

# AGARD

ADVISORY GROUP FOR AEROSPACE RESEARCH & DEVELOPMENT  
7 RUE ANCELLE, 92200 NEUILLY-SUR-SEINE, FRANCE

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**AGARDograph 333**

## **Enhancement of Aircraft Ground Handling Simulation Capability**

(l'Amélioration des moyens de simulation des manœuvres  
au sol des aéronefs)

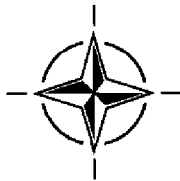
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<b>14. Abstract</b>					
<p>This report is a guide to methods of representing in a flight simulator, the stability and control of an aircraft on the ground. It updates an earlier publication, AGARDograph 285, in the light of simulation technology improvements over a ten year period. Emphasis is placed on the modeling of the vehicle dynamics, and on the modeling of the tire forces generated by the runway surface. Areas are identified where some current simulators are deficient. The different needs of pilot-in-the-loop and non-real-time simulations are discussed, and topics for further research are identified.</p>					

# **Enhancement of Aircraft Ground Handling Simulation Capability**

**(AGARD AG-333)**

## **Executive Summary**

This AGARDograph documents the advances made in this field, and provides guidance to simulator engineers on using these improvements to best meet their individual requirements.

The overall capability of simulating aircraft performance both in flight and in ground operations has improved dramatically in recent years. These improvements are a result of advances in computer hardware and software, motion-based systems, visual displays, and modeling data fidelity.

This AGARDograph should be of interest to engineers involved in the design and testing of simulation for aircraft systems. Simulation will play a major role in the production of cost-effective and combat-effective air forces of the future. By providing this report, AGARD hopes to enhance the overall knowledge in the simulation of aircraft ground handling, and thus enhance the capability of design engineers to employ these tools to the benefit of the Alliance.

# **L'amélioration des moyens de simulation des manœuvres au sol des aéronefs**

**(AGARD AG-333)**

## **Synthèse**

Cette AGARDographie documente les avancées réalisées dans ce domaine et fournit des directives aux ingénieurs responsables des simulateurs, leur permettant de profiter au maximum de ces améliorations pour répondre à leurs besoins.

La simulation des performances des aéronefs en vol et celle des opérations de manutention au sol s'est améliorée de façon spectaculaire au cours des dernières années. Ces améliorations résultent des progrès réalisés dans le domaine informatique, dans les systèmes à base de mouvements, dans les affichages visuels et dans la fidélité de la modélisation des données.

Cette AGARDographie intéressera les ingénieurs impliqués dans la conception et les essais des simulateurs de systèmes aéronautiques. La simulation jouera à l'avenir un rôle déterminant dans la création de forces aériennes de combat rentables et efficaces. En publiant ce rapport, l'AGARD espère apporter sa contribution à l'avancée des connaissances globales en matière de simulation des opérations de manutention au sol des aéronefs et espère aussi promouvoir l'utilisation de ces outils pour les concepteurs au bénéfice global de l'Alliance.