Ice Prediction Workshop-1
Experimental Ice Locations and Mass Data

IPW-1 Organizing Committee

Revision 3
9 April 2021

This document provides further documentation regarding the locations corresponding to the experimental ice shape tracings, MCCS, scan area and mass values. Please refer to the descriptions and figures below.

Experimental values of ice mass were reported for:

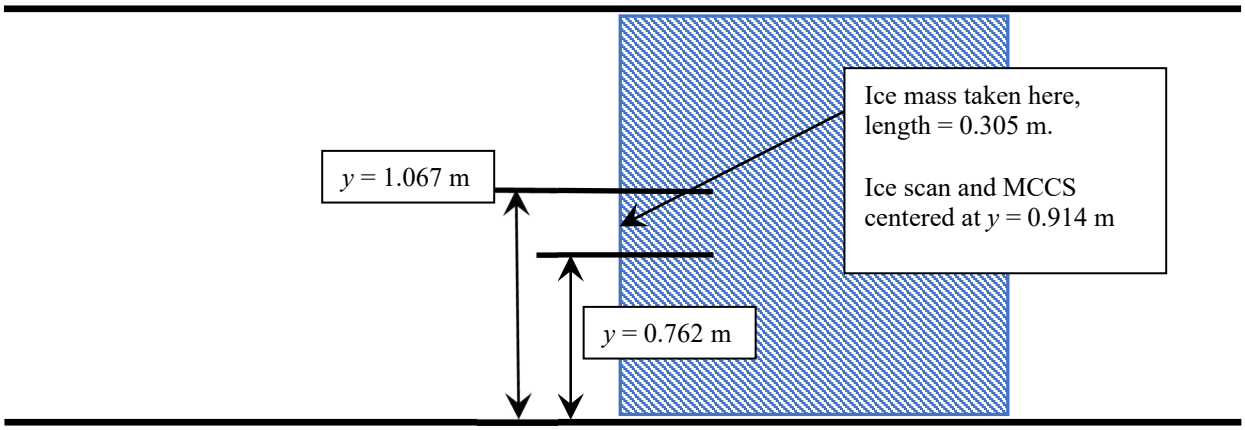
- Cases 251 and 252 in SAE Paper 2019-01-2022
- Cases 361 and 362 in AIAA Paper 2014-2200
- Cases 363 and 364 in AIAA Paper 2020-2814
- Cases 371 and 372 in AIAA Paper 2014-2200

The experimental ice mass was determined by weighing a segment of the ice that was removed from the test article between to cut planes. This weight was then divided by the length of the ice segment between the cut planes as reported in each reference. In all cases the length was measured along the leading edge. Diagrams are inlcuded below to clarify where and over what length the ice mass was collected.

For Cases 361, 362, 371 and 372, two mass values were reported. According to AIAA Paper 2014-2200: "*The ice removal process resulted in some mass loss because feathers and any ice that was not part of the main ice shape were lost during the heating process used to remove the ice shape from the wing leading edge*." As a result, a corrected value of ice mass was also provided that attempts to account for the mass of the ice feathers and other features that were not weighed. The correction: "*was accomplished by multiplying the experimental mass by the ratio of the ice shape tracing area to the ice shape tracing area without the feathers*." Both the experimental mass and the corrected mass are being provided here.

Case	Experimental Ice Mass (Kg/m)	Corrected Ice Mass (Kg/m)
251	1.80	N/A
252	2.19	N/A
361	1.63	1.90
362	1.43	1.62
363	1.56	N/A
364	1.38	N/A
371	1.48	1.58
372	1.45	1.60

Ice Mass Location for Cases 251 and 252
72-inch chord NACA 23012



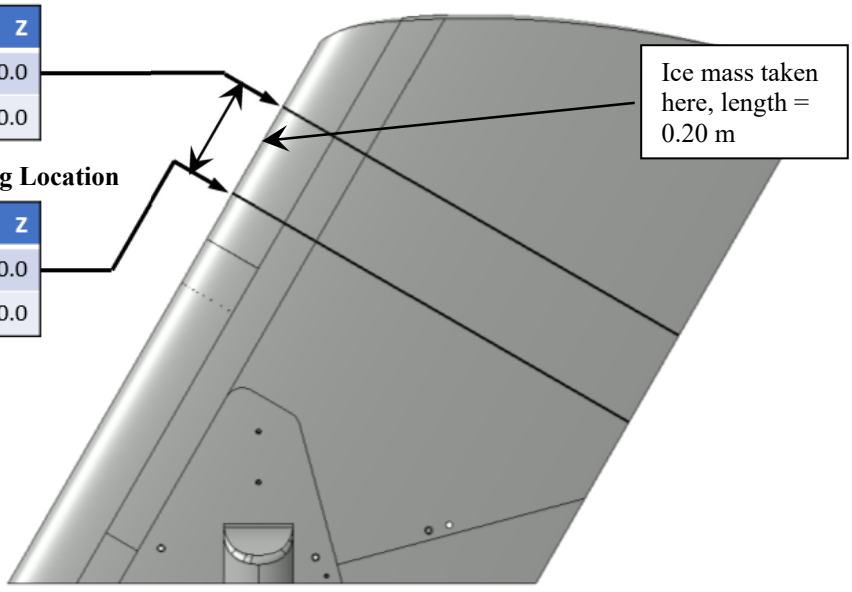
Ice Mass and Ice Tracing Locations for Cases 361 and 362
30-deg, swept NACA 0012

Leading Edge Point Upper Tracing Location

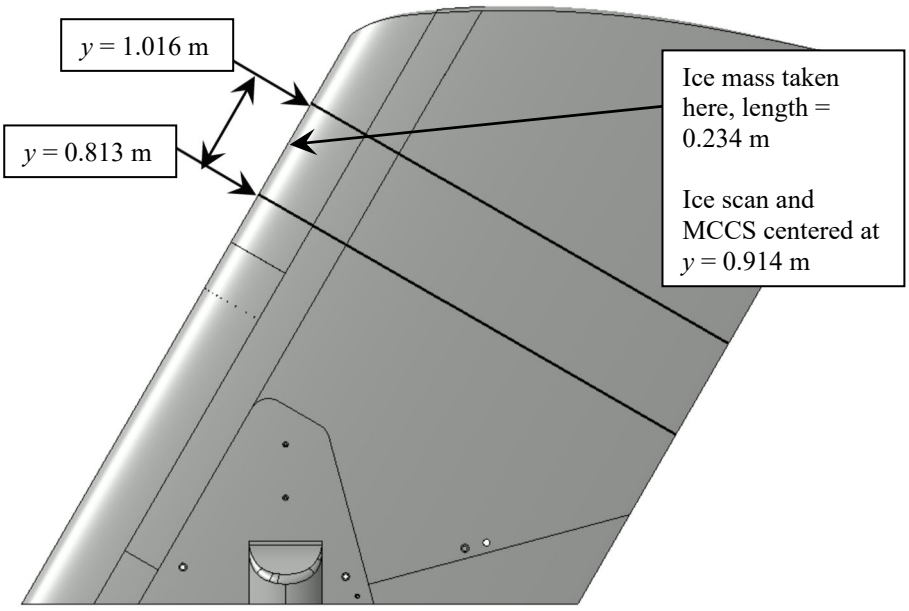
	X	Y	Z
meters	0.0814266	0.953835	0.0
inches	3.20577	37.5526	0.0

Leading Edge Point Lower Tracing Location

	X	Y	Z
meters	-0.0185734	0.780630	0.0
inches	-0.731237	30.7335	0.0



Ice Mass Location for Cases 363 and 364
30-deg, swept NACA 0012



Ice Mass and Ice Tracing Locations for Cases 371 and 372
45-deg, swept NACA 0012

Leading Edge Point Upper Tracing Location

	X	Y	Z
meters	0.233487	0.912376	0.0
inches	9.19239	35.9203	0.0

Leading Edge Point Lower Tracing Location

	X	Y	Z
meters	0.0920653	0.770955	0.0
inches	3.62462	30.3525	0.0