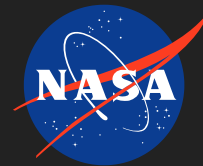


Aggregate Risk Tool Development for HSF

Completed Technology Project (2022 - 2022)

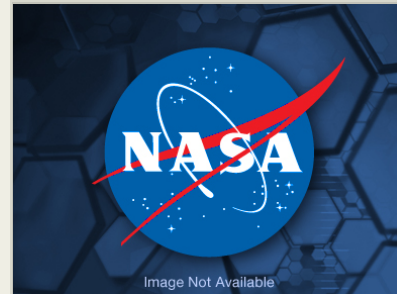


Project Introduction

This tool utilizes Data fusion capabilities developed from the 2020-2022 Information Fusion (IFDA) IRAD to enhance functionality of a Human Spaceflight (HSF) Aggregate Risk Product developed by the JSC Flight Safety Office. The tool compiles and present risk data from multiple Program and Commercial Provider sources to provide a holistic assessment for Program Managers and Technical Authorities to evaluate residual risk prior to HSF Launches. The aggregation, or coupling of risks from multiple sources (Ex: PRA, variances, anomaly data bases, CRM data, technical review board minutes, Hazard Analysis, etc.) identifies areas of elevated risk in components, systems or mission phases that would otherwise be undetected by non-integrated program risk management tools and possesses. Data is then displayed in an interactive user interface/dashboard that enables users to see potential areas of concern requiring more in-depth analysis.

Anticipated Benefits

This tool seeks to build upon an existing aggregate risk product initially developed for the CCP. While somewhat effective, the original product is labor intensive to develop and is limited by inclusion of a minimal number of program risk data sources. By incorporating previously demonstrated IFDA IRAD capabilities, and expanding the number of accessible data sources, a more robust Aggregate Risk Assessment Tool can be delivered that can be executed more efficiently, minimize encoding and calculation errors, and providing a more effective interactive user interface for program Management and Technical Authority customers. The tool is intended to be extensible to Lunar/Mars Exploration Programs.



Aggregate Risk Tool
Development for HSF

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Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate
(MSD)

Lead Center / Facility:

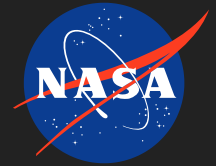
Johnson Space Center (JSC)

Responsible Program:

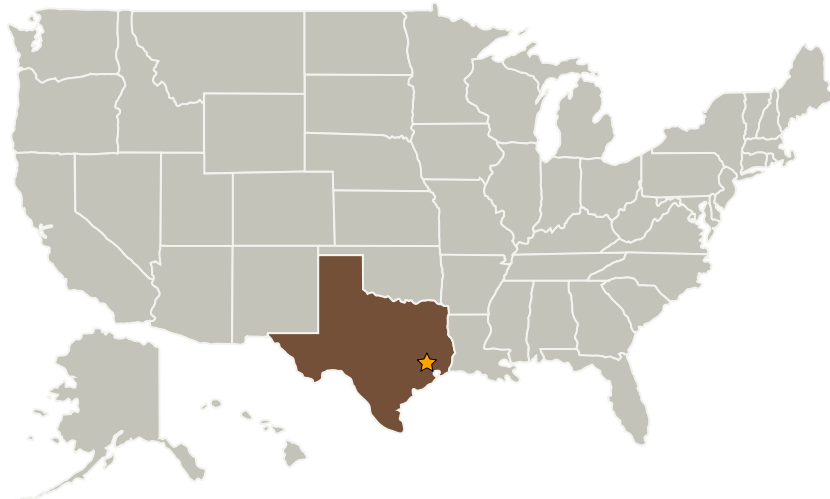
Center Independent Research &
Development: JSC IRAD

Aggregate Risk Tool Development for HSF

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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations
Texas

Project Management

Program Manager:

Carlos H Westhelle

Project Manager:

Ronald G Clayton

Principal Investigators:

Patrick M Huckaby

Terrence J Mayes

Co-Investigators:

Michael S Johnson

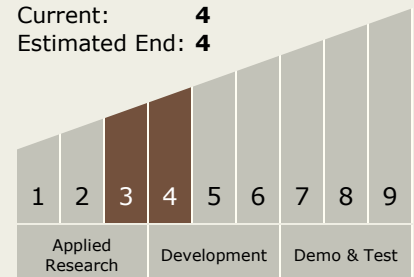
Dennis W Pate

Rufus Jackson

Everett B Cole

Technology Maturity (TRL)

Start: 3
Current: 4
Estimated End: 4



Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing

Continued on following page.



Technology Areas (cont.)

- └ TX11.5 Mission
Architecture, Systems
Analysis and Concept
Development
- └ TX11.5.2 Tools and
Methodologies for
Performing Systems
Analysis

Target Destinations

Earth, The Moon, Mars