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BARC: A Benchmark on the Aerodynamics of a Rectangular 5:1 Cylinder

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A Benchmark on the Aerodynamics of a Rectangular 5:1 Cylinder (BARC) is launched with the support of ANIV (Italian National Association for Wind Engineering), IAWE (International Association for Wind Engineering) and ERCOFTAC (European Research Community On Flow, Turbulence And Combustion). BARC addresses the high Reynolds number, external, unsteady flow around a stationary, sharp-edged rectangular cylinder, and the associated aerodynamic actions. The breadth (B) to depth (D) ratio is set equal to 5. Given the possible interest of both Research Institutions and Industries operating in different fields of Engineering, using both computational and experimental tools, BARC addresses both the numerical and experimental approaches.

The aims of the Benchmark are:

(1) to deeply investigate one specific problem in the aerodynamics of bluff bodies, with contributions coming from as many researchers as possible worldwide;
(2) to assess the consistency of wind tunnel measurements carried out in different facilities;
(3) to assess the consistency of computational results obtained through different flow models and numerical approaches;
(4) to compare experimental and computational results;
(5) to assess the possibility of developing integrated procedures relying on both experimental and computational outcomes;
(6) to develop best practices for experiments and computations.

In addition, the results provided by the participants will create a database to be made available to the Scientific and Technical communities for future reference.

Additional information and details can be found in the BARC website (http://www.aniv-iawe.org/barc)

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