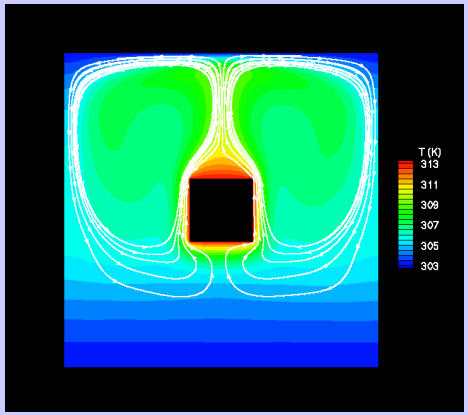
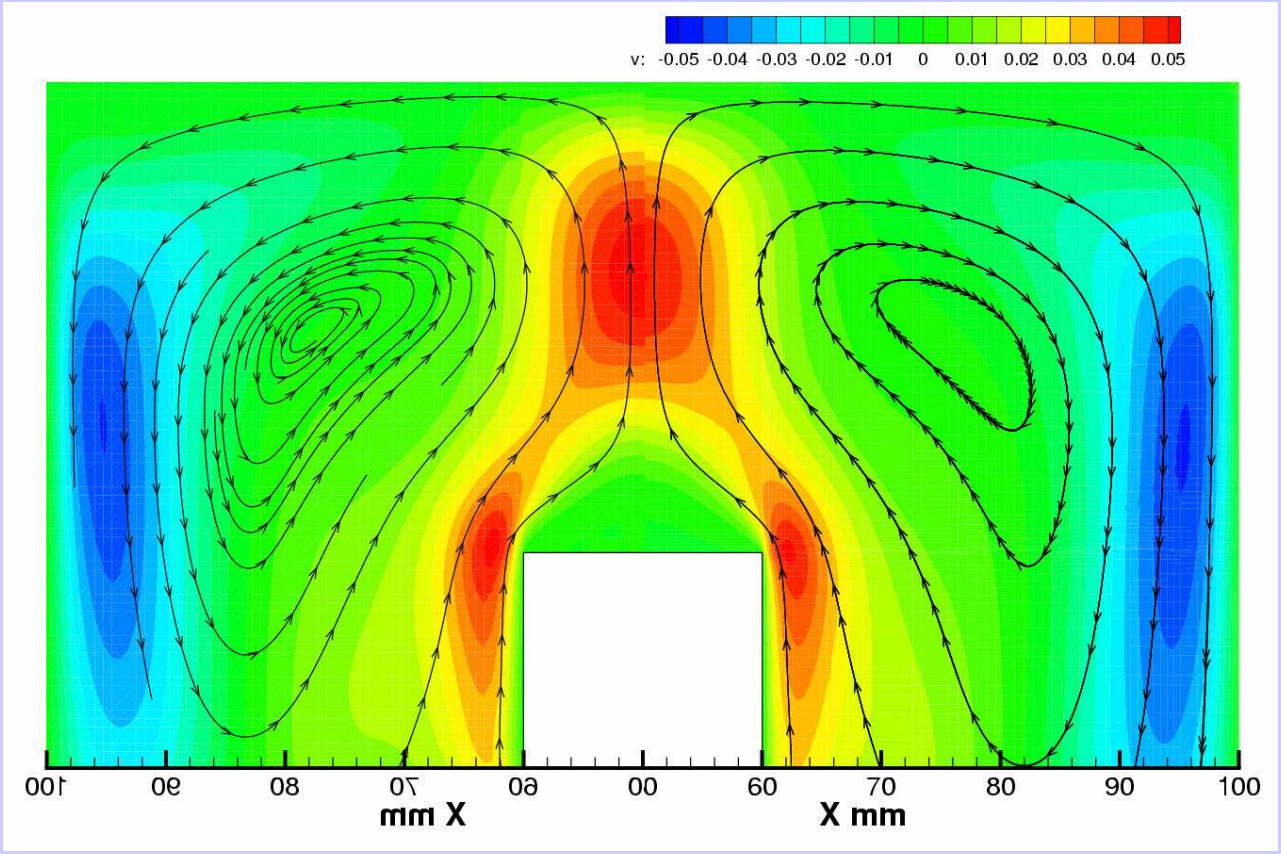
Convection naturelle

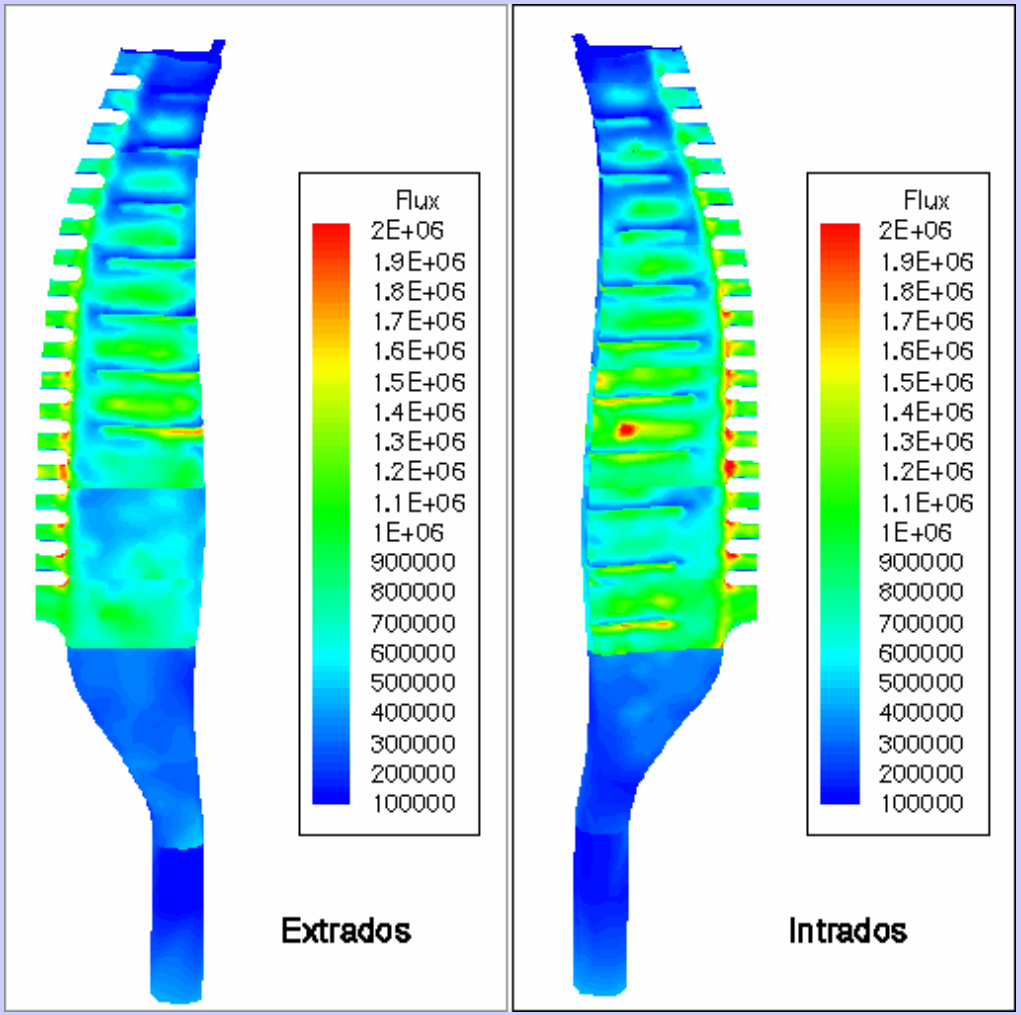


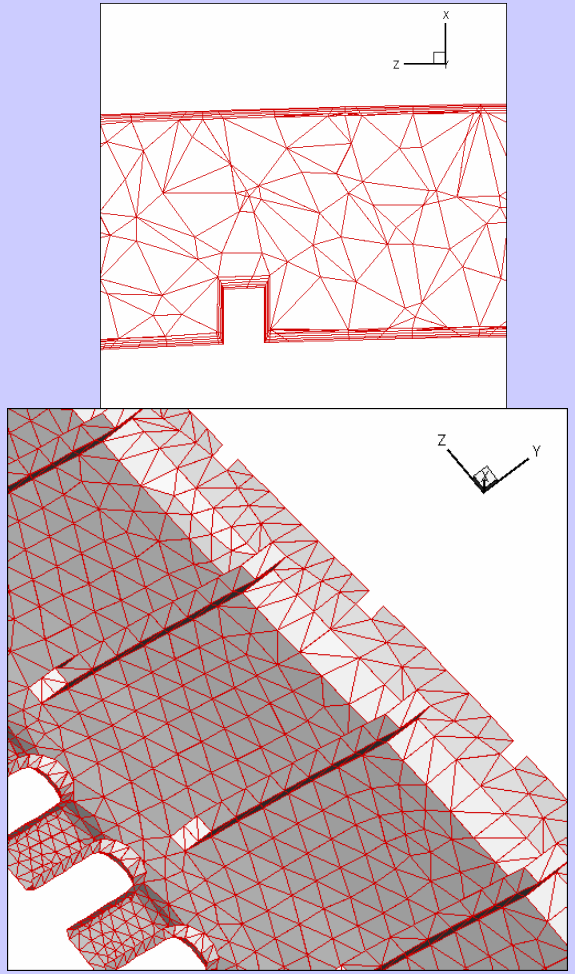


Convection naturelle. Comparaison Expé/calcul du champ de vitesse. Mesures PIV et calcul CEDRE avec pré-conditionnement basse vitesse (thèse L. Perin, DMAE)

ONERA

AEROTHERMIQUE / ARCAE (pour SNECMA)
R. Phibel, E. Laroche (DEFA)

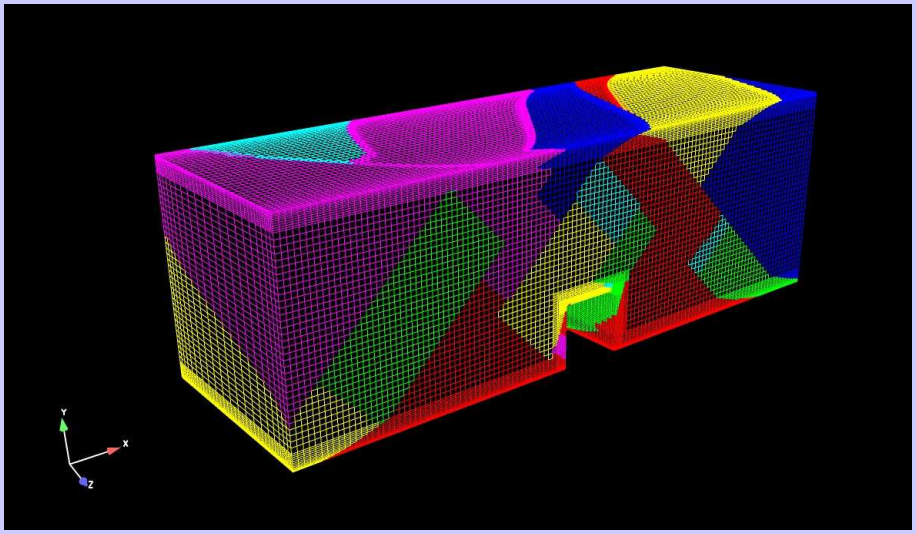


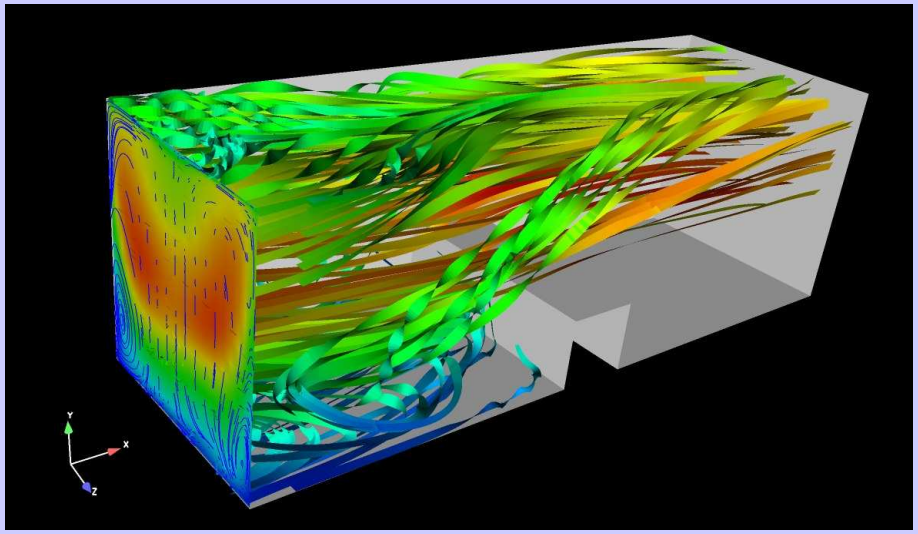


Cavité BF M88
en rotation

ONERA

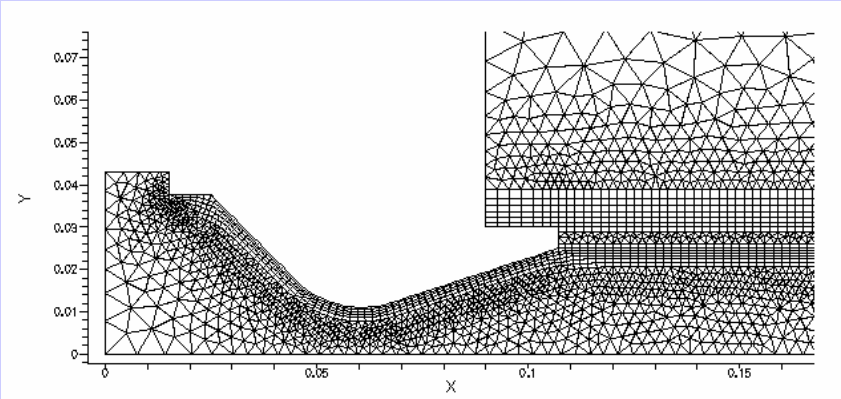
LES en aérothermique.



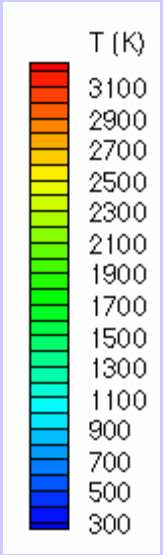


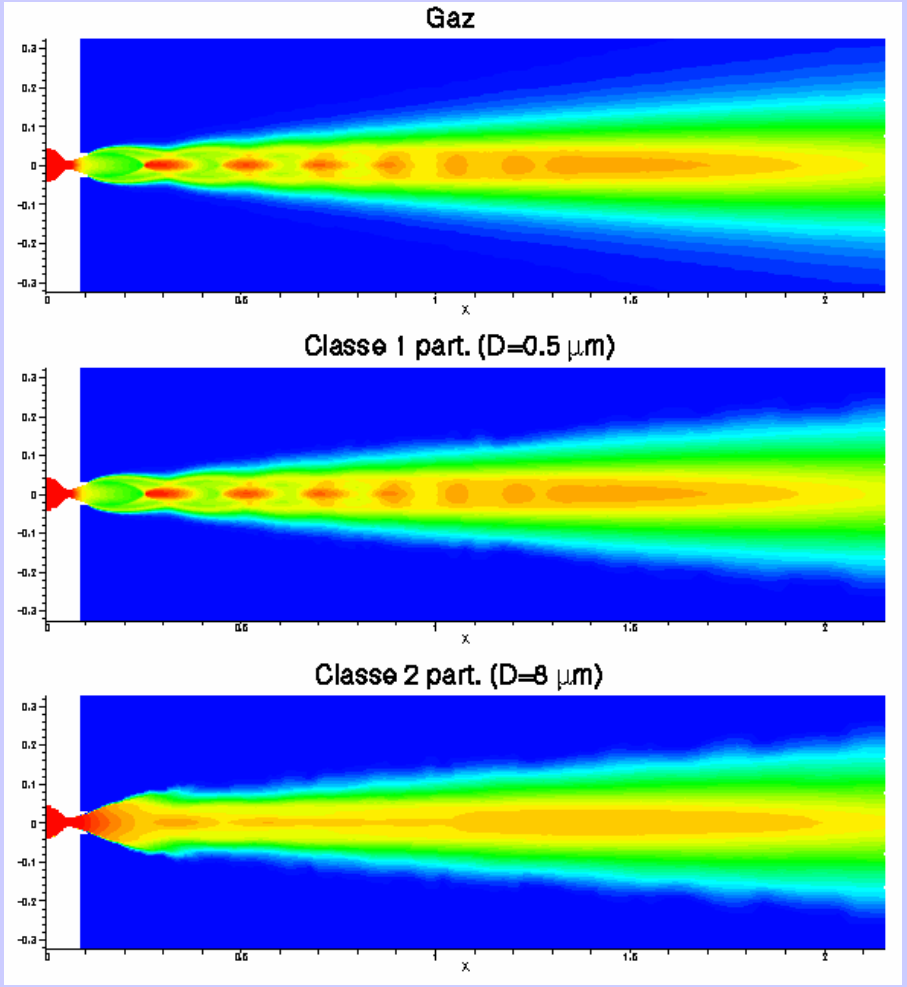
Calcul parallèle (20 processeurs) autour d'un perturbateur rubans de courant coloriés parle module de la vitesse et maillage. Thèse N. Bertier

Exemples de calculs Cedre



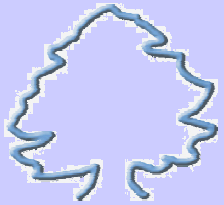
Jet réactif et diphasique du LP11. Calcul CEDRE ONERA/DSNA (Julien Troyes)



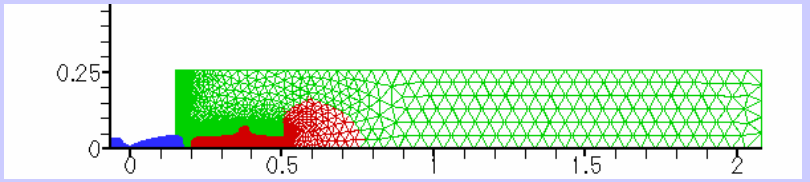


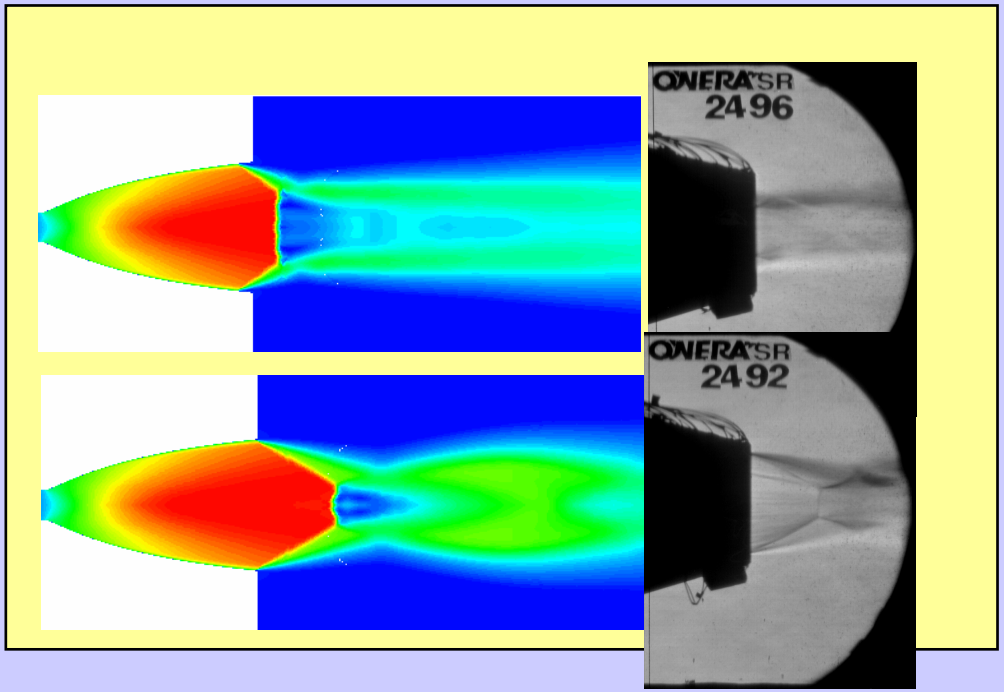
ONERA

Aérodynamique des tuyères sur-détendues



- **Cas FSCD/TIC 2D axi : sur-détendue**
- **Maillage non-structuré CENTAUR**
- **Calcul parallèle**





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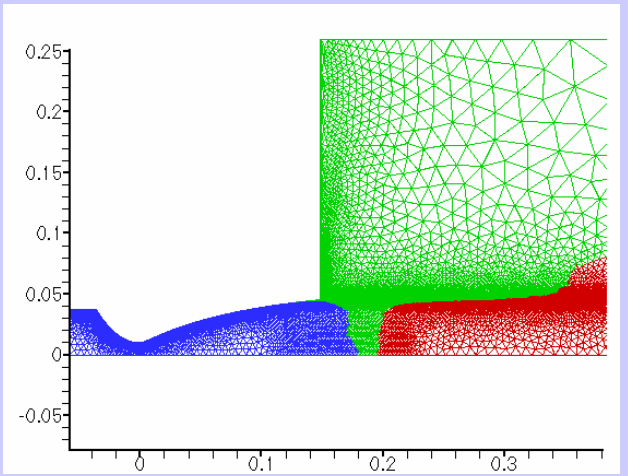

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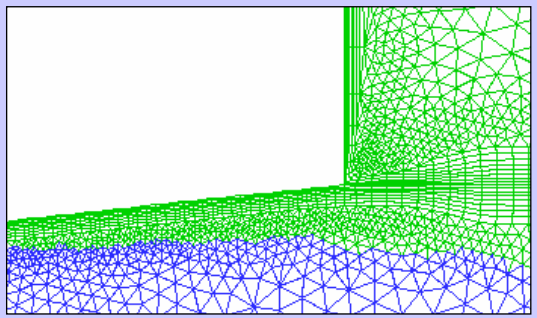
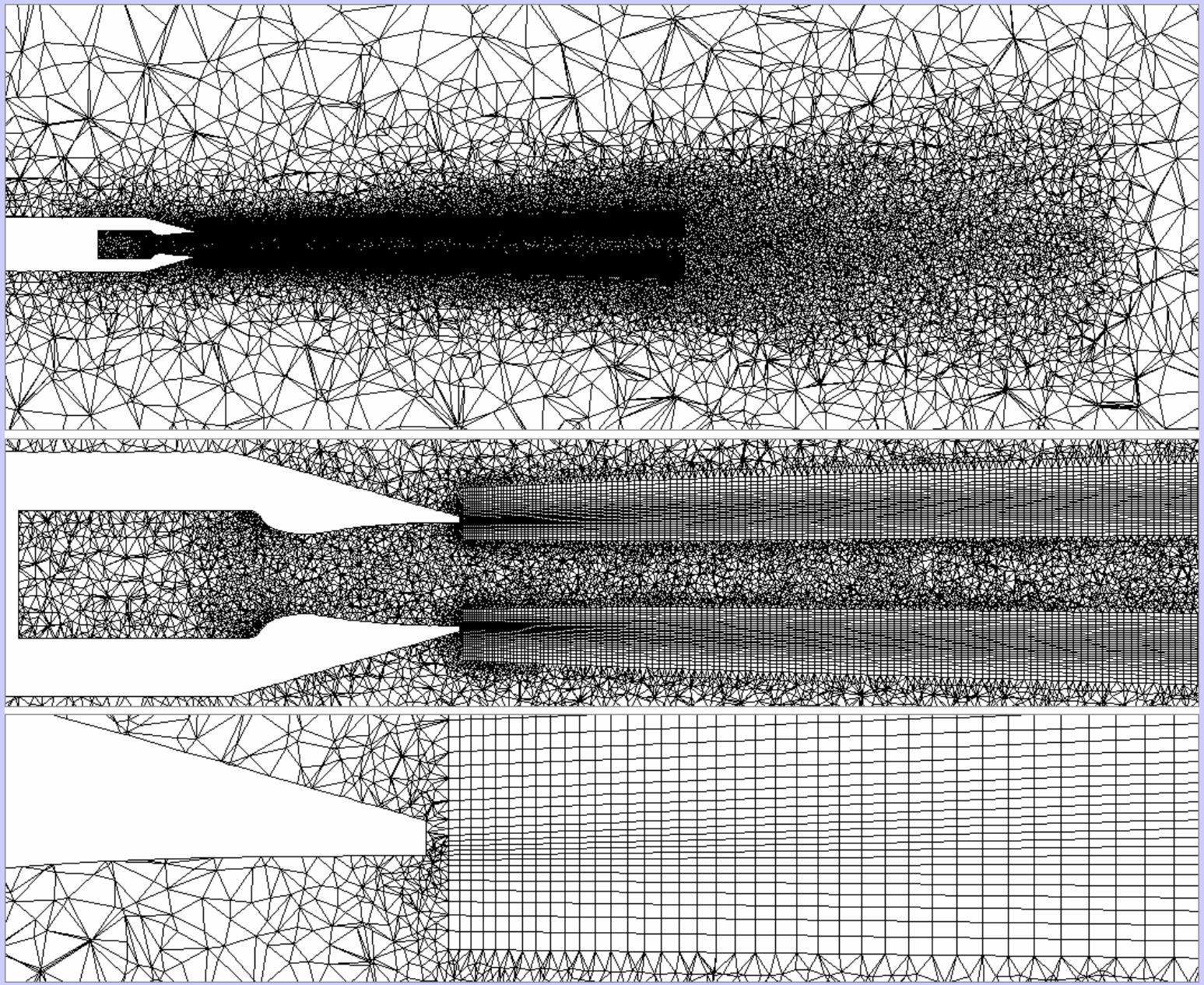
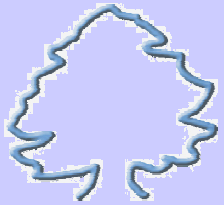


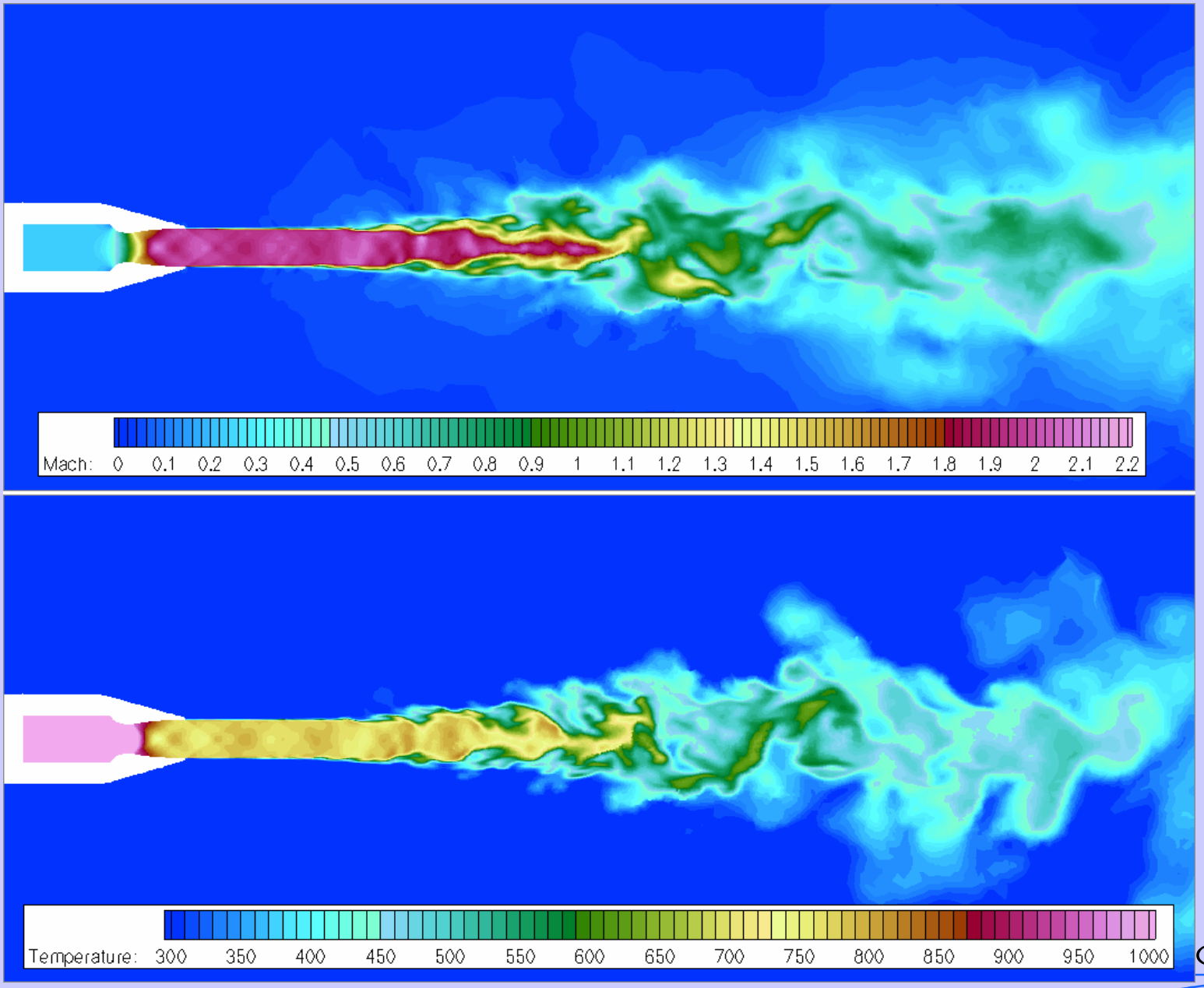
ONERA





Seiner à Mach = 2: zooms du maillage hybride MH avec zone structurée importée

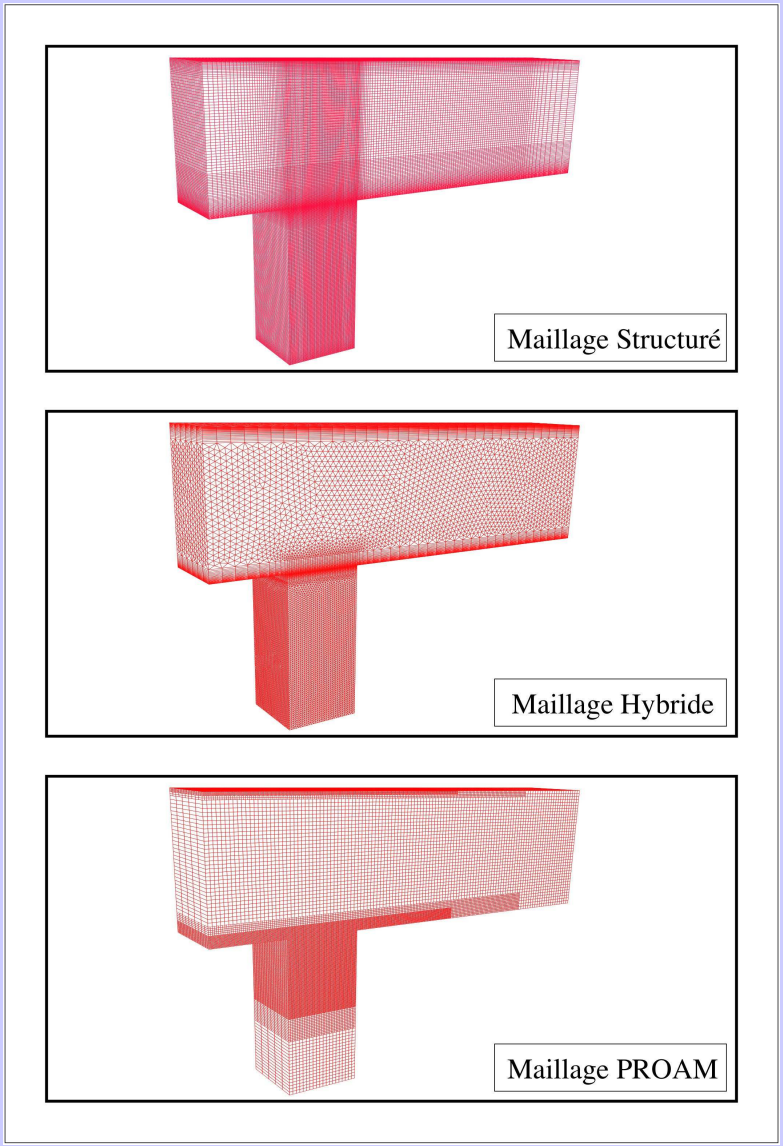
ONERA

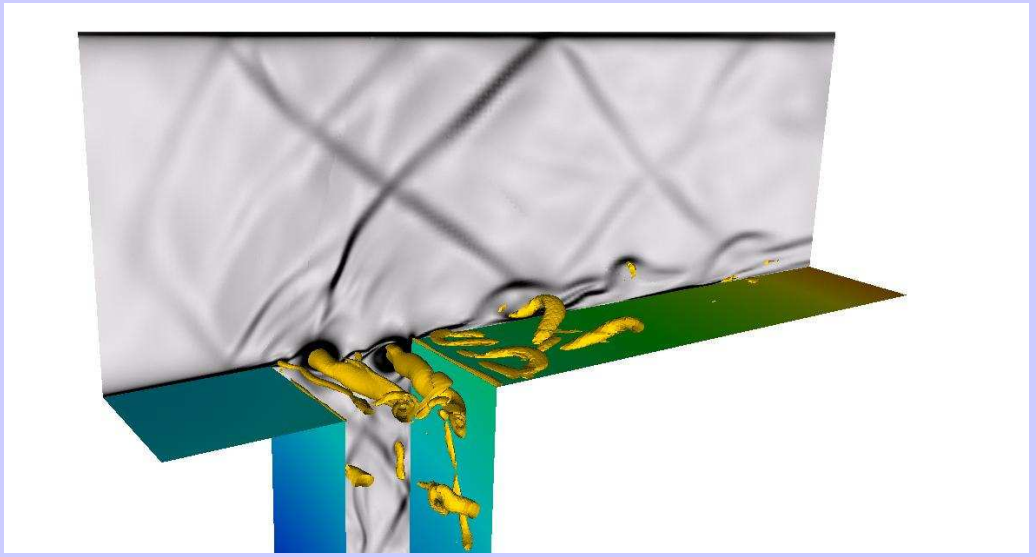


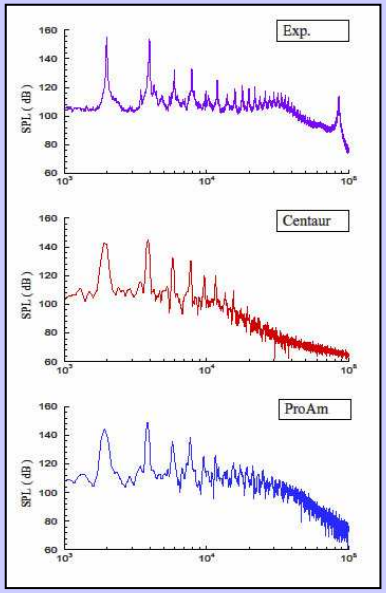
Champs LES Miles du MH : calcul en cours du jet instationnaire

ONERA

CALCULS LES : cavité Jacquin & Forestier, M=0.8, thèse Nicolas Bertier, AIAA 2004-0679



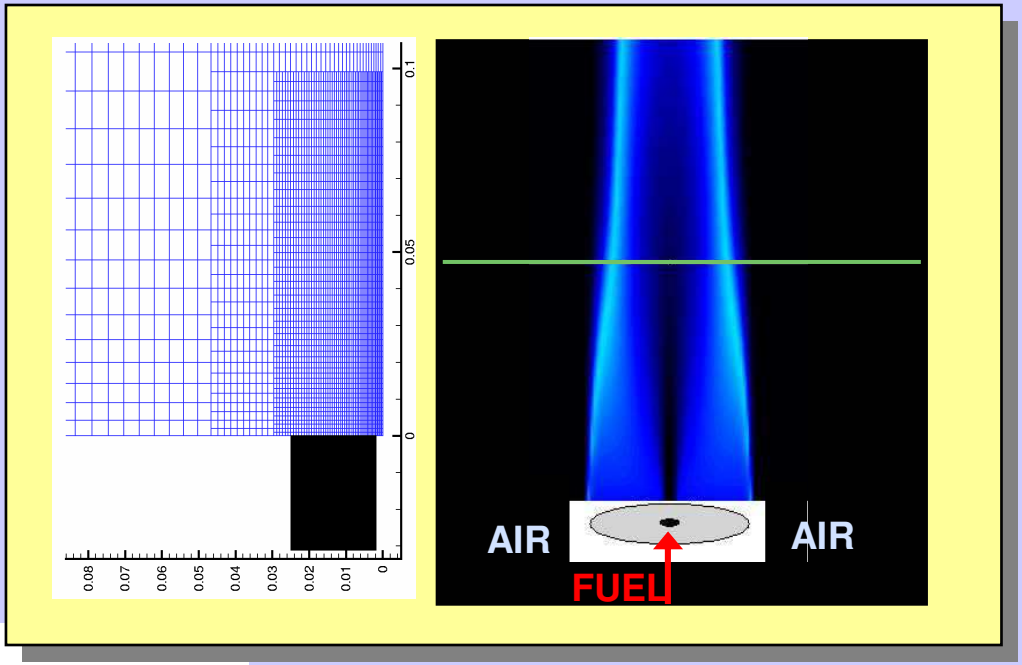


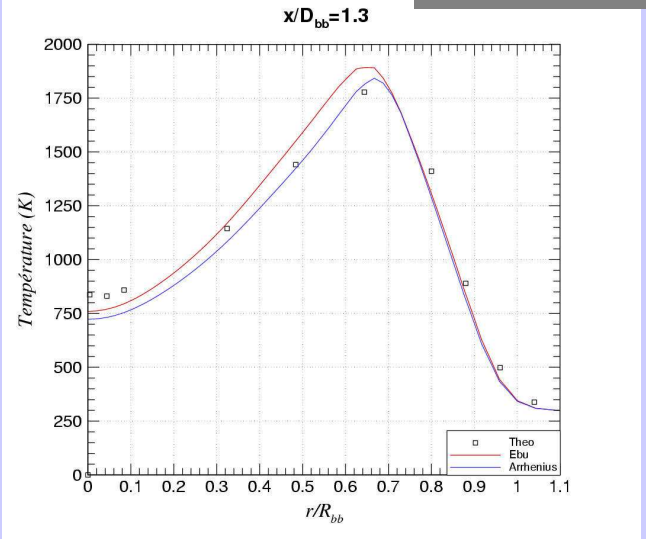


Clip vidéo

ONERA

CAS REACTIFS



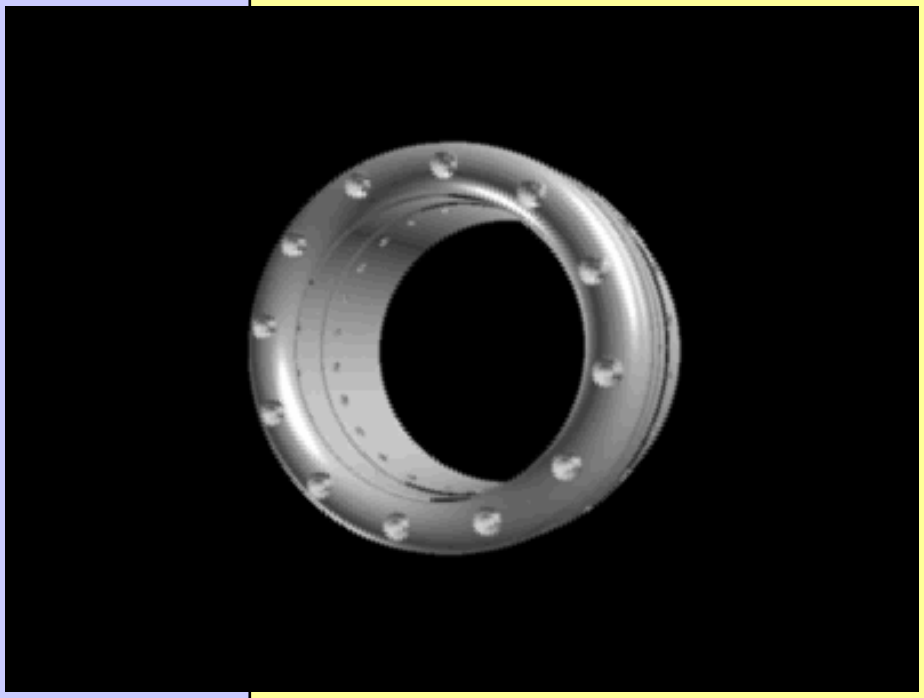


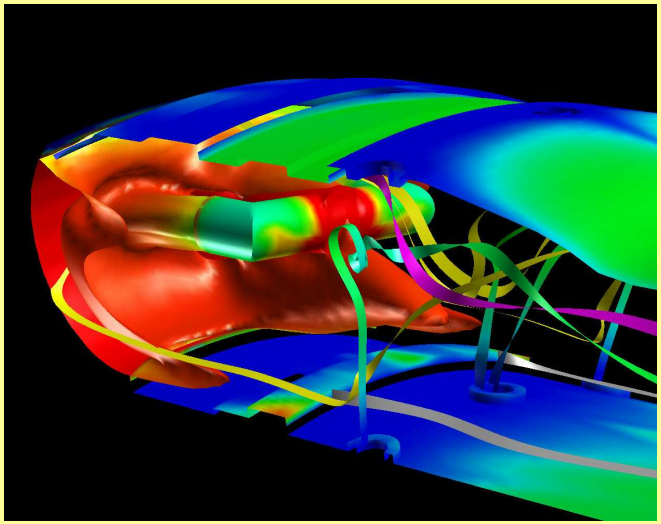
Flamme de Masri et déraffinement de maillage
(ONERA/DEFA, B. Zamuner, S. Groult)

ONERA

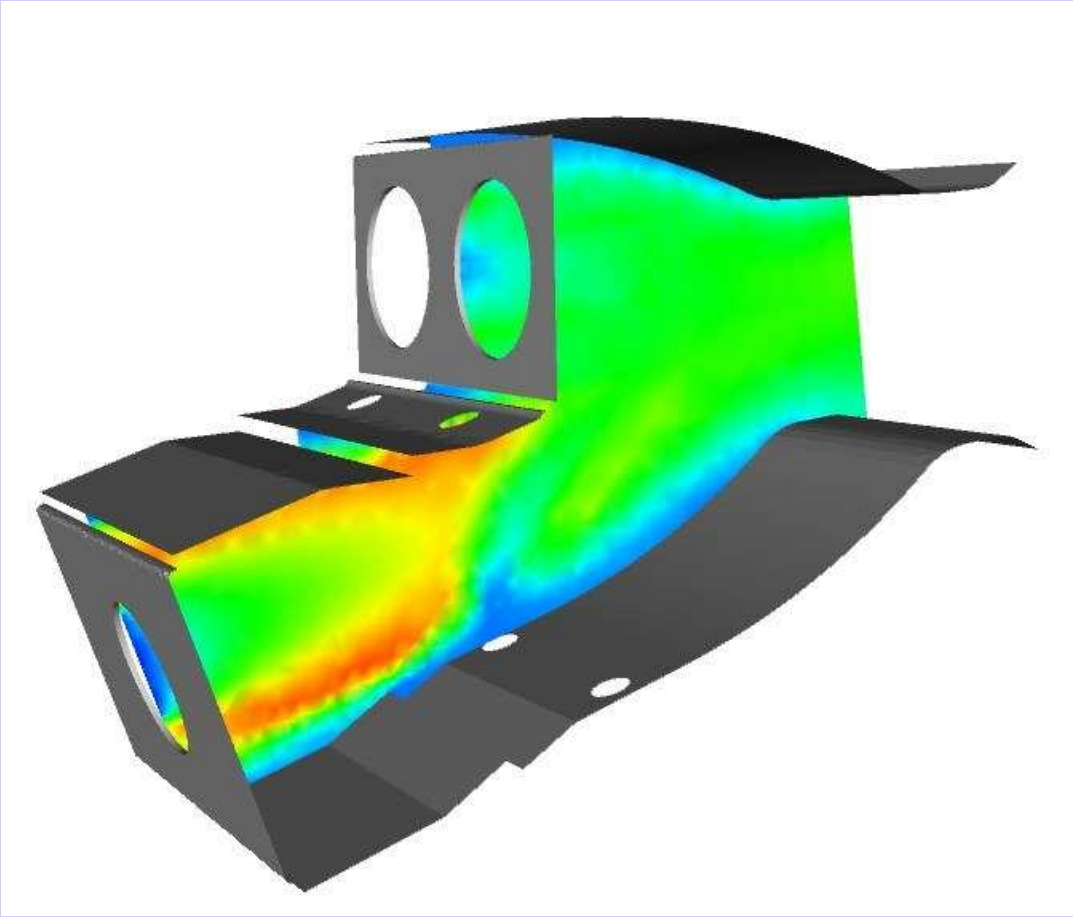
CAS REACTIFS

- Turbomeca/T3V2. (calcul ONERA/DSNA, D. Dutoya)





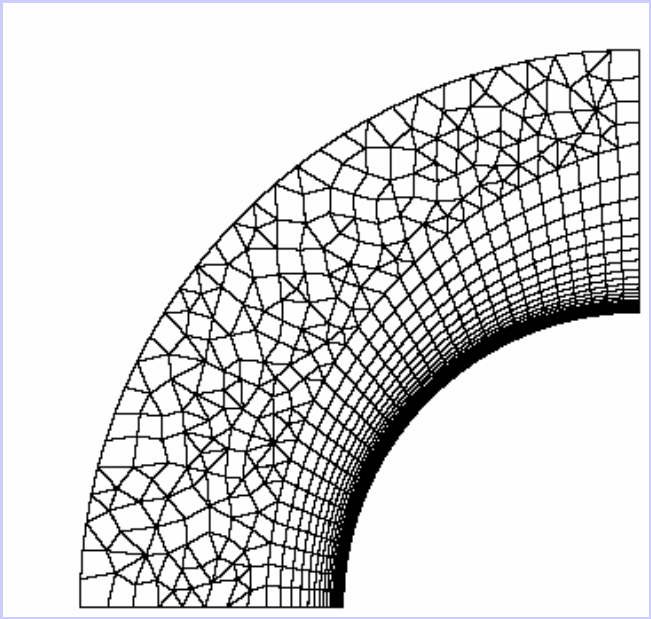
Exemples de calculs Cedre

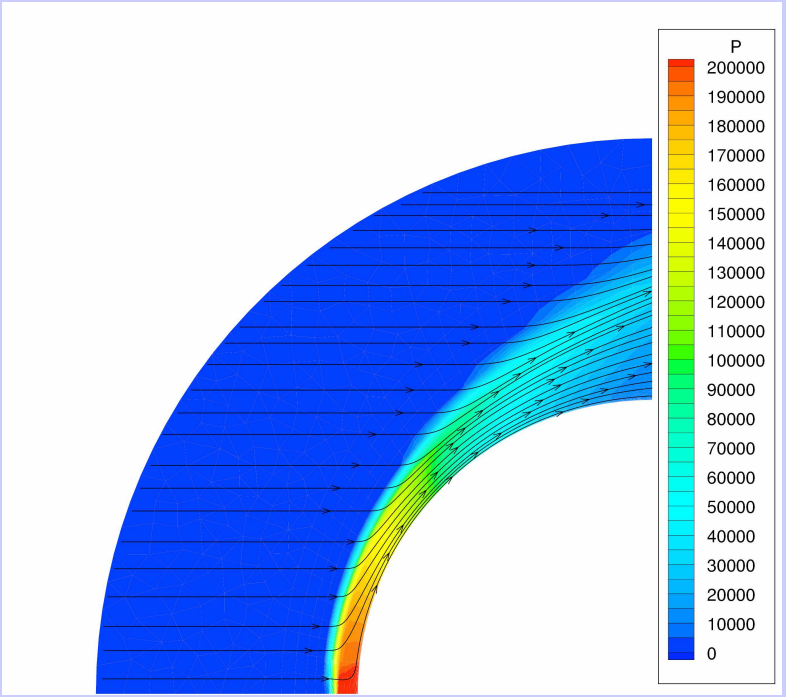


Combustion dans une chambre "à 2 têtes".
Calcul CEDRE ONERA/DEFA (Raphaëlle Lecot)

ONERA

HYPERSONIQUE : Sphère de Lobb

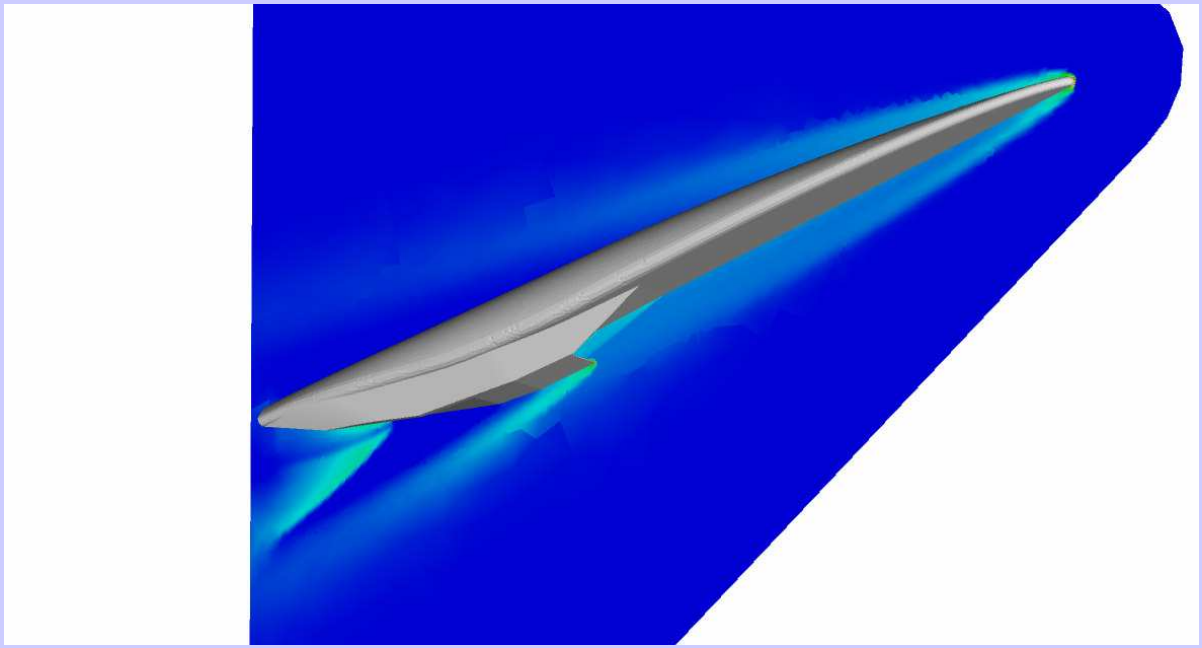




Cas de la sphère de Lobb à Mach 15. Cas réactif (5espèces, 17 réactions chimiques) Maillage et champ de pression. Collaboration DSNA/DMAE

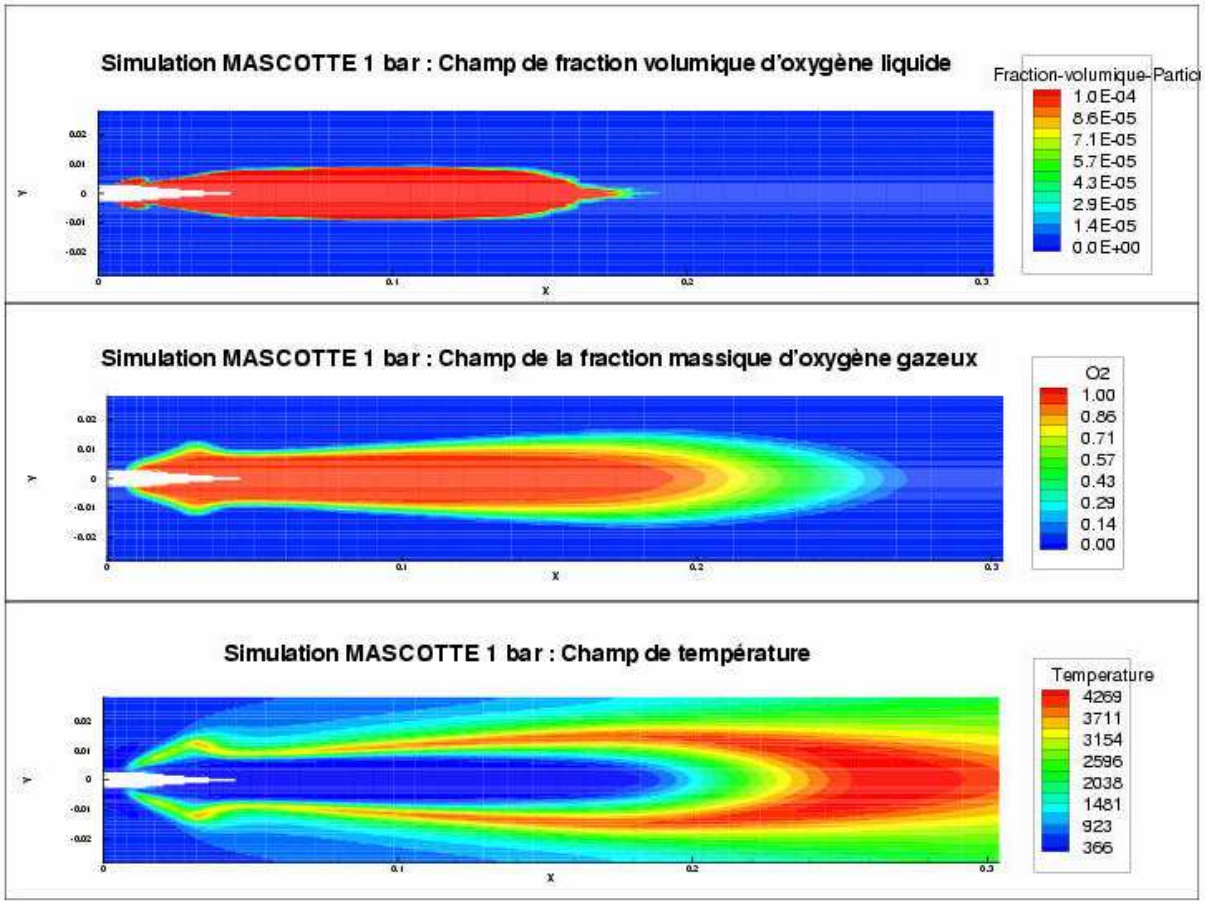
ONERA

Propulsion hypersonique



Champ de pression pour un véhicule hypersonique à Mach 8,
V. Quintilla, D. Scherrer (DEFA)

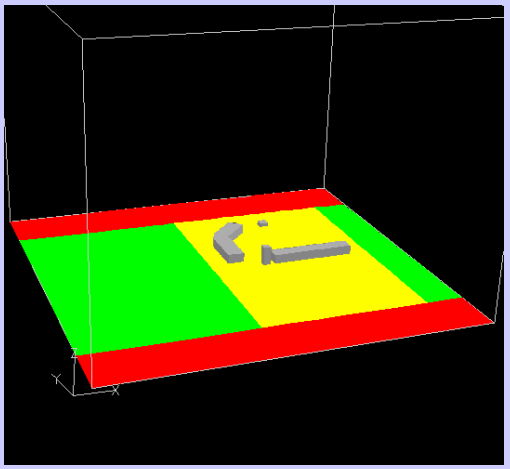
Calcul MASCOTTE premier calcul diphasique lagrangien (CHARME/SPARTE)



- Calcul 2D axi 1690 cellules
- Pression 1 bar
- Gouttes Lox diamètre 50 microns
- Couplage instationnaire convergence en 5000 it

ONERA

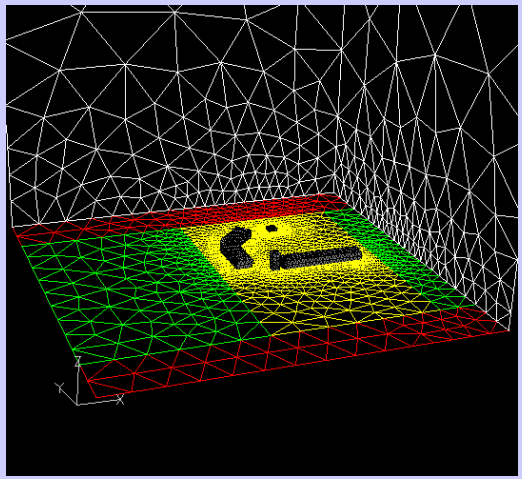
PRF AIRPUR : modèle Orly1

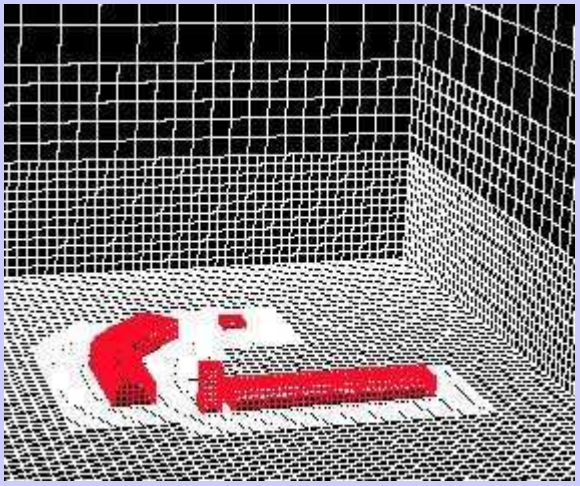


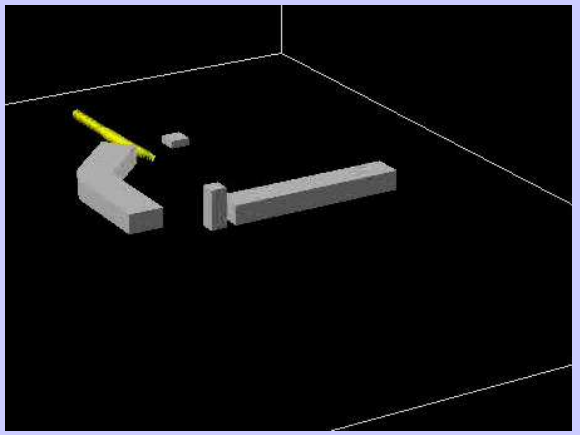
- **Plusieurs échelles**
  - bâtiments : 1-100 m
  - piste : 10-1000 m
  - Domaine : 2000x2000x1500 m^3
- **Deux maillages**
  - Centaur : tétraèdres, 30 000 mailles
  - Pro-Am : hexaèdres + raffinements + intersections, 130 000 mailles
- **Basses vitesses (2 - 20 m/s)**
- **Dispersion de polluants (source Z3)**

Clip vidéo

Convergence (entropie et isolignes Z3)





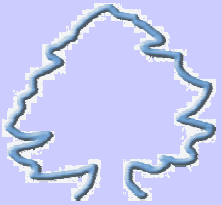


Animation iso surfaces Z3

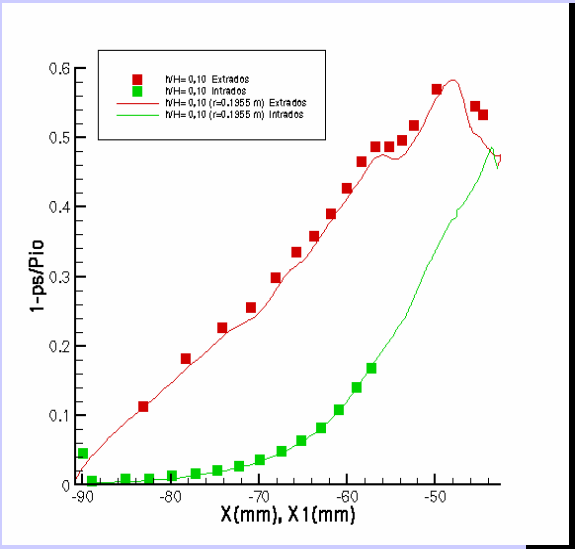
J. Troyes, F. Vuillot, B. Courbet (DSNA), E. Laroche (DEFA)

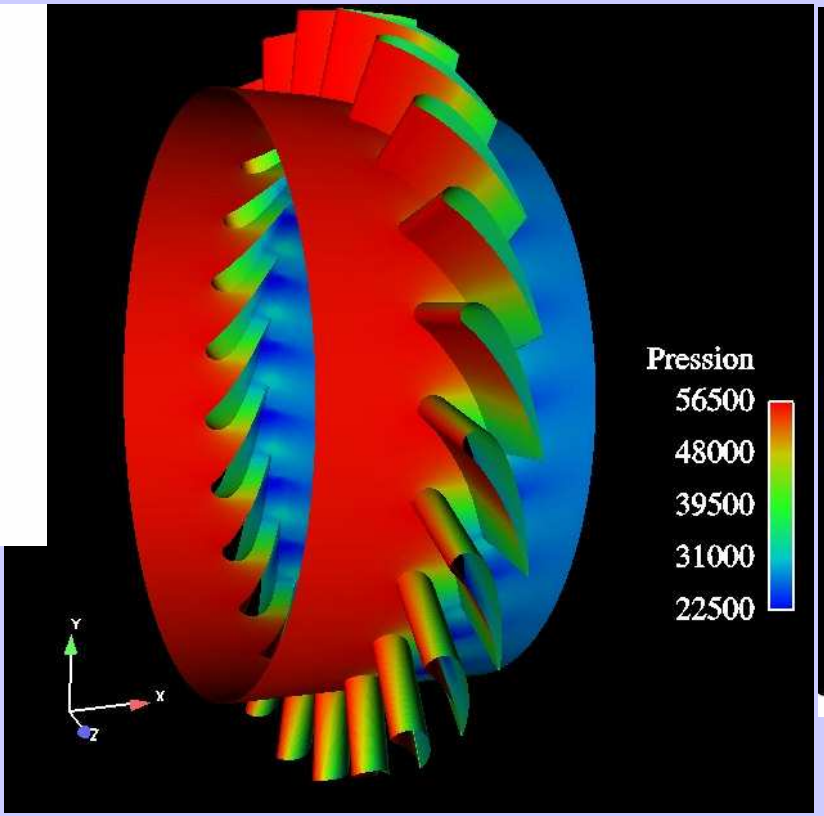
ONERA

Distributeur VEGA2 : premiers calculs



- **Deux maillages**
  - Structuré 810 000 mailles, bas Re ($y^+<1$)
  - Hybride 950 000 mailles , idem
- **Convergence rapide : 500 itérations à partir du repos**





L. Castillon, A. Fourmaux (DAAP),
E. Laroche (DEFA), F. Vuillot (DSNA)

ONERA