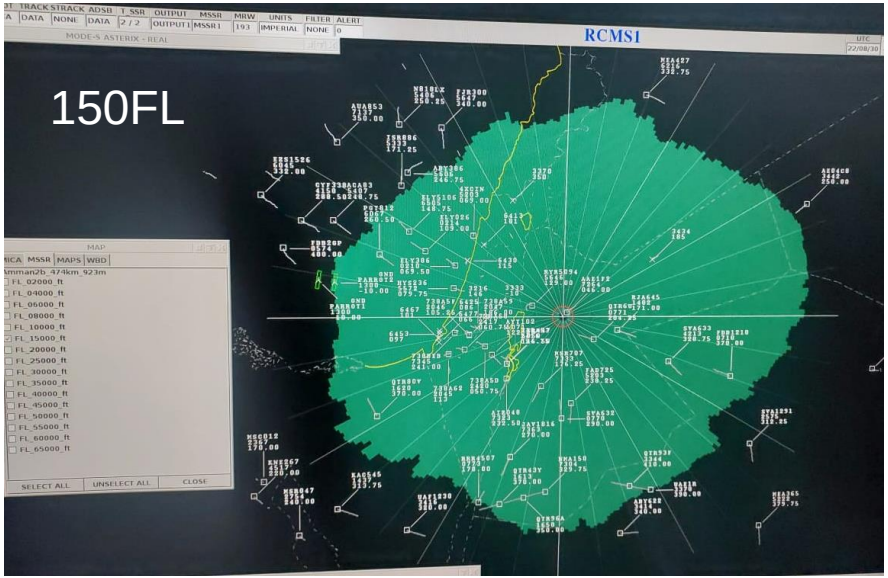

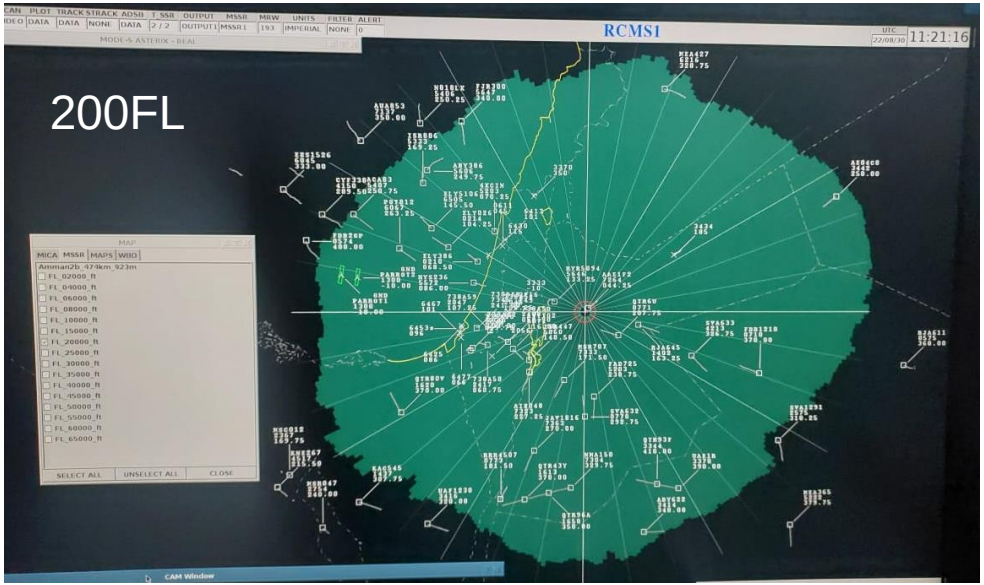

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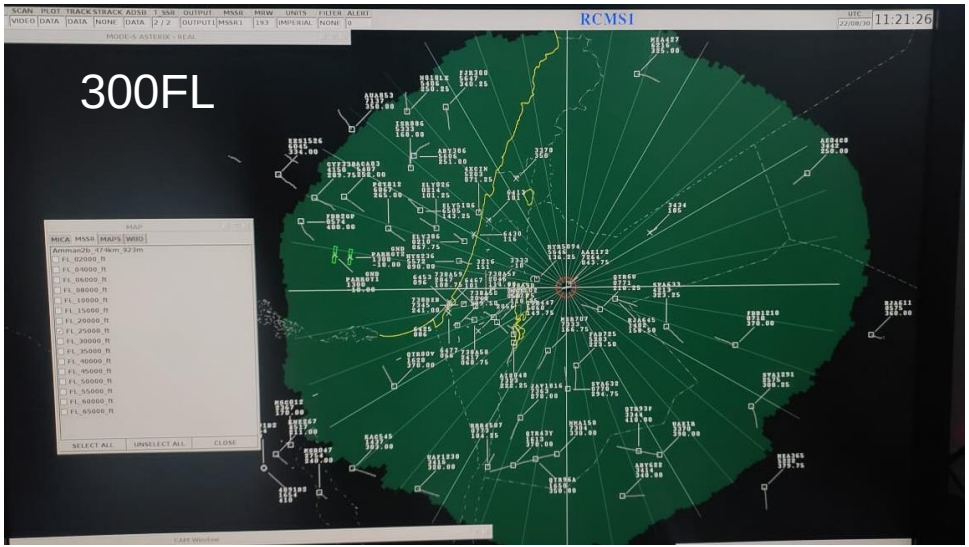
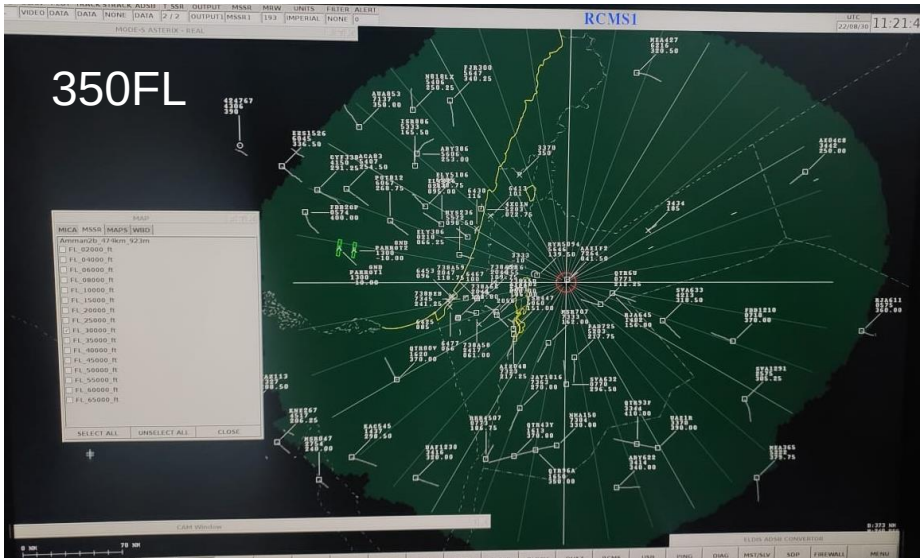
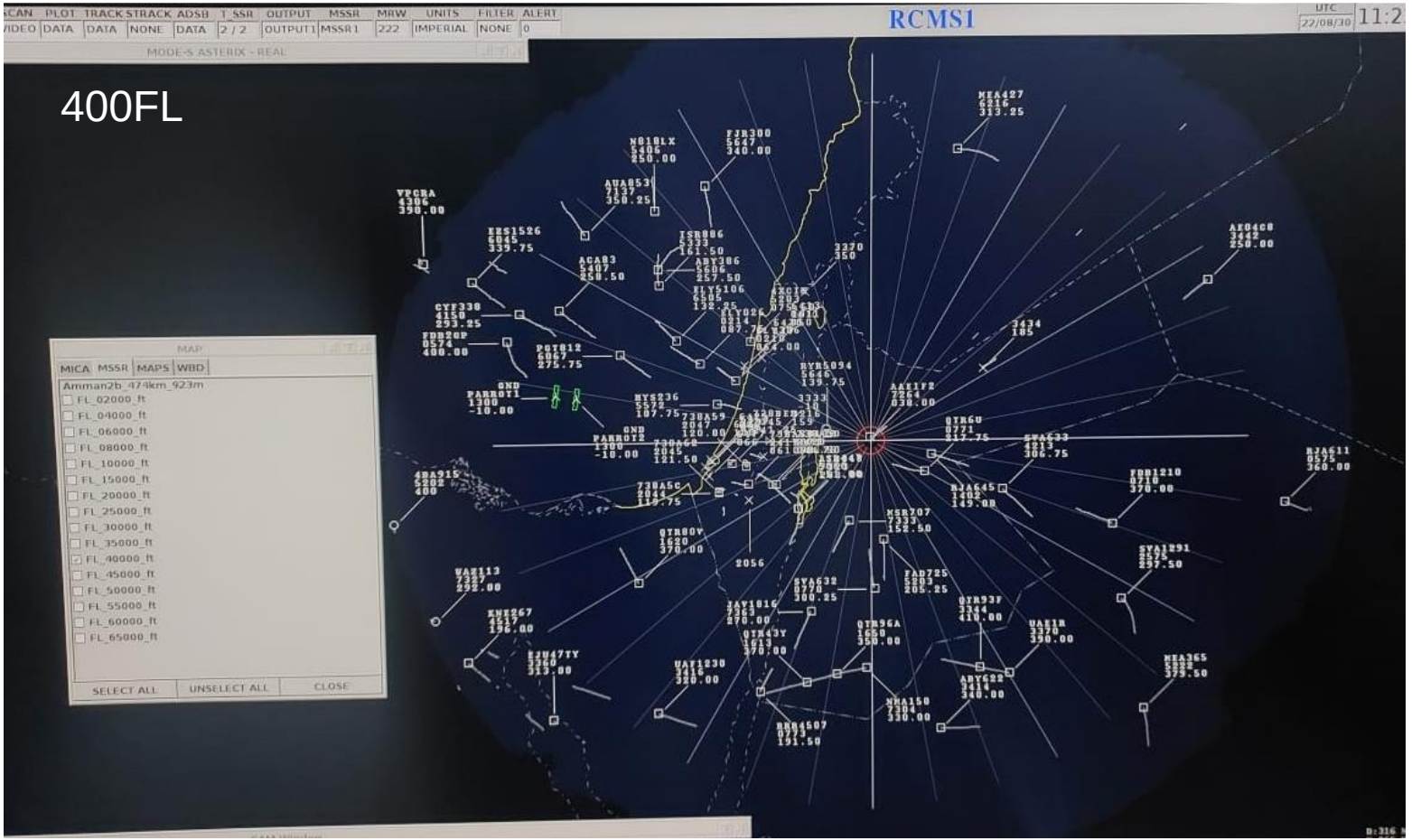




RADAR COVERAGE



SASS-C Evaluation

Non Radar Coverage

File Utilities Help

Polar Layer | Zoom In | Zoom Out | Print | Tabular Presentation

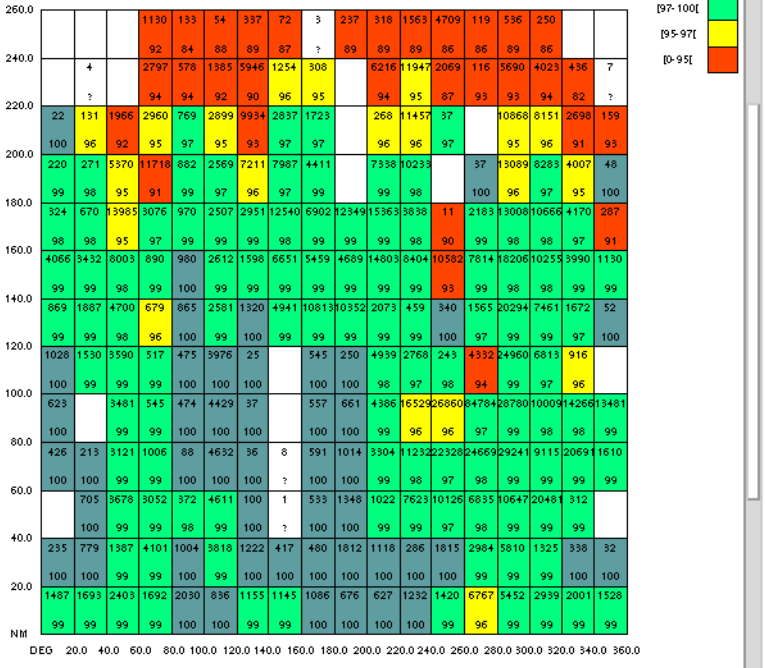
QAIA_joAmman a220711/CHse/graph_pd21Jul22_05_15_25

Recorded between 00:09:59 and 23:00:00 on 11/07/22

Probability of Detection of Combined ModeS Roll-Call and Mode A/C

Filters FLevels] 0 - 500]

[100-100]
[97-100[
[95-97[
[0-95[



Vertical Layer | Zoom In | Zoom Out | Print | Tabular Presentation

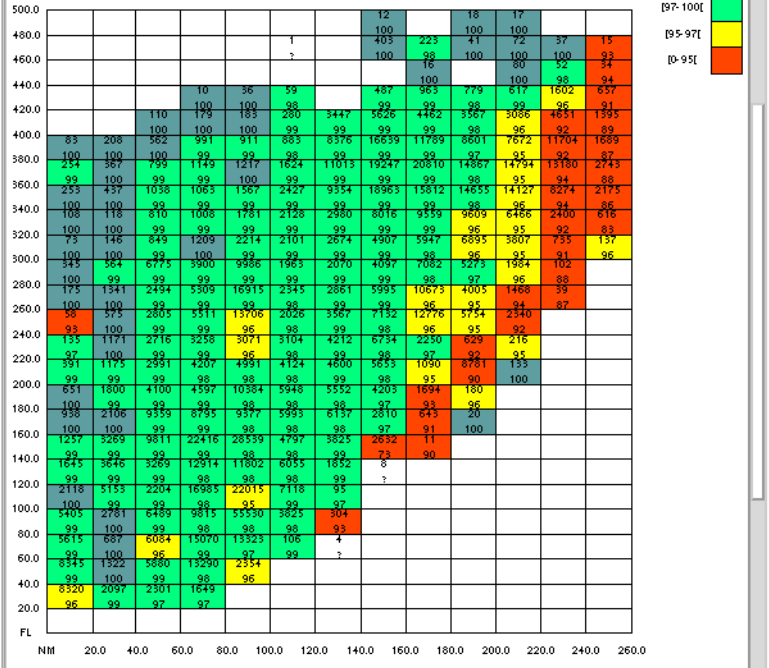
QAIA_joAmman a220711/CHse/graph_pd21Jul22_05_15_25

Recorded between 00:09:59 and 23:00:00 on 11/07/22

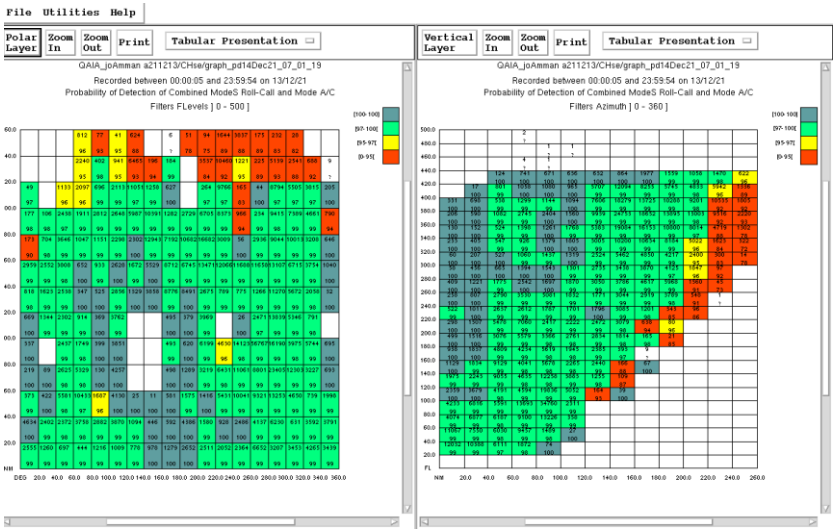
Probability of Detection of Combined ModeS Roll-Call and Mode A/C

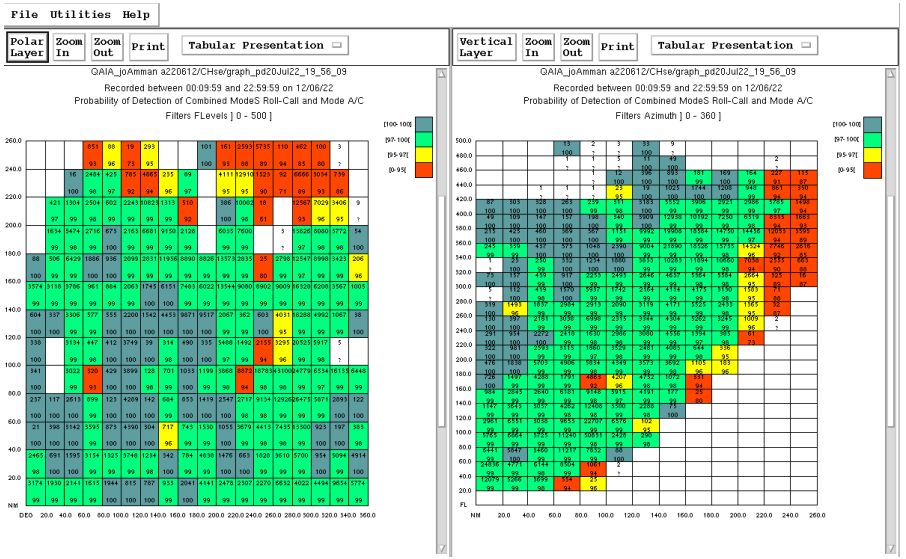
Filters Azimuth] 0 - 360]

[100-100]
[97-100[
[95-97[
[0-95[



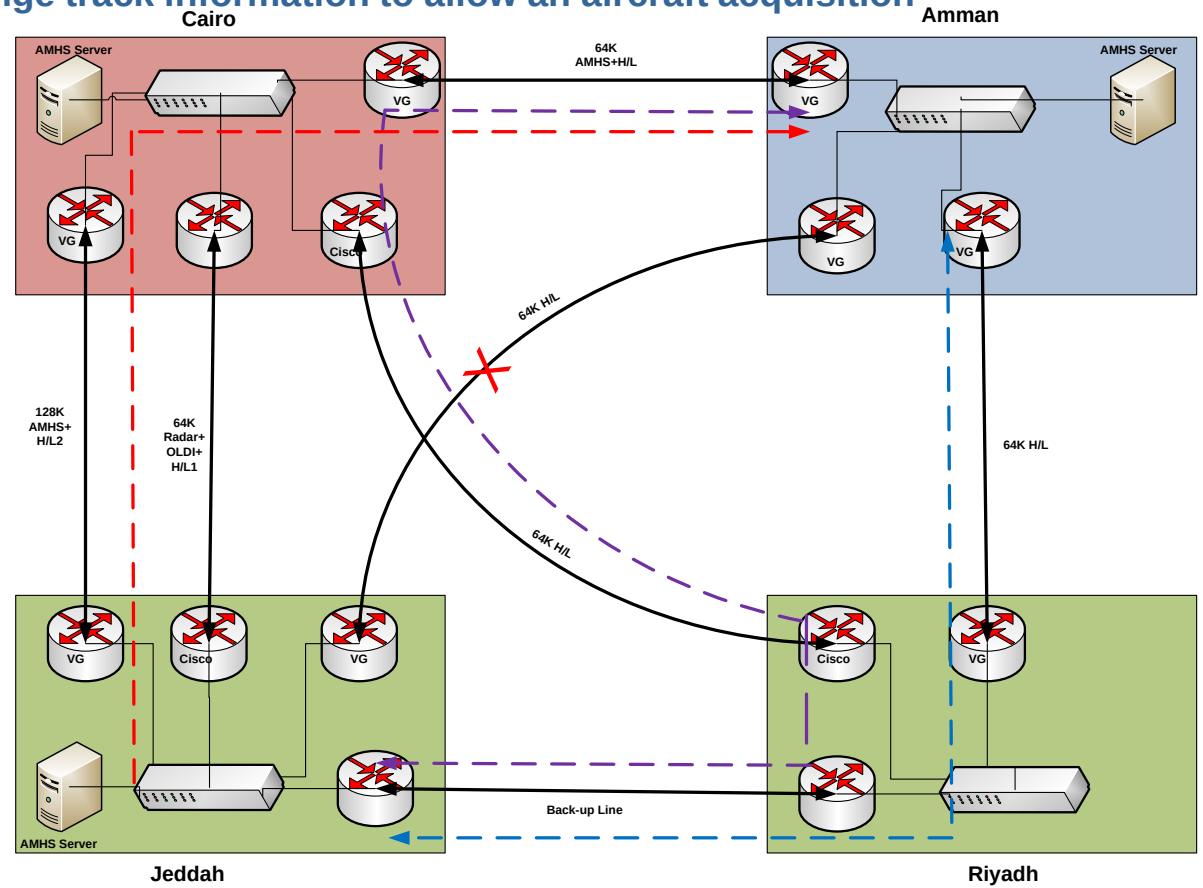
SASS-C Evaluation





Radar Data Exchange

The importance of Radars exchange track information to allow an aircraft acquisition directly to the other ATSUs



Challenges Impeding Sharing Radar Data with Adjacent States

1- Cyber Security Threats

2- ATM Automation Interoperability Issue

3- Willingness and Readiness of States to Share Data

4- Existence of Available Infrastructure (Network)

Q & A

IBRAHIM FARAJ

Thank you