

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS (D2)
Future Space Transportation Systems (4)

Author: Mr. Christophe Chavagnac
Airbus Defence and Space Ltd, France, christophe.chavagnac@astrium.eads.net

Mr. Hugues Laporte-Weywada
EADS Astrium, France, hugues.laporte-weywada@airbus.com

ASTRIUM SUBORBITAL SPACEPLANE PROJECT: A SAFE MULTI-MISSION INNOVATIVE
VEHICLE

Abstract

Since several years, Astrium is preparing the development of a safe and passenger friendly Suborbital Spaceplane, taking off and landing from a standard runway powered by turbofans, and using a rocket engine of proven design to get enough energy for traveling to 100 km altitude. When considering market addressed such energy may allow various trajectories featuring different flight path angles then altitudes according to flight mechanics and different micro-gravity conditions as well. For Space tourism oriented missions, this vehicle will be able to carry paying passengers to the edge of space and return them safely to their starting point. For other missions, the vehicle design is versatile enough for offering many other opportunities such as 0g flights or scientific missions : room available, power on demand, P/L investigators on board the vehicle, etc. Beyond the mission versatility gives perspective for conducting a step-wise experiment or test plan mixing aero-like and space-like flights. From a broader perspective this program is also the opportunity to get first hand experience of some relevant technologies/techniques (aircraft-like operations of a rocket propelled vehicle) for developing a highly reusable Space System or an ultra high-speed Transportation System for the XXIst century. The paper will detail why Astrium believes in the emergence of Suborbital Space flights and then describe basic missions which may be performed with Astrium Suborbital Spaceplane and how it is a stepping stone for more advanced applications.