

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS (D2)
Launch Vehicles in Service or in Development (1)

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OPERATIONAL STATUS OF THE SPACEX FALCON 1 AND FALCON 9 LAUNCH VEHICLES

Abstract

In September 2008, SpaceX made history when its Falcon 1 launch vehicle became the first privately-developed liquid fuel rocket to orbit the Earth. Subsequently, in July 2009, the SpaceX Falcon 1 successfully launched and deployed its first commercial payload – the RazakSAT satellite – on behalf of ATSB of Malaysia.

In 2010, SpaceX is working to improve the Falcon 1 design; to more than double its payload performance. Beginning in late 2010, the enhanced ‘Falcon 1e’ will become SpaceX’s standard small launch vehicle with upgraded performance capable of placing ≈ 1000 kg into LEO. An overview of the Falcon 1e upgrades and description of how they will positively impact the satellite community will be discussed.

SpaceX’s larger launch vehicle, the Falcon 9, is scheduled to make its inaugural launch in early 2010. Flight results from this mission will be discussed, along with an overview of other upcoming missions and opportunities for satellite manufacturers and operators to take advantage of SpaceX’s low-cost launch model.

SpaceX launch vehicles are designed above all for high reliability; followed by low cost and benign flight environments. Both the Falcon 1 and Falcon 9 are two-stage, liquid oxygen and rocket grade kerosene (RP-1) powered launch vehicles. Simplicity of design, manufacturing and operation has been paramount in the development process for the Falcon launch vehicles – and resulted in tremendous cost-saving opportunities for customers.