

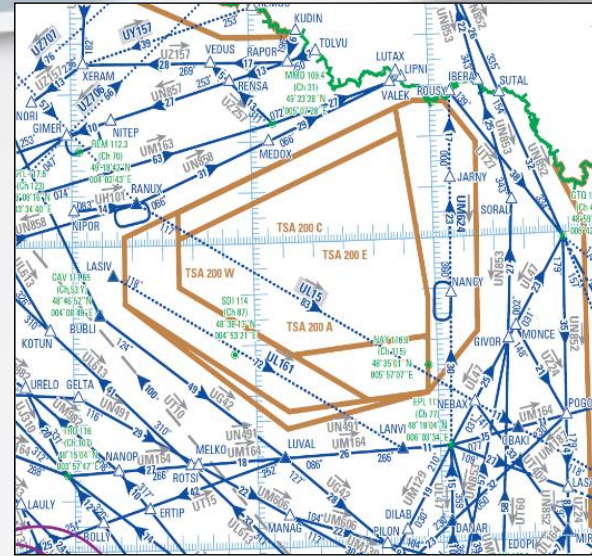
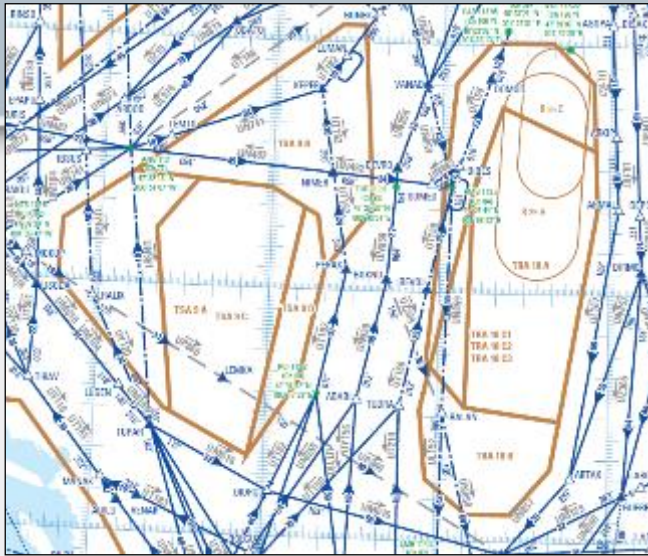


Military contribution to Vertical Flight Efficiency improvement
COL Christophe HINDERMANN
French Military ATM Directorate
Head of Airspace division



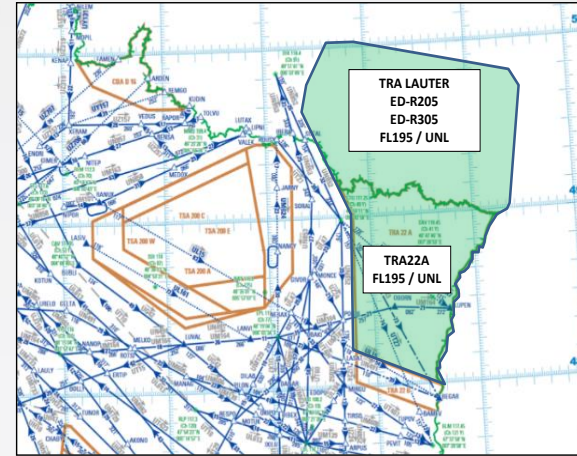
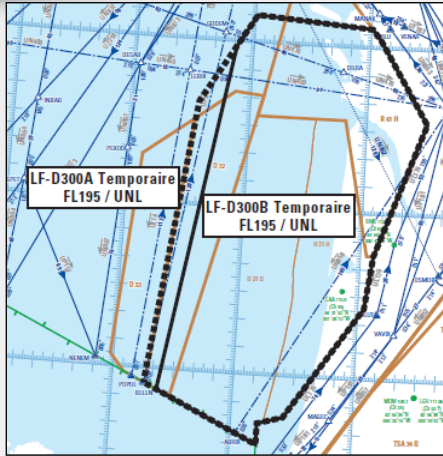
**Compared to old generation fighters
The current and future assets require a fully use of the vertical plan**



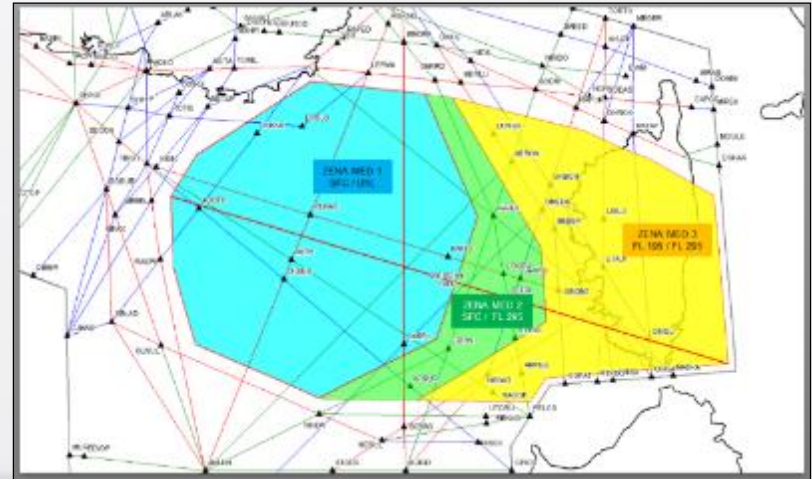
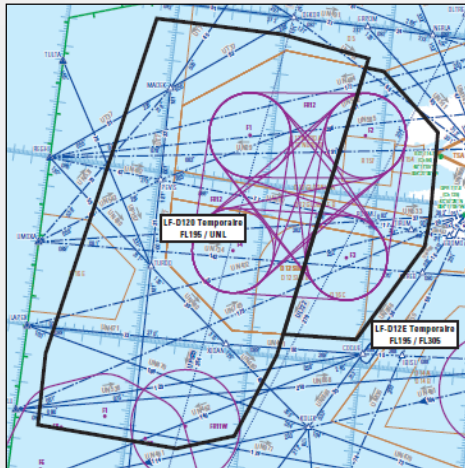


**To tackle both operational and civil flow management requirements
HFE is privileged since more than 20 years in France
→ MVPA concept associated with a national CIV-MIL CDM**

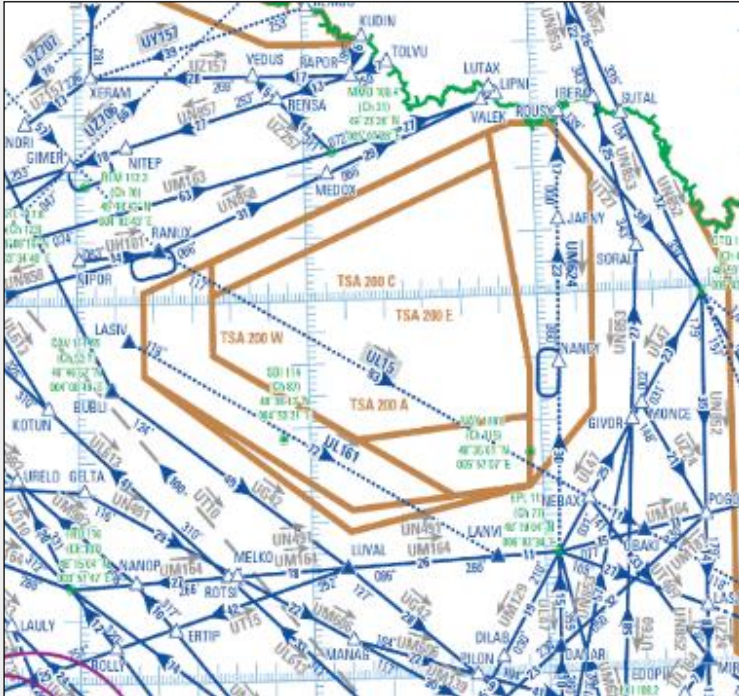




These concepts are not applicable to latest requirements in terms of training areas (like ZENAs)
Areas are tailored to the right needs and activation slots have been negotiated
between CIV and MIL at Strategic level after a Network Impact Assessment (NIA)



To go further, France set up since more than 10 years a novating TLS concept for ASM/ATFCM convergence



**Airspace structures tailored to needs
and A-FUA compliant
Military Variable Profile Area Structure**

TSA 200 – Associated TLS

- 1 Caractéristiques
Conformes à l'AIP France ENR 5.2.
Zones fréquemment utilisées.
- 2 Secteurs interférents
CRNA Nord : TM, TL, AP.
CRNA Est : UE, XE, KE, UF, KF, UR, XR, KR, HR.
- 3 Flux concernés

TRAFIC VOLUME 1 (trafics évolués au Sud de la TSA 200A)
 ⇒ Seuil de surcharge : 20 avions / heure
 - Départs LFP, LFOB via BUBL/LASIV.
 - Destinations LSZH, LSZB, LFST, LFSB via GELTA.
 - Départs LFSB via KOTUN.
 - Départs LFST/EDDS via LUVAL.

TRAFIC VOLUME 2 (trafics évolués entre TSA 200A et TSA22)
 ⇒ Seuil de surcharge : 25 avions / heure
 - Destinations EB, EL, EHEH, ETNG/AD/SB, EDDL/DK/DF/LV/LW/DG/LP/FH/LN, via DIK.
 - Départs LFST/SB, LSZB/ZH/GG via DIK.
 - Destinations LFL, LSZH/GG, LFSB via GTQ.
 - Départs EB, EL, EDDK/DF/FH/LN, ETAD/SB via GTQ.

- 4 Règles de gestion
Les différentes configurations des TSA 200 sont gérées par la CNGE et déterminées à partir des dépassements des seuils de surcharge identifiés par la Défense exprimés par le CDPGE.
- 5 Règles de priorité
Avant 09h00 locales : priorité à la CAG.
Entre 09h00 et 18h00 locales, du lundi au vendredi : priorité à la Défense, potentiellement fractionnables en plusieurs plages discontinues telles que l'allocation au profit de la défense de la TSA 200E ou de la TSA 200W ou de la TSA 200C et des TSA 22 et R 122.

**Defined application
modalities
with a clear
Trigger Threshold**

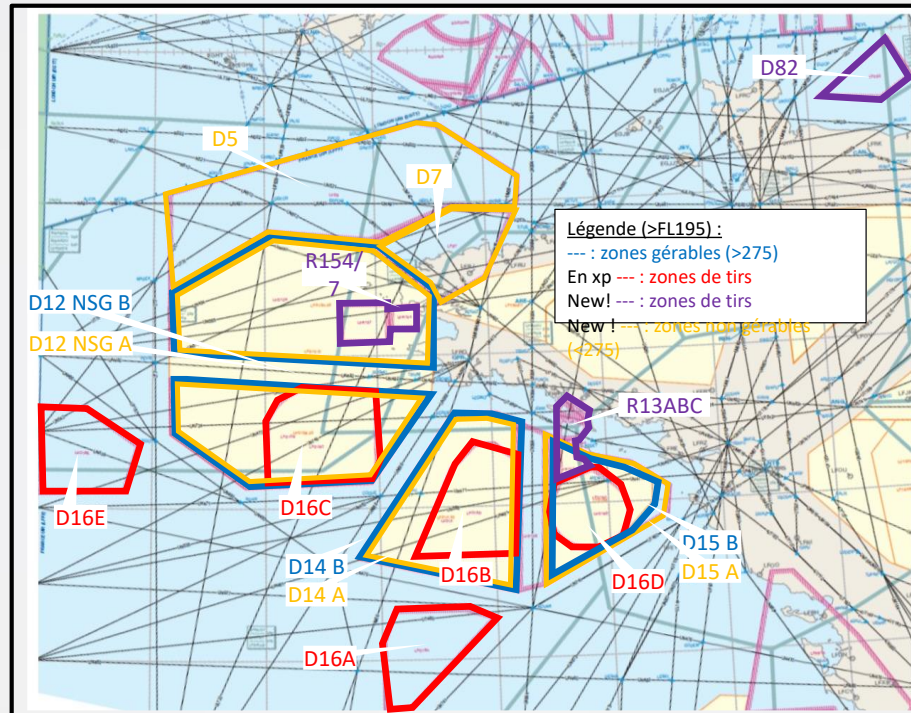
**Threshold exceeded
→ CDM rules are
automatically
applied**

**Traffic Light Scheme → More dynamic ASM
based on a fine-tuned forecast**



**What can be done to improve VFE
and further contribute to Green Aviation
and more environmental friendly flights?**

Some regional improvements are possible



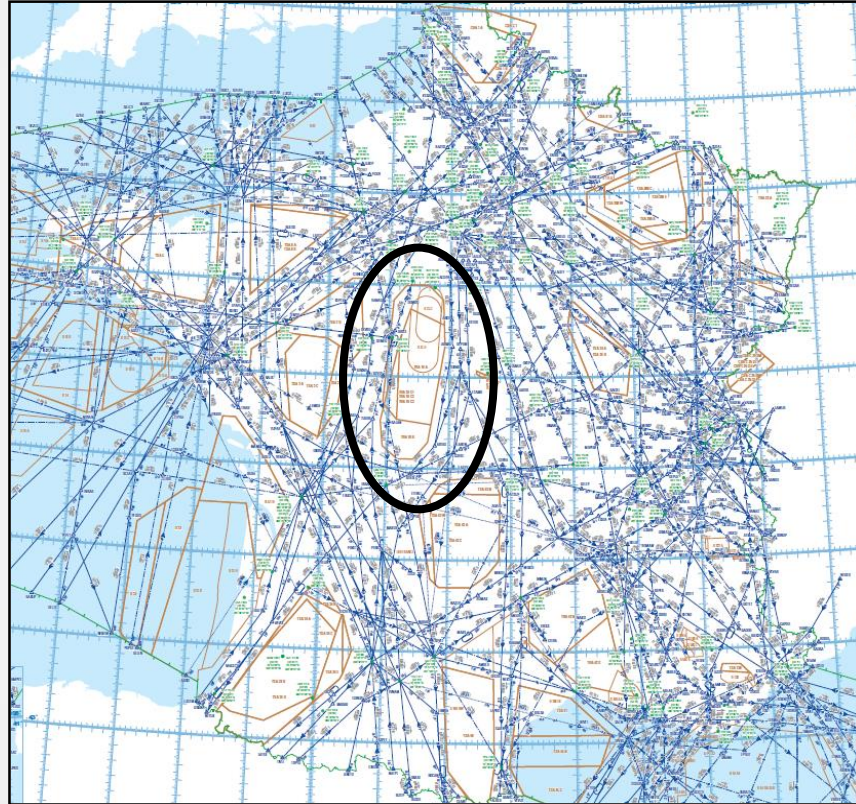
Global Atlantic Airspace restructuring

All airspaces under FL 305 are NAM and managed by Navy

All airspaces over FL305 are AMA and managed by French AMC

In both case, activations slots are released via AUP (with or without CDM process)

Implement TLS concept in the vertical plan



**A focus on TRA 10, a central area essential
for both Paris and Bordeaux ACC**

Defined Priority Rules

- **Before 9 AM: Priority to GAT.**
- **Between 9 AM and 8 PM, Monday to Friday: Priority to GAT up to 3 slots of 1 hour maximum with a minimum interval of 2 hours, with allocation for the benefit of Defence of:**
 - TRA 10A under FL295, TRA 10B, TRA10 C1 if overload of TRAFFIC VOLUME 1;
 - TRA 10A under FL345, TRA 10B, TRA10 C1, TRA10 C2, TRA 10C3 if overload TV2;
 - TRA 10A, TRA 10B, TRA 10C2, TRA 10C3 if overload of TV3.
- **If several TRAFFIC VOLUMES are overloaded, only the first constraint is applied, in the numerical order.**

**For military, the strategic goal is to maintain
in any cases AAR an AEW capacities**

2-Year trial – Permanent process since June 2021

TV 1 related to Bordeaux ACC : Threshold 55 A/C per hour on dedicated routes

TRA 10 A – 195/ILL

RESTRICTION at FL 295



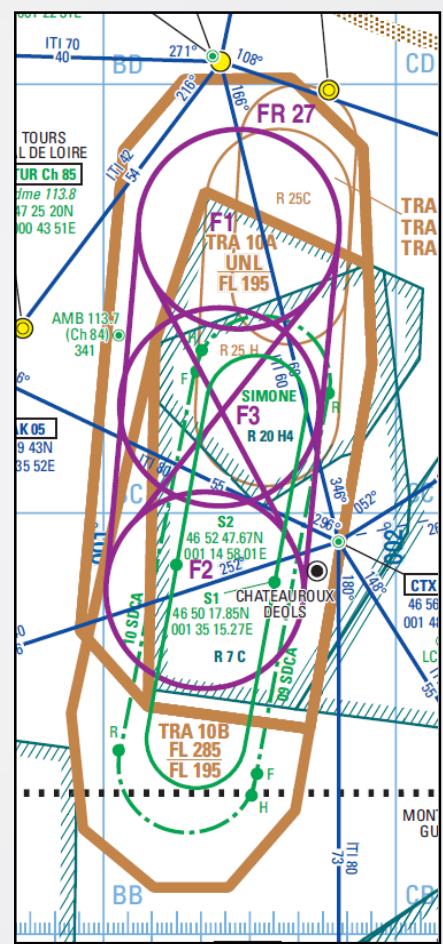
TRA 10 C3 – 315/325

TRA 10 C2 – 295/305



TRA 10 C1 – 275/285

TRA 10 B – 195/285



TV 2 related to Bordeaux ACC : Threshold 45 A/C per hour on other dedicated routes

RESTRICTION at FL 345

TRA 10 A – 195/ILL



TRA 10 C3 – 315/325

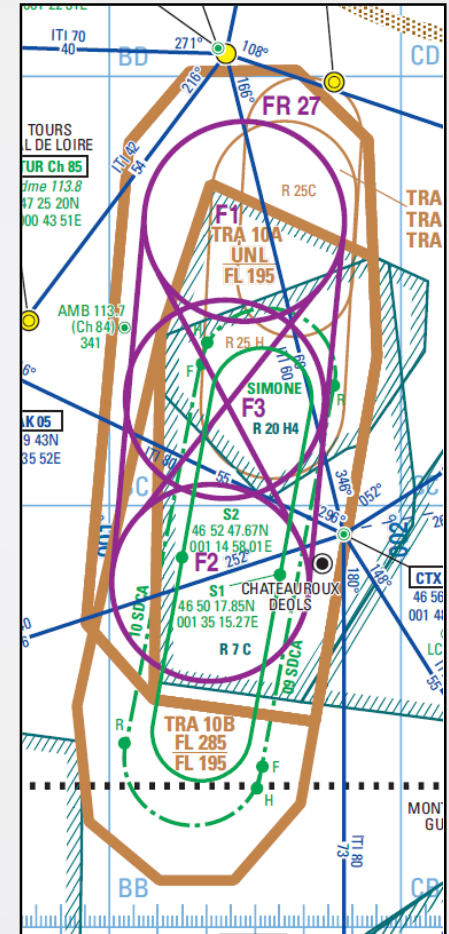


TRA 10 C2 – 295/305

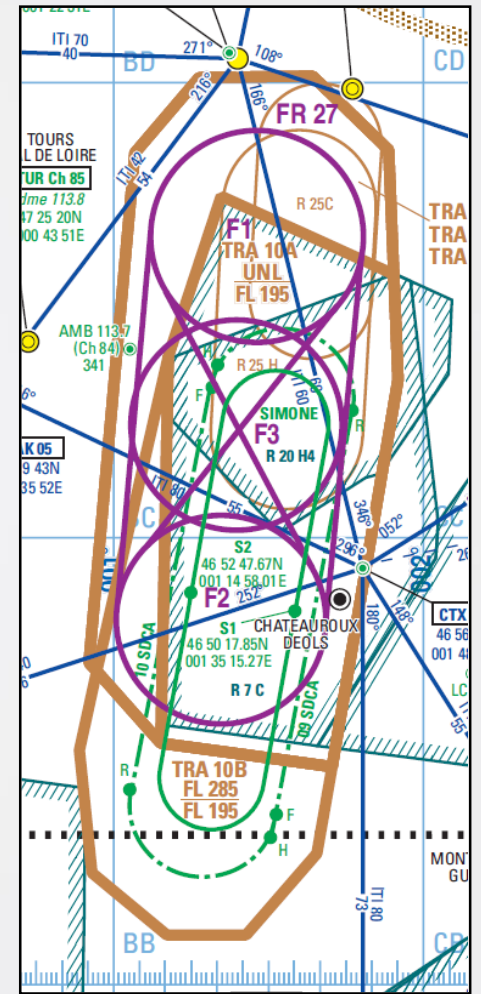
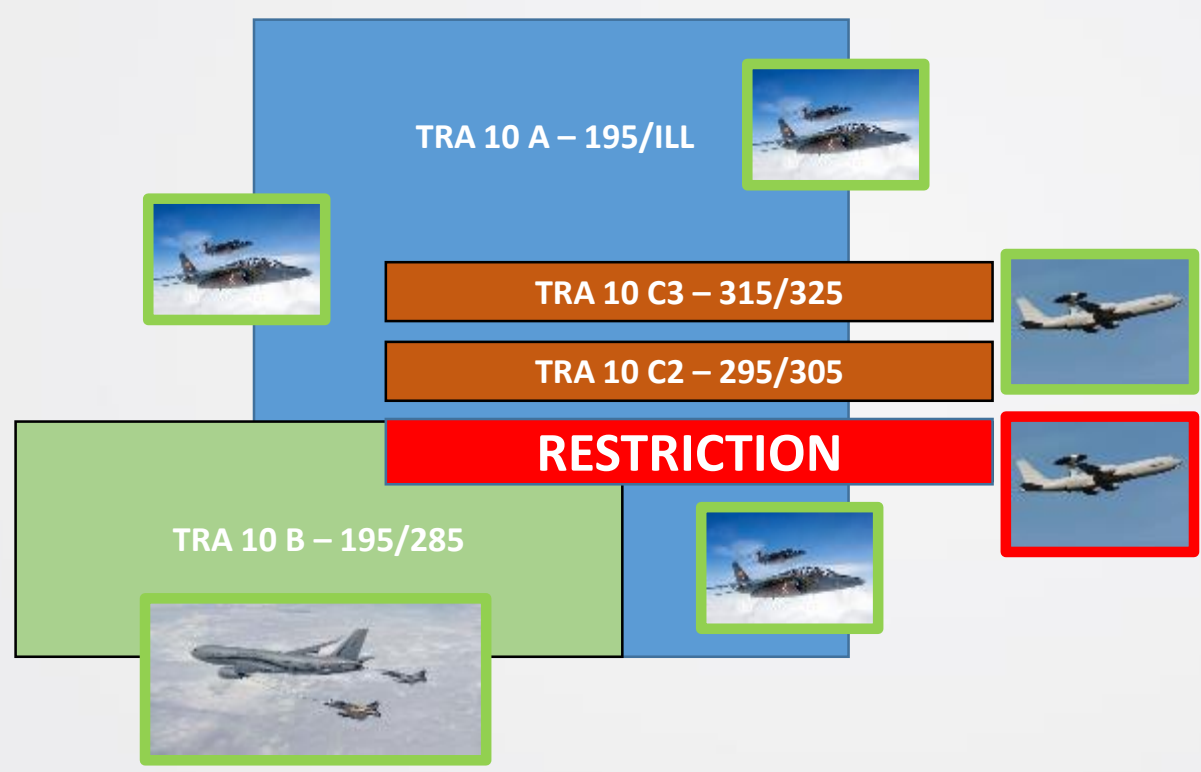
RESTRICTION



TRA 10 B – 195/285



TV 3 related to Paris ACC : Threshold 16 A/C per hour on dedicated routes



Thanks for attention