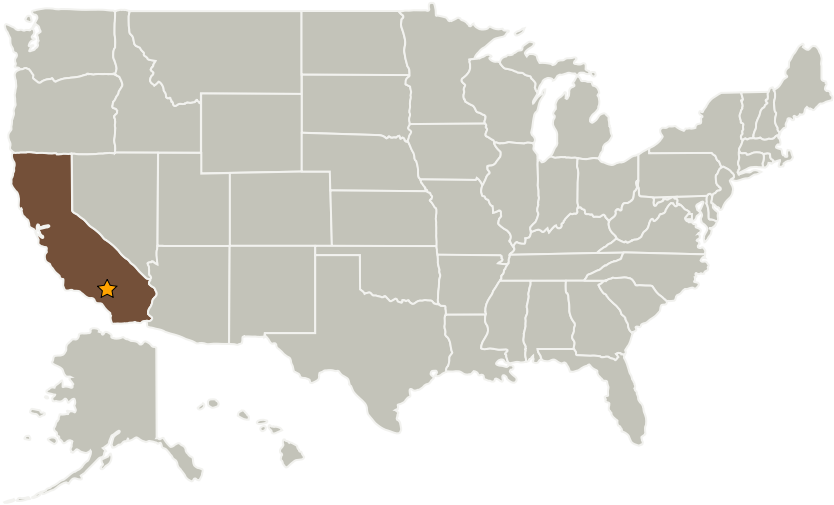
Advanced Modeling Concepts for Conceptual Design, Phase I

Completed Technology Project (2007 - 2007)

Project Introduction

Preliminary design of aircraft structures is multidisciplinary, involving knowledge of structural mechanics, aerodynamics, aeroelasticity, structural dynamics and design concepts. Even though analysis tools and computing resources have improved significantly, very little attention is being paid to the required data exchange and seamless interoperability for true multi-disciplinary analysis. Indeed there is a lot to be gained in performing multi-disciplinary analysis up front in the design cycle during the conceptual design phase as changes during mid or tail end of the design process are often expensive and difficult to implement. The net result is increased cost and performance limiting weight penalties on the air vehicle. It is essential to consider the impact of several design disciplines simultaneously to arrive at a satisfactory design where generated data for each discipline is seamlessly generated or available to each design discipline.

Primary U.S. Work Locations and Key Partners



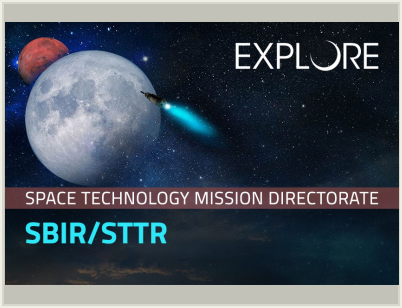


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Table of Contents

Project Introduction 1
Primary U.S. Work Locations and Key Partners 1
Organizational Responsibility 1
Project Management 2
Technology Areas 2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
NextGen Aeronautics, Inc.	Supporting Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Torrance, California

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  └ TX15.1 Aerosciences
    └ TX15.1.6 Advanced Atmospheric Flight Vehicles