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Author: Mr. ROBERT VELDHUYZEN
European Space Agency (ESA), retired, The Netherlands

THE REINVENTION OF CREWED SUBORBITAL SPACEFLIGHT: DREAM OR REALITY?

Abstract

Since the days of the pioneering X-15 program, which paved the way for the Space Shuttle program, crewed suborbital spaceflight has been virtually dormant.

With the headline making X-prize contest, and the revolutionary Spaceship 1 achievement of the first crewed commercial spaceflight in 2004, this situation has dramatically changed and many commercial developments have since been initiated, primarily if not exclusively in the US by private entrepreneurs, which should permit in the near future a regular crewed access to suborbital space on a commercial basis.

Whereas the most visible ongoing developments aim initially at the relatively unexplored space tourism market, we can observe today a clear trend towards the RD applications of suborbital spaceflight, as well as towards such vehicles serving as flexible, reusable platforms for launching microsats into earth orbit.

An overview will be provided of the presently known ongoing developments of suborbital vehicles and their specific characteristics and applications.

The added value of such suborbital vehicles with respect to existing platforms or infrastructures (drop towers, parabolic aircraft flights, sounding rockets, unmanned recoverable capsules) will be analysed.

The upcoming challenges will be covered, from a vehicle development, operations, utilisation and regulatory point of view.

Finally, the question will be addressed whether Europe (and other spacefaring nations) can remain absent in the development of crewed sub-orbital vehicles where ITAR regulations may prevent or severely restrict procurement of US developed vehicles and/or their operations outside US territory.

The paper will be based on open sources and reflect the sole opinion of the author.