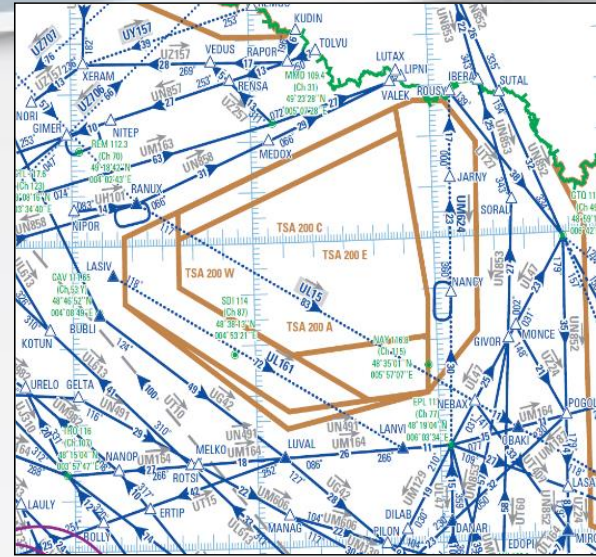
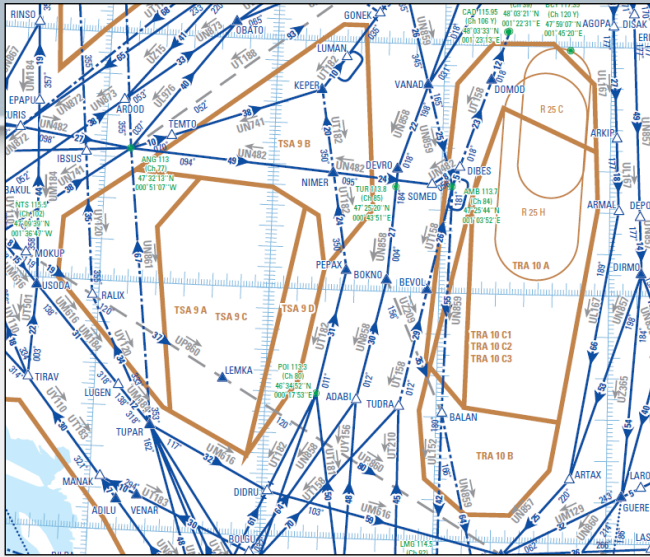




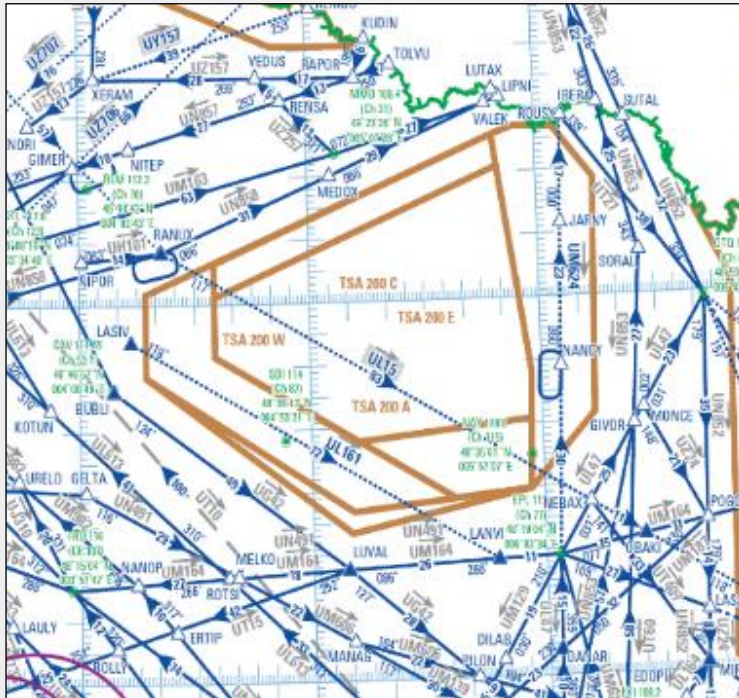
Military contribution to Vertical Flight Efficiency improvement
COL Christophe HINDERMANN
French Military ATM Directorate / Head of ASM division



To tackle both operational and civil flow management requirements
Horizontal adaptations were privileged for more than 20 years in France
 → MVPA concept associated with a national CIV-MIL CDM



To enhance further HFE, France set up since more than 10 years, a novating TRAFFIC LIGHT SCHEME (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 évoluifs 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 évoluifs 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 déterminés 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

In 2019, a trial has been put in place to improve VFE via a TLS process on TRA10 central area

Basic Training



TRA 10 A – 195/ILL

TRA 10 C3 – 315/325

TRA 10 C2 – 295/305

TRA 10 C1 – 275/285

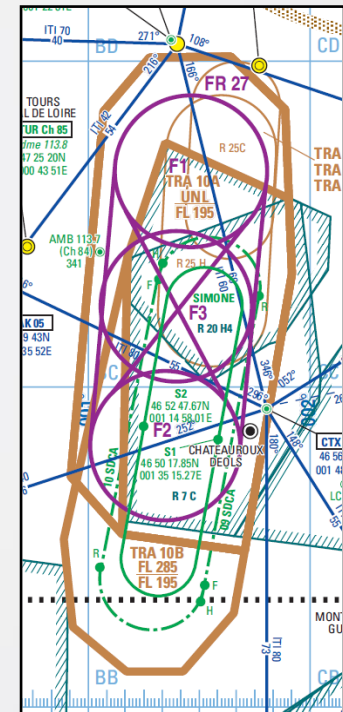


Airborne Early Warning

TRA 10 B – 195/285

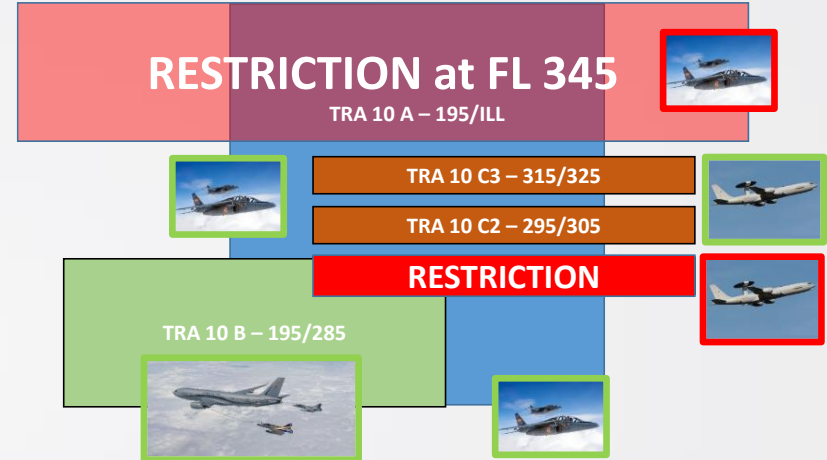
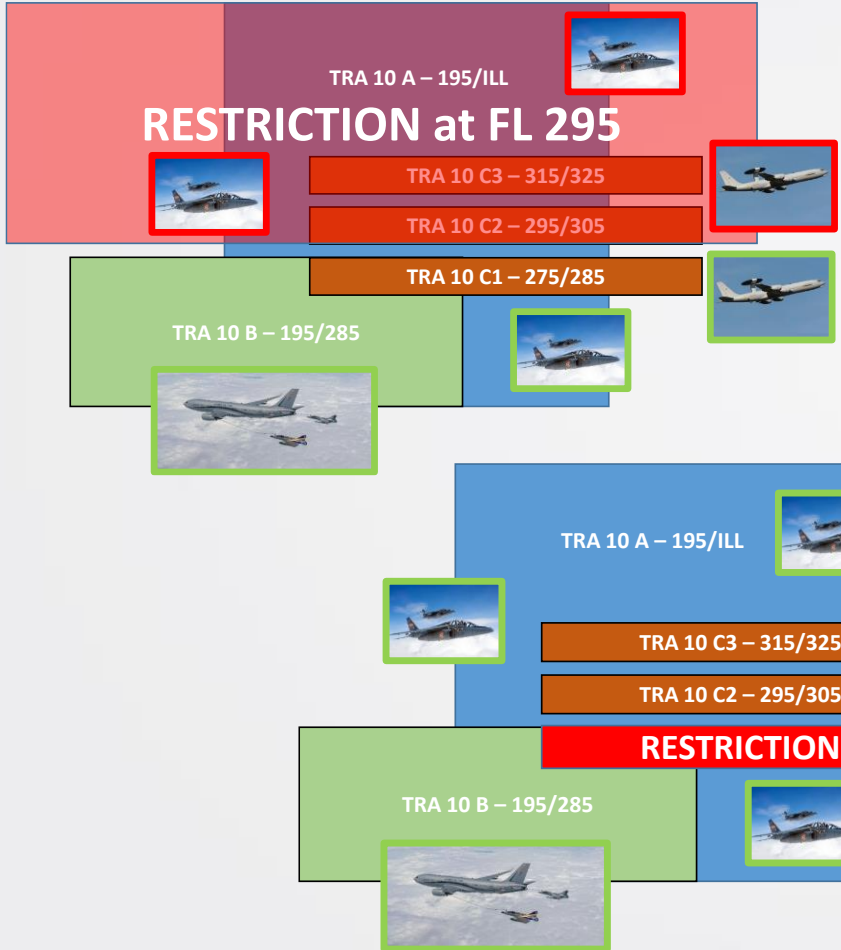


Air to Air Refuelling

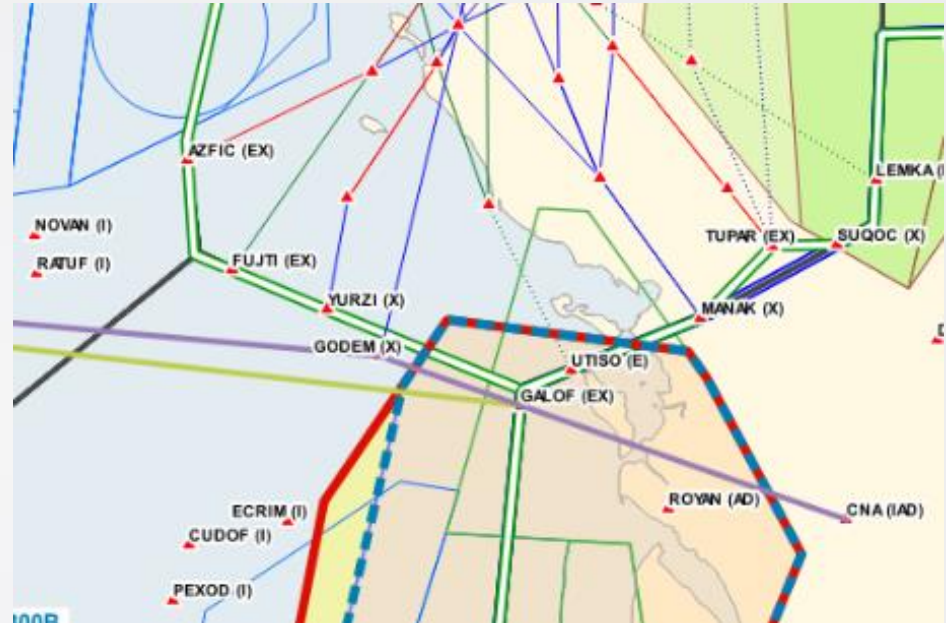
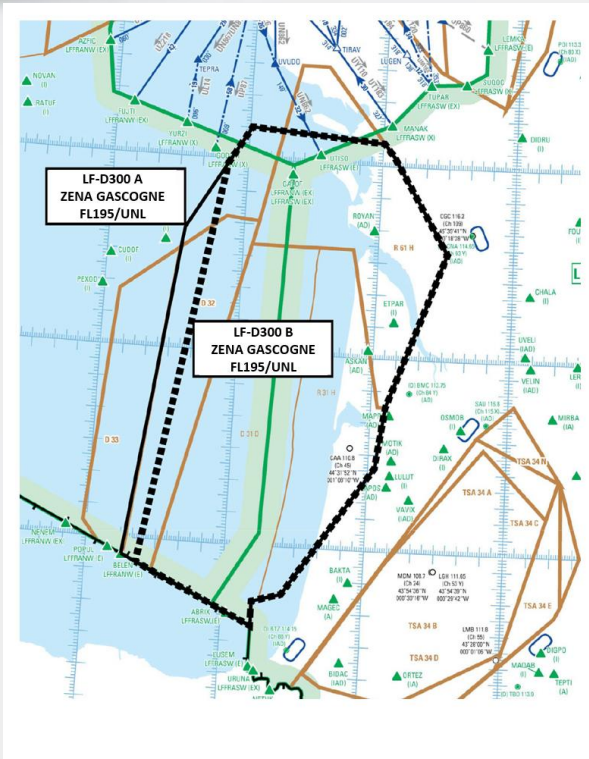


A real Win-Win approach

Both military requirements and civil needs are covered



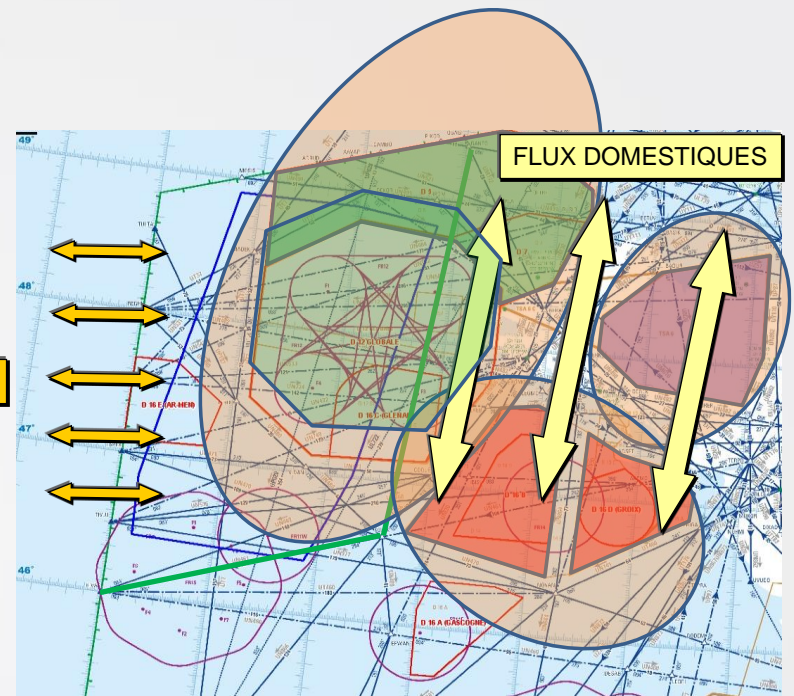
A permanent process since 2021
Daily used 2 or 3 times



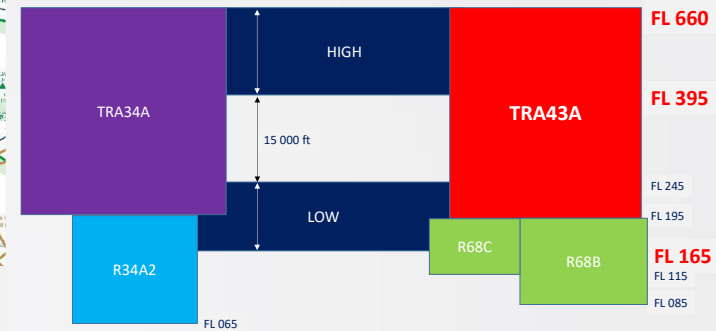
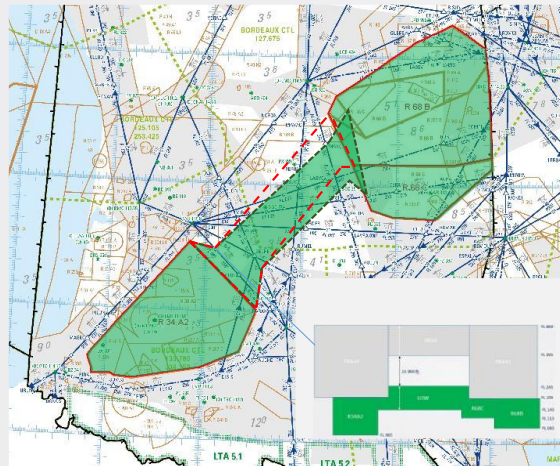
- ZENA GASCOGNE → New Generation Military Training Area → 5th generation fighter, enhanced long-range weapon system
- Strategic flows pre-analysis → GAT flying over FL355 allowed to cross the active area on GODEM-GALOF and RIVAK-GALOF axis on simple notification



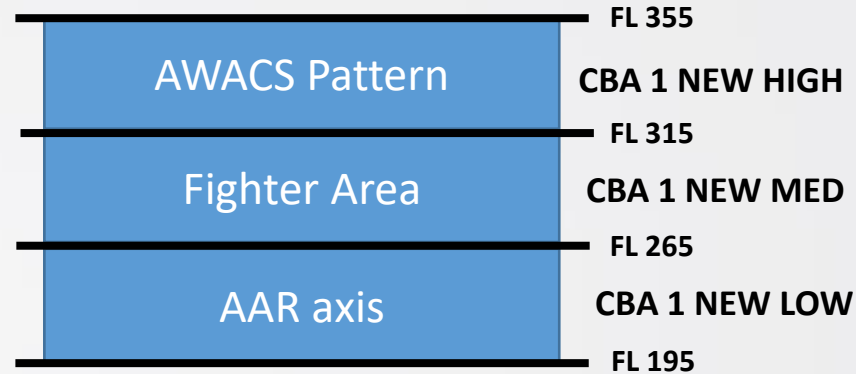
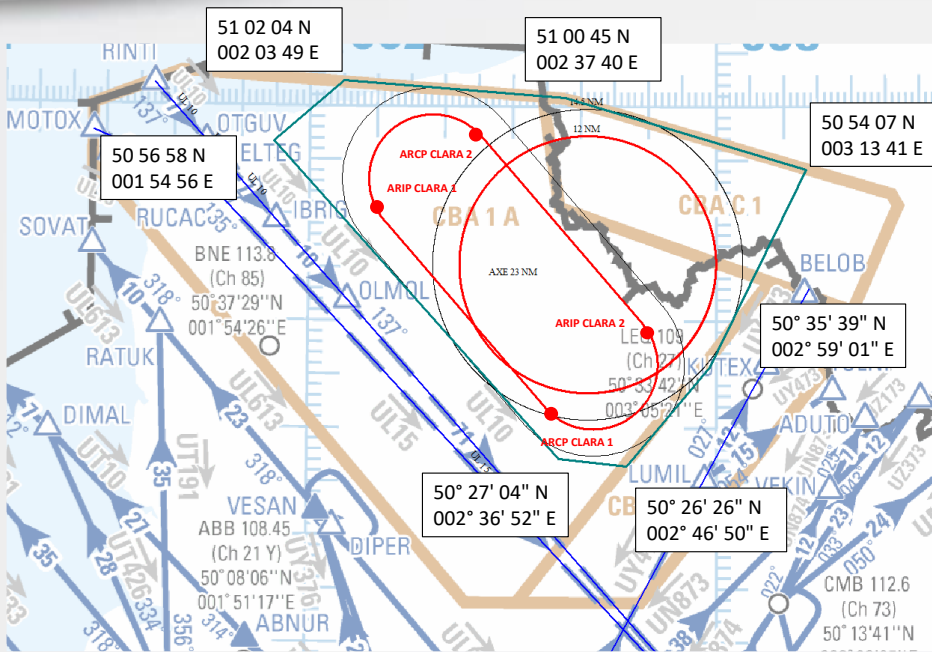
FLUX TRANSAT



- ZENA Atlantic
- « Bubble » approach → Only one area can be activated over FL305



- Corridor approach
- Civil flows less impacted



- **CBA 1 → NATS/FR/BEL bottleneck especially when short-notice activation (Air Policy requirements)**
- **Area not fit for training but essential for time to time AWACS/Fighter/Air-to-Air refuelling missions**
- **Work on CBA evolution in cooperation with DSNA, Reims and Paris ACC.**
- **New area strategically separated from civil tracks**
- **Layer approach related to the missions**
- **Dynamic ASM with activation in accordance with the real planned missions (FA or AAR or AWACS, or 2 of them, or 3 of them)**

Thanks for attention