



# MUSIC-haic

3D MUltidisciplinary tools for the Simulation of In-flight icing due to High Altitude Ice Crystals

## Agenda

### MUSIC-haic Public Forum, 15-17/02/2023

<b>Project Ref. N°</b>	MUSIC-haic - H2020 - 767560
<b>Start Date / Duration</b>	01 September 2018 / 48 Months
<b>Dissemination Level<sup>1</sup></b>	CO (Consortium)
<b>Author / Organisation</b>	Philippe Villedieu / ONERA Romuald Beauvais / ARTTIC
<b>Date of the Meeting</b>	15-17 February 2023
<b>Host / Organisation</b>	ONERA
<b>Location</b>	2 avenue Edouard Belin – 31055 Toulouse – FRANCE
<b>Access / Security details</b>	See sections 3-4
<b>Filing Code</b>	MUSIC-haic_AGD_Public_Forum_R0.1.docx

<sup>1</sup> CO Confidential, only for members of the consortium (including the Commission Services); RE: Restricted to a group specified by the Consortium (including the EC services); PU Public

# MUSIC-haic Public Forum

## Agenda

**Day 1 – 15 Feb. 2023**

Time		Item	Presenter	Duration
9:30	10:00	<i>Welcome coffee</i>		
10:00	10:15	<i>Introduction, objectives of the meeting</i>	P. Villedieu	15'
<b>10:15</b>	<b>12:00</b>	<b>Main achievements made in MUSIC-haic concerning ice crystal icing experimental investigation – Session chair : T. Currie</b>		
10:15	10:45	<i>Experimental investigation of ice crystal accretion on a heated surface</i>	Y. A. Malik (TUBS)	20'+10'
10:45	11:15	<i>Experimental investigation of ice crystal impact phenomena</i>	L. Reiter / N. Karpen (TUDA)	20'+10'
11:15	11:45	<i>Experimental investigation of shedding phenomena in ice crystal icing conditions</i>	Y.A. Malik (TUBS) / N. Karpen (TUDA) / K. Köbschall (TUDA)	20'+10'
11:45	12:15	<i>Conclusions of TUBS vs CNRC icing wind tunnel cross comparison</i>	Y. A. Malik (TUBS)	20'+10'
12:15	12:40	<i>Open discussion</i>	All	25'
12:40	14:00	<i>Lunch break</i>		
<b>14:00</b>	<b>16:00</b>	<b>NASA and CNRC recent advances concerning ice crystal icing experimental study – Session chair : P. Trontin (Lyon University)</b>		
14:00	14:45	<i>Overview of NASA ICI experimental research and future plan</i>	Ch. Porter (NASA)	30'+15'
14:45	15:30	<i>ICE-MACR Research– 2019-2022 What we have discovered so far</i>	M. Neuteboom (CNRC)	30'+15'
15:30	16:00	<i>Coffee Break</i>		
<b>16:00</b>	<b>17:00</b>	<b>Visit of ONERA research icing wind tunnel</b>	B. Dejean (ONERA)	20' per group
17:00		<i>End of day 1 meeting</i>		
<b>19:30</b>	<b>22:00</b>	<b>Dinner in Toulouse at the restaurant Monsieur Georges, 20 Pl. Saint-Georges</b>		

## Day 2 – 16 Feb. 2023

Time		Item	Presenter	Duration
8:30	9:00	<i>Welcome coffee</i>		
<b>9:00</b>	<b>12:30</b>	<b>Main achievements made in MUSIC-haic concerning ice crystal icing modelling and related topics - Session chair : S. Bansmer (Coldsense Technologies GmbH)</b>		
9:00	9:40	<i>Overview of TU Darmstadt's main achievements regarding ICI modelling</i>	I. Roisman (TUDA)	25'+15'
9:40	10:20	<i>Overview of ONERA's main achievements regarding ICI modelling</i>	C. Laurent & L. Bennani (ONERA)	25'+15'
10:20	10:40	<i>Coffee Break</i>		
10:40	11:20	<i>GlennICE Current Capabilities and Future Work</i>	Ch. Porter (NASA)	25'+15'
11:20	12:00	<i>ICE-GENESIS main achievements regarding snow icing modelling</i>	F. Dezitter (AIRBUS-H)	25'+15'
12:00	13:30	<i>Lunch break and group photo</i>		
<b>14:00</b>	<b>15:00</b>	<b>Means of compliance for ice crystal icing : certification authority's vision - Session chair : P. Vancore (G.E.)</b>		
14:00	14:30	<i>EASA vision</i>	V. Brandi (EASA)	20'+10'
14:30	15:00	<i>FAA vision</i>	P. Haberlen (FAA)	20'+10'
<b>15:00</b>	<b>17:30</b>	<b>Main achievements made in MUSIC-haic concerning development and validation of 3D numerical tools dedicated to ice crystal icing (Session 1 : Engine icing) – Session chair : M. Neuteboom (CNRC)</b>		
15:00	15:40	<i>ONERA-SAFRAN's 3D tool for engine ICI applications</i>	G. Aouizerate (SAF-AE)	25'+15'
15:40	16:00	<i>Coffee Break</i>		
16:00	16:40	<i>Rolls-Royce's 3D tool for engine ICI applications</i>	A. Vogel (RR)	25'+15'
16:40	17:20	<i>GE's 3D tool for engine ICI applications</i>	P. Vancore (GE)	25'+15'
17:20	17:30	<i>Final discussion</i>	All	
17:30		<i>End of day 2 meeting</i>		

**Day 3 – 17 Feb. 2023**

Time		Item	Presenter	Duration
8:30	9:00	<i>Welcome coffee</i>		
<b>9:00</b>	<b>10:30</b>	<b>Main achievements made in MUSIC-haic concerning development and validation of 3D numerical tools dedicated to ice crystal icing (Session 2 : Aircraft icing) – Session chair : Ch. Porter (NASA)</b>		
9:00	9:30	<i>CIRA's 3D tool for aircraft ICI applications</i>	A. Carroza (CIRA)	20'+10'
9:00	9:30	<i>Aircraft ICI applications in the framework of Airbus' 3D tools</i>	M. Diop (ANDHEO)	20'+10'
10:00	10:30	<i>Dassault's 3D tool for aircraft ICI applications</i>	F. Caminade (DASSAULT)	20'+10'
<b>10:30</b>	<b>10:45</b>	<b>Coffee Break</b>		
<b>10:45</b>	<b>11:45</b>	<b>Overview of the other European projects dedicated to in-flight icing and final discussion – Session chair : Ph. Villedieu (ONERA)</b>		
10:45	11:15	<i>SENS4ICE Ice Detection Technologies SLD IWT testing and flight campaigns</i>	C. Schwartz (DLR)	20'+10'
11:15	11:45	<i>ICE GENESIS: SLD main achievements and expectations</i>	M. Moller (AIRBUS)	20'+10'
11:45	12:15	<i>SOUNDOFICE: Progress in smart de-icing with acoustic waves</i>	A.R. González-Elipe (Institute of Material Sciences of Seville)	20'+10'
12:15	13:00	<i>Final discussion and round table to get the participant feed-back</i>	Ph. Villedieu + all	45'
<b>13:00</b>	<b>14:00</b>	<b>Lunch</b>		
14:00		<i>End of day 3 meeting</i>		