EU Project ATAAC

Submission guidelines for the test case

"Periodic 2-D hill flow: *Re_H=10600 and 37000*[1]"

Required results:

1. Contributors are asked to submit 10 files containing the mean velocity and Reynolds stress profiles (one file per profile) named "**2dhill_10600_XXX.dat**", where XXX stands for 001, 002, 003, 004, 005, 006, 007, 008, 009, 010. The numbers denote different streamwise locations:

Filename	**Location**
2dhill_10600_001.dat	at x/H=0.05
2dhill_10600_002.dat	at x/H=0.5
2dhill_10600_003.dat	at x/H=1.0
2dhill_10600_004.dat	at x/H=2.0
2dhill_10600_005.dat	at x/H=3.0
2dhill_10600_006.dat	at x/H=4.0
2dhill_10600_007.dat	at x/H=5.0
2dhill_10600_008.dat	at x/H=6.0
2dhill_10600_009.dat	at x/H=7.0
2dhill_10600_010.dat	at x/H=8.0

These results files should contain 7 columns of data corresponding to

y/H	U/Ub	V/Ub	u'u'/Ub^2	v'v'/Ub^2	u'v'/Ub^2	k/Ub^2

Each file has to start with 9 comment lines beginning by a "#", consisting of:

#Case
#Name
#Affiliation
#Code/Numerical method
#Mesh type / grid resolution
#Turbulence model
#Wall treatment
#Any other useful information
#Column headings for the data

Example:

File "**2dhill_10600_001.dat**":

[1] For the Gothenburg-Meeting only the case at Re_H=10600 will be cross-plotted

#Case: periodic 2-D hill, ReH=10600
#Maduta Robert / Suad Jakirlic
#Technische Universitaet Darmstadt - TUD
#OpenFOAM / Finite volumes
#unstructured hexahedral mesh / 160x160x60 (mandatory grid)
#Reynolds stress model (Jakirlic-Hanjalic, 2002)
#Integration to the wall
#Model coupled with w-equation; extended to behave as an SAS model
y/h, U/U_b, V/U_b, uu/U_b^2, vv/U_b^2, uv/U_b^2, k/U_b^2

2. Furthermore, a file containing the friction coefficient results along lower wall is to be submitted. The file comprises two columns:

x/H	Cf

The friction coefficient is defined as: $C_f = \frac{\tau_{wall}}{\frac{1}{2}\rho U_b^2}$

Similar as in the case of the profile files (see above) the file, entitled "**2dhill_10600_cf.dat**", has to start with the same 9 comment lines. Here, the 10th line should be added giving details about separation point ((x/H)_SP=?) and reattachment point ((x/H)_RP=?).

3. In addition a postscript file comprising the streamline pattern should be sent. This file is to be entitled as **2dhill_10600_streamlines.ps** (please use primarily the ps format; if not possible, other formats – jpg, gif, png, etc. – would also be OK).

All result files related to one model/method (e.g., RSM-SAS) are to be zipped into an archive entitled, e.g. **TUD_10600_RSM-SAS.zip** (different variants – tar, rar, etc. – can also be applied). The zipped archives (one for each model/method) should be sent by e-mail to S. Jakirlic (s.jakirlic@sla.tu-darmstadt.de) or Robert Maduta (rmaduta@sla.tu-darmstadt.de).

IMPORTANT NOTICE: please plot your data yourself and compare them with the reference database (given at the ATTAC web site), in order to avoid any mistake during cross-plotting.