

AIAA IPW3: ONERA M6 Code-to-Code Comparisons

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Presented 22 September 2026

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AIAA IPW3 : ONERAM6 Code-to-Code Comparisons



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September 22, 2026

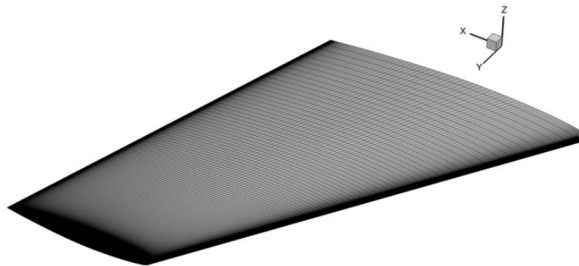


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Geometry and Aerodynamic Conditions



ONERA M6 L1 Surface Mesh

Geometry

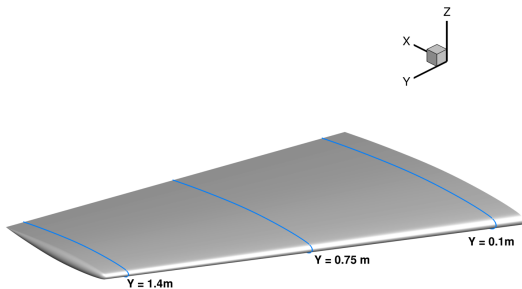
Parameter	Value
Wing	ONERA M6
Root chord [m]	1.0
Mean aerodynamic chord [m]	0.801673
Semi-span [m]	1.476018
AOA, α [°]	2.0

Aerodynamic Conditions

Parameter	Value
M_∞ [-]	0.40
U_∞ [m/s]	131.064
$T_{s,\infty}$ [K]	267.15
ρ_∞ [kg/m ³]	0.68301
Re_c [-]	4.2558×10^6



Icing Conditions



ONERA M6 L1 Surface Mesh

Grid	Nodes	Elements
L1	60.78 M	69.21 M
L2	7.63 M	8.65 M
L3	0.960 M	1.081 M
L4	0.122 M	0.135 M

Icing Conditions

Parameter	Value
$T_{s,\infty}$ [K]	267.15
$T_{0,\infty}$ [K]	275.7
M_∞	0.40
U_∞ [m/s]	131.064
LWC [g/m^3]	0.51
MVD [μm]	20
Exposure time [s]	1350

Common Modeling Parameters

- **Droplet Distribution:** 1, 3, 7, and 15-bin distributions are considered.
- **Surface Roughness:** $k_s = 1.0$ mm is prescribed as the baseline, with 0.5 and 1.5 mm provided as optional runs.
- **Ice Density:** $\rho_{\text{ice}} = 680$ kg/m³ is used for the comparison.
- **Data Extraction:** Integrated quantities are evaluated over the entire wing surface, with sectional data extracted at $y = 0.10$, 0.75 , and 1.40 m.



IPW3 – Onera M6 Participants

ID	Participant / Organization	Line Color
001	CIRA	
002	AeroTex	
003	NRC	
004	ONERA	
007	Polytechnique Montréal	
010		
015		
019	Synopsys	



Summary of Data Received

ID	L1				L2				L3				L4			
	1	3	7	15	1	3	7	15	1	3	7	15	1	3	7	15
001	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003							*				*				*	
004	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
007	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
010	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
015	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
019	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total	7	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7

*: CFD data only.



Modeling Choices Across Submissions

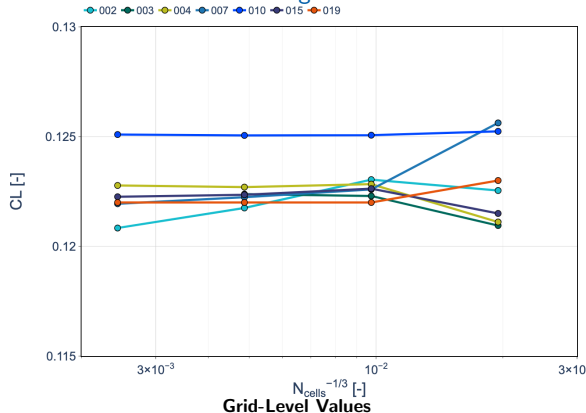
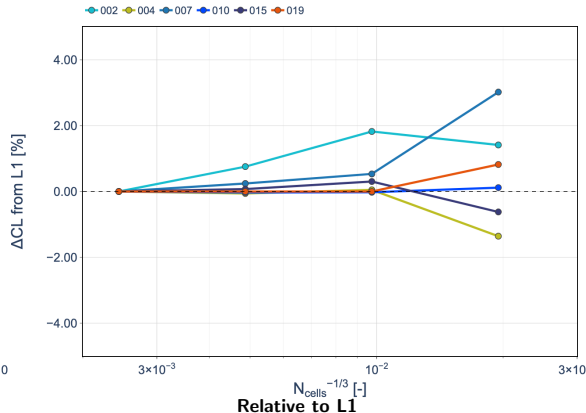
Model / Method	001	002	003	004	007	010	015	019
Turbulence	<i>k</i> - ω TNT	<i>k</i> - ω SST	SST-QCR	<i>k</i> - ω SST	SA	SA-neg-rough	<i>k</i> - ω SST	<i>k</i> - ω SST
Droplet formulation	Eul.	Lag.	N/A	Eul.	Eul.	Lag.	Eul.	Eul.
HTC method	–	BL Int.	N/A	T_{rec}	T_{rec}	2 T_w	T_{rec}	T_{rec}
Thermodynamics	Mess.	Mess.	N/A	Mess.	Mess.	Mess.	SWIM	SWIM+
Geometry evolution	Lag./IB	Interp.	N/A	Alg.	Lag.	Prism. extr.	Remesh.	Lag./remesh

TNT = turbulent/non-turbulent *k*- ω ; *SST* = shear-stress transport; *SA* = Spalart–Allmaras; *Eul.* = Eulerian; *Lag.* = Lagrangian; *BL Int.* = boundary-layer integral; T_{rec} = recovery temperature; T_w = wall temperature; *Mess.* = Messinger; *SWIM* = shallow-water icing model; *IB* = immersed boundary; *Interp.* = interpolation; *Pseudo-trans.* = pseudo-transient; *Alg.* = algebraic; *Prism. extr.* = prismatoid extrusion; *Remesh.* = remeshing; – = not reported; N/A = not applicable / not submitted.

Overall Trends

- **Turbulence:** *k*- ω -family formulations predominate (75%), with 25% using SA-family formulations.
- **Droplets:** Predominantly Eulerian (71.4%), with 28.6% Lagrangian.
- **Heat transfer:** A variety of approaches are used, including recovery-temperature, boundary-layer integral, and two- T_w methods.
- **Thermodynamics:** Messinger-based approaches predominate (71.4%), with SWIM-based methods representing 28.6%.
- **Geometry evolution:** Diverse approaches are represented across submissions, including Lagrangian displacement, interpolation, extrusion, and remeshing.
- **Notable approaches:** One submission employs an immersed-boundary method (IBM) for ice-geometry representation and evolution.
- **Ice accretion:** Workshop comparisons focus on single-shot results; 3 participants also submitted multilayer/multishot results.

Lift Coefficient Grid Convergence

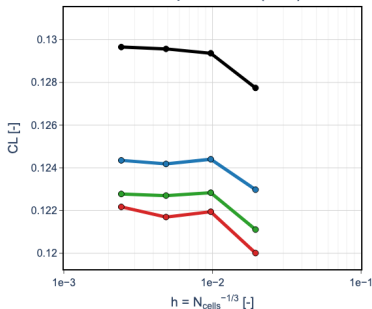


Observations

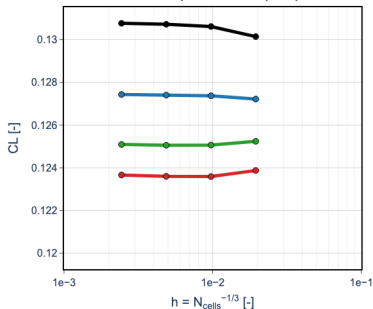
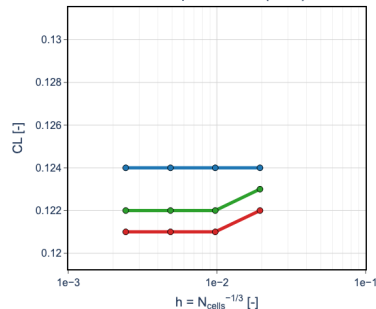
- At L1, the median lift coefficient is $C_L = 0.12213$, with an IQR of 6.89×10^{-4} (0.50%).
- Most submissions exhibit weak sensitivity to spatial grid refinement.
- Relative to L1, coarse-grid differences remain within a few percent across the submissions.

*IQR = interquartile range (75th percentile – 25th percentile).

Participant-Level Lift Sensitivity to Surface Roughness

Participant 004 (k- ω)

Participant 010 (SA)

Participant 019 (k- ω)

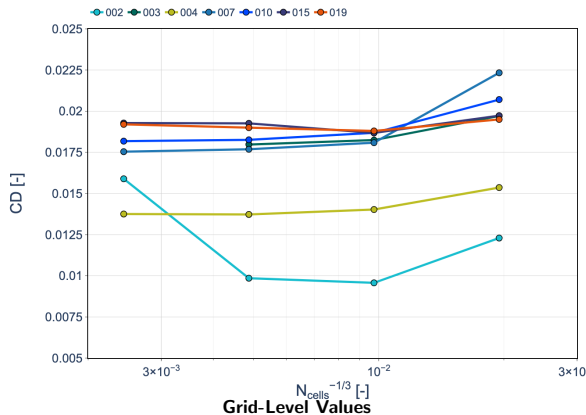
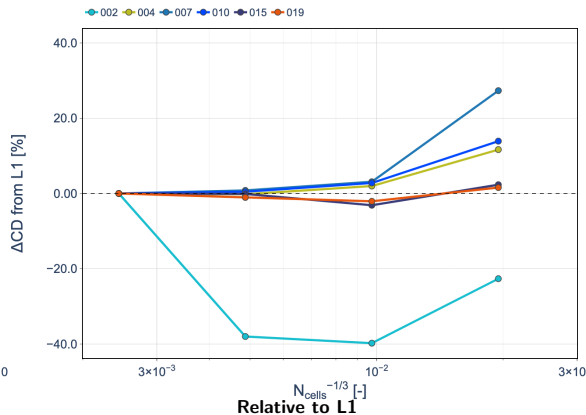
Participant	Smooth $\rightarrow$ 0.5 mm	0.5 $\rightarrow$ 1.0 mm	1.0 $\rightarrow$ 1.5 mm
004 (k- ω SST)	-3.96%	-1.31%	-0.74%
010 (SA-neg-rough)	-2.46%	-1.76%	-1.14%
019 (k- ω SST)	-	-1.41%	-0.82%

Mean percentage change in C_L across available grid levels.

Note: Colors indicate roughness groups and are not associated with participant IDs.



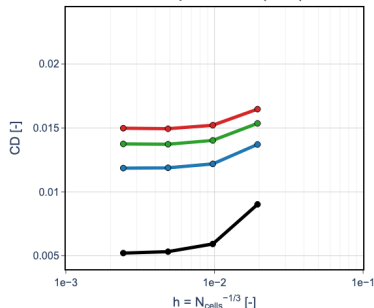
Drag Coefficient Grid Convergence



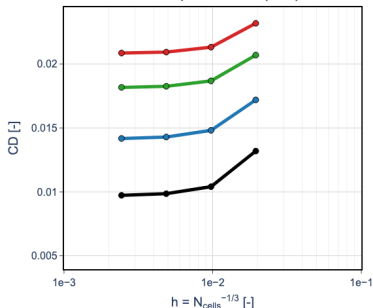
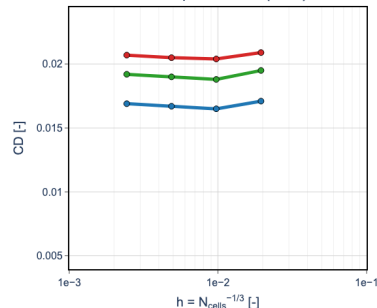
Observations

- At L1, the median drag coefficient is $C_D = 0.01786$ (178.6 drag counts), with an IQR of 26.4 drag counts (14.8%).
- C_D exhibits the greatest sensitivity to spatial grid refinement, with deviations reaching approximately 40% from L1.
- Flow-convergence difficulties were reported for some submissions.

Participant-Level Drag Sensitivity to Surface Roughness

Participant 004 (k- ω)

Participant 010 (SA)

Participant 019 (k- ω)

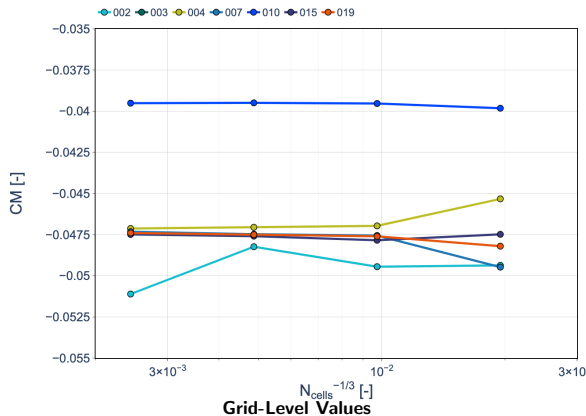
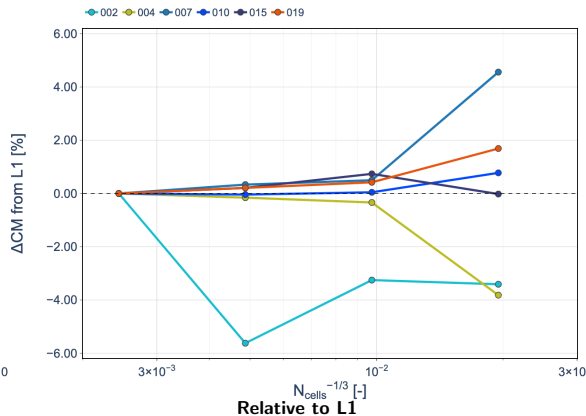
Participant	Smooth $\rightarrow$ 0.5 mm	0.5 $\rightarrow$ 1.0 mm	1.0 $\rightarrow$ 1.5 mm
004 (k- ω SST)	+60.4 counts	+18.1 counts	+11.9 counts
010 (SA-neg-rough)	+43.2 counts	+38.4 counts	+26.2 counts
019 (k- ω SST)	–	+23.3 counts	+15.0 counts

Mean change in C_D across available grid levels (1 drag count = 10^{-4}).

Note: Colors indicate roughness groups and are not associated with participant IDs.



Pitching Moment Grid Convergence

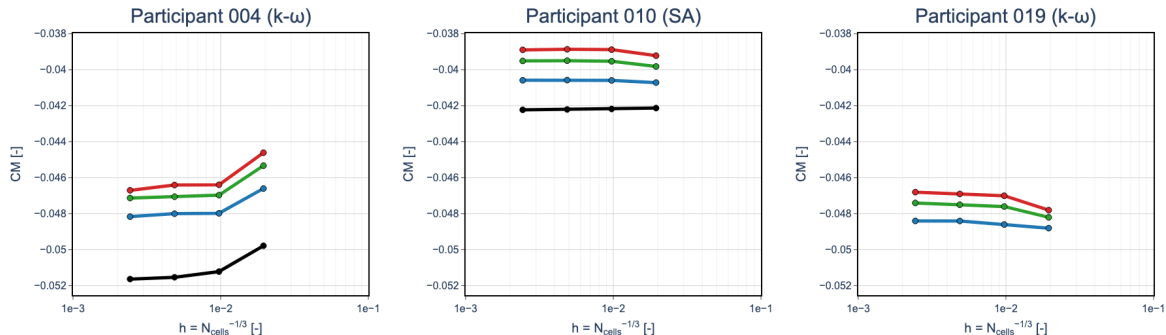


Observations

- At L1, the median pitching-moment coefficient is $C_M = -0.04736$, with an IQR of 0.62%.
- Most submissions exhibit weak sensitivity to spatial grid refinement.



Participant-Level Pitching-Moment Sensitivity to Surface Roughness



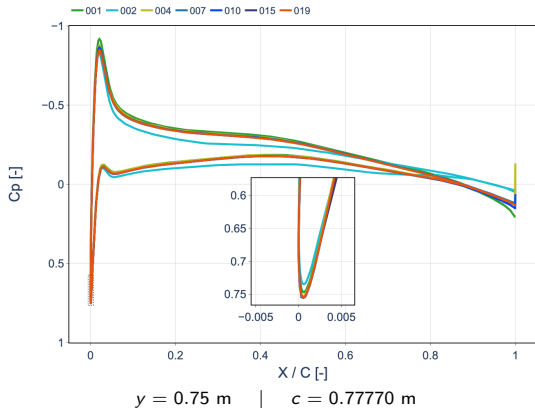
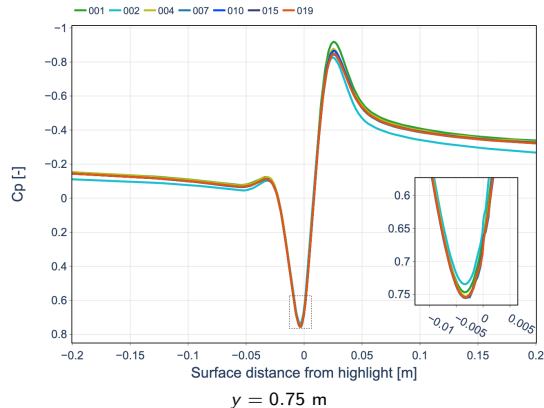
Participant	Smooth $\rightarrow$ 0.5 mm	0.5 $\rightarrow$ 1.0 mm	1.0 $\rightarrow$ 1.5 mm
004 ($k-\omega$ SST)	+6.57%	+2.24%	+1.28%
010 (SA-neg-rough)	+3.72%	+2.53%	+1.58%
019 ($k-\omega$ SST)	—	+1.81%	+1.16%

Mean percentage change in C_{MY} across available grid levels.

Note: Colors indicate roughness groups and are not associated with participant IDs.



Surface Pressure Distribution (L1)

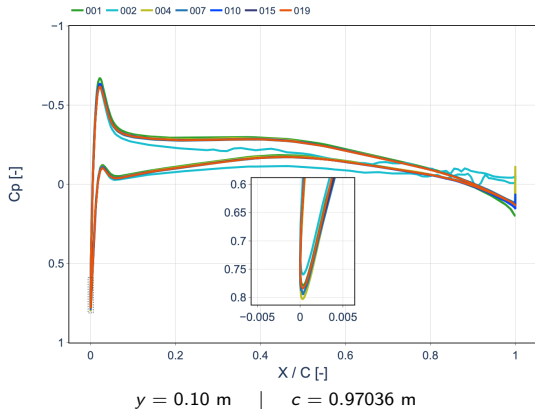
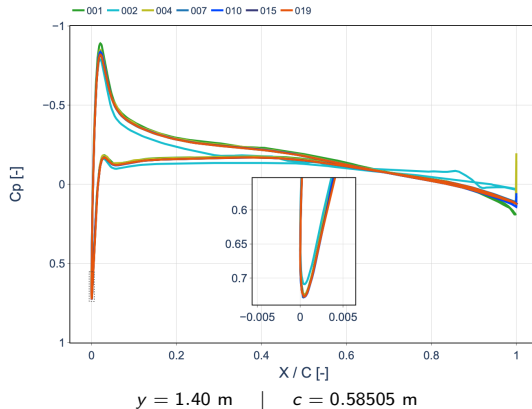


Observations

- At $y = 0.75 \text{ m}$, the submitted C_p distributions are closely clustered.
- Similar code-to-code agreement is observed at the inboard and outboard stations.



Surface Pressure Distribution (L1)



Observations

- At $y = 0.75$ m, the submitted C_p distributions are closely clustered.
- Similar code-to-code agreement is observed at the inboard and outboard stations.



Aerodynamic Assessment Summary

Aerodynamic Assessment

Grid-Refinement Behavior

- C_L and C_M exhibit limited within-code sensitivity to grid refinement for most submissions.
- C_D shows greater and less uniform grid sensitivity, with deviations reaching approximately 40% from L1 for selected submissions.
- Flow-convergence difficulties were reported for some submissions and may contribute to the observed variability in C_D .

Surface-Roughness Effect

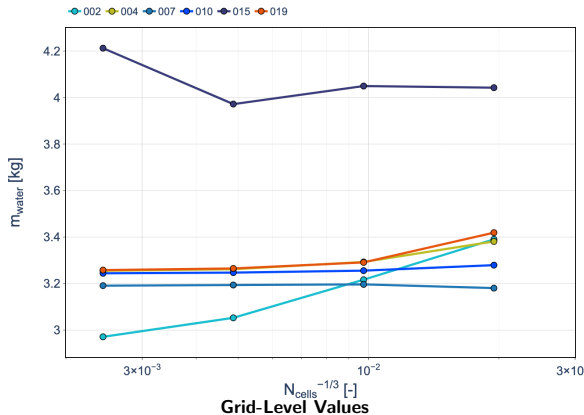
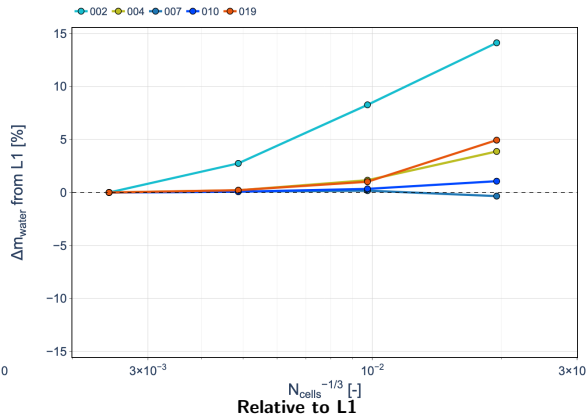
- Increasing surface roughness produces a consistent directional trend for each aerodynamic coefficient across submissions.
- The magnitude of the response varies between solvers, indicating solver-dependent sensitivity to the prescribed roughness.

Surface Pressure

- L1 C_p distributions show consistent code-to-code agreement across the spanwise stations.



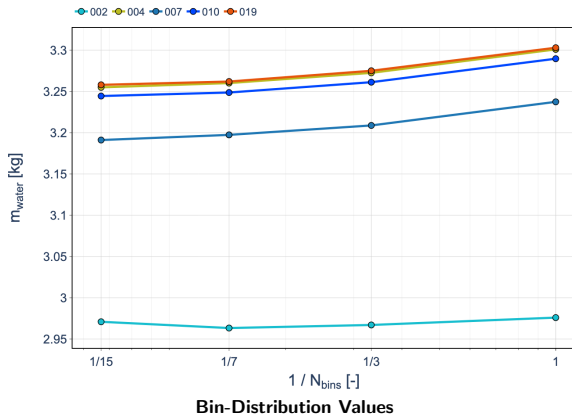
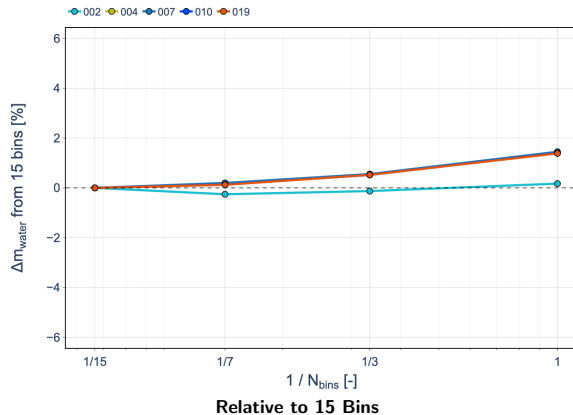
Water Mass Grid Convergence (15 Bins)



Observations

- At L1, the median water mass is 3.24 kg, with an IQR of 1.62%.
- Most submissions remain within approximately 5% of L1 across the grid hierarchy.
- Increasing surface roughness results in only a small reduction in collected water mass (< 1% per roughness increment).

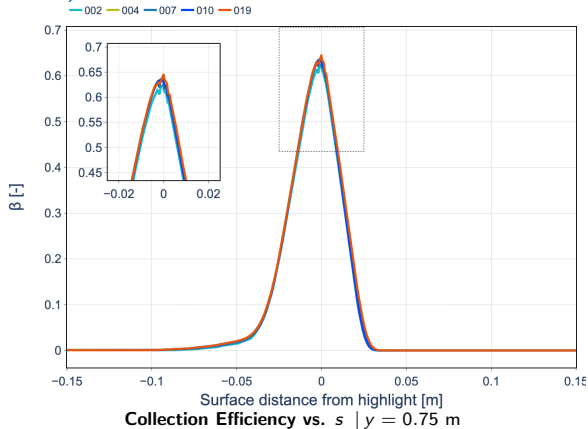
Droplet Distribution Sensitivity (L1)



Observations

- Water mass exhibits weak sensitivity to the droplet distribution for most submissions.
- The single-bin remains closer to the 15-bin distribution ($\sim 2\%$ difference), as the droplet distributions are more concentrated around the MVD.

Collection Efficiency (15 Bins, L1)

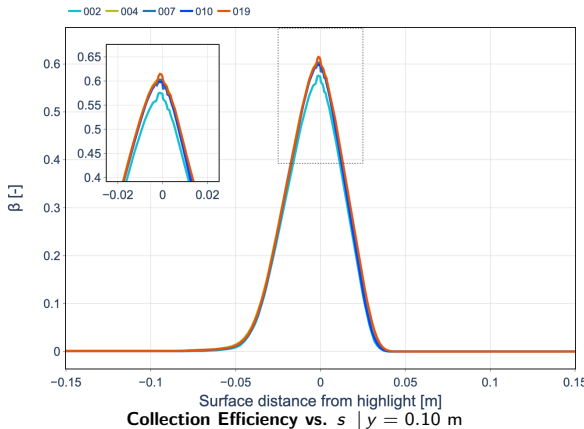
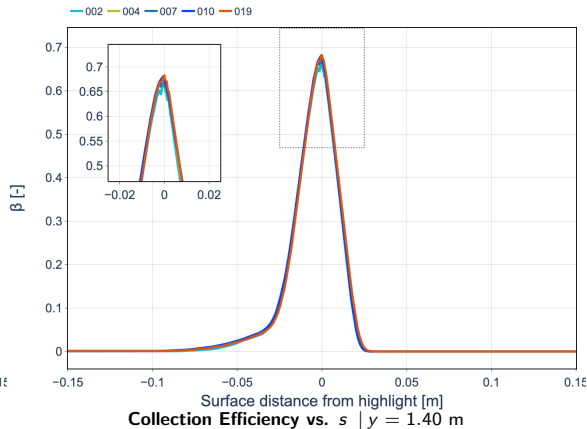


Observations

- At $y = 0.75 \text{ m}$, collection-efficiency profiles are closely clustered across submissions.
- Similar code-to-code agreement is observed at the inboard and outboard stations.



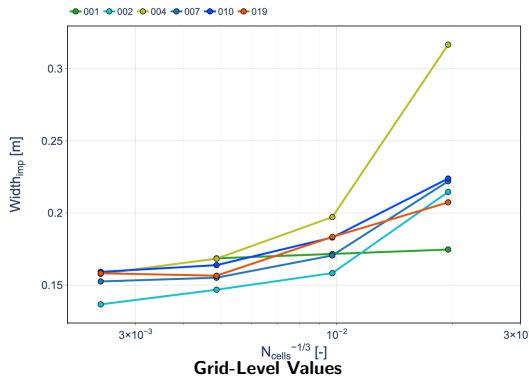
Collection Efficiency (15 Bins, L1)



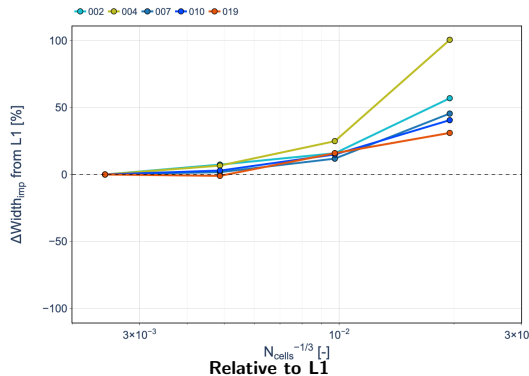
Observations

- At $y = 0.75$ m, collection-efficiency profiles are closely clustered across submissions.
- Similar code-to-code agreement is observed at the inboard and outboard stations.

Impingement Width Grid Convergence (15 Bins)



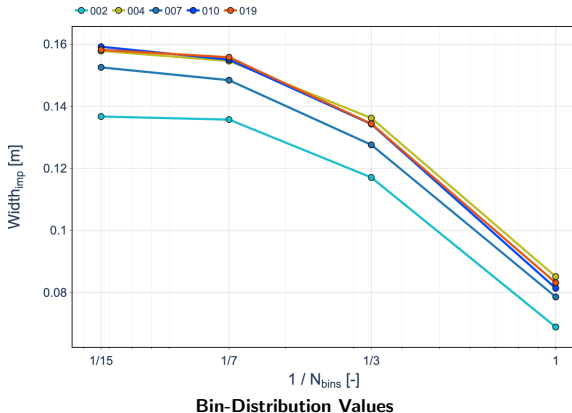
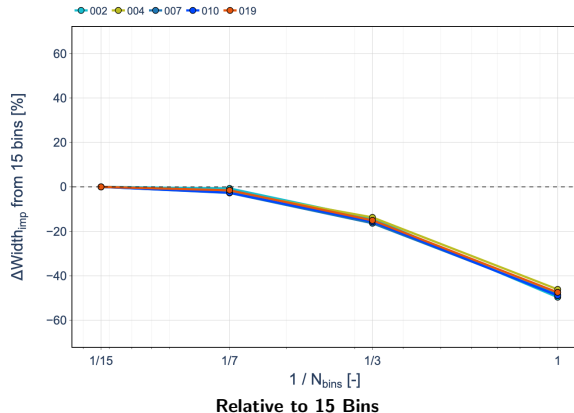
$y = 0.75 \text{ m}$



Observations

- Due to near-peak β oscillations, peak magnitude and position were not retained as convergence metrics; impingement width ($\beta = 0.0001$) was used instead.
- At L1, the median impingement width is 0.156 m, with a relative IQR of 5.4%; differences between L1 and L2 remain within approximately 5% for most submissions.

Impingement Width Distribution Sensitivity (L1)



Observations

- Impingement width increases with the number of bins.
- Distribution resolution affects impingement extent more strongly than total collected water mass.



Droplet Impingement Assessment

Droplet Impingement Assessment

Spatial Grid Convergence

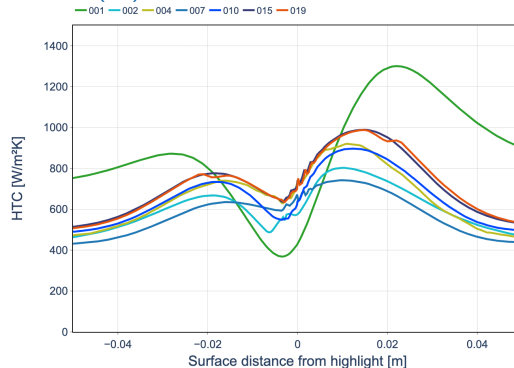
- Water mass shows limited grid sensitivity for most submissions, with L1 and L2 predictions closely aligned.
- Collection-efficiency distributions show good code-to-code agreement across the three spanwise stations.
- Impingement width exhibits the greatest grid sensitivity, particularly on the coarser grids.

Droplet-Size Effects

- Water mass shows limited sensitivity to droplet discretization, with differences of approximately 2% between the single- and 15-bin predictions.
- Impingement width remains sensitive to droplet discretization, with the single-bin prediction differing by approximately 50% from the 15-bin result and a difference of approximately 5% remaining between the 7- and 15-bin distributions.



Convective Heat-Transfer Distribution (L1)



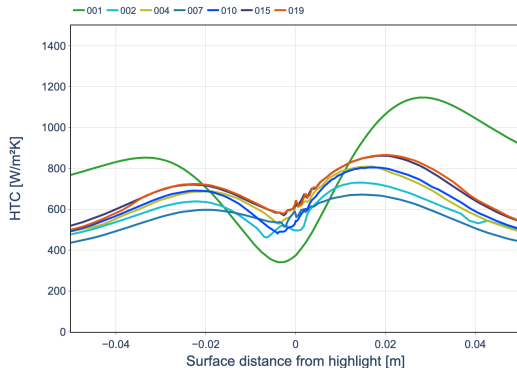
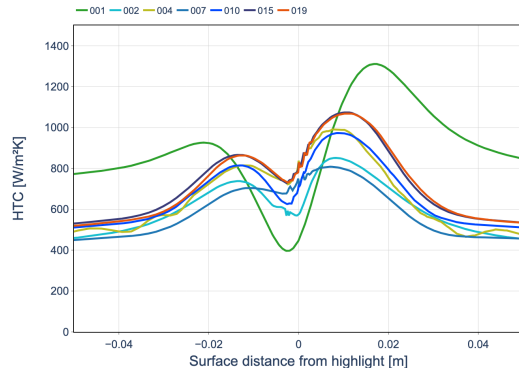
HTC vs. s | $y = 0.75$ m

Observations

- Considerable code-to-code variability is observed in HTC at the baseline 1 mm roughness.
- Similar variability is observed at the inboard and outboard stations.
- Increasing roughness generally increases HTC , although the magnitude of the effect varies between submissions.



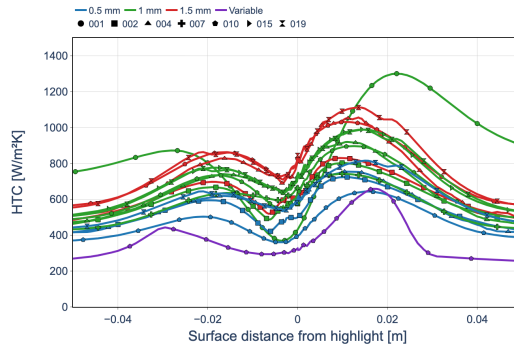
Convective Heat-Transfer Distribution (L1)



Observations

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Convective Heat-Transfer Distribution (L1)

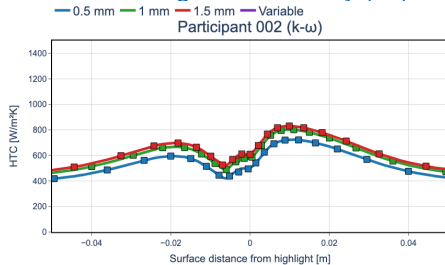
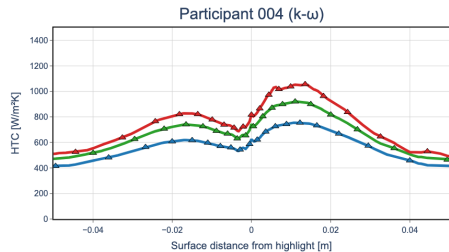
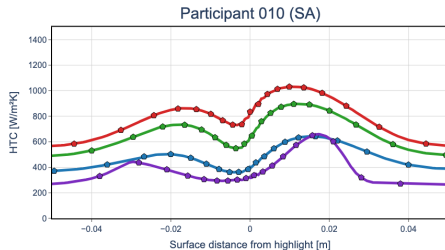
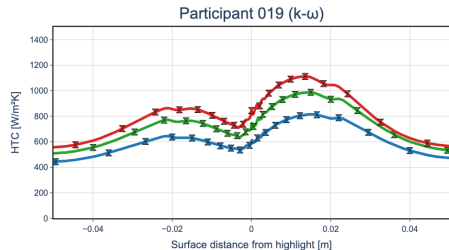
HTC vs. s | $y = 0.75$ m

Note: Colors indicate roughness groups and are not associated with participant IDs.

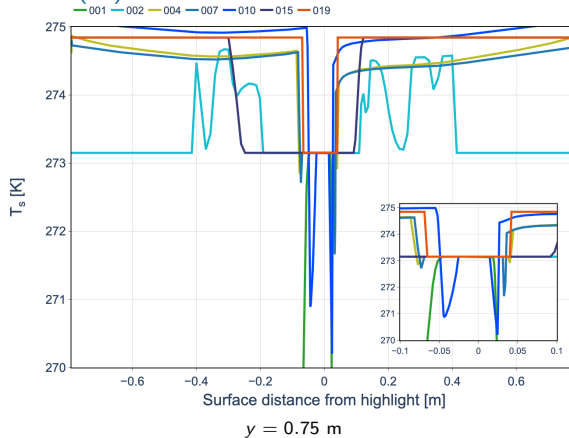
Observations

- Considerable code-to-code variability is observed in HTC at the baseline 1 mm roughness.
- Similar variability is observed at the inboard and outboard stations.
- Increasing roughness generally increases HTC , although the magnitude of the effect varies between submissions.

Participant-Level HTC Roughness Sensitivity (L1)

HTC vs. s | $y = 0.75$ m

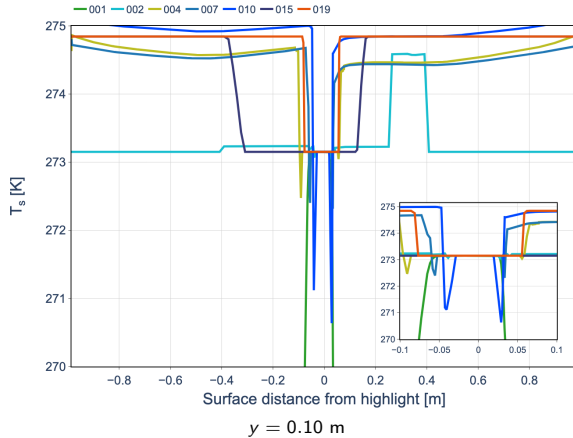
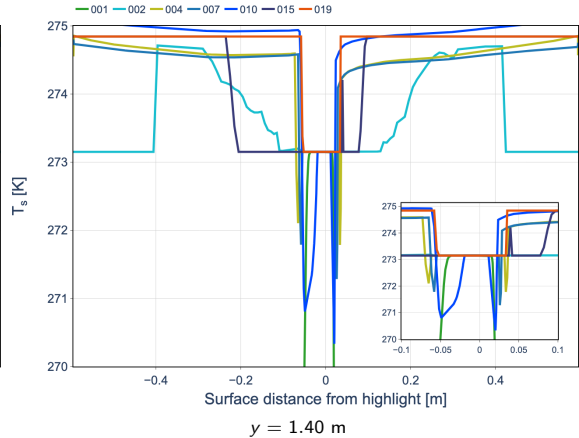
Surface Temperature Distribution (L1)



Observations

- Local code-to-code differences are concentrated near the leading edge.
- Similar differences are observed at the inboard and outboard stations.

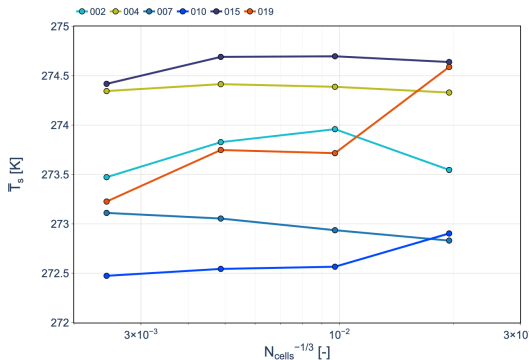
Surface Temperature Distribution (L1)



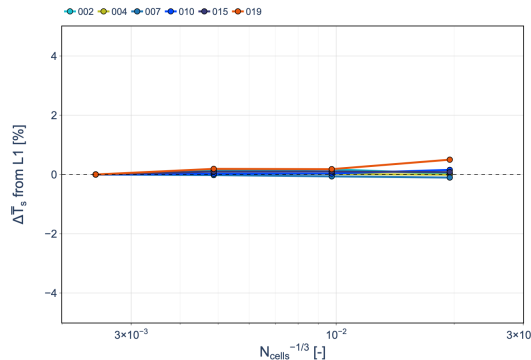
Observations

- Local code-to-code differences are concentrated near the leading edge.
- Similar differences are observed at the inboard and outboard stations.

Mean Surface Temperature Grid Convergence



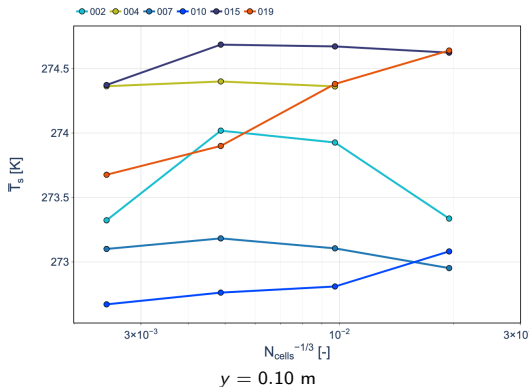
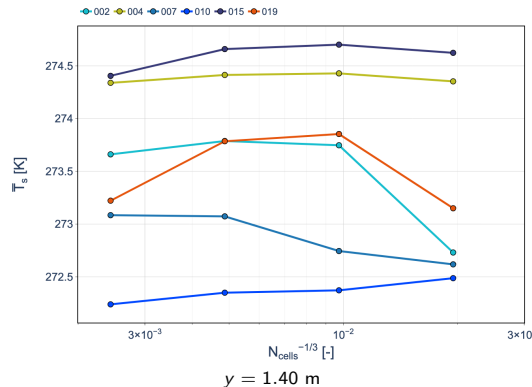
$y = 0.75 \text{ m}$



Observations

- Mean T_s ($\bar{T}_s$) is weighted by the local surface-element size over the iced surface ($h_{\text{ice}} > 0$).
- Grid sensitivity is limited ($< 1\%$ for most submissions), with closely clustered predictions.
- Similar grid-refinement behavior is observed at the inboard and outboard stations.
- Roughness changes mean T_s by approximately $\pm 0.5 \text{ K}$, with a code-dependent response.

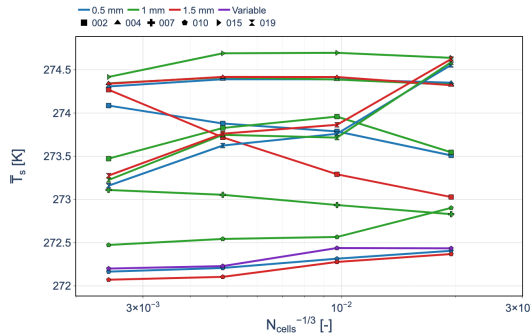
Mean Surface Temperature Grid Convergence



Observations

- Mean T_s ($\bar{T}_s$) is weighted by the local surface-element size over the iced surface ($h_{\text{ice}} > 0$).
- Grid sensitivity is limited ($< 1\%$ for most submissions), with closely clustered predictions.
- Similar grid-refinement behavior is observed at the inboard and outboard stations.
- Roughness changes mean T_s by approximately ± 0.5 K, with a code-dependent response.

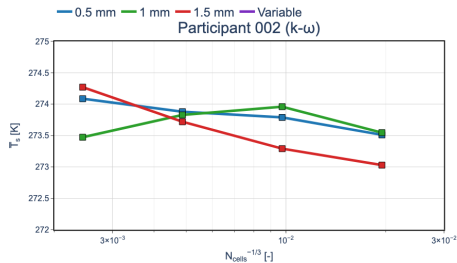
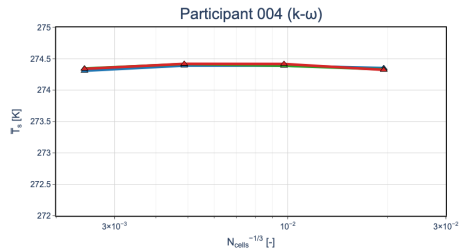
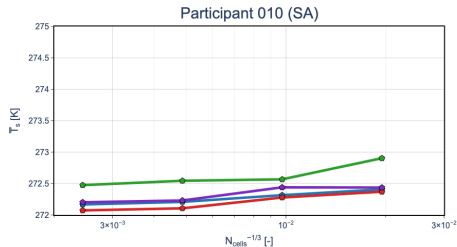
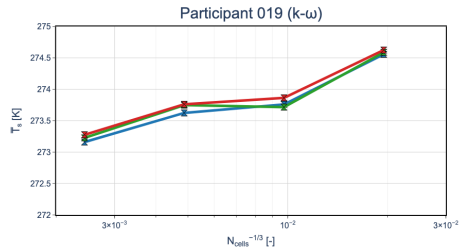
Mean Surface Temperature Grid Convergence



Observations

- Mean T_s ($\bar{T}_s$) is weighted by the local surface-element size over the iced surface ($h_{\text{ice}} > 0$).
- Grid sensitivity is limited ($< 1\%$ for most submissions), with closely clustered predictions.
- Similar grid-refinement behavior is observed at the inboard and outboard stations.
- Roughness changes mean T_s by approximately $\pm 0.5 \text{ K}$, with a code-dependent response.

Participant-Level Mean Surface Temperature Roughness Sensitivity (L1)



Integrated Convective Heat Transfer

Grid-Convergence Metric

To assess whether the differences in the local HTC distributions translate into a clear grid-convergence behavior, an integrated convective heat-transfer quantity is evaluated along the surface slice:

$$Q'_c = \int HTC(s) [T_s(s) - T_{rec}(s)] ds \quad [Q'_c] = W/m.$$

The submitted HTC and surface temperature T_s are used directly. The recovery temperature T_{rec} , however, was not part of the submitted dataset and must therefore be reconstructed.

Recovery Temperature Reconstruction

The submitted pressure coefficient is used to estimate the local external-flow state and subsequently the recovery temperature:

$$C_p(s) \longrightarrow p_e(s) \longrightarrow M_e(s) \longrightarrow T_e(s) \longrightarrow T_{rec}(s)$$

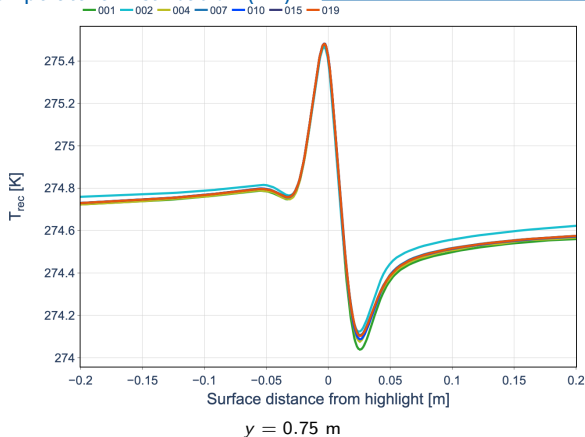
Assuming $p_s \simeq p_e$ and an isentropic external flow,

$$\frac{p_e}{p_\infty} = 1 + \frac{\gamma}{2} M_\infty^2 C_{p,e}, \quad M_e^2 = \frac{2}{\gamma - 1} \left[\left(\frac{p_0}{p_e} \right)^{(\gamma-1)/\gamma} - 1 \right],$$

$$T_e = \frac{T_0}{1 + \frac{\gamma-1}{2} M_e^2}, \quad T_{rec} = T_e \left[1 + r \frac{\gamma-1}{2} M_e^2 \right], \quad r = Pr^{1/3} \approx 0.9.$$



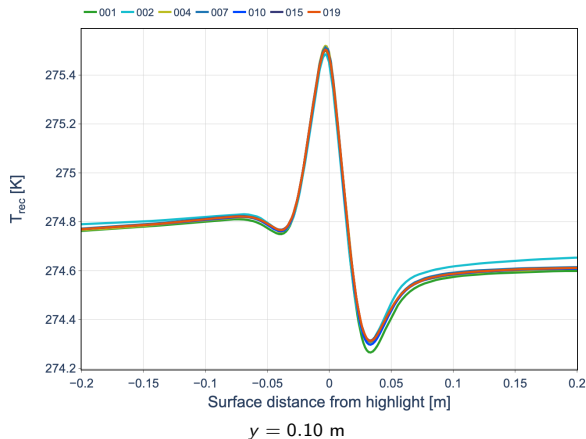
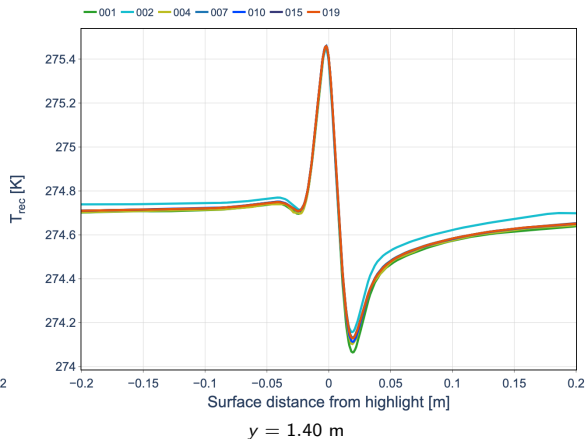
Reconstructed Recovery Temperature Distribution (L1)



Observations

- The reconstructed recovery-temperature distributions are closely aligned across submissions.
- This agreement is consistent with the good code-to-code agreement observed for C_p , from which T_{rec} is reconstructed.
- Similar agreement is observed at the inboard and outboard stations.

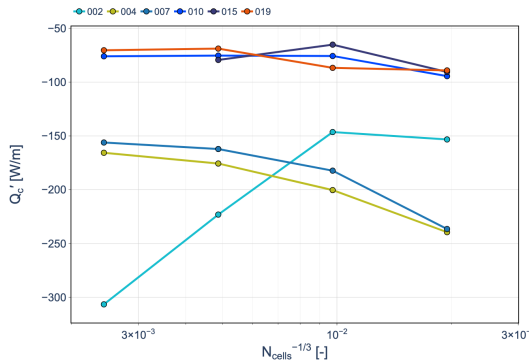
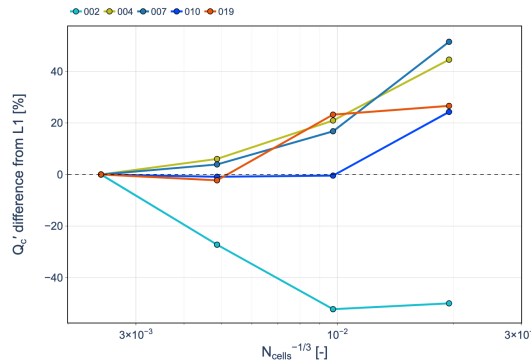
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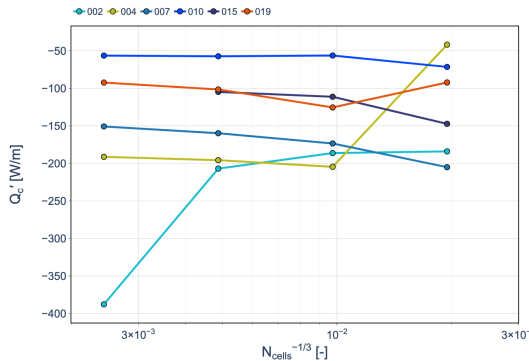
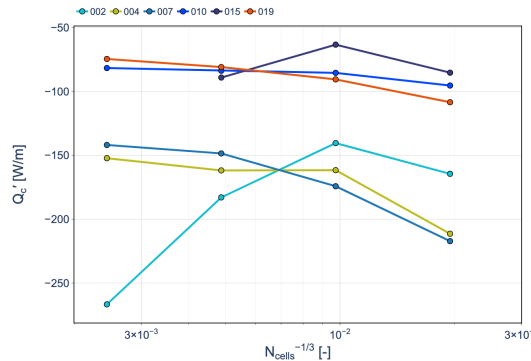
Convective Heat Transfer Grid Convergence

 $y = 0.75 \text{ m}$

Observations

- Considerable code-to-code variability is observed in Q'_c .
- Similar code-to-code variability persists at the inboard and outboard stations.
- Increasing surface roughness generally increases $|Q'_c|$, although the magnitude of the roughness effect varies considerably between submissions.

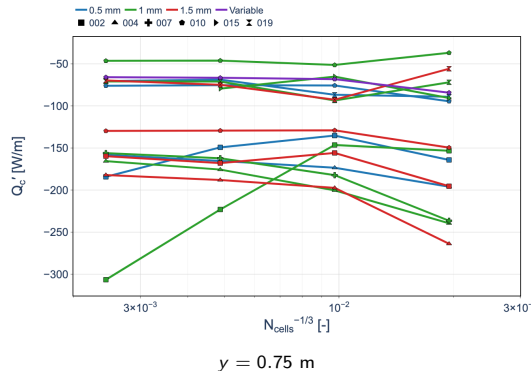
Convective Heat Transfer Grid Convergence

 $y = 0.10 \text{ m}$  $y = 1.40 \text{ m}$

Observations

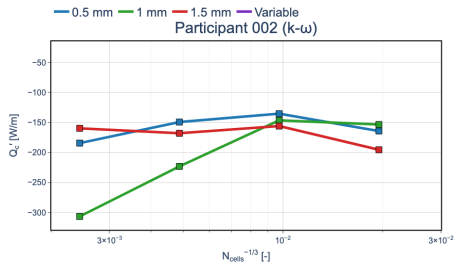
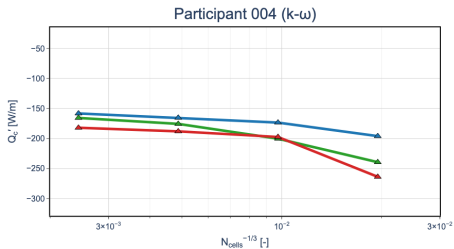
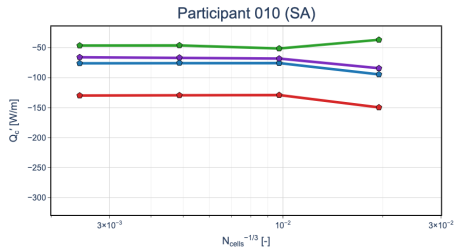
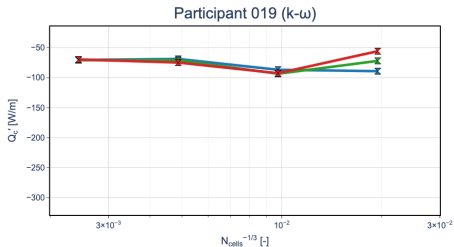
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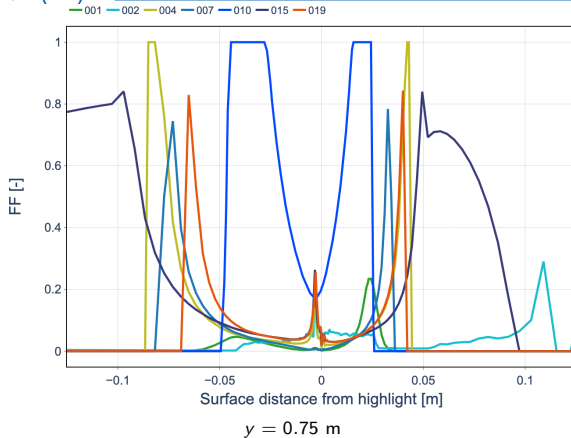


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Participant-Level Q_c' Roughness Sensitivity (L1)

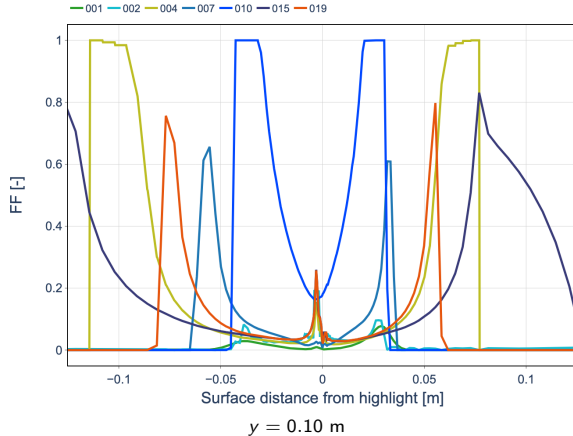
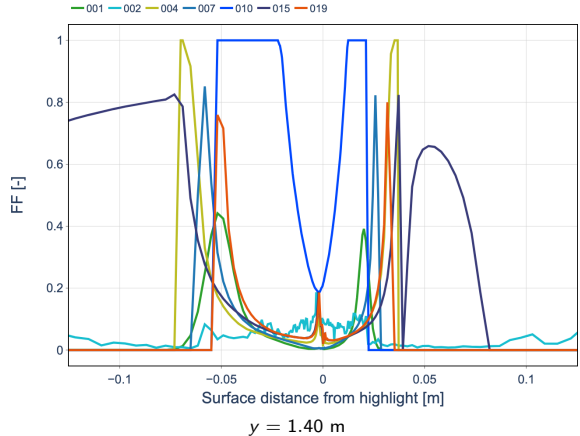
Freezing-Fraction Distribution (L1)



Observations

- Large code-to-code differences are observed in both the magnitude and spatial extent of the predicted freezing fraction.
- Substantial variability in the predicted freezing regime persists at the inboard and outboard stations.

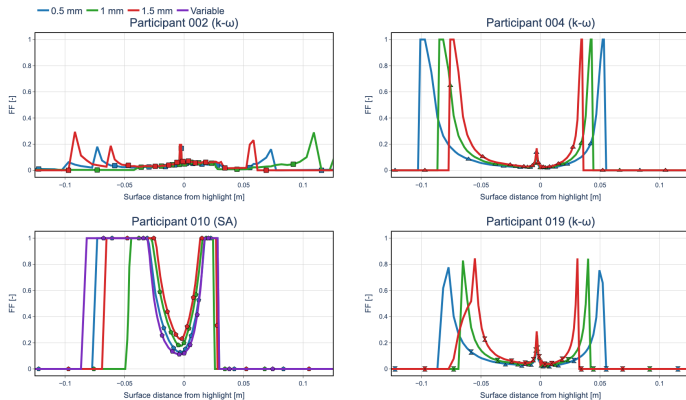
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Participant-Level Freezing-Fraction Roughness Sensitivity (L1)



$$y = 0.75 \text{ m}$$

Observation

- The freezing-fraction response to surface roughness is code-dependent, with differences in both the magnitude and spatial extent of the response.



HTC & Thermodynamics Assessment

HTC & Thermodynamics Assessment

Convective Heat Transfer

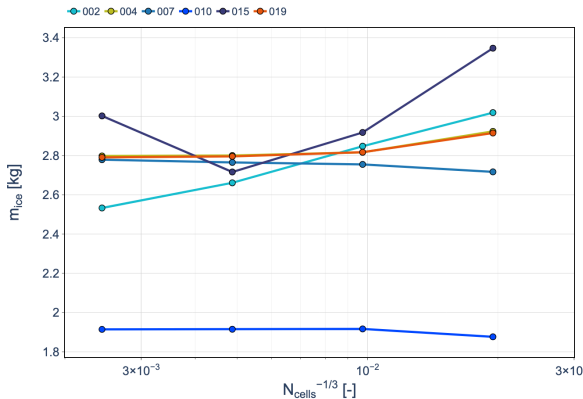
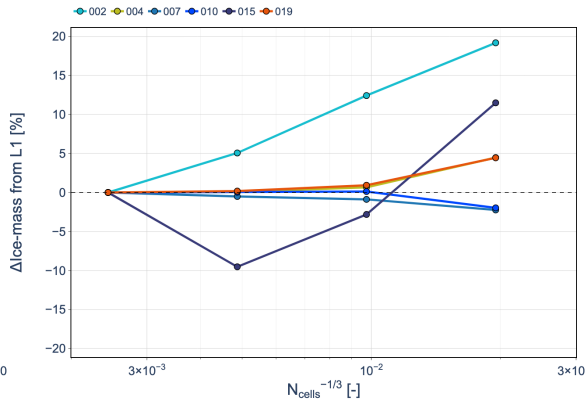
- Local HTC exhibits substantial code-to-code variability, with a code-dependent response to prescribed surface roughness.
- Integrated Q'_c exhibits limited grid sensitivity for most submissions, while its response to roughness varies between codes.

Thermodynamic Response

- Mean surface temperature on the iced surface exhibits limited grid sensitivity for most submissions.
- Freezing fraction exhibits substantially greater code-to-code variability in both magnitude and spatial extent.
- Surface temperature and freezing fraction exhibit code-dependent responses to prescribed surface roughness.



Ice Mass Grid Convergence (15 Bins)

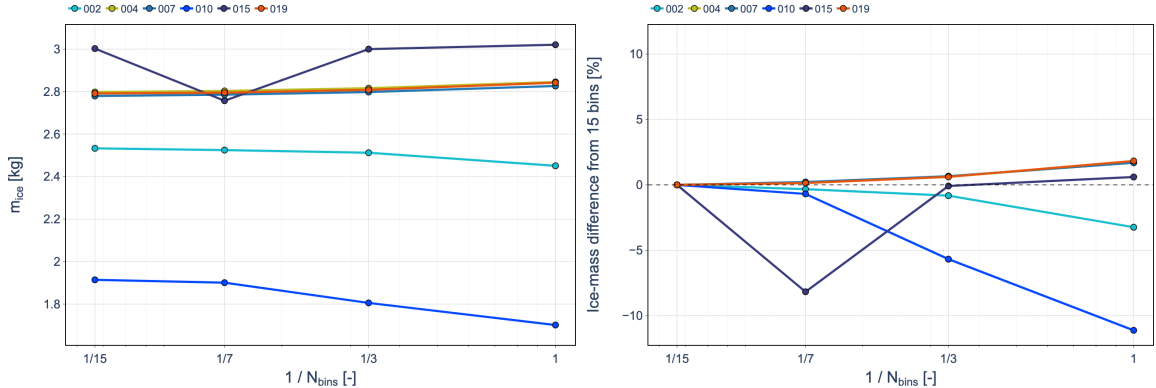


Observations

- At L1, the median ice mass is 2.79 kg, with an IQR of 7.2%.
- Grid sensitivity is submission-dependent, with L4 deviations ranging from less than 5% to approximately 20% relative to L1.



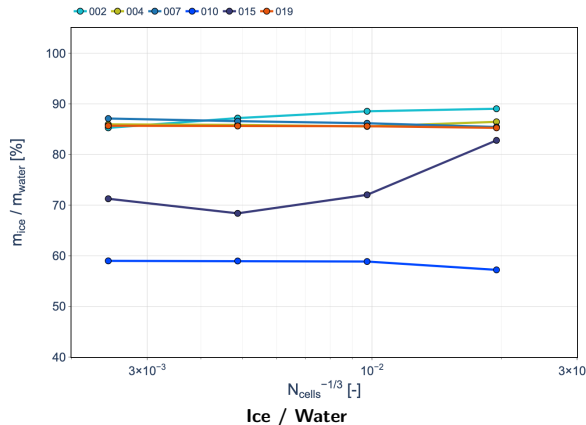
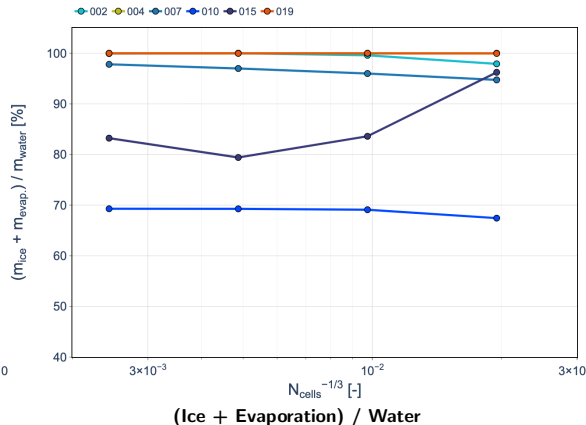
Ice Mass Sensitivity to Droplet Distribution



Observations

- Ice mass shows sensitivity between the multi-bin distributions, while the single-bin produces larger deviations from the 15-bin prediction.
- These differences may be related to the larger changes in impingement width observed for the single-bin case.

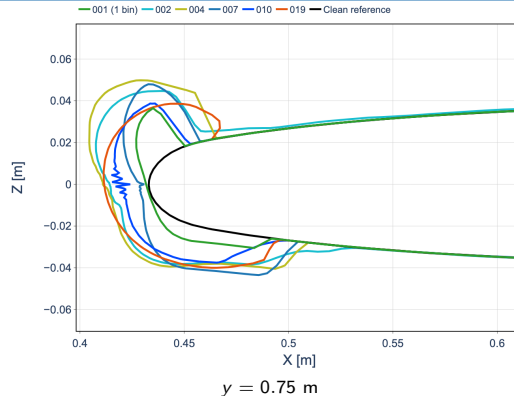
Ice and Evaporation Mass Ratios



Observations

- Most submissions convert approximately 85–89% of the impinging water mass into ice.
- Accounting for evaporation closes the mass balance for some submissions.
- The remaining mass may be associated with surface-water runback and shedding.

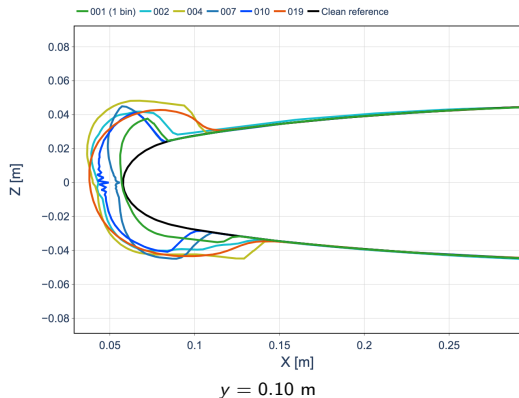
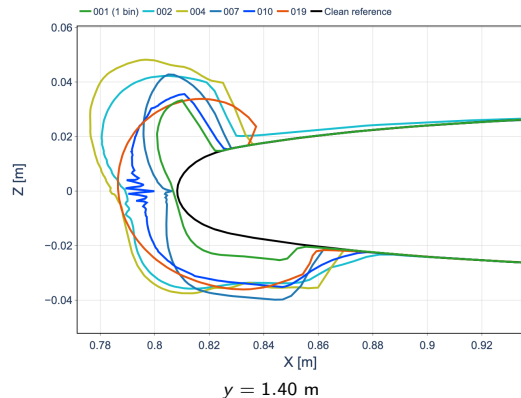
Ice Shapes (L1, 15 Bins)



Observations

- Considerable code-to-code variability is observed in the predicted ice shapes, particularly in horn geometry and local ice thickness.
- Similar shape variability persists at the inboard and outboard stations.
- As highlighted by the freezing-fraction distributions, considerable thermodynamic differences persist between submissions despite the comparatively good agreement in droplet impingement.

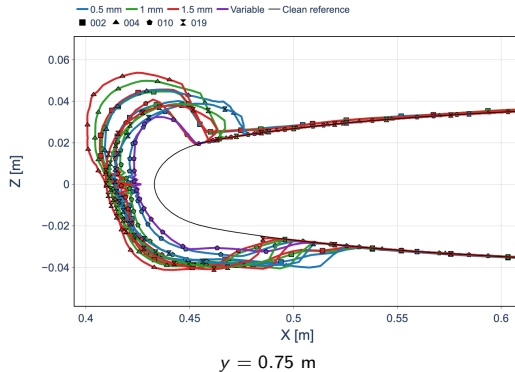
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Ice-Shape Sensitivity to Surface Roughness

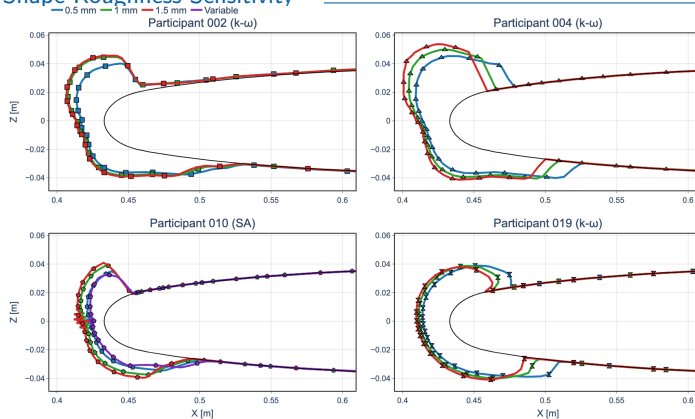


Observations

- Surface roughness affects the predicted ice geometry, including horn height, extent, and orientation.



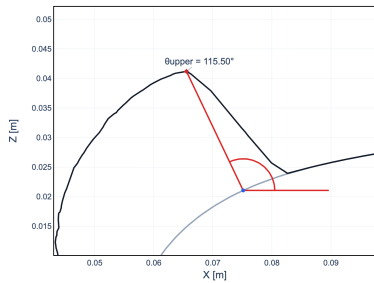
Participant-Level Ice-Shape Roughness Sensitivity



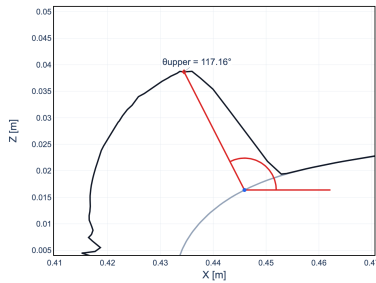
Observations

- The magnitude and nature of the ice-shape response to surface roughness vary considerably between submissions.
- Roughness can modify horn height, extent, and orientation differently.

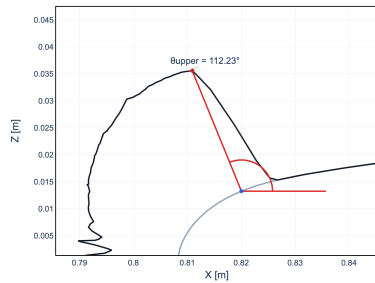
Upper-Horn Angle Extraction



$y = 0.10 \text{ m}$



$y = 0.75 \text{ m}$

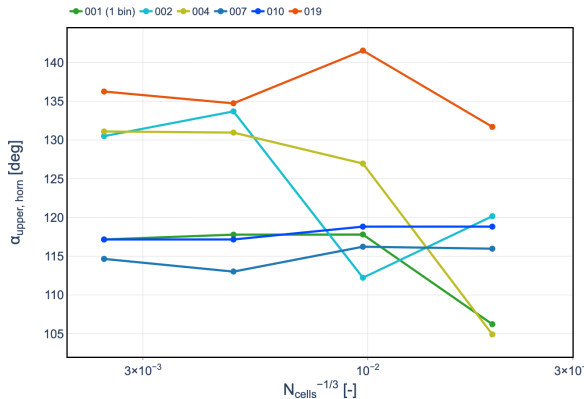
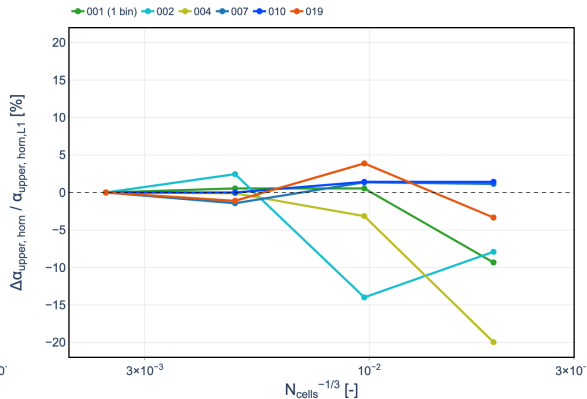


$y = 1.40 \text{ m}$

Definition

- The upper-horn angle is evaluated independently at each of the three spanwise slices.
- Horn-angle extraction can become ambiguous for complex ice geometries; shape-similarity metrics provide a more robust quantitative comparison of the complete ice shape.

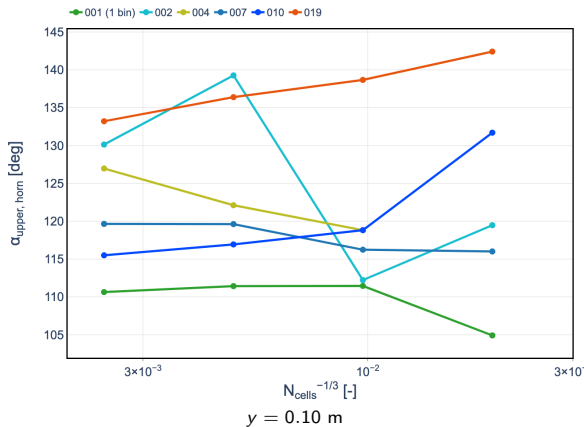
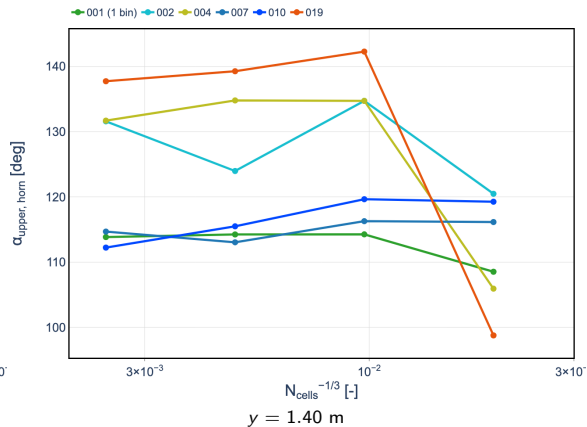


Upper-Horn Angle Variation (15 bins, $y = 0.75$ m)

Observations

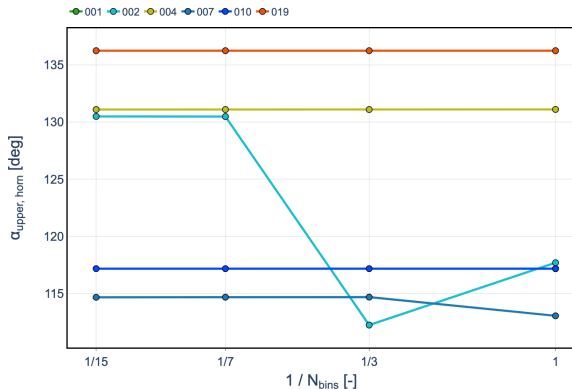
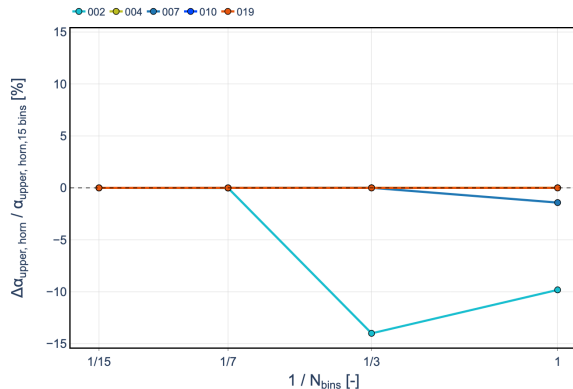
- At L1, the median upper-horn angle is 129.6° , with a relative IQR of 8.4%.
- Horn-angle predictions exhibit submission-dependent grid sensitivity, with deviations reaching approximately 20% relative to L1 on the coarser grids.

Upper-Horn Angle Variation at Other Slices



Observations

- Substantial code-to-code variability and grid sensitivity persist at the inboard and outboard stations.
- Spatial refinement does not lead to convergence toward a common horn-angle prediction.

Upper-Horn Angle Distribution Sensitivity (L1, $y = 0.75$ m)

Observations

- Upper-horn angle shows limited sensitivity to droplet-distribution resolution for most submissions.
- Upper-horn angle is generally weakly sensitive to roughness ($\lesssim 3\%$), aside from isolated grid-dependent variations.



Ice Accretion Assessment

Ice Accretion Assessment

Ice Mass

- Grid sensitivity is submission-dependent, while sensitivity between the multi-bin droplet distributions remains comparatively limited.
- Larger differences are observed for the single-bin approximation, potentially related to changes in impingement extent and subsequent runback.

Mass Partition

- Most submissions convert approximately 85–89% of the impinged water mass into ice.
- Accounting for evaporation closes the mass balance for some submissions, while remaining water may be associated with runback and shedding.

Ice Geometry

- Ice shape and upper-horn angle exhibit substantial code-to-code variability and spatial grid sensitivity.
- Droplet-distribution sensitivity is comparatively smaller.



Overall Assessment

Overall Assessment

- **Aerodynamics:** Predictions are generally well clustered, with C_D exhibiting the greatest grid sensitivity and code-to-code variability.
- **Droplet Impingement:** Good overall agreement is observed; integrated water mass exhibits limited sensitivity, while impingement extent is more sensitive to spatial and droplet-distribution resolution.
- **HTC & Thermodynamics:** Substantial code-to-code variability develops in HTC , surface temperature, and freezing fraction, with code-dependent responses to surface roughness.
- **Ice Accretion:** Considerable variability is observed in ice mass, horn geometry, and final ice shape, with strong grid sensitivity in the geometric predictions.

Overall Takeaway

Code-to-code variability generally increases through the icing simulation chain. Despite comparatively good agreement in aerodynamics and droplet impingement, substantial differences emerge in the thermodynamic response and final ice accretion, highlighting the influence of both thermodynamic and ice-accretion modeling.

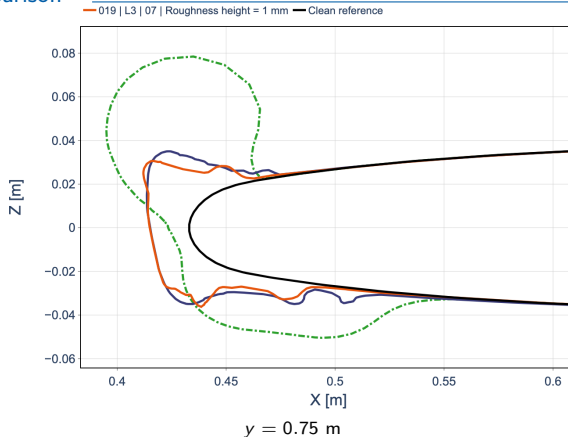


Additional Material

Supplementary Results



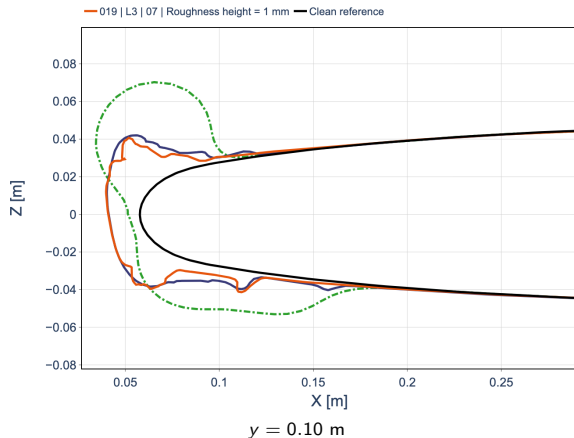
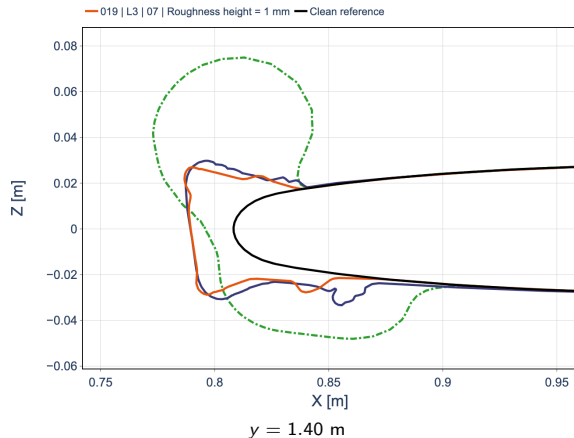
Multilayer Ice-Shape Comparison



Observations

- Considerable code-to-code differences persist in the multilayer ice shapes, although submissions using the same icing code tend to produce similar geometries.
- A detailed assessment remains difficult due to the limited number of available multilayer submissions.

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