

DPW-8 & AePW-4

Buffet Working Group



October 15, 2024

aiaabuffet@gmail.com



Buffet Working Group website

<https://aiaa-dpw.larc.nasa.gov/WorkingGroups/Group3/group3.html>

- Experimental data for upcoming Test Cases 2 and 3 added (link to JAXA website)

Postprocessing website

<https://aiaa-dpw.larc.nasa.gov/postprocessing.html>

- Make sure you have requested a Participant ID
- Includes v4 of data files, including a new convergence template
- One data file for F&M, surface cuts, and grid metrics; many convergence files
- Data on the GitHub are considered current
<https://github.com/Drag-Prediction-Workshop>
- Unsteady spectra computation program is in development
- Unsteady F&M and surface cut data file in preparation (will include $C_{P,rms}$ and spectral content)
- Detailed step-by-step GitHub submission instructions are being developed

Large File Upload

<https://nasagov.app.box.com/f/fd164563283b4e85857d1a0975b0b363>

- Please upload as a zip file with your name in the file name and alert the buffet email address

- **RANS data due October 31**
- **Submit as much unsteady data as possible by October 31**
- **Data form the basis for the Scatter Working Group**
 - Residual particularly interesting
 - Continuity, three components of momentum, energy, and turbulence
- **Are there questions?**

- Have any participants developed custom grids?

- **Community-wide, open-to-all mini workshop**
 - Thursday 9:30-12:00
 - Bayhill 29
 - Will include a hybrid component
- **Content**
 - Updates from all seven working groups
 - Presentation of ONERA OAT15A data (RANS and some unsteady)
 - Various Organizing Committee members will be presenting
- **Will include technical content and some open discussion**
- **No evening meeting scheduled**

Student Participation – A Quick Reminder

- We are getting student interest and participation (undergrads and grads)
- Airfoil case has been scoped to be able to be executed on a laptop
- **Minimum content for submission**
 - ONERA OAT15A
 - Coarsest grid
 - Three angles of attack
- **Additional analysis certainly encouraged!**
- **No submission deadline**
- **Mentorship opportunities exist**

- **Updates from subgroup leaders**

- URANS: Fulvio Sartor, ONERA Centre de Meudon fulvio.sartor@onera.fr
- Hybrid RANS/LES: Jeff Housman, NASA Ames jeffrey.a.housman@nasa.gov
- WMLES & Beyond: Johan Jansson, KTH jjan@kth.se

- **Email the subgroup leader if you are interested in participating**

- **Individuals are welcome to attend these meetings and not submit data**

- **May, 2024**
 - ONERA OAT15A geometry release ✓
- **July, 2024**
 - ONERA OAT15A grids released ✓
 - AVIATION in-person meeting ✓
- **September, 2024**
 - Modified ONERA OAT15A grids released ✓
- **October 31, 2024**
 - ONERA OAT15A RANS data submission deadline
- **November 30, 2024**
 - ONERA OAT15A unsteady data submission deadline (may be reconsidered)
- **January, 2025**
 - Mini Workshop 1 (hybrid)
- **Winter, 2025**
 - First look of Test Case 2 grids
- **Fall, 2025**
 - Mini Workshop 2, virtual (???)
- **March, 2026**
 - Delivery of final data set
- **June, 2026**
 - Workshop in San Diego, CA
- **January, 2027**
 - SciTech Special Sessions in Orlando, FL

Buffet Working Group Leadership

- For questions, please contact aiaabuffet@gmail.com
- **Working group leadership**
 - Hadar Ben-Gida IL
 - Brent Pomeroy US
 - Daniella Raveh IL
 - Andrea Sansica JP
 - Bret Stanford US
- **Subgroup leaders**
 - Jeff Housman US
 - Johan Jansson SE
 - Fulvio Sartor FR

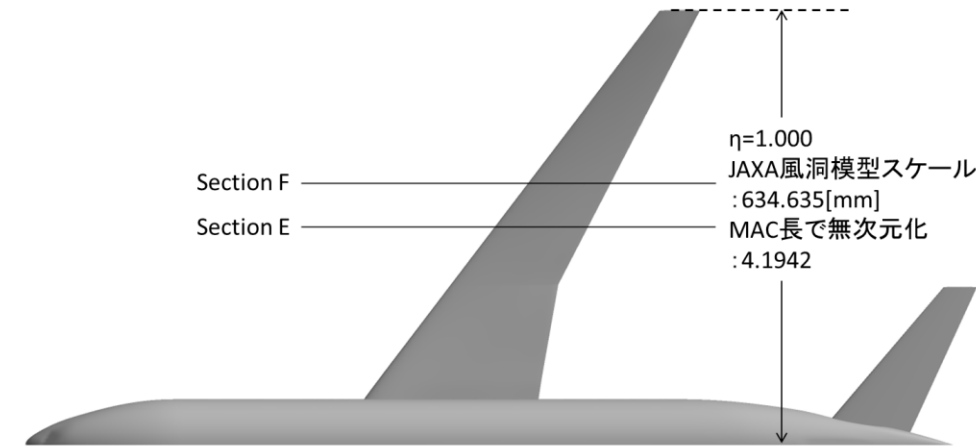
- **Subgroup meetings**
 - Tuesday, November 5 at 10:00 EST (Daylight Saving Time ends 11/3 in the US)
 - Currently scheduled simultaneously for first Tuesday at 10:00 Eastern US... for now
 - Feedback on meeting structure to the committee is welcomed and encouraged
- **Workshop-wide meeting**
 - First week of November; date and time to be finalized
 - Will include update from all seven working groups
 - Seek to encourage cross pollination
- **Buffet Working Group meeting is Tuesday, November 19**
 - Meeting may or may not be held... To be determined



aiaabuffet@gmail.com

Test Case 2 Vision (Optional)

- **Spring, summer, and fall 2025**
- **Unsteady CFD without FSI**
 - CRM wing/body/tail
 - Want to include DPW and AePW communities
 - Committee-supplied deformed geometry
 - Committee-supplied RANS grids
 - Not all unsteady CFD codes have unsteady FSI
- **Simulations**
 - Somewhere between 2 and 4 alphas (TBD)
 - Detailed comparisons to recent JAXA data
- **Expectations**
 - Probably won't definitively solve this problem
 - Analysis of Test Case 2 and 3 may be simultaneous → we must be flexible



Test Case 3 Vision (Optional)

- Spring, summer, and fall 2025; spring 2026
- **Unsteady CFD with FSI**
 - CRM wing/body/tail
 - Want to include DPW and AePW communities
 - Committee-supplied wind-off (“jig”) geometry
 - Committee-supplied wind-off (“jig”) RANS grids
 - Hardest analysis point
- **Simulation plan (as of now)**
 - Extensive analysis, limited flow conditions
 - One alpha pre-buffet (required)
 - One alpha post-buffet (optional)
 - Detailed comparisons to recent JAXA data

