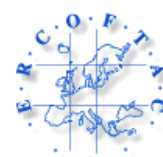


A
BENCHMARK
ON THE
AERODYNAMICS
OF A
RECTANGULAR
5:1
CYLINDER



BARC APP MYOC
INSTRUCTIONS FOR USE





1. PREFACE

The aim of the BARC web App “Make Your Own Comparison” (MYOC) is to offer to the scientific community involved in, or interested in, the Benchmark a quick and easy access to the results published on the topic, interactively postprocess them, export visualizations, and compare new user-owned results with the database.

The database, not necessarily exhaustive, collects experimental and computational results previously published on peer-reviewed scientific journals. Results presented during international conferences are included as well, if not superseded by subsequent papers. The database will be periodically updated in the future by the members of the BARC Organised Committee. The Authors of new studies are kindly requested to point them out by e-mail to barc@aniv-iawe.org. Any questions or comments can be sent to the same e-mail address.

The BARC web App MYOC is not intended as a complete and fully comprehensive postprocessing tool to be used to deeply analyse the whole flow field around BARC and related state variables.

2. SELECTED LITERATURE INCLUDED IN THE BARC APP

The user can find a synopsis of the studies included in the database by referring to the file BARC_app_MYOC_synopsis.xlsx available for download at www.aniv-iawe.org/barc-data. Only some main features of each study are reported, being relevant to the BARC App, and useful to read its Graphical User Interface. Interested people are kindly invited to refer to the full scientific publications for more details.

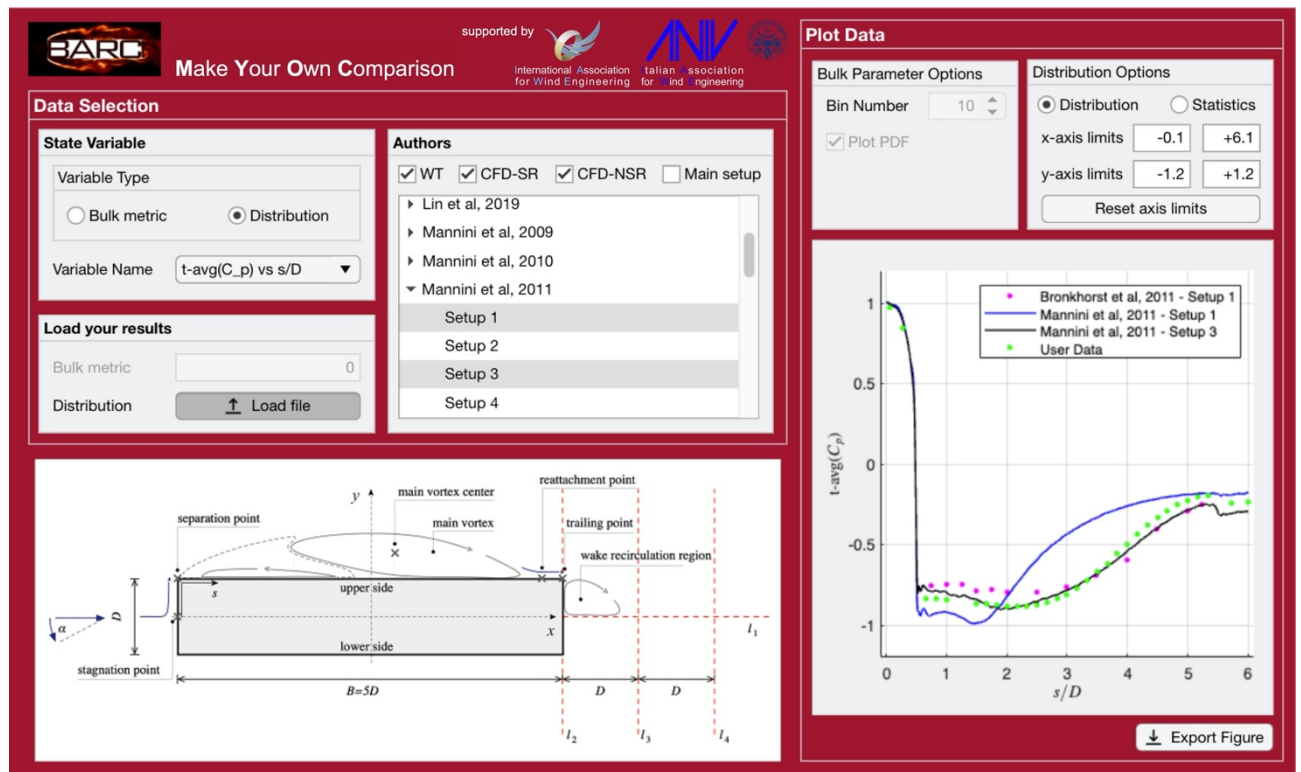
3. TIPS AND TRICKS ABOUT GUI

The Graphical User Interface of the BARC web App MYOC is reported below for reference. The GUI is conceived to be self-explanatory. However, the following tips and tricks are outlined:

- In the “State Variable” panel, bulk metrics or distributions of space-dependent variables can be selected. The reference figure in the bottom panel automatically changes to graphically describe the variables;
- In the “Authors” panel, different filters can be activated:
 - “WT” stands for Wind Tunnel measurements;



- “CFD-SR” stands for Computational Fluid Dynamics simulations adopting a Scale Resolving approach to turbulence modelling (e.g. DNS, LES, DES, no model);
- “CFD-NSR” stands for Computational Fluid Dynamics simulations adopting a Non-Scale Resolving approach to turbulence modelling (e.g. URANS, RANS);
- “Main setup” allows selecting the setups that satisfy the major requirements of BARC main setup, that is $2 \times 10^4 \leq Re \leq 8 \times 10^4$, $\alpha = 0^\circ$, $I_u \leq 0.01$, $L/D \geq 15$ in WT and $L/D \geq 3$ in three-dimensional CFD, $R/D \leq 0.025$.



- In the “Authors” panel, selected Authors and setups can be selected by mouse click: ctrl (or cmd) tab allows multiple pointwise selections; shift tab allows interval selection; all the setups associated with a specific paper are automatically selected by clicking on the Authors-year string;
- In the “Load your results” panel, for Variable Type “Distribution”, the uploaded file shall be an ASCII file, with .txt extension, without any header line, having two columns formatted as %f %f. In particular, for the variables “t-avg(C_p) vs s/D” and “t-std(C_p) vs s/D”, values associated with the range [0 12] of the nondimensional abscissa s/D can be provided (the interval [0 6] denotes the upper side, whereas [6 12] indicates the lower side of the cylinder section contour);
- In the “Plot Data” panel, “Distribution Options”, the “Statistics” option allows one to plot boxplot statistics of the selected distributions;



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- In the “Plot Data” panel, the “Export Figure” tab allows one to export the figure in both raster (JPEG, PNG) and vector (PDF, EPS) formats.

3. ACKNOWLEDGMENTS

The BARC web App MYOC has been conceived and developed by the BARC Organizing Committee, which was also in charge of the data harvesting. The collaboration of the researchers who provided the BARC data is gratefully acknowledged.

The BARC web App MYOC has been realized thanks to the support to the BARC dissemination activities offered in 2014 by the Executive Board of the International Association for Wind Engineering (IAWE), headed at the time by Prof. Yukio Tamura.

The BARC web App MYOC is hosted by Politecnico di Torino. The BARC Organizing Committee gratefully acknowledges the support of the IT Services, namely Enrico Venuto and Fabio Amato.

The BARC web App MYOC is developed in the environment Matlab® App Designer, and coded by Claudio Pagani.