

SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Commercial Spaceflight Safety and Emerging Issues (1)

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RISK HAZARD ANALYSIS FOR COMMERCIAL SPACEFLIGHT ACTIVITIES USING RANGE
SAFETY TEMPLATE TOOLKIT

Abstract

Australia has recently introduced into service a new capability for space launch and re-entry Risk Hazard Analysis. This capability, called the Range Safety Template Toolkit (RSTT), was originally developed for air-launched guided weapons but has now been successfully applied to a suborbital launch under the US/Australia HIFiRE hypersonics research program and has since been adapted to help meet the needs of the commercial spaceflight community.

RSTT offers rapid generation of mission-specific safety templates which comply with common standards for range risk criteria, as well as a suite of analytical tools that enable the templates can be combined with geospatial information, such as asset locations and population densities, to provide casualty and damage estimates for operational planning and safety analysis of the mission.

A Risk Hazard Analysis was conducted using RSTT to support a suborbital HIFiRE launch from the Woomera range in South Australia which necessitated exercising the entire range safety process. This paper presents a case study to describe the range safety process, challenges faced by the stakeholders, a selection of results of the analysis and how the capability has been subsequently adapted to better meet the regulatory and mission planning needs of other suborbital commercial spaceflight activities.