

# **Initial in-flight performance of the SMART-1 Attitude and Orbit Control System**

*Per Bodin<sup>#</sup>, AOC Subsystem Manager, per.bodin@ssc.se*

*Sten Berge<sup>#</sup>, Martin Björk<sup>#</sup>, AOCS Engineers*

*Peter Rathsman<sup>#</sup>, SSC Project Manager*

*Giuseppe D. Racca<sup>\*</sup>, ESTEC Project Manager*

*Luca Stagnaro<sup>\*</sup>, Ton van Overbeek<sup>\*</sup>, Helmut Meier<sup>\*</sup>, ESTEC Project Support Team*

*<sup>#</sup>Swedish Space Corporation, P.O. Box 4207, SE-171 04 Solna, Sweden*

*<sup>\*</sup>ESA/ESTEC, Noordwijk, The Netherlands*

This presentation addresses the initial in-flight performance of the SMART-1 Attitude and Orbit Control System. The SMART-1 spacecraft is scheduled for launch in the end of August 2003. The spacecraft is the first in a series of four low-cost technology demonstration missions by ESA. The purpose of SMART-1 is to demonstrate the use of Electrical Primary Propulsion in a low-thrust trajectory taking the spacecraft from earth orbit into the final lunar observation orbit. Scientific observations will also be performed on the way to, and from the lunar orbit. The Swedish Space Corporation is the prime contractor for the SMART-1 spacecraft.

The presentation will give a brief overview of the mission, the spacecraft in general and the Attitude and Orbit Control system in particular. Special attention will also be given to the fundamental requirements and drivers leading to the selected spacecraft design.

The main part of the presentation will address the performance of the Attitude and Orbit Control System during the Launch and Early Orbit Phase as well as the commissioning and the initial part of the electrically propelled earth spiralling phase of the mission.

The in-flight results will also be compared with simulated predicted results.