NODESIM CFD

NON-DETERMINISTIC SIMULATION FOR CFD-BASED DESIGN METHODOLOGIES

First Announcement of the

WORKSHOP on QUANTIFICATION of CFD UNCERTAINTIES

29-30 October 2009
Vrije Universiteit Brussel
Brussels, BELGIUM

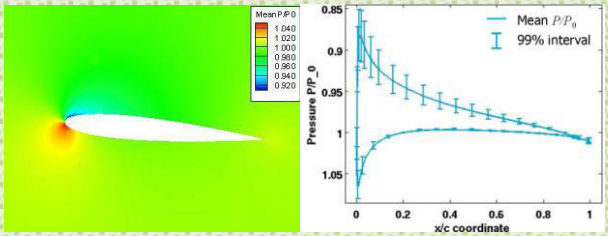
Workshop's objectives

- To assess non-deterministic methodologies on compulsory test cases
- To promote and stimulate the development and application of the non-deterministic methodologies
- To review the state of the art by renowned keynote speakers
- To present the developments and results of the **NODESIM CFD** consortium

Academics and professionals from aeronautical community are encouraged to participate in this workshop with contributions directed to one of the workshop's objectives. in addition to paper contributions, participants are expected to contribute ***non-deterministic simulation results,*** concerning at least one of the two compulsory test cases selected by the organizers.

TEST CASE 1

The first test case is the transonic flow around the RAE 2822 airfoil at Mach number M=0.734; angle of incidence 2.79° and Reynolds number Re= 6.5×10^6.
Uncertainties are imposed on the angle of incidence, the thickness-to-chord ratio and the Mach number.
Contributors are expected to deal both with the case where these uncertainties have a uniform distribution and the case where they have a normal distribution.



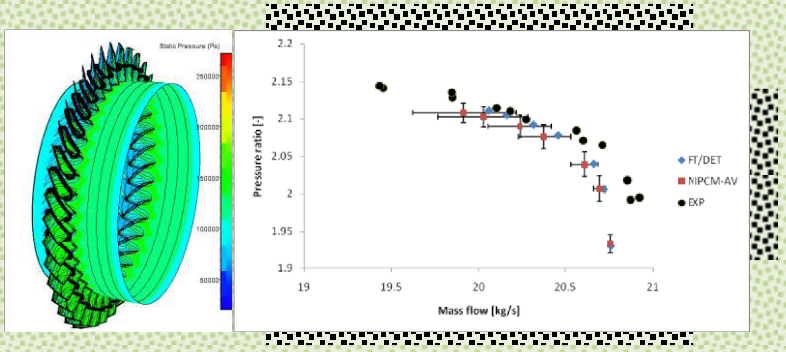
The required outputs are the probability density functions, mean and standard deviations for: drag; lift and moment coefficients..
Analysis should be based on a RANS solver.

TEST CASE 2

The second test case is the flow in the transonic axial compressor, known as NASA Rotor 37.
Uncertainties are imposed on the inlet total pressure, the static outlet pressure and the tip clearance.

	Uncertain parameter	The most likely value (m)	Minimum value (a)	Maximum value (b)	PDF type
1	Inlet total pressure	experimental input profiles (m)	95% m	105% m	Beta pdf
2	Static outlet pressure	m_p=1.1 bar	98% m_p	102% m_p	Beta pdf
3	Tip clearance	m_H=0.356 mm	50% m_H	150% m_H	Beta pdf

The computed results will be represented as bar plots on profiles of the pressure ratio, isentropic efficiency and total temperature ratio versus mass flow.



The potential contributors are invited to visit the website of **NODESIM CFD project** (http://www.nodesim.eu) to access the test case descriptions and the required format of the post-processed non-deterministic results. .

Workshop's deadlines

Submission of abstracts

Abstracts of maximum 1000 words should be submitted by **1st of September 2009** to Cristian.Dinescu@numeca.be.

Notification

The notifications of acceptance will be sent to the authors by **10th of September 2009.**

Submission of workshop's results on test cases and papers

The computational results related to the compulsory test cases and the papers must be submitted to Cristian.Dinescu@numeca.be no later than **21st of September 2009**.

Registration

The attendees must register by **28th of September 2009**.

Official language

The official language of the workshop is English.

Organizing Committee

Chairman: Charles Hirsch (charles.hirsch@numeca.be)

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TENTATIVE Program

Day 1: 29 October 2009

Time	Title presentation	Speaker
	Opening, presentation of NODESIM CFD	
	Keynote presentation 1	
	Coffee break	
	Keynote presentation 2	
	Keynote presentation 3	
	Lunch Break	
	Keynote presentation 4	
	Keynote presentation 5	
	Coffee break	
	Keynote presentation 6	
	Paper 1	
	Paper 2	
	End of the first day	

Day 2: 30 October 2009

Time	Title presentation	Speaker
	Presentation of the results on test case 1	
	Presentation of the results on test case 2	
	Coffee break	
	Paper 3	
	Paper 4	
	Paper 5	
	Lunch break	
	Paper 6	
	Paper 7	
	Coffee break	
	Round table	
	End of the workshop	

Sixth Framework Programme

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