Free Route Airspace Workshop
Conclusions and Future Projects Outlook

FRA Workshop
EUROCONTROL HQ, Brussels 24 - 25 May 2018

Razvan Bucuroiu
Head of Network Strategy and Development & Operations Planning
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FRA Workshop Conclusions

Network Evolutions and Coordination

- A single NM system FRA model based on significant points characteristics and oriented towards the full FRA model
- Full observance of the NM documentation on FRA
  - Re-enforcement of the provisions in the NM FRA documentation
  - Implementations based on those provisions
- Good and efficient process from CONOPS/Airspace design into implementation
- Enlarged and earlier participation of AOs/CFSPs in the full process for individual FRA projects from CONOPS/Airspace design into implementation, including pre-validations
  - Additional participation in RNDSG possible
- Additional resources and automation for FRA/airspace pre-validations
- Additional automation for ASM data for FRA/airspace pre-validations
- Implementation of the foreseen FRA NM systems evolutions over the next two NM releases
- Early involvement with AIS in FRA developments, AIRAC adherence, follow the harmonising FRA publication guidelines.
  - ERNIP Part 1 – 6.5 - FRA Checklist
- Identify appropriate means to continuously communicate with the entire AOs/CFSPs community on FRA implementation progress
FRA Workshop Conclusions
FRA Network Implementation

- Expansion of cross-border FRA to maximise benefits and increase flexibility for AOs
  - Based on FRA, not published DCTs
- Lower the FRA level implementation to the maximum possible, based on operational requirements, preferably down to the TMA levels
  - Ensure continuity in vertical connectivity
  - Ensure appropriate TMA connections
- Removal of ATS route network desirable within full FRA airspace volumes
  - There is no particular requirement to maintain the ATS route network within the FRA airspace volumes
- Synchronisation of adjacent FRA implementations and involvement of all neighbouring areas during development and implementation
- Maintain a grid of published significant points to facilitate flexible flight planning
- Gradual evolution towards the utilisation of lat/long depending on the evolution of local ATM systems and datalink implementation
- Request from airspace users that FRA projects are urgently initiated in all remaining parts of the European airspace
• Good progress on flight planning system current and planned evolutions noted
  • Further automation and optimisation tools evolutions required
• Be able to evaluate ATFCM situation
• B2B service enabling 4D trajectory exchange between NM and AOs/CFSPs required as well as the planned FF-ICE evolutions
• Dynamically respond to the eAUP/UUP
• Are company routes still a viable option in a dynamic network?
  • Probably as a last resort
• Availability/utilisation of trajectory visualisation tools through CFSPs or NM tools
• Earlier data availability to AOs/CFSPs
  • Requires strict observance of the data publication timelines by the AIS data originators/RAD coordinators/ENV coordinators
• “Free flight” functionalities should consider other network constraints
• CFSPs Best Practices to be also promoted
• RAD decreasing in FRA areas
  • NM to provide evaluations in this respect

• RAD evolutions considered in general as adding significant complexities, in most of the cases in non-FRA areas

• RAD network approach based on inputs from AOs/CFSPs/ANSPs required
  • Simplification and harmonisation

• Focus on the operational goal not on adding significant number of restrictions
  • Network effects unknown locally

• RAD workshop to be organised to address a new approach to RAD
FRA Implementation - end 2019

Free Route Airspace Implementation
End 2019

This map is for information purposes only.

- Cross-border Activities
- FRA (Day) may be level restricted or on seasonal basis
- FRA (Night) may be level restricted or on seasonal basis
- FRA Plans to be updated
FRA Implementation - end 2020
FRA Implementation - end 2021

Free Route Airspace Implementation
End 2021

This map is for illustrative purposes only.

- Cross-Border Activities
- FRA (H24 / might be level restricted or on seasonal basis)
- FRA (Night / might be level restricted or on seasonal basis)
- FRA Plans to be updated
FRA Implementation - end 2022

Free Route Airspace Implementation
End 2022

This map is for information purposes only.

- Cross-Border Activities
- FRA (H24) might be level restricted or on seasonal basis
- FRA (Night) might be level restricted or on seasonal basis
- FRA Plans to be updated

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Planned Projects

Confirmed Implementation Dates
FRAS Seasonal (FRA Sofia) Phase 2
Bulgaria

State Implementation:
- Date: 11 OCT 2018
- Laterally: AoR of Sofia ACC
- Vertically: FL175 - FL660
- Time: 05:00 - 23:00 (04:00 - 22:00)
  23:00 - 05:00 (22:00 - 04:00) SEEN FRA
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: FRAS Night (BGR) - 14 NOV 2013
  N-FRAB Night (ROU) - 11 DEC 2014
  HUFRA H24 (HUN) - 05 FEB 2015
  Cross-border FRA HUN / ROU Night - 20 AUG 2015
  SEEN FRA Night - 30 MAR 2017
  FRAS Seasonal Phase 1 - 1 FEB 2018
  FRAS Seasonal Phase 2 - 11 OCT 2018
  SEEN FRA Night Expanded - 06 DEC 2018
  SEE FRA - 07 NOV 2019

NMOC Implementation:
- Airspace Volume: ATC Unit Airspace - AUA
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen. The First Seasonal period was: 1 FEB 2018 - 23 MAY 2018. The Second Seasonal period is 11 OCT 2018 - 22 MAY 2019 but the FRA might continue during Summer 2019 and merge with SEE FRA H24 planned for 7 NOV 2019.
FRAU (FRA Ukraine) (Sc 1b)
Ukraine

State Implementation:
- Date: 08 NOV 2018
- Laterally: AoR of L’viv ACC
- Vertically: FL275 - FL660
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: FRAU Sc 1a - 05 MAR 2015
  FRAU Sc 1b - 08 NOV 2018

NMOC Implementation:
- Airspace Volume: ATC Unit Airspace - AUA
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
BELFRA (FRA Belarus) (non-ECAC area)

Belarus

State Implementation:
- Date: 08 NOV 2018
- Laterally: AoR of Minsk ACC
- Vertically: FL305 - FL660
- Time: 23:00 - 05:00 (22:00 - 04:00)
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: No - single FRA area

NMOC Implementation:
- Airspace Volume: Not managed by NM
- Model: Not managed by NM

Implementation Issues:
- Currently not foreseen as in majority of cases issues can be managed by the adjacent States, except Russian Federation limitations.
SEEN FRA (South East Europe Night FRA)
Bulgaria/Hungary/Romania/Slovakia

State Implementation:
- **Date:** 06 DEC 2018
- **Laterally:** AoR of Budapest ACC, Bucuresti ACC, Sofia ACC, Bratislava ACC
- **Vertically:** 9500FT / FL105 / FL175 / FL245 - FL660
- **Time:** 23:00 - 05:00 (22:00 - 04:00)
- **ATS route network:** Withdrawn / Available / Available / Withdrawn
- **FPL requirements:** FRA (I) definition by geographical coordinates - Not Allowed
  - At least one FRA significant point per FIR
- **Evolution:**
  - FRAS Night (BGR) - 14 NOV 2013
  - N-FRAB Night (ROU) - 11 DEC 2014
  - HUFRA H24 (HUN) - 05 FEB 2015
  - Cross-border FRA HUN / ROU Night - 20 AUG 2015
  - SEEN FRA Night - 30 MAR 2017
  - FRAS Seasonal Phase 1 - 1 FEB 2018
  - FRAS Seasonal Phase 2 - 11 OCT 2018
  - SEEN FRA Night Expanded - 06 DEC 2018
  - SEE FRA - 07 NOV 2019

NMOC Implementation:
- **Airspace Volume:** FRA airspace (ERAS or CRAS) - t.b.d.
- **Model:** FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen - Requirement for at least one FRA significant point per FIR will be managed by EURO restrictions (AIP publication) with reference to Bucuresti CTA and Budapest CTA.
ARMFRA (FRA Armenia)

State Implementation:
- Date: 06 DEC 2018
- Laterally: AoR of Yerevan ACC
- Vertically: FL195 - FL660
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: ARMFRA Night - 07 DEC 2017
  ARMFRA H24 - 06 DEC 2018
  FRA SC H24 - 07 NOV 2019

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
MUAC FRA (FRA Maastricht UAC)
Belgium/Germany/Luxembourg/Netherlands

**State Implementation:**
- **Date:** 06 DEC 2018
- **Laterally:** Part of AoR of Maastricht UAC
- **Vertically:** FL245 - FL660
- **Time:** 23:00 - 05:00 (22:00 - 04:00) and Weekends
- **ATS route network:** Available
- **FPL requirements:** FRA (I) definition by geographical coordinates - Not Allowed
- **Evolution:**
  - MUAC FRA Phase 1 - 07 DEC 2017
  - MUAC FRA Phase 2 - 06 DEC 2018

**NMOC Implementation:**
- **Airspace Volume:** FRA airspace (CRAS)
- **Model:** FRA with Intermediate points (FRA - IP)

**Implementation Issues:**
- Currently not foreseen
POLFRA (FRA Poland)

Poland

State Implementation:
- Date: 28 FEB 2019
- Laterally: AoR of Warszawa ACC
- Vertically: FL095 - FL660
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: No - single FRA area

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
FRABRA (FRA Bratislava) Slovakia

State Implementation:
- Date: 28 MAR 2019
- Laterally: AoR of Bratislava ACC
- Vertically: FL245 - FL660
- Time: 05:00 - 23:00 (04:00 - 22:00)
- ATS route network: Withdrawn
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: SEEN FRA Night Expanded - 06 DEC 2018
- FRABRA - 28 MAR 2019

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
- 23:00 - 05:00 (22:00 - 04:00) SEEN FRA
FRA Morocco
Morocco

State Implementation:
- Date: 28 MAR 2019
- Laterally: AoR of Casablanca ACC ATC Sectors Oceanic and West
- Vertically: FL195 - FL660
- Time: Night - t.b.d.
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: No - single FRA area

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
Cross-border FRA MUAC/DFS FRA/DK-SE FAB
Belgium/Germany/Luxembourg/Netherlands/Denmark/Sweden

**State Implementation:**
- **Date:** most probably 28 MAR 2019 (to be confirmed)
- **Laterally:** AoR of Maastricht UAC and AoR Danish / Swedish ACCs
  AoR of Karlsruhe UAC (North Cells) and AoR Danish / Swedish ACCs
  (No cross-border operations between FRA MUAC and DFS FRA)
- **Vertically:** FL245 / FL285 / FL315 - FL660
- **Time:** Night / Weekends / H24
- **ATS route network:** Available / Depending on FRA cell - Withdrawn / Available
- **FPL requirements:** FRA (I) definition by geographical coordinates - Allowed and Not Allowed
- **Evolution:**
  - DK/SE FAB FRA 1 (DNK/SWE) - 17 NOV 2011
  - DK/SE FAB FRA 2 (DNK/SWE) - 14 NOV 2013
  - MUAC FRA Phase 1 - 07 DEC 2017
  - DFS FRA Solution 1 - 01 MAR 2018
  - MUAC FRA Phase 2 - 06 DEC 2018
  - DFS FRA Solution 2 - 05 DEC 2019

**NMOC Implementation:**
- **Airspace Volume:** FRA airspace (CRAS) - t.b.d.
- **Model:** Full FRA - FRA with Intermediate points (FRA - IP) with open border

**Implementation Issues:**
- Due to different FRA Models applied implementation postponed to Spring 2019
SEE FRA (South East Europe H24 FRA)
Bulgaria/Hungary/Romania

State Implementation:
- Date: 07 NOV 2019
- Laterally: AoR of Budapest ACC, Bucuresti ACC, Sofia ACC
- Vertically: 9500FT / FL105 / FL175 - FL660
- Time: 05:00 - 23:00 (04:00 - 22:00)
- ATS route network: Withdrawn / Available / Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
  At least one FRA significant point per FIR
- Evolution: FRAS Night (BGR) - 14 NOV 2013
  N-FRAB Night (ROU) - 11 DEC 2014
  HUFRA H24 (HUN) - 05 FEB 2015
  Cross-border FRA HUN / ROU Night - 20 AUG 2015
  SEEN FRA Night - 30 MAR 2017
  FRAS Seasonal Phase 1 - 1 FEB 2018
  FRAS Seasonal Phase 2 - 11 OCT 2018
  SEEN FRA Night Expanded - 06 DEC 2018
  SEE FRA - 07 NOV 2019

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS or CRAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen - Requirement for at least one FRA significant point per FIR will be managed by EURO restrictions (AIP publication) with reference to Bucuresti CTA and Budapest CTA.
- 23:00 - 05:00 (22:00 - 04:00) SEEN FRA
FRASC (South Caucasus Area FRA)
Armenia/Georgia

State Implementation:
- Date: 07 NOV 2019
- Laterally: AoR of Yerevan ACC, Tbilisi ACC
- Vertically: FL195 - FL660
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: FRAG - 25 MAY 2017
  ARMFRA Night - 07 DEC 2017
  ARMFRA H24 - 06 DEC 2018
  FRA SC H24 - 07 NOV 2019

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS or CRAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
FRA Malta
Malta

State Implementation:
- **Date:** 23 MAY 2019
- **Laterally:** AoR of Malta ACC
- **Vertically:** FL195 - FL660
- **Time:** H24
- **ATS route network:** Available
- **FPL requirements:** FRA (I) definition by geographical coordinates - Not Allowed
- **Evolution:**
  - FRA Malta H24 FL335 - 08 DEC 2016
  - FRA Malta H24 FL305 - 24 MAY 2018

NMOC Implementation:
- **Airspace Volume:** FRA airspace (ERAS) - t.b.d.
- **Model:** FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not planned
FRAU (FRA Ukraine) (Sc 1b)

Ukraine

State Implementation:
- Date: 23 MAY 2019
- Laterally: AoR of Kyiv ACC, Dnipropetrovs’k ACC (excl. Sector DVB)
- Vertically: FL275 - FL660
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: FRAU Sc 1a - 05 MAR 2015
  FRAU Sc 1b1 - 08 NOV 2018
  FRAU Sc 1b2 - 23 MAY 2019

NMOC Implementation:
- Airspace Volume: ATC Unit Airspace - AUA
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
DFS FRA (FRA Germany) Solution 2

State Implementation:
- Date: 05 DEC 2019
- Laterally: South West - core area
  FRA cells based on AoR of Karlsruhe UAC, Munchen ACC, Bremen ACC
- Vertically: FL245 - FL660
- Time: H24
- ATS route network: Depending on FRA cell - Withdrawn / Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: DFS FRA Solution 1 - 01 MAR 2018
  DFS FRA Solution 2 - 05 DEC 2019

NMOC Implementation:
- Airspace Volume: FRA airspace (CRAS)
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Currently not foreseen
HELLAS FRA (FRA Hellas UIR)
Greece

State Implementation:
- Date: 30 JAN 2020
- Laterally: AoR of Athinai ACC, Makedonia ACC
- Vertically: FL355 - FL460
- Time: 21:00 - 04:00
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: No - single FRA area

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS or CRAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- CONOPs coordinated with NM, coordination and work on the project will be initiated in Autumn 2018.
- Lower vertical limit FL355 is currently under consideration and discussion by Hellenic CAA and NM
Scottish FRA (Borealis FRA) UK

State Implementation:
- Date: 03 DEC 2020
- Laterally: AoR of Scottish ACC ATC Sectors - Rathlin, Central, Hebrides, Moray High, Part of Tyne, Montrose North Sector, Part of Dean Cross North
- Vertically: FL255 - FL660
- Time: H24
- ATS route network: Withdrawn
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: Part of Borealis FRA phased developments

NMOC Implementation:
- Airspace Volume: FRA airspace (CRAS)
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- Work in progress
HELLAS FRA (FRA Hellas UIR)
Greece

State Implementation:
- Date: 28 JAN 2021
- Laterally: AoR of Athinai ACC, Makedonia ACC
- Vertically: FL355 - FL460
- Time: H24
- ATS route network: Available
- FPL requirements: FRA (I) definition by geographical coordinates - Not Allowed
- Evolution: HELLAS FRA Night - 30 JAN 2020
  HELLAS FRA H24 - 28 JAN 2021

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS or CRAS) - t.b.d.
- Model: FRA with Intermediate points (FRA - IP)

Implementation Issues:
- CONOPs coordinated with NM, coordination and work on the project will be initiated in Autumn 2018
- Lower vertical limit FL355 is currently under consideration and discussion by Hellenic CAA and NM
FRAPRA (FRA Praha)
Czech Republic

State Implementation:
- Date: 02 DEC 2021
- Laterally: AoR of Praha ACC
- Vertically: GND - FL660
- Time: H24
- ATS route network: Available - t.b.d.
- FPL requirements: FRA (I) definition by geographical coordinates - t.b.d.
- Evolution: No - single FRA area

NMOC Implementation:
- Airspace Volume: FRA airspace (ERAS or CRAS) - t.b.d.
- Model: t.b.d.

Implementation Issues:
- Coordination and work on the project will be initiated at meeting between NM and Czech Republic on 11 OCT 2018.
Proposed Projects

*No confirmed Implementation Dates*
Proposed FRA Projects

- Morocco: Night / Week-end within South and East Sectors, FL195 - FL660 - Summer 2019;
- Morocco: H24 FRA within Casablanca ACC - Oceanic and West Sectors, FL195 - FL660 - Spring 2020;
- Maastricht UAC: FRA H24 - Spring 2020;
- Turkey: Night FRA (23:00 - 05:00), FL285 - FL660 - Summer 2020;
- Switzerland: Structurally limited H24 FRA, FL195 - FL660 in skyguide’s AoR - Spring 2021;
- France: FRA in Brest ACC - Spring 2021;
- Turkey: H24 FRA, FL285 - FL660 - Summer 2021;
- Ukraine: H24 FRA within Lviv ACC, Kyiv ACC, Odesa ACC and Dnipropetrovs'k ACC, FL275 - FL660 - 2021;
- France: H24 FRA in Bordeaux ACC - Winter 2021/2022;
- UK: H24 FRA AoR of Prestwick ACC FL255 - FL660 and parts of AoR of London ACC FL335 - FL660 - Winter 2021/2022;
- UK: H24 FRA within the whole London ACC AoR - Winter 2021/2022;
- Cyprus: H24 FRA in AoR of Nicosia ACC, FL285 - FL660 - Summer 2022;
- France: H24 FRA in Reims ACC - Autumn 2022;
- France: H24 FRA in Paris ACC - Autumn 2022;