IPW2 - Data submission instructions

Polytechnique Montréal

April 4, 2023

DATA SUBMISSION INSTRUCTIONS (as of April 3, 2021)

- Each participant is to request their personal link to the IPW Next-Cloud by emailing maxime.blanchet@polymtl.ca. Provide in the email your name and institution. The link is personal, therefore, only the link holders and IPW committee can access your directory. You can manage the files in your directory as needed (rename, move, copy, delete).

- Fill out the file <participantName>_participant_info.dat located within the your Next-Cloud directory. This identifies you and your method, among other things. For example, the Polytechnique Montreal's information file should be renamed polytechniqueMontreal_participant_info.dat.

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- Name your files following the naming nomenclature : <caseN>_<participantName>_<fileIdentification>.<extension>. For example, for the case 1.1, the Polytechnique Montreal's solution files should be named : case1_1_polytechniqueMontreal_cutData.dat

- Participants are responsible of the data post-processing. Please submit the extracted cut data at the experimental location and in the proper format (see next step).

- Two files for each case are required (3 for 3D cases with MCCS):
  1) <caseN>_<participantName>_cutData.<extension> (3 pos.)
  2) <caseN>_<participantName>_finalIceShape.<extension>
  Please follow the proper file format as presented in the example files. The file extension is up to the participant, but variable nomenclature must be respected and the file must be compatible with Tecplot (.plt, .cgns, ...).

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- Some data files include AUXDATA lines. Please fill out as appropriate.
- For multi-layer/step codes, data on the first layer is required in the <caseN>_<participantName>_cutData.<extension> file. Intermediate and final layers are optional. Cut locations and layer/step must be identified in the field : *ZONE T* ="SpanwisePositionXXin-LayerTimeXXsec".
- A script is available for the rotation of the slices for cases 1.X and 2.X to compare with the experimental ice shapes.
- If you are going to submit multiple sets of results for one case, then append ".1", ".2", ".3", etc. after the case number in the file name in order to distinguish them, such as : case1_1.1_polytechniqueMontreal_cutData.dat. Provide the additional information in the case's Miscellaneous field in the file <participant-Name>_participant_info.dat

Post-process scripts - Additional Information

- Post-process scripts are available on the IPW website.
- Slices must be extracted at $y = 18$ in, $y = 36$ in, $y = 54$ for the cutData. Results must be in one file, using the Zone name nomenclature. Experiment must not be in the file.
- .plt files for the surface solution can be extracted with Tecplot. The surface must be closed and must have only one zone.
- For the MCCS, 30 sections must be used around the centerline, perpendicular to the leading edge with a spacing of 0.2 inches (0.00508 m). To do so, the parameter *nslice* of the script can be set to 30, and the *MCCSExtremums* to 0.8382 0.9906 using the furnished grids.

Rotation script

- A script is available for the rotation of the slices of the 3D case to be compared with the experimental ice shapes.
- The experimental data must be converted to meters.
- The slices are considered perpendicular to the leading edge at the AoA.
- The sweep must be defined as an user input, as well as the index of the coordinate (X,Y,Z) of the clean geometry and the ice (zero-based). The case must be specified (INBOARD, MIDSPAN).

example: **python Tools/rotation_ipw_vf.py -angle 3.7 -sweep 37.15 -scale 1.0 -tecplotFile 'Inputs/Inboard.plt' -xClean 0 -yClean 1 -zClean 2 -xIce 44 -yIce 45 -zIce 46 -OutputFile 'rotatedSliceCoordinates2.dat' -case 'INBOARD'**