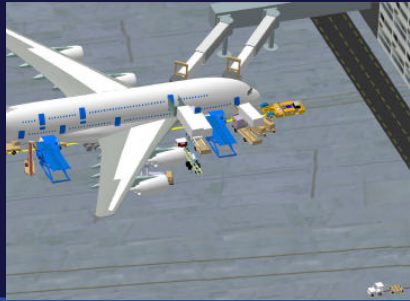


Presented by

Dr. Thilo Stilp

Manager Ground Operations & Environment  
A380 Programme  
Airbus



# Airbus Ground Operations Simulator

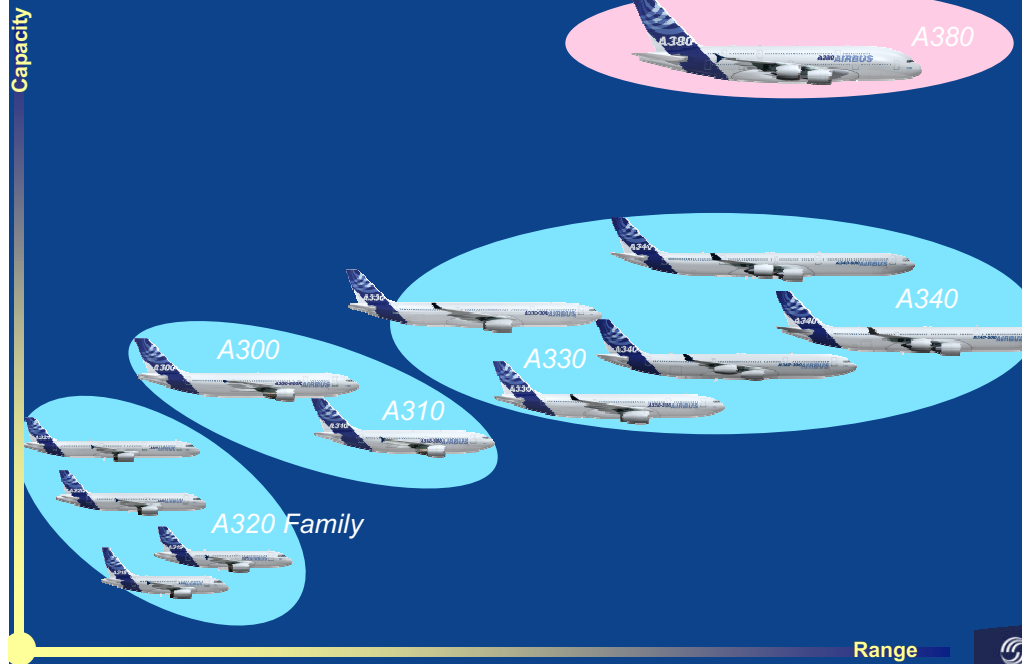


# Contents

0 *A380 Programme update*



# Airbus today



December 2000. A380 and A380F launched simultaneously



*A380-800  
Passenger*

**560t MTOW**  
**555 seats**  
**8000 NM**

EIS: 2<sup>nd</sup> Hlf. 2006



*A380-800F  
Freighter*

**590t MTOW**  
**150t Payload**  
**5600 NM**

EIS: Mid 2008



**Strong Market Confidence**  
The airlines have validated the A380

**154 firm orders & commitments from 15 customers**

**127 A380  
27 A380F**

<b>AIR FRANCE</b>		10 A380
<b>中国南方航空 (南航集团)</b> CHINA SOUTHERN AIRLINES GROUP		5 A380
<b>Emirates</b>		41 A380 2 A380
<b>ETIHAD AIRWAYS</b>		4 A380
<b>FedEx</b>		10 A380
<b>ILFC</b>		5 A380 5 A380
<b>KOREAN AIR</b>		5 A380
<b>Lufthansa</b>		15 A380
<b>Malaysia Airlines</b>		6 A380
<b>QATAR AIRWAYS</b> القطرية		2 A380
<b>QANTAS</b>		12 A380
<b>SEAPORT AIRLINES</b>		10 A380
<b>Thai</b>		6 A380
<b>UPS</b>		10 A380
<b>Virgin Atlantic</b>		6 A380



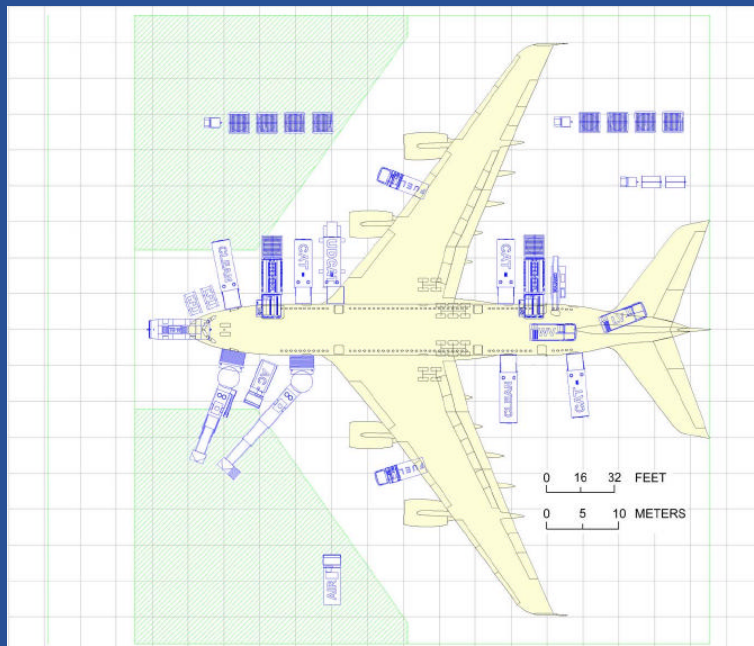
**A380 transfer to Airbus Flight Test. 6<sup>th</sup> April**



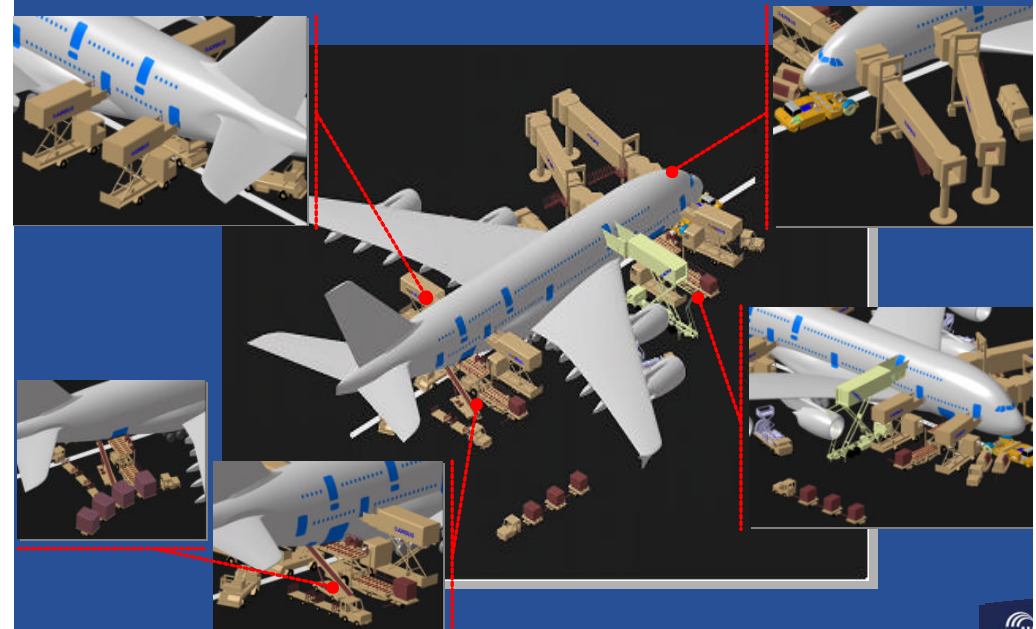
**First Flight April 27<sup>th</sup> 2005**



## 1 Ground handling simulation tool



RI 28/R1a/800/std



# Step forward in 3D simulations

- Airbus is using a new tool to simulate aircraft servicing and the ground environment. It has the following application fields:

## Design phase

### Aircraft design (engineering)

- Ensure compatibility of aircraft with existing GSE
- Support the design of new pieces of GSE (aircraft interface)
- Validate the location of doors, servicing panels, connectors, etc

### Aircraft design (operations)

- Define operational procedures
- Perform ergonomical studies
- Calculate and optimize turnaround times

## Operations

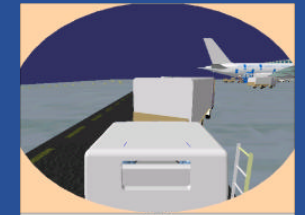
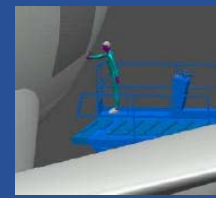
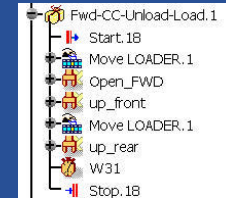
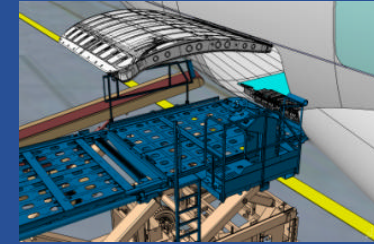
- Analyse the whole turnaround at specific gates
- customised studies for specific airline lay-outs and operations operation at different airports,
- analyse and support airport master planning

## Support for training

- Creation of training material (3D graphics, movies, etc)
- Improve situational awareness

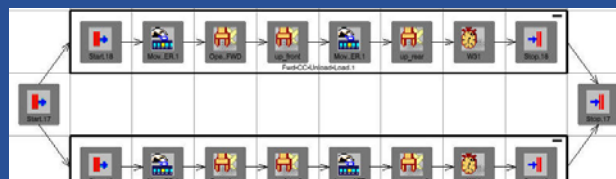
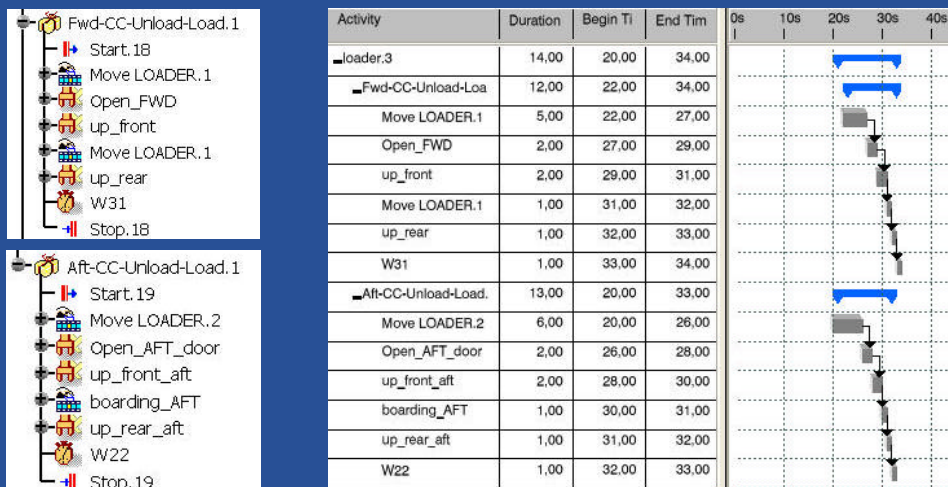
# Requirements for a Ground Operation simulator

- High fidelity representation of aircraft and GSE
  - Digital Design data (Autocad, CATIA)
  - Correct kinematics of relevant a/c parts and GSE
- Process oriented
  - Break down and timing of GSE process
- Human interface
  - Vision
  - Ergonomics
- Virtual reality ramp environment

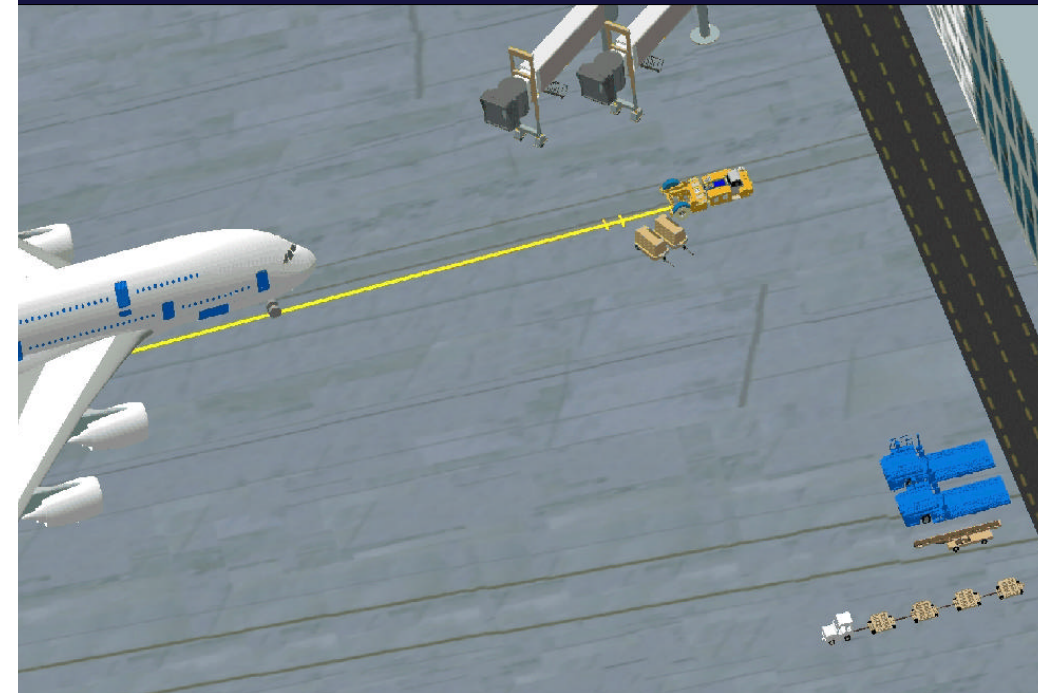


# The Airbus Ground Operation Simulator:

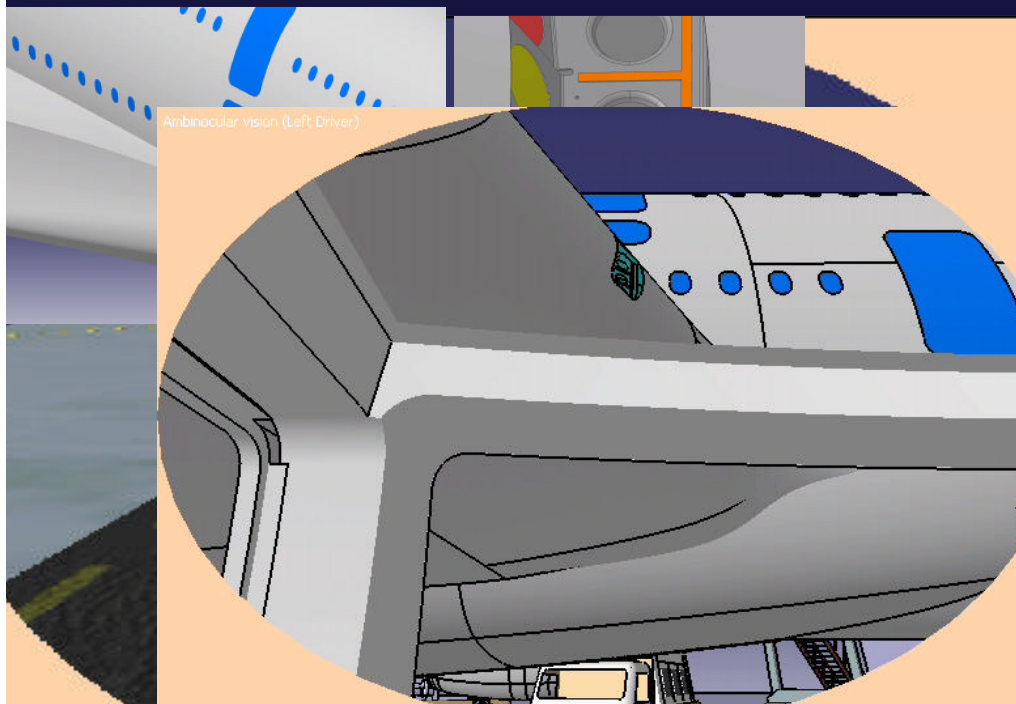
A process oriented tool



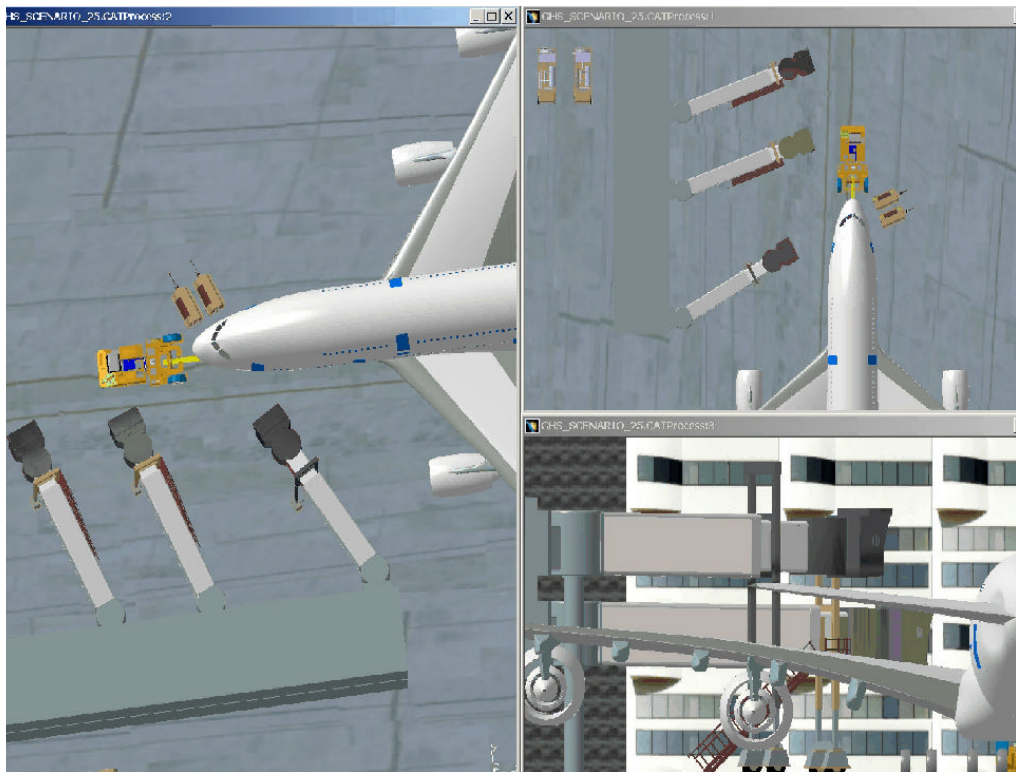
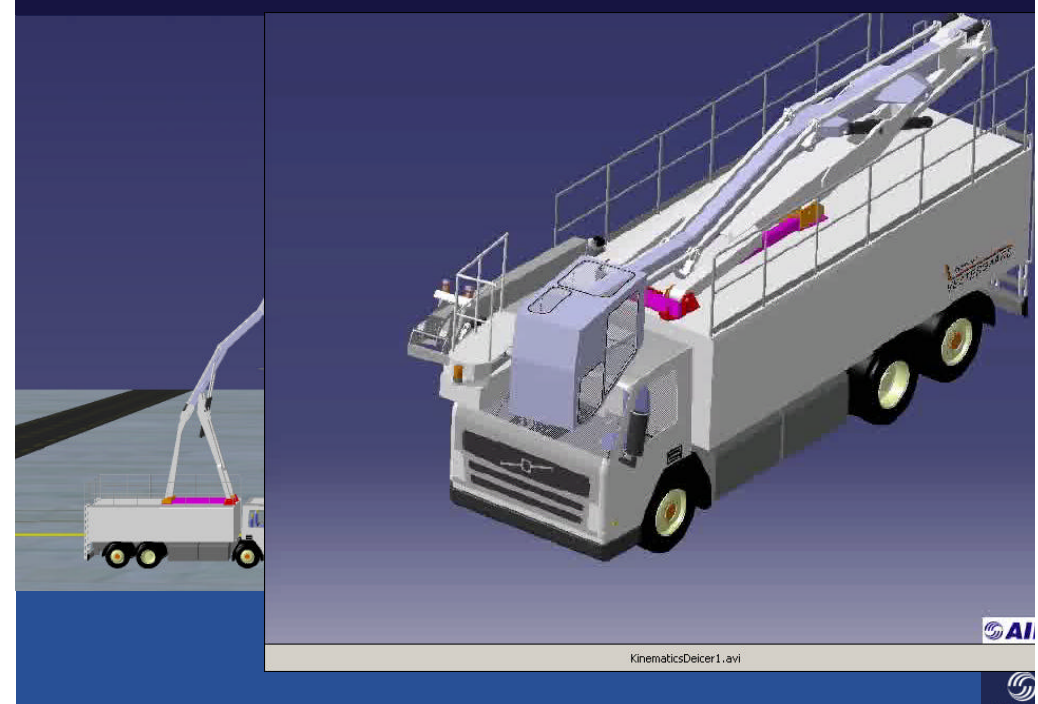
# Latest evolution: Airbus ground operations simulator



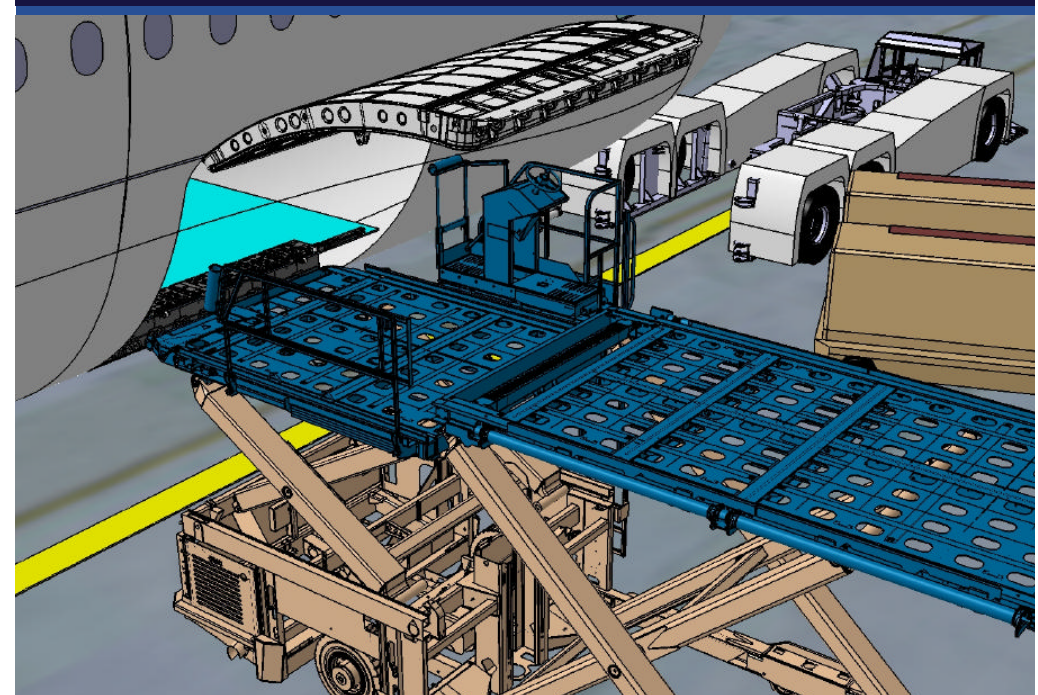
## Some examples: positioning of the UD catering



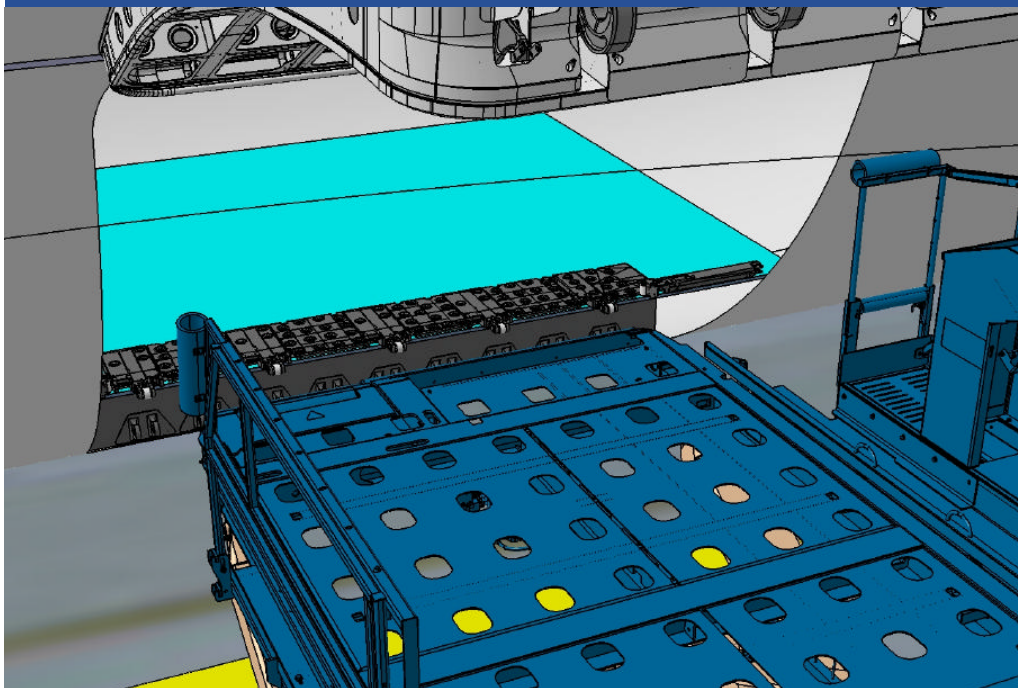
## Some examples: Definition of the de-icing procedure



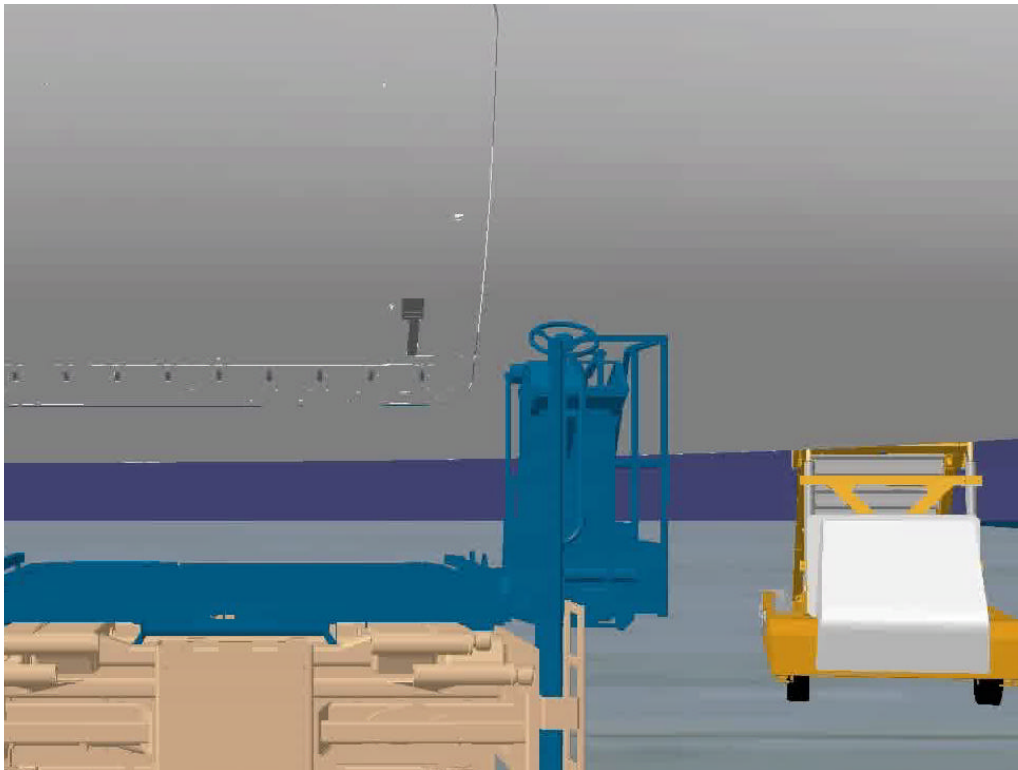
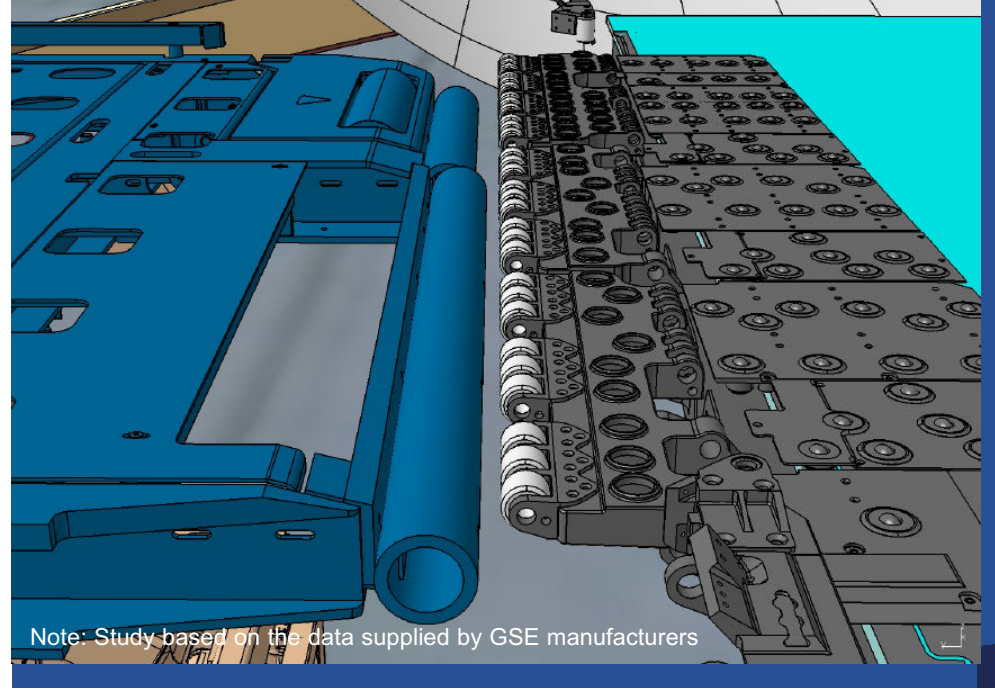
## Lower Deck FWD Cargo Compartment



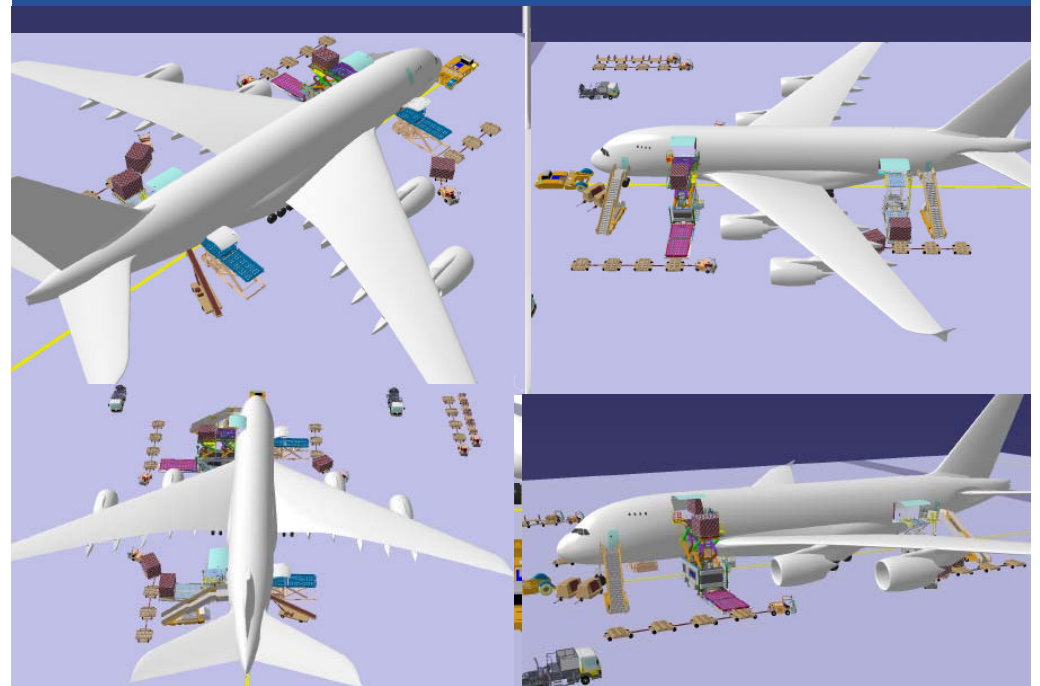
## Lower Deck FWD Cargo Compartment



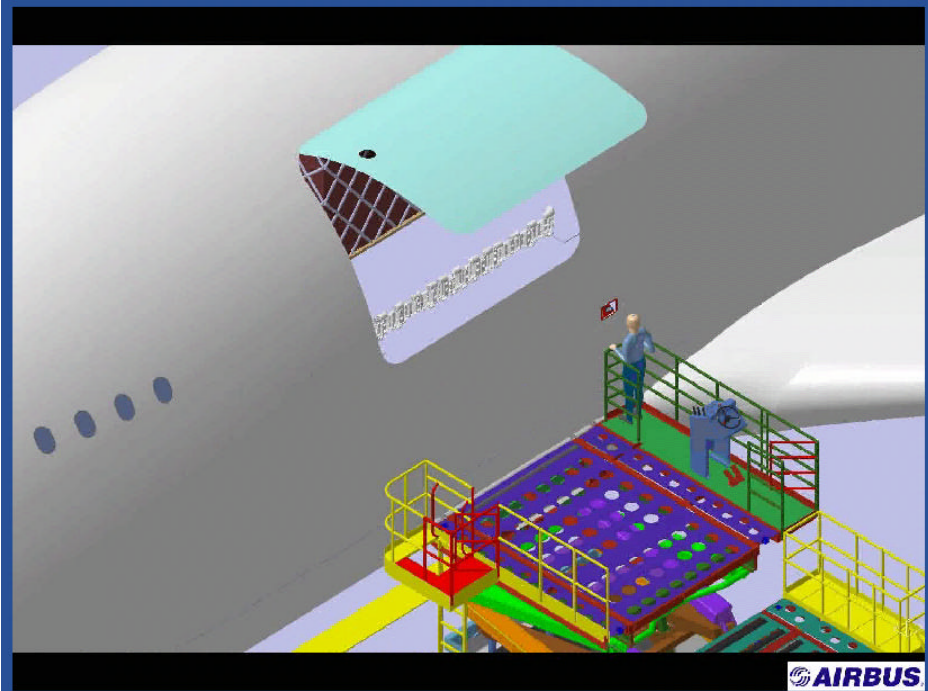
## Lower Deck AFT Cargo Compartment



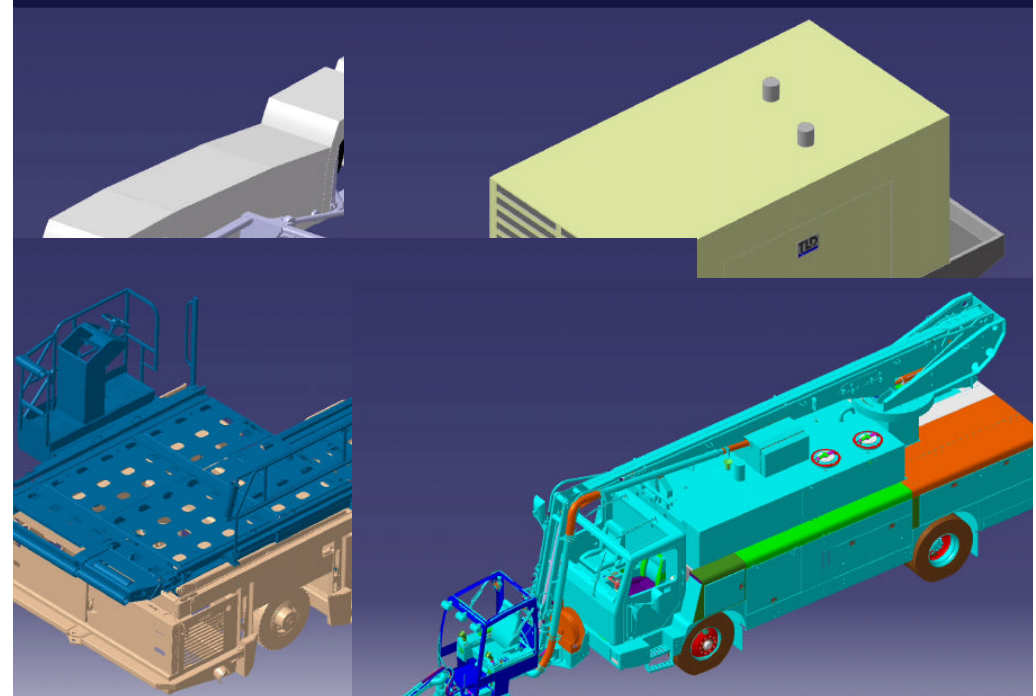
## Example: A380 Freighter Ramp Operations



## Example: 3D Cargo Loading



## Comprehensive GSE database already available



## Conclusion

- Airbus is working closely with Airlines, Ground Handlers, Ground Support Equipment manufacturers and Airports to ensure a smooth Entry into Service of the A380
- In that frame, we set up a collaboration agreement to exchange 3D models of A380 compatible GSE with major manufacturers
- Airbus is using a 3D simulation tool to assess and validate A380 Ground operations in a dynamic environment
- The use of the tool will be extended to other Airbus types



10:29, Wednesday 27<sup>th</sup> April 2005



First flight of A380-800 MSN001



*Thank You*



*This document and all information contained herein is the sole property of AIRBUS S.A.S. No intellectual property rights are granted by the delivery of this document or the disclosure of its content. This document shall not be reproduced or disclosed to a third party without the express written consent of AIRBUS S.A.S. This document and its content shall not be used for any purpose other than that for which it is supplied.*

*The statements made herein do not constitute an offer. They are based on the mentioned assumptions and are expressed in good faith. Where the supporting grounds for these statements are not shown, AIRBUS S.A.S. will be pleased to explain the basis thereof.*



**AIRBUS**

AN EADS JOINT COMPANY  
WITH BAE SYSTEMS