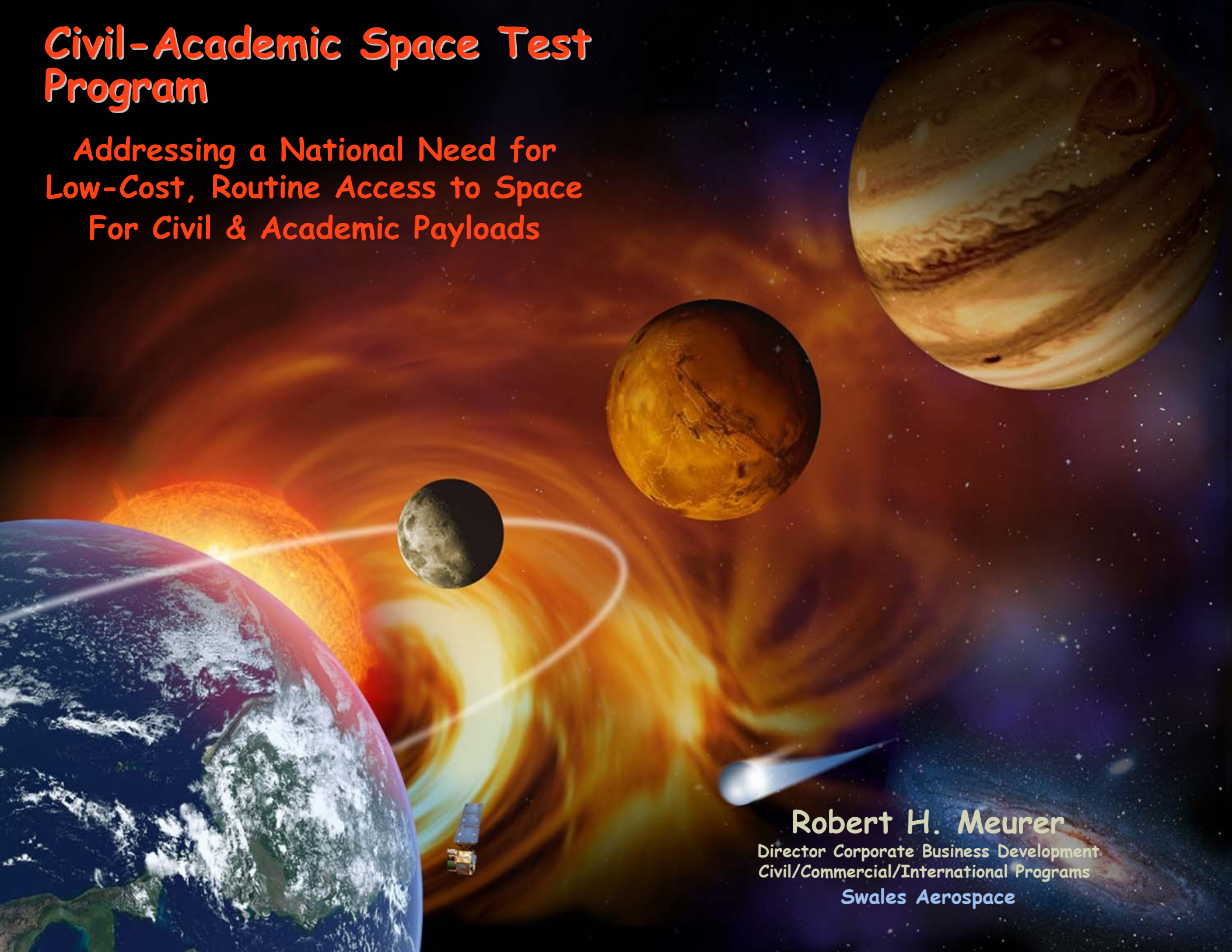
Civil-Academic Space Test Program

Addressing a National Need for Low-Cost, Routine Access to Space For Civil & Academic Payloads



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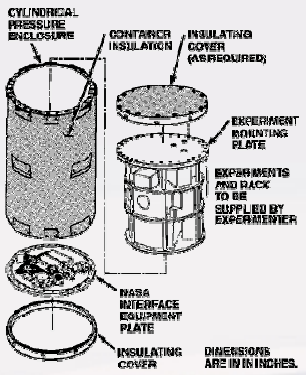
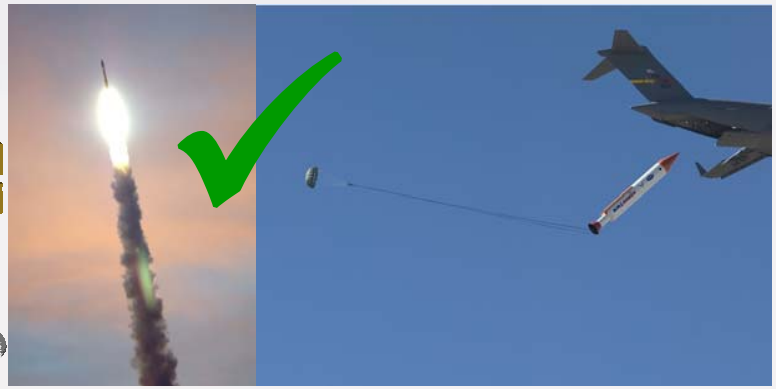
Issue

- Due to the Columbia Tragedy and the Dedication of the Remaining Shuttle Flights to Completion of the International Space Station, the Nation Lost an Established, Cost-Effective Means of Providing Access to Space for Civil and Academic Satellites and Payloads Not Authorized Their Own Means of Spaceflight
  - Cancellation of the Shuttle-Based Get Away Special (GAS) and Hitchhiker Programs Negatively Impacts the Ability of U.S. Universities to Foster the Development of a National Space Workforce
- **However:**
- The Advent of Lower-Cost Expendable Launch Vehicles, Which Support National Imperatives for Operationally Responsive Space, Offers an Opportunity to Reestablish This Important Capability





Workforce Growth is a National Need

- U.S. National Space Policy of August 31, 2006 directs departments and agencies that conduct space related activities to "implement activities to develop and maintain highly skilled, experienced, and motivated space professionals within their workforce."
- The Space Commission in 2000 Brought Focus to the Need to Cultivate a Professional Space Workforce and Strengthen the Country's Scientific and Engineering Capabilities
  - The Report Called for Industry and Government to Expand Their Education, Recruitment, Life-long Training, and Scholarship Efforts in Support of Science and Engineering Occupations
- Establishing an Authority to Provide Access to Space for Civil-Academic Educational Missions That Lack Their Own Means of Spaceflight Would Greatly Enhance the Nation's Ability to Attract and Train Students in Space Engineering
  - Numerous Universities Have Noted This as a Critical Need for Their Aerospace Engineering Programs

The Military Has Its Solution

- In May 1965 Congress Established the DoD Space Test Program (STP) Under Executive Management of the U.S. Air Force
- Primary Objectives
  - Provide Spaceflight for DoD Experiments Not Authorized Their Own Means of Spaceflight
  - Fly the Maximum Possible Number of DoD Space Research Experiments Consistent With Priority, Opportunity and Budget
    - Since June 1967 463 Experiments Have Been Flown Using Dedicated ELVs, the Space Shuttle or Piggyback Payload Opportunities
- STP's Role As the Primary Provider of Spaceflight for the DoD Space Research Community Was Revalidated by the Secretary of Defense in a November 1995 Memorandum
- Military Service Academies Have Used the STP As an Effective Educational Tool Enabling Space Access for Academy Built Payloads

Recommendation

- **Congress Should Establish a Civil-Academic Space Test (CAST) Program**

- Structure CAST in a Manner Similar to the DoD STP Providing Space Access for Civil and Academic Space Research Experiments on a Routine Basis
  - Place the Program at Wallops Flight Facility With NASA Executive Oversight
    - Utilize the Recently Built Facilities of Wallops to Process Payloads for Flight
    - Use Mid-Atlantic Regional Spaceport/WFF as the Main Launch Range for CAST Missions
- Augment the FY'08 NASA Budget by $5M to Fund
  - $2M to Establish the CAST Program and Establish Procedures / Processes for Spaceflight Requests
    - Program Establishment and Stand-up a Core Program Team
    - Drafting of Procedures and Processes to Guide Potential Sponsors and R&D Experimenters in Preparing and Submitting Spaceflight Requests
    - Form a Board to Review and Select the First Round of Prioritized Space Experiments for Final Spaceflight Approval by NASA
  - $5M to Augment the Test and Integration Facilities at WFF in Support of Future CAST Missions
    - Complete Infrastructure Improvements for Payload Processing and the Multi-Payload Ejector Project
- Future Budget Authority Similar to DoD STP, i.e., 1 to 2 Flights Annually
  - ~$20M Annually in Future Years
    - $10M for Payload Carrier & Experiment Processing
    - $10M Launch (Vehicle & Range) & Mission Ops

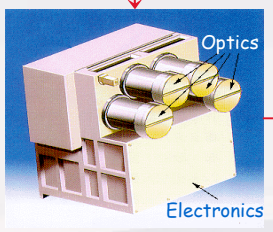
CAST Mission Lifecycle & Process Flow

University

Idea!

Peer Review

Project Approval



Deliver to WFF

CAST Request for Spaceflight

CAST Program

Review and Selection Panel

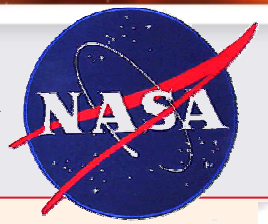
RASP List
1. SPIRIT (ODU)
2. PRIDE (UMES)
3. COMET (SU)
4. FOG (MIST)
5. CLOUD (IAF)

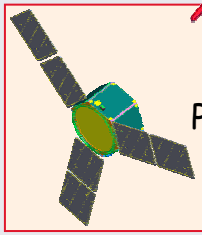
Mission Analysis & Flight Planning Process

CAST Mission Plan

Review & Approval

NASA WFF

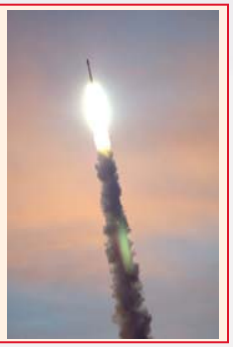


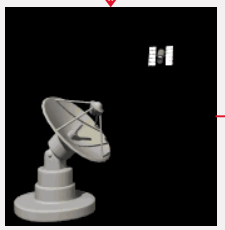


Bus & ELV Procurement

Payload I&T

Launch & Early Orbit Operations

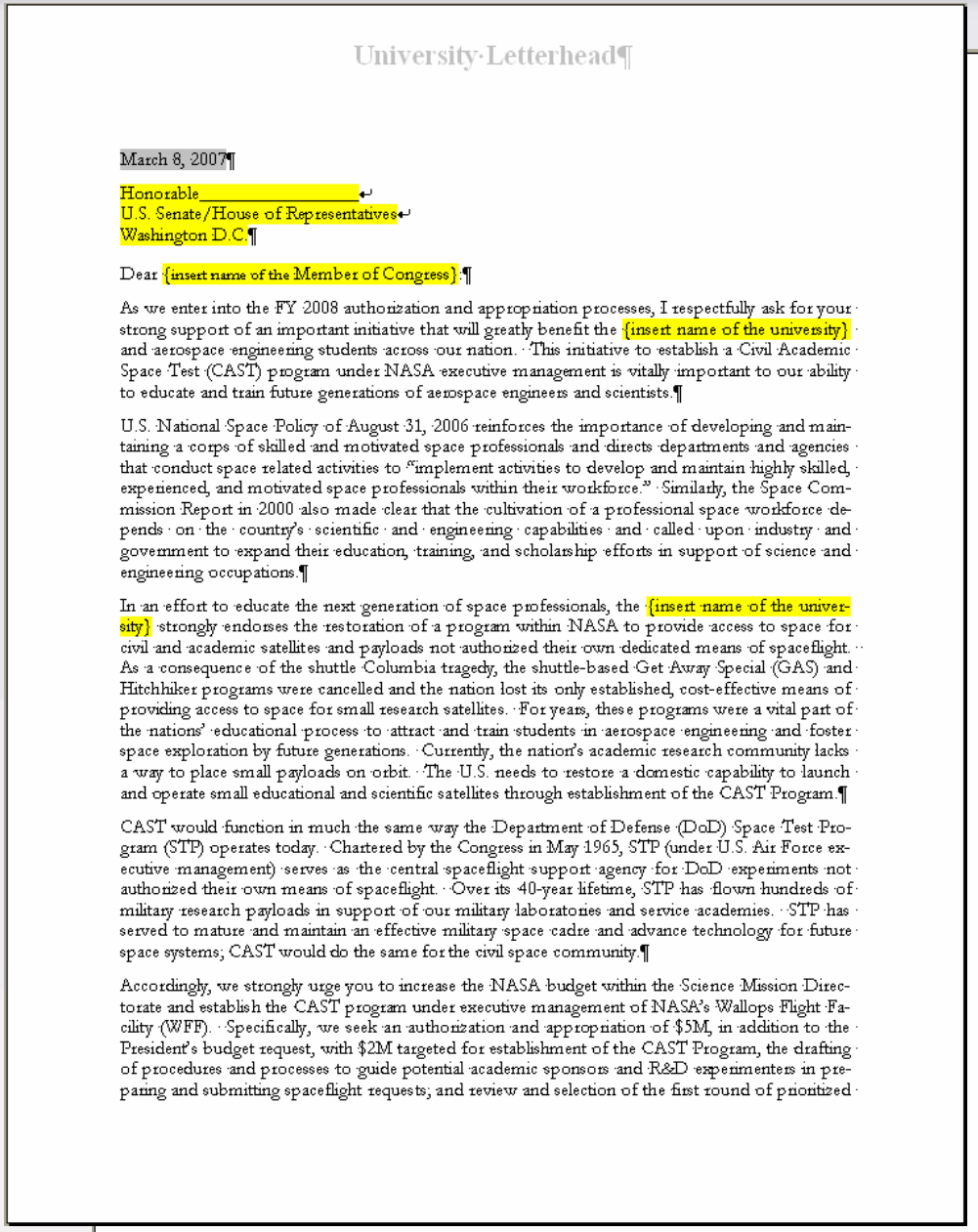




1st Year On-Orbit Operations

Here Is How You Can Help

- Write Your Congressman & Senator in Support of Establishing the CAST Program
- Better Yet – Get Your University President to Write Your Congressional Representatives
- Spread the Word For the Need to Have Access to Space
- Act Now – Congressional Committees are Marking-up the Authorization/Appropriation Bills in May 2007



University Letterhead

March 8, 2007

Honorable_____
U.S. Senate/House of Representatives
Washington D.C.

Dear {insert name of the Member of Congress}:

As we enter into the FY 2008 authorization and appropriation processes, I respectfully ask for your strong support of an important initiative that will greatly benefit the {insert name of the university} and aerospace engineering students across our nation. This initiative to establish a Civil Academic Space Test (CAST) program under NASA executive management is vitally important to our ability to educate and train future generations of aerospace engineers and scientists.

U.S. National Space Policy of August 31, 2006 reinforces the importance of developing and maintaining a corps of skilled and motivated space professionals and directs departments and agencies that conduct space related activities to "implement activities to develop and maintain highly skilled, experienced, and motivated space professionals within their workforce." Similarly, the Space Commission Report in 2000 also made clear that the cultivation of a professional space workforce depends on the country's scientific and engineering capabilities and called upon industry and government to expand their education, training, and scholarship efforts in support of science and engineering occupations.

In an effort to educate the next generation of space professionals, the {insert name of the university} strongly endorses the restoration of a program within NASA to provide access to space for civil and academic satellites and payloads not authorized their own dedicated means of spaceflight. As a consequence of the shuttle Columbia tragedy, the shuttle-based Get Away Special (GAS) and Hitchhiker programs were cancelled and the nation lost its only established, cost-effective means of providing access to space for small research satellites. For years, these programs were a vital part of the nations' educational process to attract and train students in aerospace engineering and foster space exploration by future generations. Currently, the nation's academic research community lacks a way to place small payloads on orbit. The U.S. needs to restore a domestic capability to launch and operate small educational and scientific satellites through establishment of the CAST Program.

CAST would function in much the same way the Department of Defense (DoD) Space Test Program (STP) operates today. Chartered by the Congress in May 1965, STP (under U.S. Air Force executive management) serves as the central spaceflight support agency for DoD experiments not authorized their own means of spaceflight. Over its 40-year lifetime, STP has flown hundreds of military research payloads in support of our military laboratories and service academies. STP has served to mature and maintain an effective military space cadre and advance technology for future space systems; CAST would do the same for the civil space community.

Accordingly, we strongly urge you to increase the NASA budget within the Science Mission Directorate and establish the CAST program under executive management of NASA's Wallops Flight Facility (WFF). Specifically, we seek an authorization and appropriation of $5M, in addition to the President's budget request, with $2M targeted for establishment of the CAST Program, the drafting of procedures and processes to guide potential academic sponsors and R&D experimenters in preparing and submitting spaceflight requests; and review and selection of the first round of prioritized

Questions: