QNET-CFD WIKI KNOWLEDGE BASE

EXPERIMENTAL STUDIES (EXP) TEMPLATE

EXPERIMENTAL STUDIES (EXP) DOCUMENTATION

ABSTRACT
Provide a summary of the EXP test-case submission

1. INTRODUCTION
Give a brief overview of the EXP in question. Describe the main characteristics of the type of flow. In particular, what are the underlying flow physics which characterise this test case and the main quantities of interest.

2. REVIEW OF EXP STUDIES AND CHOICE OF TEST CASE
Provide a brief review of past experimental studies of this test case . Identify your chosen study and state the test case underlying the study, giving reasons for its choice (e.g. a well-constructed test case, allowing good quality control and accurate measurements, of scientific and/or practical interest and as test case for CFD studies). Indicate whether or not the experiments have been designed for the purpose of CFD validation (desirable but not mandatory).

3. BRIEF DESCRIPTION OF THE STUDY TEST CASE
This section should:
- Convey the general set-up of the test case configuration (e.g. airflow over a bump on the floor of a wind tunnel)
- Describe the geometry, illustrated by a sketch
- Specify the flow parameters which define the flow regime (e.g. Reynolds number, Rayleigh number, angle of incidence etc.)
- give the principal quantities of interest that were measured - these should include global parameters but also mean-flow and turbulence parameters.

The description can be kept fairly short if reference can be made to a publication or a link to a data base where details are given. For other cases a more detailed, self-contained description should be provided.

4. EXPERIMENTAL SET UP
Describe briefly the test facility and the measurement procedure.

5. MEASUREMENT QUANTITIES AND TECHNIQUES
Describe the measurement techniques and indicate which quantities were measured and where. Describe how well conditions at boundaries of the flow such as inflow, outflow, walls, far fields, free surface are given or could be reasonably estimated to provide boundary conditions for CFD calculations.

6. DATA QUALITY AND ACCURACY OF MEASUREMENTS
Seek to address the following:
- How close is the flow to the target flow to be studied (e.g. if the flow is supposed to be two-dimensional, how well is this condition satisfied)?
- Estimation of the accuracy of measured quantities arising from given measurement technique
- Checks on global conservation of physically conserved quantities such as momentum, energy etc.
- Consistency in the measurements of different quantities.

7. MEASUREMENT DATA/RESULTS
Provide files of the measurement data together with format information/read-me files.
Some graphical presentation of the results should also be given like profiles along characteristic lines or contours in characteristic planes of mean and if possible turbulence quantities, streamlines, etc. and the so presented results should also be discussed briefly.