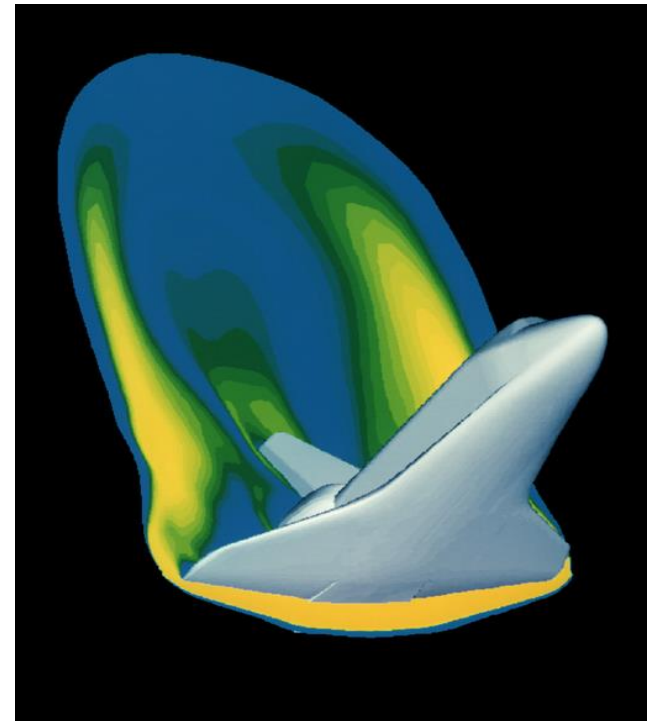
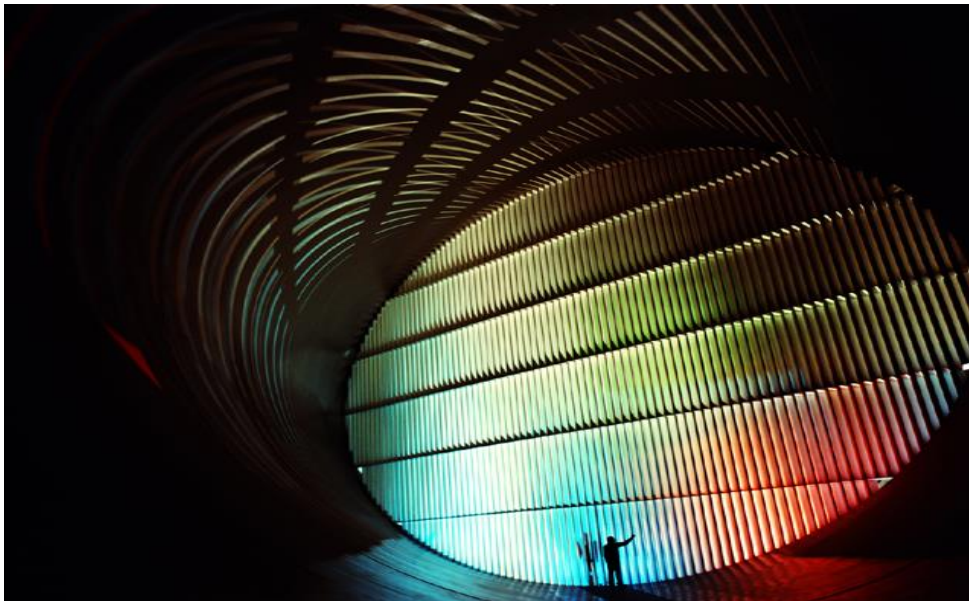
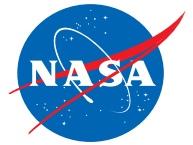


Implementing DSpace

At NASA Langley Research Center





Background Information

- In 2003, the Technical Library at NASA Langley Research Center began to look at options for upgrading the Center's technical report server known as LTRS (Langley Technical Report Server).
 - Prior to 2006, LTRS was a publicly available online service that allowed users to search and download unclassified/unrestricted technical documents produced by NASA Langley Research Center. Most post-1992 and some pre-1992 Meeting Presentations, Journal Articles, Conference Proceedings, and Technical Reports were available on the LTRS.



Why was a solution needed?

- NASA Langley Research Center was preparing to move to a new technical publication submittal and approval system. Moving to the new system would greatly improve the customer experience and the ability to exchange data with the NASA Technical Reports Server (NTRS). This new interface, however, would not support the publications staff's current workflow.
- The Technical Library was implementing a strategy to provide a stronger digital presence at NASA Langley Research Center. As the amount of the Center's output that was produced only in digital form increased, the need for stable and centrally managed infrastructures to preserve these materials also increased.
- The LTRS system was built with locally developed software. Migrating LTRS to a more standards based environment would better position the library to benefit from global digital library development activities.



Old LTRS Home Page – Top Section

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Note: LTRS is no longer current

LTRS has been replaced by a new digital repository. Content on this site is no longer being maintained. New Langley Technical Reports can be accessed through the [NASA Technical Reports Server](#).

WHAT IS THE LTRS?

LTRS is a service which allows users to search available online NASA published documents, including Meeting Presentations, Journal Articles, Conference Proceedings, and Technical Reports. Many documents are available in compressed PostScript and PDF formats. All documents are unclassified and publicly available.

Documents published prior to 1959 can be found on the [NACA Technical Reports Server](#).

Helpful Utilities

VIEWERS

[Acrobat Reader](#)

[Ghostscript](#)

[MS Office Viewers](#)

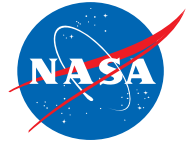
COMPRESSION

[MS Windows - Winzip](#)

[MacOS - Stuffit](#)

UNCOMPRESSION

[Multiple Platforms](#)



Old LTRS Home Page – Bottom Section

Last Updated
June 23, 2005



DATABASE

Clicking on a linked year in the table below will display a listing from the database of all reports available on-line for that year. If a year is not linked, there are no reports available for that year on-line. The link below the table will provide a listing of all available reports in the on-line database regardless of the year they were published.

*As of June 15 there are **4673** reports available online.*

2000's	1990's	1980's	1970's	1960's	1950's
2005	1999	1989	1979	1969	1959
2004	1998	1988	1978	1968	
2003	1997	1987	1977	1967	
2002	1996	1986	1976	1966	
2001	1995	1985	1975	1965	
2000	1994	1984	1974	1964	
	1993	1983	1973	1963	
	1992	1982	1972	1962	
	1991	1981	1971	1961	
	1990	1980	1970	1960	

[All Available Reports](#)

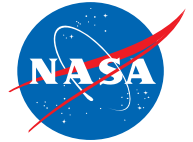


Old LTRS Web Site – Advanced Search

ADVANCED SEARCH

The advanced search capability gives you the option to limit your search of the technical report server to specific fields in the reference files. This will allow you to narrow your search criteria and display a limited list of results to browse. You may enter keywords into one or more fields and select the AND or OR option to define if all entries must match (AND) or if any entries matching is acceptable (OR). For more information please see the [Advanced Search Examples](#) of common searches and the results a user should expect when conducting a search.

<div style="background-color: #003366; color: #ffff00; padding: 5px; text-align: center;">Technical Reports</div> <p>Document Title: <i>(Enter words appearing in the Title)</i></p> <input type="text"/> <p>Author(s): Abstract: <i>(Enter words that may appear in the Abstract)</i></p> <input type="text"/> <p>Report Number: <i>(Enter the last unhyphenated group of numbers)</i></p> <input type="text"/>	<div style="background-color: #003366; color: #ffff00; padding: 5px; text-align: center;">Meetings or Conferences</div> <p>Meeting Title: <i>(Enter words appearing in the Title)</i></p> <input type="text"/> <p>Meeting Location: Publication Date: <i>(Enter Month and/or Year)</i></p> <input type="text"/>
<p>Select STI Category:</p> <input style="width: 100%;" type="text" value="All Categories"/> <p>Select: <input checked="" type="radio"/> AND or <input type="radio"/> OR</p> <p><input type="button" value="Search"/> <input type="button" value="Reset"/></p>	



Old LTRS Web Site –

NASA Scientific and Technical Information Categories

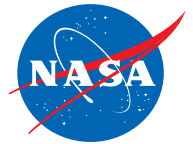
Select STI Category:

All Categories

Select: AND or OR

Search Reset

- All Categories
- General
- Acoustics
- Administration and management
- Aerodynamics
- Aeronautics (general)
- Aerospace medicine
- Air transportation and safety
- Aircraft communications and navigation
- Aircraft design, testing, and performance
- Aircraft instrumentation
- Aircraft propulsion and power
- Aircraft stability and control
- Astrodynamics
- Astronautics (general)
- Astronomy
- Astrophysics
- Atomic and molecular physics
- Behavioral Sciences
- Chemistry and materials (general)
- Communications and radar
- Composite materials
- Computer operations and hardware
- Computer programming and software
- Computer systems
- Cybernetics
- Documentation and information science
- Earth resources and remote sensing
- Economics and cost analysis
- Electronics and electrical engineering



Old LTRS Web Site – Search Results Page

[Langley Technical Report Server](#) | [Acrobat Reader](#) | [Ghostscript](#)

1. Manuel Stein, **The Phenomenon of Change in Buckle Pattern in Elastic Structures** , NASA TR R-39, 1959, pp. 11, (1.5MB).
Format(s): [PDF](#)

2. Manuel Stein, **Loads and Deformations of Buckled Rectangular Plates** , NASA TR R-40, 1959, pp. 29, (9MB).
Format(s): [PDF](#)

3. Robert J. Pegg and Andrew B. Connor, **Effects of Control-Response Characteristics on the Capability of a Helicopter for Use as a Gun Platform** , NASA TN D-464, September 1960, pp. 17, (948KB).
Format(s): [Postscript](#), or [PDF](#)

4. Robert J. Pegg, **Damage Incurred on a Tilt-Wing Multipropeller VTOL/STOL Aircraft Operating Over a Level, Gravel-Covered Surface** , NASA TN D-535, December 1960, pp. 14, (2MB).
Format(s): [Postscript](#), or [PDF](#)

LTRS moves to DSpace





Our Requirements

- Streamline staff workflows for posting documents and metadata to LTRS
- Enable LTRS users to download full-text documents in multiple formats
- Provide a search function to enable users to find documents
- Comply with the Open Archive Initiative's Protocol for Metadata Harvesting
- Low cost



Candidate (A) -- FEDORA

- FEDORA (Flexible Extensible Digital Object Repository Architecture)
 - ❑ Developed at Cornell University as a DARPA and NSF-funded research project in 1997.
 - ❑ University of Virginia adopted the architecture and re-implemented it in 1999 as part of a project to explore the feasibility of creating a new digital object repository for the University's library.
 - ❑ Initial results were promising, and in September of 2001, Virginia and Cornell received a grant of \$1,000,000 from the Andrew W. Mellon Foundation to enable them to develop a web-based, full-featured production FEDORA system.
 - ❑ Production system was expected in 2004.



Candidate (B) -- DSpace

- DSpace
 - ❑ In March of 2000, the Hewlett-Packard Company (HP) awarded \$1,800,000 to the MIT Libraries for an 18-month collaboration to build the DSpace digital document repository.
 - ❑ The MIT libraries also received a \$300,000 grant from the Andrew W. Mellon foundation and used this funding to establish the DSpace Federation with six other universities.
 - ❑ Production system available. More than 2,000 institutions, libraries, and other organizations downloaded the software in the first 3 months after its release.



DSpace Selected – Decision Points

- Low Cost – software could be deployed on an existing test system
- Leading-edge technology
- Large and rapidly growing user base – already in production at several research universities with needs similar to NASA Langley Research Center
- Workflow submission module could replace publications staff existing workflow
- Customizable for local needs
- XML-friendly - The Technical Library had also won IT funding to investigate the use of XML in data exchange and to create an LTRS repository that facilitated the use of XML.



DSpace in Production – Customizations

- Metadata Labels
 - NASA specific metadata labels added
 - Metadata displays in alphabetical order
- NASA Langley branding
 - Responsible Officials, Disclaimer, Copyright Statement and HTML referral pages
- One search box removed from DSpace Home Page
- SFX option does not appear when the library owns an item
- Chron job to notify users of new items in their repository subscriptions



DSpace in Production – Data Exchange

- The Technical Library had several metadata formats that needed to be converted into the Dublin Core metadata format. Crosswalks were created for each format in order to facilitate creating the XML files needed for importing the metadata and related files into DSpace.
 - REFER
 - COSATI
 - MARC



Dublin Core Metadata

Dublin Core Metadata

<p>Element Use: All elements, element refinements, and schemes are repeatable. Element Refinements cannot be used for multiple elements. Element to Element Refinement relationship must follow the 'dumb-down' principle. i.e. the data for the refinement will convey using just the element. The elements, element refinements, and schemes can be compartmentalized based on the area/discipline of the resource. Resources can have many elements, element refinements, and schemes. Those viewing the Resource can limit the data that they view, for example RIM, Export Control, CSO, etc. Naming of elements, element refinements, and schemes can become obscure without clear definitions. Embedding of these definitions within the XML of a provider will ensure that the harvester has a clear understanding the data being received. This definition can also be used by the harvester to provide a 'help' functionality for their users.</p>	
<p>OAI: A harvester requests metadata from a provider. OAI requires all metadata passed to a harvester to be in an XML format. OAI prefers Dublin Core metadata format to be used. OAI, by default, requires a provider to pass the 15 core DC elements to the requesting harvester. A provider can choose to pass more information, including element refinements, schemes, and other elements, to a requesting harvester. When a harvester and provider are in agreement concerning element refinements, schemes, and other elements, the information is more meaningful and applicable.</p>	
<p>Metadata Structure: Dublin Core: Core Elements Encoding Schemes - format of the Other Elements Refinements - description for the Core Elements Other Elements (includes Dublin Core and NASA) Encoding Schemes - format of the Other Elements Refinements - description for the Other Elements Refinements Encoding Schemes - format of the refinement Encoding Schemes Vocabulary - a pick list for that encoding scheme NASA: Elements Refinements - description for the NASA Elements Refinements - description for the Dublin Core or NASA Elements Encoding Schemes - format of the refinement Encoding Schemes - format of the NASA Elements or NASA Refinements Vocabulary - NASA Taxonomy</p>	<p>Groupings Definitions Descriptive Title, author, summary, topic, etc. Technical & Structural File size, software needed, file type(s), presentation instructions, etc. Administrative Record number, record date, record source, etc. Rights Copyright ownership, use privileges, etc. Management [Typically by/for owning agency]: price paid, circulation restrictions, etc</p>



Metadata Crosswalk Spreadsheet

	A	B	C	D	E
1	COSATI Tag	COSATI Definition	Dublin Core Element	Dublin Core Qualifier	
2	ACCN	Call Number	identifier	citation	
3	TITL	title	title		
4	TCLS	title classification	rights	accessRights	
5	RCLS	report classification	rights	accessRights	
6	DIST	limitation	rights	accessRights	
7	TISP	title supplement	title	alternative	
8	AUTH	author	contributor	author	
9	AUTH	author	creator		
10	AUTT	author type	contributor	editor	
11	AUTT	author type	contributor	other	
12	AUTN	affiliation	creator	affiliation	
13	RPDT	publication date	date	created	
14	PAGE	collation	identifier	collation	
15	DESN	descriptive note	description		
16	NOTE	supplementary note	description		
17	LA	language	language		
18	REPN	report number	type	TechnicalReport	
19	CORP	source, corporation, location	source		
20	CONN	contract number	contributor	contract	
21	CLSA	authority	rights	accessRights	
22	DCDT	declassification date	rights	accessRights	
23	REDT	review date			
24	DESC	subject entry	subject		
25	ABS	abstract	description	abstract	
26	GRP	subject categories	nasa	keywords	
27	DISC	distribution/availability	date	available	
28	DCLS		rights	accessRights	
29	ICLS		rights	accessRights	
30	ACLS		rights	accessRights	
31					
32					
33					

Navigation: Dublincore Elements / REFER / **COSATI** / MARC 00X / MARC 01X-04X / MARC 05X - 09X

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If you need further assistance, please contact the Technical Library at tech-library@larc.nasa.gov.

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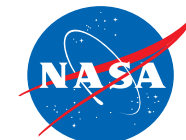
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Mathematical and Computer Sciences



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[Validation of the Archived CERES Surface and](#)



DSpace – Langley Technical Reports Collection Metadata

Please use this identifier to cite or link to this item: <http://hdl.handle.net/2002/16544>

Title: High Altitude Long Endurance Air Vehicle Analysis of Alternatives and Technology Requirements Development

Authors: NASA Langley Research Center
NASA Langley Research Center
NASA Glenn Research Center
Swales Aerospace
NASA Langley Research Center
Nickol, Craig L.
Guynn, Mark D.
Kohout, Lisa L.
Ozoroski, Thomas A.

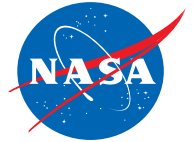
Issue Date: 8-Jan-2007

Abstract: The objective of this study was to develop a variety of High Altitude Long Endurance (HALE) Unmanned Aerial Vehicle (UAV) conceptual designs for two operationally useful missions (hurricane science and communications relay) and compare their performance and cost characteristics. Sixteen potential HALE UAV configurations were initially developed, including heavier-than-air (HTA) and lighter-than-air (LTA) concepts with both consumable fuel and solar regenerative (SR) propulsion systems. Through an Analysis of Alternatives (AoA) down select process, the two leading consumable fuel configurations (one each from the HTA and LTA alternatives) and an HTA SR configuration were selected for further analysis. Cost effectiveness analysis of the consumable fuel configurations revealed that simply maximizing vehicle endurance can lead to a sub-optimum system solution. An LTA concept with a hybrid propulsion system (solar arrays and a hydrogen-air proton exchange membrane fuel cell) was ...

URI: <http://hdl.handle.net/2002/16544>

Appears in Collections: [66 Systems Analysis and Operations Research](#)

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Item hits:

Date of Issue	Title	Authors
8-Jan-2007	High Altitude Long Endurance Air Vehicle Analysis of Alternatives and Technology Requirements Development	NASA Langley Research Center; NASA Langley Research Center; NASA Glenn Research Center; Swales Aerospace; NASA Langley Research Center; Nickol, Craig L.; Guynn, Mark D.; Kohout, Lisa L.; Ozoroski, Thomas A.
6-Sep-2006	NASA Systems Analysis and Concepts Directorate Mission and Trade Study Analysis	NASA Langley Research Center; NASA Langley Research Center; NASA Langley Research Center; NASA Langley Research Center; Swales Aerospace; NASA Langley Research Center; Ricks, Wendell; Guynn, Mark; Hahn, Andrew; Lepsch, Roger; Mazanek, Dan; Dollyhigh, Sam
15-Sep-2003	Simulating the ARES Aircraft in the Mars Environment	Kenney, P. Sean; Croom, Mark A.



DSpace LTRS – Metadata Short Version

Title: Simulating the ARES Aircraft in the Mars Environment

Authors: Kenney, P. Sean
Croom, Mark A.

Issue Date: 15-Sep-2003

Abstract: NASA Langley proposed the Aerial Regional-scale Environmental Survey (ARES) of Mars science mission in response to the NASA Office of Space Science 2002 Mars Scout Opportunity. The science-driven mission proposal began with trade studies and determined that a rocket powered aircraft was the best suited platform to complete the ARES science objectives. A high fidelity six degree of freedom flight simulation was required to provide credible evidence that the aircraft design fulfilled mission objectives and to support the aircraft design process by providing performance evaluations. The aircraft was initially modeled using the aero, propulsion, and flight control system components of other aircraft models. As the proposed aircraft design evolved, the borrowed components were replaced with new models. This allowed performance evaluations to be performed as the design was maturing. Basic autopilot features were also developed for the ARES aircraft. Altitude hold and track hold modes allowed...

URI: <http://hdl.handle.net/2002/12654>

Appears in Collections: [61 Computer Programming and Software](#)

Files in This Item:

File	Description	Size	Format	
NASA-aiaa-2003-6579.pdf		398Kb	Adobe PDF	View/Open

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Langley Technical Reports – Click for full metadata display

Title: Simulating the ARES Aircraft in the Mars Environment

Authors: Kenney, P. Sean
Croom, Mark A.

Issue Date: 15-Sep-2003

Abstract: NASA Langley proposed the Aerial Regional-scale Environmental Survey (ARES) of Mars science mission in response to the NASA Office of Space Science 2002 Mars Scout Opportunity. The science-driven mission proposal began with trade studies and determined that a rocket powered aircraft was the best suited platform to complete the ARES science objectives. A high fidelity six degree of freedom flight simulation was required to provide credible evidence that the aircraft design fulfilled mission objectives and to support the aircraft design process by providing performance evaluations. The aircraft was initially modeled using the aero, propulsion, and flight control system components of other aircraft models. As the proposed aircraft design evolved, the borrowed components were replaced with new models. This allowed performance evaluations to be performed as the design was maturing. Basic autopilot features were also developed for the ARES aircraft. Altitude hold and track hold modes allowed...

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Full metadata record

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date.accessioned	2005-04-30T05:16:28Z	-
date.available	2005-04-30T05:16:28Z	-
date.issued	2003-09-15	-
→ identifier.totalPages	20	en_US
→ identifier.reportNumber	AIAA-2003-6579	en_US
identifier.uri	http://hdl.handle.net/2002/12654	-
description.abstract	NASA Langley proposed the Aerial Regional-scale Environmental Survey (ARES) of Mars science mission in response to the NASA Office of Space Science 2002 Mars Scout Opportunity. The science-driven mission proposal began with trade studies and determined that a rocket powered aircraft was the best suited platform to complete the ARES science objectives. A high fidelity six degree of freedom flight simulation was required to provide credible evidence that the aircraft design fulfilled mission objectives and to support the aircraft design process by providing performance evaluations. The aircraft was initially modeled using the aero, propulsion, and flight control system components of other aircraft models. As the proposed aircraft design evolved, the borrowed components were replaced with new models. This allowed performance evaluations to be performed as the design was maturing. Basic autopilot features were also developed for the ARES aircraft.	en_US



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description.presentationLocation San Diego, California ←
 format.extent 408421 bytes ←
 format.mimetype application/pdf ←
 language.iso en_US
 subject.keywords Simulation
 → subject.keywords Aircraft
 subject.keywords Mars
 → subject.categories 61 | Computer Programming and Software
 title Simulating the ARES Aircraft in the Mars Environment
 date.posted 2003-10-07
 title.meetingTitle 2nd AIAA "Unmanned Unlimited" Systems, Technologies, and Operations-Aerospace, Land, and Sea Conference and Workshop and Exhibit
 contributor.author Kenney, P. Sean
 contributor.author Croom, Mark A.
 → date.beginPublished 2003-09-15
 date.endPublished 2003-09-18
 Appears in Collections: [61 Computer Programming and Software](#)

Files in This Item:

File	Description	Size	Format
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**The Langley Technical Reports Server has been merged into the NASA Technical Reports Server.
Please update your bookmarks.**

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National Aeronautics and Space Administration

Implementing DSpace at NASA Langley Research Center

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Author > [Auslender, Aaron](#)
 Author > [Riggins, David](#)
 Author > [Tacket, Regan](#)
 Author > [Taylor, Trent](#)

NASA Center > [Langley Research Center](#)

Publication Year > 2001-2010 > [2006](#)

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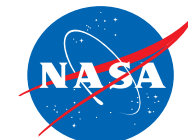
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Title:	Thermodynamic Analysis of Dual-Mode Scramjet Engine Operation and Performance
Author(s):	Riggins, David; Tacket, Regan; Taylor, Trent; Auslender, Aaron
Abstract:	Recent analytical advances in understanding the performance continuum (the thermodynamic spectrum) for air-breathing engines based on fundamental second-law considerations have clarified scramjet and ramjet operation, performance, and characteristics. Second-law based analysis is extended specifically in this work to clarify and describe the performance characteristics for dual-mode scramjet operation in the mid-speed range of flight Mach 4 to 7. This is done by a fundamental investigation of the complex but predictable interplay between heat release and irreversibilities in such an engine results demonstrate the flow and performance character of the dual mode regime and of dual mode transition behavior. Both analytical and computational (multi-dimensional CFD) studies of sample dual-mode flow-fields are performed in order to demonstrate the second-law capability and performance and operability issues. The impact of the dual-mode regime is found to be characterized by decreasing overall irreversibility with increasing heat release, within the operability limits of the system.
NASA Center:	Langley Research Center
Publication Date:	2006
Document Source:	CASI
No Digital Version Available:	Go to Tips On Ordering
Document ID:	20070000536
Report Number:	AIAA Paper 2006-8059
Contract-Grant-Task Number:	WBS 759.07.06
Price Code:	A03
Meeting Information:	14th AIAA AHI International Space Planes and Hypersonics Systems and Technologies Conference; 6 - 9 Nov. 2006; Australia; Canberra
Keywords:	COMPUTATIONAL FLUID DYNAMICS RAMJET ENGINES SUPERSONIC COMBUSTION RAMJET ENGINES THERMODYNAMICS IRREVERSIBLE PROCESSES HEAT TRANSFER
Accessibility:	Unclassified; Copyright; Unlimited; Publicly available;
Updated/Added to NTRS:	2007-01-11



New Communities for DSpace

- In addition to creating the public Langley technical reports repository, the Technical Library decided to create an internal repository. Both repositories became known as the Langley Technical Library Digital Repository (LTLDR). The internal repository includes the following communities:
 - ❑ Langley Aerospace Document Community (7389 documents)
 - ❑ NASA Working Papers Community (698 documents)
 - ❑ Langley Authored Open Literature (5872 documents)



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- The NASA Langley Technical Library uses MetaLib and SFX technology to link customers to resources that we own and to resources available at other institutions.
 - Users conducting a federated search of library resources are presented options for obtaining the materials.
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 - Users can link to the Center's automated request system to obtain the item from internal or external sources.
 - Users are linked to subscription sources for the item.
 - Users can also request copies of articles referenced in the Langley Authored Open Literature Community by linking to the Center's automated request system.



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Please use this identifier to cite or link to this item: <http://hdl.handle.net/2121/14595>

Title: Efficiency and accuracy of time-accurate turbulent Navier-Stokes computations

Author(s): Rumsey, CL
Sanetrik, MD
Biedron, RT
Melson, ND
Parlette, EB
ANALYT SERV and MAT INC,HAMPTON,VA 23666
VIGYAN INC,HAMPTON,VA

Issue Date: 1996

Abstract: The accuracy and efficiency of two different types of subiterations in both explicit and implicit Navier-Stokes codes are explored for unsteady laminar circular-cylinder flow and unsteady turbulent flow over an 18%-thick circular-arc (biconvex) airfoil. Grid and time-step studies are used to assess the numerical accuracy of the methods. For both explicit and implicit algorithms, nonsubiterative time-stepping schemes and schemes with physical time subiterations are subject to time-step limitations in practice that are removed by pseudo time subiterations (dual time stepping). Computations for the circular-arc airfoil indicate that a one-equation turbulence model predicts the unsteady separated flow better than an algebraic turbulence model; also, the hysteresis with Mach number of the self-excited unsteadiness due to shock and boundary-layer separation is well predicted.

URI: <http://hdl.handle.net/2121/14595>

ISSN: 0045-7930

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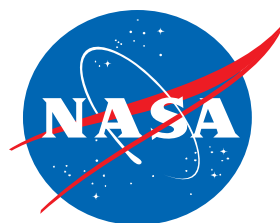
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Future Plans

- Re-evaluate the role of DSpace at the Center
- Populate the Langley Authored Open Literature Community with all known NASA Langley Research Center citations.
- Continue to fine-tune MetaLib and SFX making sure that all OpenURL metadata fields are populated and transferred to linked systems
- Evaluate the need for additional communities



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