

- INTRODUCTION TO MEASUREMENT TECHNIQUES
OCTOBER 6-10, 2014
- INTRODUCTION TO GROUND TESTING FACILITIES
NOVEMBER 17-19, 2014
- AEROENGINE NOISE
DECEMBER 2-4, 2014
- PHYSICS OF SLOSHING LIQUIDS: EXPERIMENTS AND MODELLING
JANUARY 13-15, 2015
- INTRODUCTION TO COMPUTATIONAL FLUID DYNAMICS
JANUARY 26-30, 2015
- ADVANCED COMPUTATIONAL FLUID DYNAMICS
FEBRUARY 9-13, 2015
- CFD FOR ATMOSPHERIC FLOWS AND WIND ENGINEERING
FEBRUARY 23-25, 2015
- SPACE DEBRIS REENTRY AND MITIGATION (VKI-STO)
APRIL 20-24, 2015
- TURBULENT COMBUSTION
MAY 4-8, 2015
- INDUSTRIAL COMPUTATIONAL FLUID DYNAMICS
MAY 18-22, 2015
- POROUS MEDIA INTERACTION WITH HIGH TEMPERATURE AND HIGH SPEED FLOW (VKI-STO)
SEPTEMBER 7-9, 2015

ONLINE REGISTRATION AVAILABLE
<https://www.vki.ac.be>

It is highly recommended to register at the latest 15 days before the beginning of the course. A letter of acceptance and additional information will be sent on receipt of the application form.

EARLY REGISTRATION FEE (until December 23, 2014)

VAT included	Type 1*	Type 2*	Type 3*
Normal	705 €	925 €	1005 €
Phd	355 €	355 €	
Undergraduate	160 €	160 €	

LATE REGISTRATION

VAT included	Type 1*	Type 2*	Type 3*
Normal	1010 €	1320 €	1440 €
Phd	505 €	505 €	
Undergraduate	225 €	225 €	

***Type 1:** Permanent residents of NATO countries funding VKI: Belgium, Czech Republic, France, Germany, Greece, Hungary, Iceland, Italy, Luxemburg, Norway, Portugal, Romania and Turkey

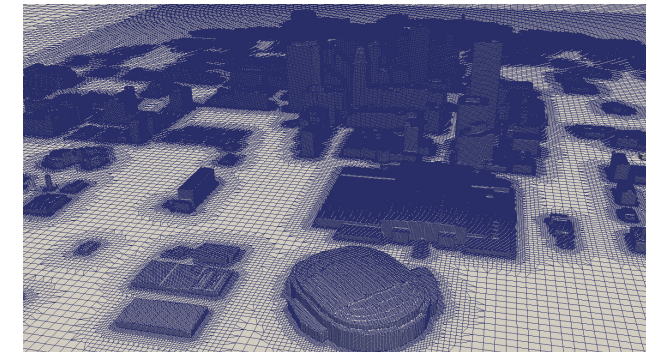
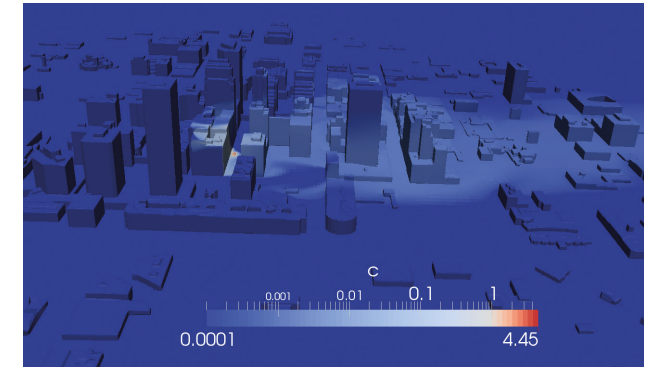
***Type 2:** Permanent residents of NATO countries not funding VKI or NATO partner countries

***Type 3:** Permanent residents of non-NATO countries
The request to be considered for an award must accompany the application to attend the Lecture Series, and the applicant must provide a recommendation letter from his or her professor; if not done so, the request will not be taken into consideration. All possible alternative sources of funding should be investigated before aid is requested under this scheme, so that those most in need will benefit.



VON KARMAN INSTITUTE
FOR FLUID DYNAMICS

VKI LECTURE SERIES CFD FOR ATMOSPHERIC FLOWS AND WIND ENGINEERING



FEBRUARY 23-25, 2015

VON KARMAN INSTITUTE
Rhode-St-Genèse, Belgium

INTRODUCTION

There is an increasing interest for the application of Computational Fluid Dynamics (CFD) to the study of flows in the lower part of the atmospheric boundary layer (ABL). The simulation of atmospheric flows, possibly over complex domain, is necessary for the estimation of wind load on buildings and for the choice of sites for windmills and wind farms as well as for the investigation of atmospheric pollution.

The present course offers a wide overview of the state-of-the-art of the domain, considering the application to both small and mesoscale range. Reynolds Averaging (RANS) and large-eddy (LES) approaches are discussed and their respective capabilities for different classes of flows axes are evaluated. The discussion is completed by the presentation of examples of practical implementation and applications using Open Source Codes OpenFOAM and WRF as well as in-house and commercial software.

The Lecture Series directors are Prof. Jeroen van Beeck and Prof. Carlo Benocci from the von Karman Institute for Fluid Dynamics.



SCHEDULE

February 23, 2015

08:45 Registration
09:15 Welcome Address
09:30 Introduction to the simulation of atmospheric flows
Prof. B. Blocken, Eindhoven University of Technology, The Netherlands
10:30 Coffee break
11:00 Introduction to the simulation of atmospheric flows (Cont'd)
Prof. B. Blocken
12:30 Lunch
14:00 Consistent boundary conditions for the simulation of the ABL
Prof. A. Parente, Free University of Brussels, Belgium
15:15 Coffee break
15:45 Uncertainty Quantification for ABL flows
Prof. C. Górlé, Columbia University, USA
17:15 Reception

February 24, 2015

9:00 RANS for the simulation of atmospheric flows
Prof. N. N. Sørensen, Technical University of Denmark, Denmark
10:30 Coffee break

11:00 RANS for the simulation of atmospheric flows (Cont'd)
Prof. N. N. Sørensen
12:30 Lunch
14:00 Large-eddy simulation of atmospheric flows
Dr. B. Kosovic, National Center for Atmospheric Research, USA
15:15 Coffee break
15:45 Large-eddy simulation of atmospheric flows (Cont'd)
Dr. B. Kosovic

February 25, 2015

9:00 Large-eddy simulation of atmospheric flows
Dr. B. Kosovic
10:30 Coffee break
11:00 Simulation of the atmospheric flows at mesoscale range
Prof. S. Basu, North Carolina State University, USA
12:30 Lunch
14:00 Simulation of the atmospheric flows at mesoscale range (Cont'd)
Prof. S. Basu
15:15 Coffee break
15:45 Simulation of the atmospheric flows at mesoscale range (Cont'd)
Prof. S. Basu
17:00 End of Lecture series

VON KARMAN INSTITUTE

VKI is a non-profit international educational and scientific organisation, hosting three departments (aeronautics and aerospace, environmental and applied fluid dynamics, and turbomachinery & propulsion).

It provides post-graduate education in fluid dynamics (research master in fluid dynamics, former "VKI Diploma Course", doctoral program, short training program and lecture series) and encourages "training in research through research". The von Karman Institute undertakes and promotes research in the field of fluid dynamics.

VKI possesses about fifty different wind tunnels, turbomachinery and other specialized test facilities, some of which are unique or the largest in the world. Extensive research on experimental, computational and theoretical aspects of gas and liquid flows is carried out at the VKI under the direction of the faculty and research engineers, sponsored mainly by governmental and international agencies as well as industries.

The von Karman Institute organizes each year about 10 one-week Lecture Series on specialized topics in the field of aerodynamics, fluid mechanics and heat transfer with application to aeronautics, space, turbomachinery, the environment and industrial fluid dynamics. These courses have gained over the years world wide recognition for their high quality, which is the result of a careful choice of subjects of current interest and lecturers known for their excellency and willing to co-operate in building up well-structured courses.



von Karman Institute for Fluid Dynamics
Waterloosesteenweg 72
1640 Sint-Genesius-Rode, Belgium

Phone: +32(0)2 359 96 04
Fax: +32(0)2 359 96 00
E-mail: secretariat@vki.ac.be

Website: <https://www.vki.ac.be>

TVA BE 0407 185 709

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