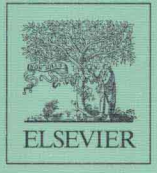

Engineering Turbulence Modelling and Experiments 6

W. Rodi
M. Mulas
Editors

Engineering Turbulence Modelling and Experiments 6

Procedings of the ERCOFTAC International Symposium on Engineering Turbulence Modelling and Measurements - ETMM6 - Sardinia, Italy, 23-25 May, 2005

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PREFACE

These proceedings contain the papers presented at the ERCOFTAC International Symposium on Engineering Turbulence Modelling and Measurements - ETMM6 - held at Villasimius, Sardinia, Italy, in the period May 23-25, 2005. The symposium followed the previous five conferences on the topic of engineering turbulence modelling and measurements held in Dubrovnik, Yugoslavia, in 1990, Florence, Italy, in 1993, Crete, Greece, in 1996, Corsica, France, in 1999 and Mallorca, Spain, in 2002, but was held for the first time under the aegis of ERCOFTAC (European Research Community on Flow, Turbulence and Combustion). The proceedings of the previous conferences were also published by Elsevier.

The purpose of this series of symposia is to provide a forum for presenting and discussing new developments in the area of turbulence modelling and measurements, with particular emphasis on engineering-related problems. Turbulence is still one of the key issues in tackling engineering flow problems. As powerful computers and accurate numerical methods are now available for solving the flow equations, and since engineering applications nearly always involve turbulence effects, the reliability of CFD analysis depends more and more on the performance of the turbulence models. Successful simulation of turbulence requires the understanding of the complex physical phenomena involved and suitable models for describing the turbulent momentum, heat and mass transfer. For the understanding of turbulence phenomena, experiments are indispensable, but they are equally important for providing data for the development and testing of turbulence models and hence for CFD software validation. Recently, Direct Numerical Simulations have become an important tool for providing supplementary detailed data.

Research in the area of turbulence modelling and measurements continues to be very active worldwide, and altogether 277 abstracts were submitted to the symposium and experts in the field screened the 269 abstracts that arrived in time. 134 abstracts were accepted and 112 final papers were received and each reviewed by two experts. In the end, 90 papers were accepted, and most of these underwent some final revision before they were included in these proceedings. The papers were conveniently grouped in the following sections:

- Turbulence modelling
- Direct and large-eddy simulations
- Hybrid LES/RANS simulations
- Application of turbulence models
- Experimental techniques and studies
- Transition
- Turbulence control
- Aerodynamics flows
- Aero-Acoustics
- Turbomachinery flows
- Heat and mass transfer
- Combustion systems
- Two-phase flows

The contributed papers are preceded by a section containing 4 invited papers covering LES and rapid measurement techniques for complex turbulent flows, transition modelling and simulations of multi-phase flows.

The conference was organised with the support and cooperation of the following institutions and companies:

- ERCOFTAC
- KATnet of the European Union
- Regione Autonoma della Sardegna
- CRS4
- University of Karlsruhe
- ENEA
- European Office of Aerospace Research and Development of the USAF
- ANSYS-CFX Germany
- CD- Adapco
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- Fluent
- Numeca

We gratefully acknowledge this support and cooperation. We are also grateful to the members of the Scientific and Organizing Committee for their various efforts in making this conference a success. We also acknowledge the help of many Fluid Mechanics experts from all over the world in reviewing abstracts and full papers for the conference. Finally, we express our sincere appreciation for the good cooperation provided by Dr. Arno Schouwenburg and Vicki Wetherell of Elsevier Ltd. in the preparation of the proceedings.

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