



UNIVERSITAT POLITÈCNICA DE CATALUNYA  
BARCELONATECH

Escola Superior d'Enginyeries Industrial,  
Aeroespacial i Audiovisual de Terrassa

# Estudi numèric del desprendiment de la capa límit en un perfil alar

Document:

Annexos

Autor:

Pol Solé Miró

Director:

Dr. Josep Maria Bergadà Granyó

Titulació:

Grau en enginyeria en tecnologies aeroespacials

Convocatòria:

Primavera Pròrroga, 2021

TREBALL FINAL D'ESTUDIS

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# 1 Annexos

En el present document s'inclouen els diccionaris d'OpenFOAM emprats.

## 1.1 controlDict

```
1 /*----- C++
2  *-----*\
3  ===== |
4  \ \ / / F i e l d | OpenFOAM: The Open Source CFD Toolbox
5  \ \ / / O p e r a t i o n | Website: https://openfoam.org
6  \ \ / / A n d | Version: 8
7  \ \ / / M a n i p u l a t i o n |
8  \*-----*/
9  FoamFile
10 {
11     version      2.0;
12     format       ascii;
13     class        dictionary;
14     object       controlDict;
15 }
16 // *****
17 //
18 application     pimpleFoam;
19 startFrom       latestTime;
20
21 startTime       0;
22
23 stopAt          endTime;
24
25 endTime         40;
26
27 deltaT          0.00001;
28
29 writeControl    adjustableRunTime;
30
31 adjustTimeStep  yes;
32
33 maxCo 0.8;
34
35 writeInterval   0.001;
36
37 purgeWrite      0;
38
39 writeFormat     ascii;
40
```

```
41 writePrecision 8;
42
43 writeCompression off;
44
45 timeFormat general;
46
47 timePrecision 8;
48
49 runTimeModifiable true;
50
51 functions
52 {
53
54 #includeFunc residuals
55 #includeFunc "forceCoeffsIncompressible"
56 #includeFunc "forcesIncompressible"
57 forces
58 {
59     type forceCoeffs;
60     libs ( "libforces.so" );
61     writeControl timeStep;
62     writeInterval 1;
63     patches ("Extrados" "Intrados");
64     rho rhoInf;
65     log true;
66     rhoInf 1;
67     liftDir (-0.2419218955 0.970295726 0);
68     dragDir (0.970295726 0.2419218955 0.);
69     CofR (0 0 0);
70     pitchAxis (0 0 1);
71     magUInf 30;
72     lRef 1;
73     Aref 1;
74 }
75
76 // *****
77 //
```

## 1.2 fvSchemes

```
1 /*----- C++
2  |
3  | \ \ / / F i e l d | OpenFOAM: The Open Source CFD Toolbox
4  | \ \ / / O p e r a t i o n | Website: https://openfoam.org
5  | \ \ / / A n d | Version: 8
6  | \ \ / / M a n i p u l a t i o n |
7 \*-----
8 */
```

```
8 FoamFile
9 {
10     version      2.0;
11     format       ascii;
12     class        dictionary;
13     object       fvSchemes;
14 }
15 // * * * * *
16 //
17 ddtSchemes
18 {
19     default      CrankNicolson 0.9;
20 }
21
22 gradSchemes
23 {
24     default      Gauss linear;
25
26     limited      cellLimited Gauss linear 1;
27     grad(U)      $limited;
28     grad(omega)  $limited;
29 }
30
31 divSchemes
32 {
33     default      none;
34     div(phi,U)   Gauss linearUpwind limited;
35
36     turbulence   bounded Gauss limitedLinear 1;
37     div(phi,k)   $turbulence;
38     div(phi,omega) $turbulence;
39     div(phi,T)   $turbulence;
40
41     div((nuEff*dev2(T(grad(U)))) Gauss linear;
42 }
43
44 laplacianSchemes
45 {
46     default      Gauss linear corrected;
47 }
48
49 interpolationSchemes
50 {
51     default      linear;
52 }
53
54 snGradSchemes
55 {
56     default      corrected;
57 }
```

```
58  
59 wallDist  
60 {  
61     method          meshWave;  
62 }  
63  
64 // *****  
    //
```

### 1.3 fvSolution

```
1 /*----- C++  
   *-----*\  
2 ===== |  
3 \\      /  F i e l d       | OpenFOAM: The Open Source CFD Toolbox  
4 \\      /  O p e r a t i o n   | Website:  https://openfoam.org  
5 \\      /  A n d               | Version:   8  
6 \\      /  M a n i p u l a t i o n |  
7 \*-----*/  
   */  
8 FoamFile  
9 {  
10     version      2.0;  
11     format       ascii;  
12     class        dictionary;  
13     object       fvSolution;  
14 }  
15 // *****  
    //  
16  
17 solvers  
18 {  
19     p  
20     {  
21         solver      GAMG;  
22         smoother    GaussSeidel;  
23         tolerance   1e-06;  
24         relTol      0.1;  
25     }  
26  
27     "(U|k|omega)"  
28     {  
29         solver      smoothSolver;  
30         smoother    GaussSeidel;  
31         tolerance   1e-05;  
32         relTol      0.1;  
33     }  
34  
35     pFinal
```

```
36     {
37         $p;
38         tolerance      1e-06;
39         relTol         0;
40     }
41
42     "(U|k|omega|epsilon) Final"
43     {
44         $U;
45         relTol         0;
46     }
47
48
49 }
50 PIMPLE
51 {
52     momentumPredictor yes;
53     nOuterCorrectors 1;
54     nCorrectors      2;
55     nNonOrthogonalCorrectors 1;
56 }
57 /*
58
59 "(PIMPLE|PISO)"
60 {
61     nOuterCorrectors 1;
62     nCorrectors      2;
63     nNonOrthogonalCorrectors 1;
64 }
65
66 relaxationFactors
67 {
68     equations
69     {
70         ".*" 1;
71     }
72 }*/
73
74 // *****
75 //
```