

Hover Prediction Workshop (HPW) Meeting Minutes

AIAA SciTech Conference 1/7/2020 6-8 PM

Attendees

- Jared Carnes, UTK
- Nathan Hariharan, HPCMP
- Andy Wissink, Army
- Tom Norman, NASA
- Jim Baeder, UMD
- Juergen Rauleder, TU Munich
- Bastian Horvat, TU Munich
- Robert Narducci, Boeing
- Amine Abdelmdula, TU Munich
- Jeremy Bain, Joby
- Tin-Chee Wong, Army
- Joe Derlaga, NASA
- Qiuying Zhao, University of Toledo
- Thomas Ivanco, NASA
- Rohit Jain, Army
- Todd Quackenbush, CDI
- Jennifer Abras, HPCMP

Minutes

- Rohit officiated the meeting and reviewed the meeting agenda
- There was an around the room of introductions
- Rohit reviewed past HPW events
 - Events span 2014-2019
 - Started with the Baseline S76 then the list grew over time
 - The correlations improve every year
- Reviewed today's sessions
 - Topics covered airframe effects, simulation methodologies, turbulence and transition modeling, higher-order, wake breakdown, S76, and PSP
 - Listed the papers presented
 - Listed the participating organizations
 - Covers industry, academia, and government
- Tom: asked if there was any feedback for the test that didn't come up during the sessions
 - He is still open for feedback
 - There wasn't an immediate response from the audience
- Bob: described the HVAB CFD blind test
 - Proposed as the next workshop focus until the test data are available
 - Line up the CFD requests from the participants with Tom's to be provided data
- Tom: said the experiment team will be reducing the data, guidance will be helpful

- Jim: asked for more detail on some of the load format that would be provided
- Tom: will be a flexible blade, processed structural data will be provided
 - Nathan: asked when this data will be available
 - Tom: not sure, but it will be provided with the dataset
 - Nathan: asked Rohit about time needed to create an RCAS model
 - Rohit: said it would be an update to the existing PSP model
 - Rohit: we will limit variations on CSD models
- Tom: went over differences between HVAB and past PSP test
 - There was a discussion of structural measurements, there are still some open questions
 - Original plan was for white reflective paint for photogrammetry method
 - New plan is to use reflective targets attached to blade to get local flap, torsion, and lag deflections: torsion has the lowest fidelity, these targets may have tripping issues because of thickness
- Rohit: asked if there would be thrust and torque time-histories provided
 - Tom: they have that, can provide if desired
 - Tom: data will be averaged azimuthally, can pick up the 4/rev
- Tom: repeatability will be investigated with a number of repeat runs
- Nathan: what is the realistic expectation with regards to PIV?
 - Tom: resolution in vortex is an issue they are still trying to work out
 - If everything goes perfectly then resolution would be sufficient for workshop
 - However, seeding such a large space is an issue, it is a challenge to keep uniform
 - Large facility is good for reducing facility effects, but isn't as good for PIV
 - Someone asked if a simulation could be run to predict seeding distribution
 - Rohit: simulation would take forever to run
 - Andy: inquired about a smoke filled room
 - Tom: the large space is an issue
- Rohit moved on with the slides
 - HVAB blind test will be the focus for the next workshop
 - Asked for group feedback
 - Nathan: good idea, everyone will get ready for the test data
 - Jim: this focus is more like the first meeting
 - Bob: suggesting STD/SL for consistency, note that the test will not be STD/SL
 - Rohit: geometry available, will be put on website
 - <https://aiaahover.wixsite.com/website-6>
 - Nathan: asked to add transition patterns to the list of provided CFD data
 - Jim: commented that a fully-turbulent simulation should be provided with any transition simulation to assess transition based on deltas
 - Jared: should we wait for new data or use the current data?
 - Rohit: current data good for your work
 - Bob: add time-history of FM to list of provided data
 - Tom: is the configuration open-ended?

