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IAF SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Enabling safe commercial spaceflight: vehicles and spaceports (3)

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UK LAUNCH FLIGHT SAFETY CONSIDERATIONS AND RESEARCH

Abstract

Driven by UK Government's commitment to space growth described in its National Space Policy, the UK must be ready to license its first domestic commercial launches as early as 2020.

The advent of the Space Industry Bill means the UK Government's regulatory powers over spaceflight activity have increased significantly. The UK Space Agency, together with its co-regulators, the Civil Aviation Authority and the Health Safety Executive, have been developing a new regulatory framework and licensing service to support the first commercial spaceflight operators.

One area that has received particular attention is the flight safety of prospective vehicles to be launched from the UK. Flight safety refers to the technologies, operations and safety practices adopted by a launch vehicle operator to ensure that the risk presented by future launches is acceptable to the Regulator. The Launch Systems Team which forms part of the Chief Engineer's Team, has been leading the flight safety activities within the UK Space Agency. The flight safety activities are split over two key areas :

- Commissioned Research Studies : The UK Space Agency has commissioned a number of studies across three key themes; technology, operations and safety. A few of the study titles are identified here and the paper will look to review the key outputs/conclusions of the research; Airspace and Shipping Risk Operational Practices and Modelling, Small Upper Stage Post Mission Disposal, Assessment of Launch Vehicle Failure Modes, Launch Collision Assessment Best Practice, Launch Vehicle Explosive Siting, Launch Toxic Debris Impact Assessment
- Internal Launch Risk Tool : The UK Space Agency is developing an internal risk tool framework that will be used to provide launch assurance focused around public safety for future launch activities. The paper will review the methodology that will take the trajectories provided by prospective operators, provide a guide on reliability, propagate failures and produce values for risk. Case studies for launch activities from the UK will also be presented with initial insight into considerations of flight safety limits.