

## Test Calculation of Flow Field Around ONERA M6 Using the Fluid Numerical Instruments Software Package (FNI)

Objectives:

- to compare the computational results obtained in the FNI package and the experimental results of research in AGARD Institute;
- to compare the computational results obtained in the FNI package and the computational results obtained using Wing-US CFD code (<http://www.grc.nasa.gov/WWW/winddocs/>).

The computational grid and problem definition are referred to **NPARC Alliance Validation Archive** web site (<http://www.grc.nasa.gov/WWW/wind/valid/m6wing/m6wing.html>).

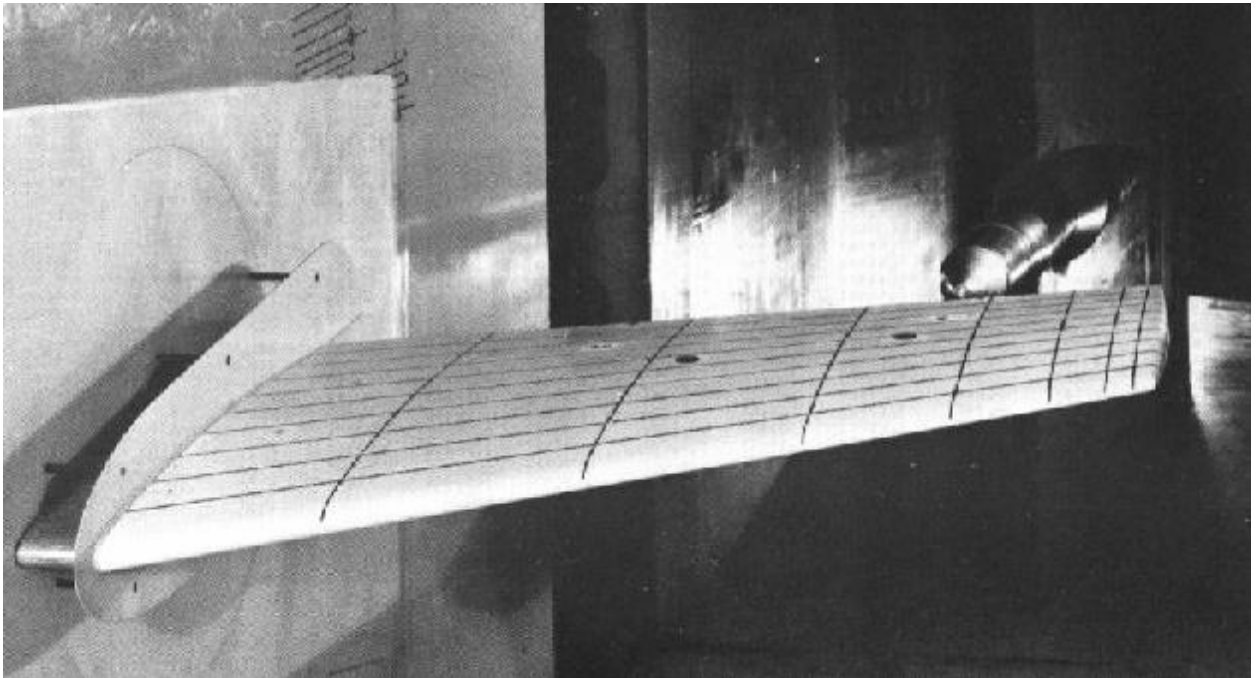


Fig.1. ONERA M6 Wing.

Mach number	Re number	Angle of attack, (degree)
0.8395	11.72E+06	3.06

FIGURE B1-1

SWEPT WING M6

Aspect ratio  $A = 3.8$   
 Taper ratio  $\lambda = 0.56$   
 Sweep angle  $\Lambda_{25\%} = 26.7^\circ$

ROWS OF PRESSURE TAPS

N°	y/b	upper	under
1	0.20	23	11
2*	0.44	23	11
3	0.65	23	11
4	0.80	23	11
5	0.90	31	14
6	0.95	31	14
7	0.99	31	14

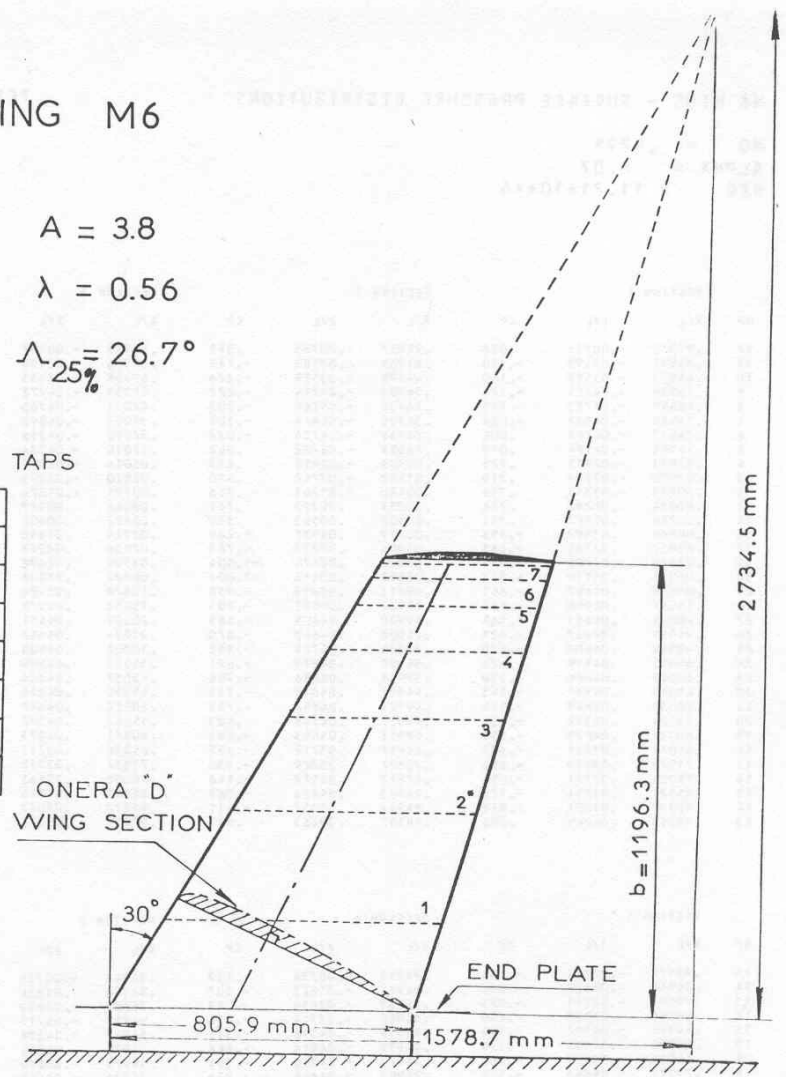


Fig.2. ONERA M6 Wing Geometry.

## Calculation results

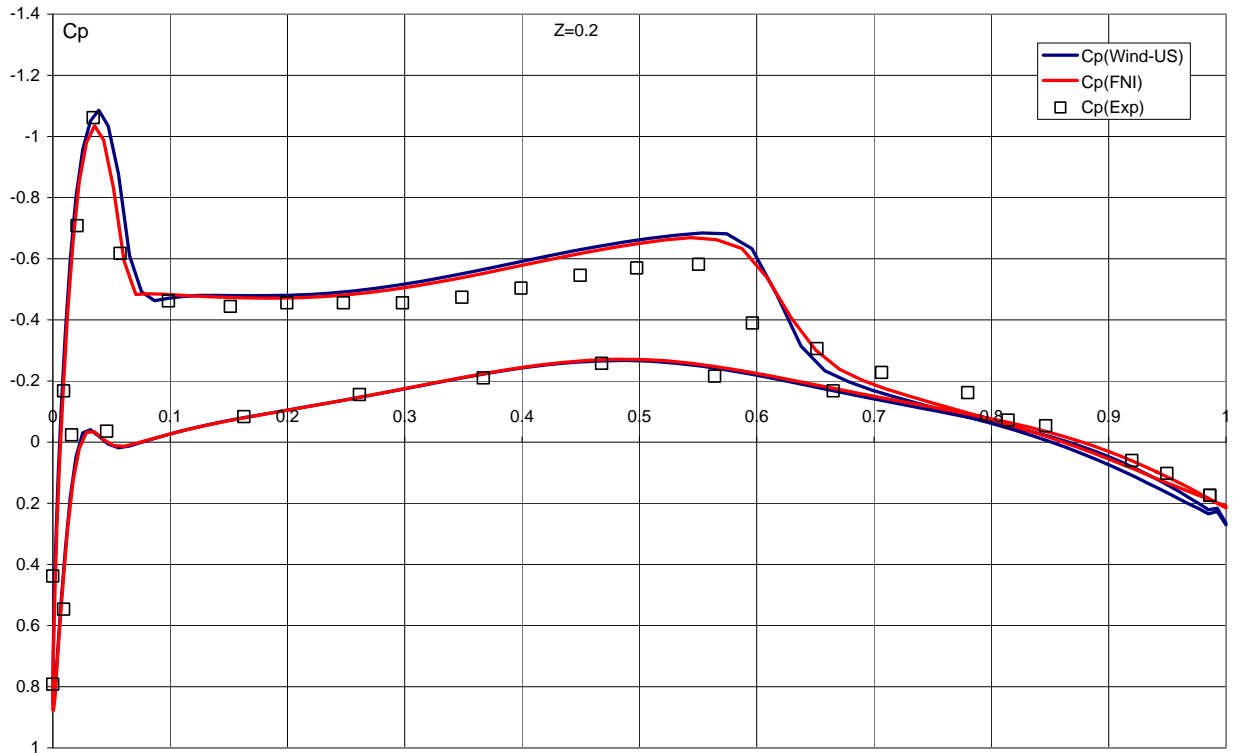


Fig.3. Pressure coefficient distribution in the wing section ( $Z_{\text{relative}}=0.2$ ).

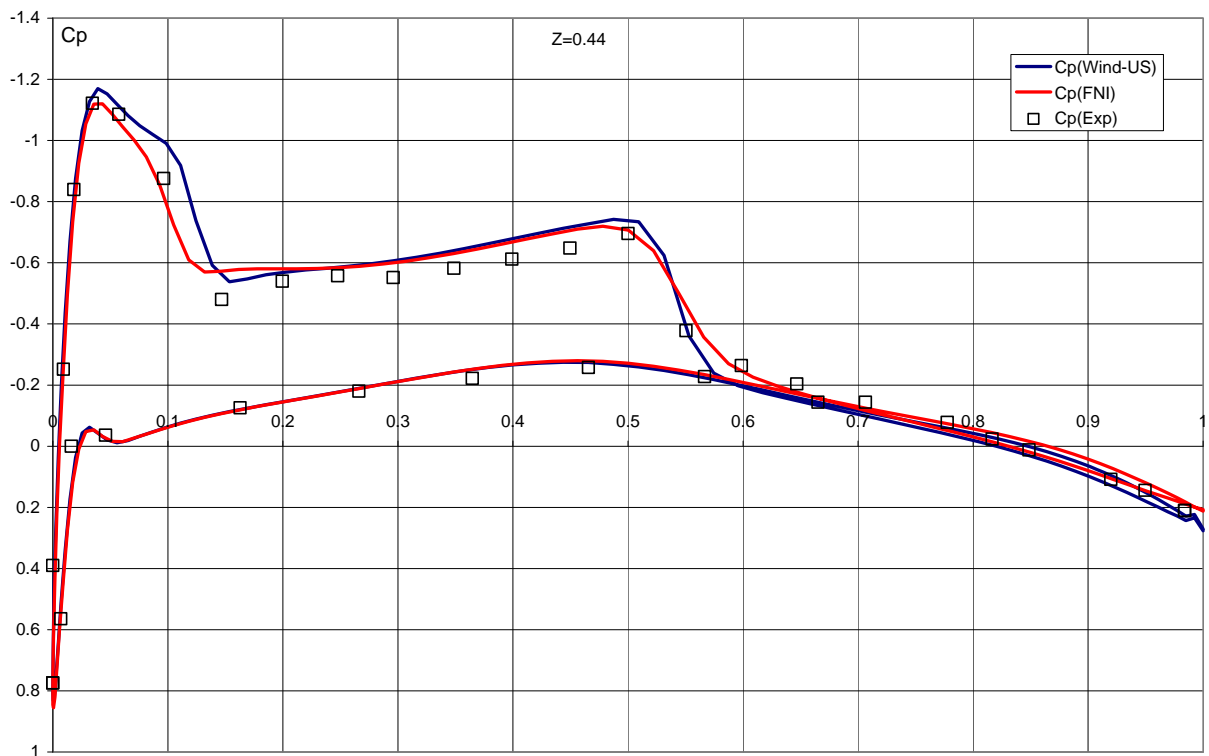


Fig.4. Pressure coefficient distribution in the wing section ( $Z_{\text{relative}}=0.44$ ).

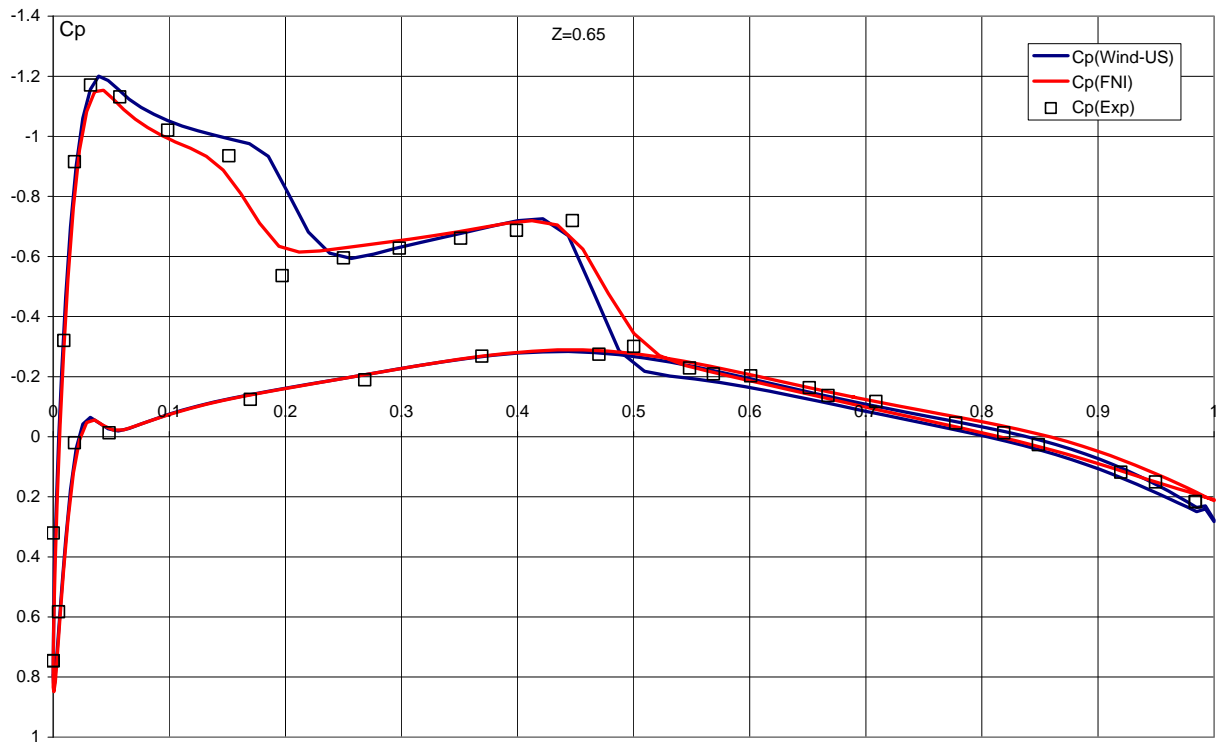


Fig.5. Pressure coefficient distribution in the wing section ( $Z_{\text{relative}}=0.65$ ).

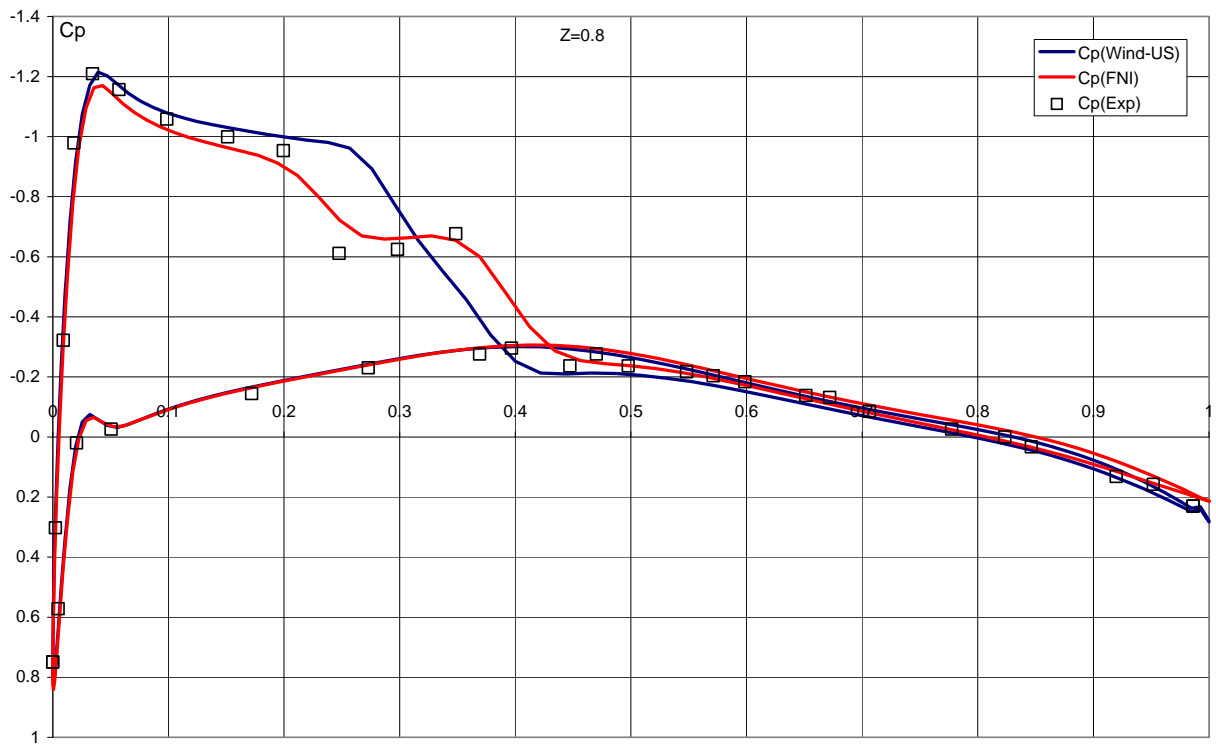


Fig.6. Pressure coefficient distribution in the wing section ( $Z_{\text{relative}}=0.8$ ).