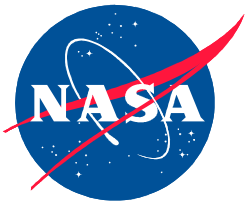
NASA EARTH SCIENCE DIVISION
APPLIED SCIENCES PROGRAM

Crosscutting Solutions: Solutions Networks

Project Plan: 2007
v. 4.5



Solutions Networks Project Plan Signature Page

The Solutions Networks Project Managers and the Crosscutting Solutions Program Element Manager have reviewed the plan and agree that the plan appropriately reflects the goals, objectives, and activities for the program element to serve the Applied Sciences Program, the Science Mission Directorate, and NASA.

Approved:

(Signature on File)

Mark V. Glorioso
Director, NASA Applied Research & Technology Project Office
John C. Stennis Space Center

Date

Concurred:

(Signature on File)

Troy E. Frisbie
Solutions Networks Project Manager, Crosscutting Solutions Program
Applied Sciences Program

Date

(Signature on File)

E. Lucien Cox
Program Manager, Crosscutting Solutions Program
Applied Sciences Program
NASA Headquarters

Date

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Crosscutting Solutions Program Element: Solutions Networks Project Plan

1.0 Purpose and Scope

Solutions Networks builds and maintains relationships (or networks) with Applied Sciences Program solution providers and a knowledge base of their activities, capabilities, directions, and results for tactical and strategic support.

Strategic support includes the development and maintenance of a community of practice including government, industry, and academia. Through the Applied Sciences Program, this community moves NASA Earth Science research results into our partner's operational decision support tools and/or decision support systems. Solutions Networks fosters development and communication of techniques and results that stimulate the development of a skilled workforce. Tactical support includes the collection, storage, organization, and dissemination of knowledge through projects elements including, but not limited to, Knowledge Management, Earth Science e-Government Solutions, and Earth Science Research Results Evaluation. Sources and users of this information include applications program managers, systems engineers, external partners, and the wider applied sciences community, including the scientific and technical staff, partners of NASA Headquarters and the NASA Centers.

2.0 Project Goal and Objectives

The goal of all Solutions Networks projects is to improve the ability of users and operational organizations to identify, access, and harness NASA research results that exist within Earth Science organizations. The purpose of this project is to establish, maintain, and evolve integrated networks of solutions providers the necessary tools and information to accomplish the goals of the Applied Sciences Program and the Science Mission Directorate in support of NASA's vision and mission. The overarching goal of this project is to assist in the enhancement or improvement of a partner's decision support tool (DST) which, in turn, makes a noticeable benefit to society.

Under this project, the Earth Science Research Results Evaluation activity directly supports the program by conducting research and by documenting potential benefits to society through improvements of partnering agency DSTs using NASA data. The Knowledge Management and Earth Science e-Government Solutions project elements directly contribute to the Solutions Networks objectives primarily by providing a wealth of information on NASA Earth Science assets through an inventory of NASA Earth Science System Components as well as numerous web-sites providing information for basic research or information sharing.

3.0 Project Team

3.1 Project Management

Crosscutting Solutions Program Manager:	E. Lucien Cox, NASA HQ Applied Sciences Program
Solutions Networks Project Manager:	Troy E. Frisbie, NASA SSC ARTPO

3.2 NASA Centers

Ames Research Center	POC: Steve Hipskind
Goddard Space Flight Center	POCs: Shahid Habib, Fritz Policelli
Langley Research Center	POC: Lin Chambers
Marshall Space Flight Center	POC: Joan Presson

Stennis Space Center POC: Troy E. Frisbie

3.3 Partner Organizations

Partnering organizations are listed within the appendices of this plan with respect to the project they support.

4.0 Project Elements

The Solutions Networks project currently includes the following elements:

4.1 Earth Science Research Results Evaluation

4.1.1 Candidate Solution Generation

The primary focus for the Applied Sciences Program's Solutions Networks project in FY 2007 will be the generation of potential NASA solutions in the form of Formulation Reports. A "NASA solution" is the use of NASA data that improves a partner's decision support system in some quantitative manner. Candidate Solution Generation is an extensive project element that consists of conducting extensive research into NASA research publications, funded research grants and proposals, and future research in the areas of the Applied Sciences Program's 12 National Applications. Research may also include attending various symposiums, workshops, or conferences to gather cutting-edge findings in a research area of interest. For each research topic selected, the deliverable for this effort would be a Formulation Report that outlines a candidate NASA solution for possible follow-on work into development of a rapid prototype model (see Appendix A for details).

4.1.2 Solutions Networks Hub Development/Coordination

Another major effort to support the Solutions Networks (SN) project will be the development of a SN "Hub". The SN Hub will serve as a centralized information center for all SN activities in the Applied Sciences Program. A major function of this Hub will be to provide a mechanism to allow previous and current Formulation Reports to be categorized, archived, and readily available for use by the Applied Sciences group and by the operational community. This Hub will consist of an online system that will allow for input of new Formulation Reports and for status and queries on previously submitted Formulation Reports. The primary goal of the SN Hub project is to develop an interactive web-site that will serve as a centralized locale for all users affiliated with the Solutions Networks activities and with the Applied Sciences Program. The Hub will serve as a launching point for all other Program-affiliated web-sites and databases and will provide an entry and search function for all Applied Sciences Formulation Reports (see Appendix A for details).

4.1.3 Solutions Networks Infomart Collaboration

A MSFC and LaRC collaborative effort for funding Infomart activities began in FY06 and will continue through FY07. The two Centers are exchanging research findings and strategies for assisting NASA funded Infomarts toward future competitive funding status through such sources as ROSES and Decisions. Initially, both MSFC and LaRC researched the history of NASA funded Infomarts to determine both their specific functions and the specialties available, such that affiliations could be established within each NASA Center's areas of scientific expertise as it relates to the Applied Sciences National Applications. Generally, Infomarts are internet based, application specific data search engines that allow decision makers to gather and assimilate information and products derived from NASA remotely sensed imagery, as well as other data sources. The Infomarts provide a means of maintaining

subsets of data oriented toward the essential needs of a specific category of end users. This removes the users' burden of analyzing and navigating the larger data set, while also presenting the data in a format that is more relevant to the user's area of interest and expertise, i.e., user-friendly (see Appendix A for details).

4.2 Earth Science E-Government Solutions

The purpose of this project is to design, test, host, and maintain websites and links, used by the Earth science community, inter-agency, and international programs that interface and possibly partner with the Applied Sciences Program. Also included under this project element is the support of National and International Solutions through involvement at different levels in various initiatives. The project network includes other organizations that contribute to and benefit from overall Crosscutting support activities. This project also provides direct support for the development of peer-reviewed journal articles to communicate Applied Sciences Program activities (see Appendix B for details).

4.3 Knowledge Management

4.3.1 Earth Science Systems Components Knowledge Base

The Earth Science Systems Components Knowledge Base (also known as the "Coin Card Chart", Missions-to-Models, and M2M) systematically catalogues NASA missions, sensors, models, data products, model products, partner agency decision support tools, and network partners appropriate for consideration in NASA science applications projects. The Systems Components Knowledge Base is made available to Earth Science partners and to the general public as a web-site with drill-down and cross-reference capability. The Systems Components Knowledge Base provides the ability to perform an easy preliminary assessment of NASA asset capabilities most useful for a given partner's decision support tool. For FY 2007, this project will continue with many enhancements started in FY 2006, such as the conversion to the Global Change Master Directory (GCMD). With GCMD at its base, the Systems Components Knowledge Base will have a common set of parameters not only among Federal agencies but also within the International community. This enhancement also allows for easier use by the Rapid Prototyping Capability (RPC) and Earth Science Architecture Tool (ESAT) projects (see Appendix C for details).

4.3.2 Earth Science Architecture Tool

The Earth Science Architecture Tool (ESAT) project is a FY 2006 legacy project that will close in FY 2007. ESAT was developed using the enterprise architecture software, Metis®. Metis is a family of client and server products for creating, visualizing, changing, sharing, and managing visual enterprise models. To date, ESAT has been a conceptual tool to test whether this tool could satisfy Solutions Networks activities. Project focus in FY 2007 will be to complete a major beta-test activity and to forward results to the Solutions Networks Council. No FY 2007 funds will be used to support this project (see Appendix C for details).

5.0 Solutions Networks Council

To facilitate the Formulation Report process, a Solutions Networks Council was formed and operates from the Applied Sciences Program at NASA Headquarters. The Council will meet on a quarterly basis to review all Candidate Solutions proposed through Formulation Reports. The Council is expected to limit its review of Formulation Reports submitted for a given quarter and to discuss issues related to Solutions Networks. Because of the scope of the effort required, the Council will not conduct a thorough technical

evaluation but will review the overall quality of the Candidate Solutions submitted from each funded Center. Efficacy of a Candidate Solution will be judged solely on the results of this review.

The review results will be recorded in a formal written report for the cognizant Solutions Networks administrative nodes. The report sent to each node shall describe the review process and note acceptance or rejection of each Candidate Solution. When appropriate, recommendations for remedial action will be suggested.

FY 2007 Solutions Networks Council Members include:

- Lin Chambers, Council Leader
- Dave Young
- Lucien Cox
- DeWayne Cecil
- Lawrence Friedl
- Chuck Hutchinson
- Verne Kaupp
- R&A Program Manager TBD (possibly rotational)

6.0 Budget

This budget roll-up represents the summary-level budgets for the Solutions Networks Project Elements. The budget details for each element can be found in their respective appendices. FY 2006 funds were sent late in the year. As a result, FY 2006 and FY 2007 funds will be combined to support like projects.

The Solutions Networks project budget is presented in Table 1. Additional budget and phasing detail are provided in Appendix A through Appendix C.

Table 1. Solutions Networks FY 2007 budget*.

Activity	FY 2007 Budget	NASA Civil Servant FTE
Earth Science Research Results Evaluation		
Ames Research Center	$0	0
Goddard Space Flight Center	$310	1.84
Langley Research Center	$411	2.62
Marshall Space Flight Center	$301	1.72
Stennis Space Center	$263	3.77
Sub-Total:	**$1,285**	**9.95**
Solutions Networks Hub Development		
Langley Research Center	$47	0.27
Stennis Space Center	$397	2.27
Sub-Total:	**$444**	**2.54**
Solutions Networks Infomart Collaboration **		
Langley Research Center **	$0	
Marshall Space Flight Center **	$0	
Knowledge Management		
Stennis Space Center	$500	2.85
Sub-Total:	**$500**	**2.85**
Earth Science E-Government Solutions		
Stennis Space Center	$300	1.72
Sub-Total:	**$300**	**1.72**
Solutions Networks Total*	**$2,529**	**17.06**

**All funding amounts given in $ k.*
*** Funded through FY05 Earmarks; FTEs costs funded through SN program funds.*

Appendix A

NASA EARTH SCIENCE DIVISION

APPLIED SCIENCES PROGRAM

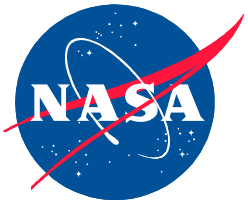
Crosscutting Solutions: Solutions Networks

Earth Science Research Results Evaluation Project Element Plan

A.1 Candidate Solution Generation

A.2 Solutions Networks Hub Development and Coordination

A.3 Solutions Networks Infomart Collaboration



Appendix A. Research Results Evaluation Project Element Plan

A.1. Purpose and Scope

A major emphasis for FY 2007 within the Crosscutting Solutions Program is the Solutions Networks Earth Science Research Results Evaluation project. This major project consists of three parts that work in parallel with one another to directly support the Solutions Networks effort.

This project element encompasses fiscal year 2007 and directly supports NASA Strategic Plan sub-goal 3A: *Study Earth from space to advance scientific understanding and meet societal needs*.[*]

A.2. Project Goals and Objectives

A.2.1. Candidate Solution Generation

The Crosscutting Solutions Program Manager has set this activity as the primary focus for FY07 Solutions Networks activities. This project will be the generation of 200 potential NASA solutions in the form of Formulation reports. This project will span across several NASA Centers affiliated with the Applied Sciences Program.

A.2.2. Solutions Networks Hub Development/Coordination

The SN Hub will serve as a centralized information center for all SN activities in the Applied Sciences Program. A major function of this Hub will be to provide a mechanism to allow Principal Investigators (PIs) the ability to submit Formulation Reports via an online system, then to be reviewed by the SN Council. This Hub will also provide status and metrics to Program Managers and Center Team Leads, as well as, queries on previously submitted Formulation Reports.

A.2.3. Solutions Networks Infomart Collaboration

The primary purpose of this activity is to align NASA funded Infomarts with the Applied Sciences program activities enabling them to be more competitive in future Earth science solicitations.

A.3. Project Team

Project Management

Crosscutting Solutions Program Manager:	Lucien Cox, NASA HQ ASP
Solutions Networks Project Manager:	Troy E. Frisbie, NASA SSC ARTPO
Earth Science Research Result Evaluation Project Element Manager:	Troy E. Frisbie, NASA SSC ARTPO
Solutions Networks Infomart Collaboration Project Element Managers:	Richard Eckman, NASA LaRC Joan Presson, NASA MSFC

A.4. Roles and Responsibilities

Ames Research Center: TBD

Goddard Space Flight Center: Contribute to the development of Formulation Reports to meet program goals.

[*] National Aeronautics and Space Administration, 2006. *2006 NASA Strategic Plan.* NP-2006-02-423-HQ, 44 p., http://www.nasa.gov/pdf/142302main_2006_NASA_Strategic_Plan.pdf (accessed August 17, 2006).

Langley Research Center: Lead procurement activities regarding Infomarts. Contribute to the development of Formulation Reports to meet program goals. Collaborate with NASA SSC in the design of the Solutions Networks Hub.

Marshall Space Flight Center: Work directly with Infomarts to align and contribute with Applied Sciences Program. Contribute to the development of Formulation Reports to meet program goals. Collaborate with NASA SSC in the design of the Solutions Networks Hub.

Stennis Space Center: Contribute to the development of Formulation Reports to meet program goals. In coordination with other affiliated NASA Centers, design and implement a Solutions Networks Hub.

A.5. Implementation Approach

A.5.1. Candidate Solution Generation

To reach the Program goal of 200 Formulation Reports, each affiliated NASA Center shall be given a target goal of reports to deliver in FY 2007. Each NASA Center shall then execute a plan to deliver its allotted number of reports to NASA HQ. The initial guidelines and format of the Formulation Reports will be provided by NASA HQ.

A.5.2. Solutions Networks Hub Development/Coordination

Project team members shall work closely with the Crosscutting Program Manager and the Solutions Networks project manager throughout the development process to ensure that the intent of this project is fully met. A prototypical or conceptual SN Hub shall be presented for review to NASA HQ in early FY 2007. Feedback from the presentation will then be implemented in a timely fashion. Once the Hub approaches operational status, the project team will coordinate with HASA HQ and Program-affiliated Centers to beta-test the web-site. Feedback from the beta-test will then be incorporated into the Hub and later released into the operational version.

A.5.3. Solutions Networks Infomart Collaboration

An MSFC and LaRC collaborative effort for funding Infomart activities began in FY 2006 and will continue through FY 2007. The two Centers are exchanging research findings and strategies for assisting NASA-funded Infomarts toward future, competitive funding status through such sources as the ROSES, and Decisions solicitations. Initially, both MSFC and LaRC researched the history of NASA-funded Infomarts to determine both their specific functions and the specialties available. The purpose of this research was to establish affiliations within each NASA Center's areas of scientific expertise as it relates to the Applied Sciences Program's National Applications. Generally, Infomarts are Internet-based, application-specific data search engines that allow decision makers to gather and assimilate information and products derived from NASA remotely sensed imagery and from other data sources. The Infomarts provide a means of maintaining subsets of data oriented toward the essential needs of a specific category of end users. This capability removes the users' burden of analyzing and navigating the larger dataset while also presenting the data in a user-friendly format that is relevant to the user's area of interest and expertise.

A.5.3.1 LaRC's Specific Efforts

Langley scientists worked with DEVELOP students during the summer of 2006 to inventory the holdings of the current Infomart entities and to assess their applicability to the Applied Sciences Program's objectives. This effort resulted in a spreadsheet of the holdings, grouped by research specialties and NASA data products used. Contact information for promising Infomart entities was collected and was communicated to MSFC.

LaRC is currently communicating with four Infomarts in efforts to establish contracts. The two larger planned proposal efforts are with the University of Texas-Austin and with Towson University to use the Infomart's holdings for projects more closely aligned to Applied Sciences Program activities, particularly with respect to the eventual establishment of Solutions Networks. Additional activities with the University of Missouri and the University of Arizona Infomarts are planned and will be initiated during the September/October 2007 timeframe. These awards are expected to be $125 k each. In summary, $750 k of the $1M received by LaRC will be on contract with Infomarts; the remainder will be used for overhead, such as researching Infomarts, establishing contracts, and monitoring contracts during FY 2007.

A.5.3.2 MSFC's Specific Efforts:

MSFC funding will be used specifically to assist two strategically selected Infomarts toward viability, independence, and orientation toward a new competitive funding path. As with LaRC's efforts, the future target path is for the existing Infomarts to win funding via competitive awards for partnership efforts with NASA or with industry scientists, which will ultimately serve the needs of decision makers at the federal, state, local, and tribal levels. These strategically chosen Infomarts will improve their capabilities within several common areas of interest that align with one or more of the Applied Sciences Program's National Applications. In concert with LaRC's efforts is the strategic objective of creating a framework that will evolve into a Solutions Network. Each Infomart will develop sophisticated models with practical applications to a specific end user. Each Infomart will also interface with groups of end users and will provide general explanations and specific training for use of datasets extracted for each specific purpose.

Following a systematic approach to identification and elimination, the best candidate Infomarts for MSFC were determined to be (1) the Pacific Northwest Regional Collaborative, Battelle, and (2) the Upper Midwest Aerospace Consortium, University of North Dakota. In the interest of time, MSFC provided a verbal Statement of Work (SOW) to each Infomart. Next, MSFC developed a detailed written SOW and provided it to the Program Manager at NASA Headquarters. Within a few weeks, both proposals were received, reviewed, and, following modifications, determined acceptable. Each Infomart will receive $200 k and will be under contract for 12 months, commensurate with the FY 2007 fiscal year. As a minimum, each will provide a written preliminary report midway through the period of performance, a written final report, and a technical paper suitable for publication in a scientific journal. Additionally, at some appropriate point during the performance period, representatives from each Infomart will come to MSFC for a face-to-face discussion of their progress, and, perhaps most importantly, to interface directly with key scientists. Contracts with the University of North Dakota and Battelle was finalized in October 2006. Both contracts will be awarded as subcontracts to Universities Space Research Association (USRA) because of time constraints imposed by MSFC procurement activities. In summary, $400 k of the $487 k received by MSFC will be on contract with Infomarts; the remainder will be used for overhead, such as researching Infomarts, establishing contracts, and COTR activities during FY 2007.

A.6. Deliverables and Schedule

A.6.1. Candidate Solution Generation

To reach the Program goal of 200 Formulation Reports, each affiliated NASA Center shall be given a target goal of reports to deliver in FY 2007. Each NASA Center shall then execute a plan to deliver its allotted number of reports to NASA HQ. FY 2007 goals for each center are given in Table A–1.

Table A–1. NASA Center Formulation Report goals for 2007.

NASA Center	# Formulation Reports
ARC	0
GSFC	24
LaRC	50
MSFC	30
SSC	50
TOTAL	154*
*Program goal is 200. Difference will be attempted by other organizations supporting the Applied Sciences Program funded through DECISIONS, etc.	

A.6.2. Solutions Networks Hub Development/Coordination

- Prototypical or conceptual Solutions Network Hub presented for review to NASA HQ (October 2007).
- Feedback from presentation implemented (November 2006).
- Beta-test web-site (January 2007).
- Incorporate beta-test feedback into Hub (January-February 2007).
- Maintain/update Hub (Upon request).

A.6.3. Solutions Networks Infomart Collaboration

- Mid-cycle report (March 2007).
- Final report (September 2007).
- Technical paper for publication in a technical journal (September 2007).

A.7. Budget

Table A–2 breaks down the budget by NASA Center to support this activity.

Table A–2. Earth Science Research Results Evaluation FY 2007 budget.*

Activity	Budget	NASA Civil Servant FTE
Candidate Solution Generation		
Ames Research Center	$0	0
Goddard Space Flight Center	$310	1.84
Langley Research Center	$411	2.62
Marshall Space Flight Center	$301	1.72
Stennis Space Center	$263	3.77
Sub-Total:	**$1,285**	**9.95**
Solutions Networks Hub Development		
Langley Research Center	$47	0.27
Stennis Space Center	$397	2.27
Sub-Total:	**$444**	**2.54**
Solutions Networks Infomart Collaboration**		
Langley Research Center **	$0	
Marshall Space Flight Center **	$0	
Earth Science Research Results Evaluation Total*	$1,729	12.49

**All funding amounts given in $ k.*
*** Funded through FY05 Earmarks; FTEs costs funded through SN program funds.*

A.8. Performance Measures

Project performance will be assessed using several methods:

- Technical team meetings or teleconferences, at least one per month between the NASA project team and technical contractor project staff to assess project task status.
- Weekly activity reports provided by contractor staff to NASA.
- Weekly activity reports provided by NASA Stennis Space Center to the NASA Headquarters Applied Sciences Program of the Earth Science Division, Science Mission Directorate.
- Participation in weekly NASA Applied Sciences Program staff teleconferences.
- Presentations to NASA Applied Sciences Program managers.

A.9. Signatures

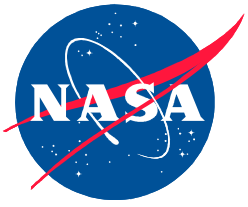
Troy E. Frisbie
Earth Science Research Result Evaluation Project Element Manager
NASA Applied Research & Technology Project Office
John C. Stennis Space Center, Mississippi

Date

Appendix B

NASA EARTH SCIENCE DIVISION
APPLIED SCIENCES PROGRAM

Crosscutting Solutions: Solutions Networks
Earth Science E-Government Solutions Project Element Plan



Appendix B. Earth Science E-Government Solutions Project Element Plan

B.1. Purpose and Scope

Solutions Networks maintains relationships with Applied Sciences Program solution providers and maintains a knowledge base of their activities, capabilities, directions, and results for tactical and strategic support of the Program and of its National Applications. The primary purpose of this project is to design, develop, test, host, and maintain web-sites as tools for supporting Crosscutting Solutions projects and the Applied Sciences Program.

This project element encompasses fiscal year 2007 and directly supports NASA Strategic Plan sub-goal 3A: *Study Earth from space to advance scientific understanding and meet societal needs.*[*]

B.2. Project Goals and Objectives

- Maintain, update, and continue to host existing web-sites to ensure currency and application to the Applied Sciences Program's strategies and goals,
- Ensure that all web-sites meet applicable NASA standards and are approved through proper NASA channels,
- Ensure that all needed security and confidentiality requirements are met (password protection, firewalls, etc.),

B.3. Project Team

Project Management

Crosscutting Solutions Program Manager:	Lucien Cox, NASA HQ ASP
Solutions Networks Project Manager:	Troy E. Frisbie , NASA SSC ARTPO
Earth Science E-Government Solutions Project Element Manager:	Troy E. Frisbie , NASA SSC ARTPO

B.4. Roles and Responsibilities

NASA HQ: The Solutions Networks Project Manager is responsible for requirements definition, policy, resources, and performance assessment in accordance with the Crosscutting Solutions Program Plan and Headquarters concurrence.

NASA SSC ARTPO: The National and International Solutions Project Element Manager is responsible for requirements implementation, contractor oversight and insight, tasking, and feedback; proper configuration to NASA standards and formats; customer/user feedback and response; metrics.

NASA SSC Information Technology Services (ITS) contractor: The NASA SSC ITS contractor is responsible for design, development, and implementation, including overall strategy and planning, database development, web/HTML/scripting development, content development, graphic art expertise, modeling expertise, updates, and keeping current with technical advances in the state-of-the-art. Content will provide accurate and up-to-date information and will contribute to presenting NASA's Applied Sciences Program in the best light. Responsibilities include meeting all NASA and SSC requirements and

[*] National Aeronautics and Space Administration, 2006. *2006 NASA Strategic Plan.* NP-2006-02-423-HQ, 44 p., http://www.nasa.gov/pdf/142302main_2006_NASA_Strategic_Plan.pdf (accessed August 17, 2006).

standards (accessibility, confidentiality, etc.) and providing a weekly summary of individual site and overall web activity.

NASA SSC Center Operations Information Technology: NASA SSC Center Operations Information Technology is responsible for coordinating ARTPO web page activity into Center's policy and formats; security.

B.5. Implementation Approach

In FY 2007, NASA SSC will not only continue to maintain designated Applied Sciences Program related web-sites but will take a pro-active approach to understanding customer requirements and to developing new web-sites when requested by Applied Sciences Crosscutting Solutions staff at NASA Headquarters. "Pro-active approach" in FY 2007 involves frequent teleconferences with NASA officials and site visits to NASA HQ Applied Science program managers to actively understand their needs and requirements. Current web-sites will also be closely monitored for activity and currency. Web-sites with little or no activity will be recommended for closure, while sites that are active will have recommended enhancements to encourage repetitive visits. NASA SSC will also maintain expertise in these areas to continue an "on-demand" service for NASA HQ.

This project provides direct support to the United States Group on Earth Observations and the GPS Applications Exchange by providing maintenance of their websites.

B.6. FY 2007 Deliverables and Schedule

NASA SSC will update all web-sites upon the request of NASA HQ or on a quarterly basis. All web-sites should have current information, and requests for changes should be completed in a timely manner. Simple text changes shall be completed within a 24-hour window during a business week. Tasks requiring complex coding will be evaluated and an estimate of completion shall be given to the NASA HQ requestor in a timely manner.

For FY 2007, planned activities include:

1. Update of all Applied Science/E-Government funded web-sites (November 2006, with quarterly updates thereafter).

2. Crosscutting Solutions Program homepage (November 2007).

3. World Summit on Sustainable Development (WSSD) Decision Support Tools (October 2007).

4. Solutions Networks Information Page (November 2007)

5. Water Management Program "hub" (TDB)*

*This potential project is currently being discussed with Deputy Water Management Program Manager; project status is pending.

B.7. Budget

Table B–1 breaks down the budget per NASA Center to support this activity.

Table B–1. Earth Science E-Government Solutions FY 2007 budget.*

Activity	Procurement	NASA SSC Civil Servant FTE
Earth Science E-Government Solutions Total (SSC)	$300	1.72

** All funding amounts given in $ k.*

B.8. Exit Strategy/Project Termination

For the web-site development project element, the project team can monitor web-site usage for each site developed for the Applied Sciences Program. Upon review, seldom-used web-sites will be suggested for termination to management or upon the request from NASA HQ. Therefore, exit strategies will be tailored to each individual web-site.

B.9. Performance Measures

B.9.1.1 Measures to Support Project Control

- Maintenance of existing web-sites in accordance with NASA SSC directives and NASA standards.
- Web-site usage.
- Web-site time up and available for users.
- Adherence to schedule and budget.
- User feedback including nature of feedback, number of comments, and NASA follow-up and response, including effectiveness and timeliness of response.
- Technical team meetings or teleconferences between the NASA ARTPO project team and technical contractor project staff at least once per month to assess project task status.
- Weekly activity reports provided by NASA ARTPO to NASA Headquarters Applied Sciences Program.
- Participation in weekly NASA Applied Sciences Program staff teleconferences.
- Program reviews conducted every other month at Stennis Space Center.
- Direct interaction, at least once per quarter, with Federal partners to communicate progress and to leverage activities and results.
- Constant interaction with users and visitors to understand system performance and to refine web-sites for better content and usability.

B.9.1.2 Web Page Descriptions and Location

Applied Research & Technology Project Office, John C. Stennis Space Center:
http://www.asd.ssc.nasa.gov

Web-site URL will be updated to reflect reorganization at SSC. Describes NASA's ARTPO and allows the user to search programs and projects. All project and program information is stored in a Microsoft® Structured Query Language (SQL) database. The projects are also displayed in an Interactive Map using Environmental Systems Research Institute, Inc. (ESRI) Internet Map Server (IMS) and Spatial Database Engine (SDE) advanced spatial data server products. Technologies used:

- Microsoft SQL Server
- Microsoft ASP.NET
- ESRI ArcIMS®
- ESRI ArcSDE®

Applied Research & Technology Project Office – Intranet Site: https://boudreaux.ssc.nasa.gov/

Allows ARTPO personnel access to internal reporting systems using SSL and Internet Protocol filtering.

Technologies used:

- Microsoft SQL Server
- Microsoft Access
- Microsoft Active Server Pages (ASPs)
- SSL

GPS Applications Exchange: http://gpshome.ssc.nasa.gov

Allows worldwide users of Global Positioning System technologies to submit their applications for publication. All submitted applications are stored in a Microsoft SQL database. Users can search for applications using the interactive map created with ESRI IMS and SDE advanced spatial data server products.

Technologies used:

- Microsoft SQL Server
- ESRI ArcIMS®
- ESRI ArcSDE®
- Microsoft ASP.NET

United States Group on Earth Observations: http://usgeo.gov

Provides news, online documents, and user feedback for the intergovernmental ad hoc Group on Earth Observations formed during the Earth Observation Summit of July 31, 2003, to develop a 10-year plan for implementing an integrated Earth Observation System.

- Microsoft SharePoint Portal Server

- Microsoft SQL Server
- Microsoft ASPs

Earth Science System Components: http://www.asd.ssc.nasa.gov/M2M/

Provides a link among all system components associated with the Applied Sciences Program: Earth observation sources, geophysical parameters, model and analysis systems, model outputs and predictions, decision support tools, and crosscutting themes.

- Microsoft SQL Server
- Microsoft ASP.NET

Proposed: **Crosscutting Solutions Program Element home page**

Displays information and links relevant to the Crosscutting Solutions Program Element.

Technologies used:

- Microsoft SQL Server
- Microsoft Access
- Microsoft ASPs
- SSL

Proposed: **World Summit on Sustainable Development (WSSD) Decision Support Tools**

A NASA-supported effort that allows users to search or upload information concerning decision support tools that could support WSSD efforts.

- Microsoft SQL Server
- Microsoft ASP.NET

Proposed: **Solutions Networks Information Page**

Displays information and links relevant to the Solutions Networks sub-element of the Crosscutting Solutions Program.

Technologies used:

- Microsoft SQL Server
- Microsoft Access
- Microsoft ASPs
- SSL

Proposed: **Integrated Benchmark Systems Information Page: (URL TBD)**

Displays information and links relevant to the Integrated Benchmarked Systems sub-element of the Crosscutting Solutions Program.

Technologies used:

- Microsoft SQL Server
- Microsoft Access
- Microsoft ASPs
- SSL

B.10. Signatures

Troy E. Frisbie
Earth Science E-Government Project Element Manager
NASA Applied Research & Technology Project Office
John C. Stennis Space Center, Mississippi

Date

Appendix C

NASA EARTH SCIENCE DIVISION

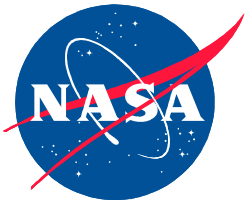
APPLIED SCIENCES PROGRAM

Crosscutting Solutions: Solutions Networks

Knowledge Management Project Element Plan

C.1 Earth Science Systems Components Knowledge Base

C.2 Earth Science Architecture Tool



Appendix C. Knowledge Management Project Element Plan

C.1. Purpose and Scope

Solutions Networks builds and maintains relationships (or networks) with Applied Sciences Program solution providers and builds a knowledge base of their activities, capabilities, directions, and results for tactical and strategic support.

To support the overall purpose and goals of Solutions Networks, the Knowledge Management project element provides tactical support through the collection, storage, organization, and dissemination of NASA Earth Science research and asset knowledge via centralized web-portals, databases, desktop applications, and general research.

Knowledge Management project elements will contribute to Solutions Networks objectives primarily by providing and maintaining a knowledge base of NASA Earth Science research and related NASA assets to have available for any interested party. For FY 2007, the projects within Knowledge Management include NASA's Earth Science System Components and the Earth Science Architecture Tool (ESAT).

This project element encompasses fiscal year 2007 and directly supports NASA Strategic Plan sub-goal 3A: *Study Earth from space to advance scientific understanding and meet societal needs*.[*]

C.2. Project Goals and Objectives

The goal of all Solutions Networks projects is to improve the ability of users and operational organizations to identify, access, and harness NASA research results that exist within Earth Science organizations to enhance or improve their decision support tools to benefit society. The goal of Knowledge Management is to provide knowledge, capacity, and support for extending NASA Earth Science research results for use in partnering agencies' decision support tools. Specific objectives relating to Knowledge Management are as follows:

1. Maintain and enhance the knowledge base of NASA Earth Science Systems Components Knowledge Base.
2. Complete report of findings/recommendations based on beta-test of Earth Science Architecture Tool (ESAT).

C.3. Project Team

Project Management

Crosscutting Solutions Program Manager:	Lucien Cox, NASA HQ ASP
Solutions Networks Project Manager:	Troy E. Frisbie, NASA SSC ARTPO

NASA Centers

Stennis Space Center	POC: Troy E. Frisbie, NASA SSC ARTPO

[*] National Aeronautics and Space Administration, 2006. *2006 NASA Strategic Plan.* NP-2006-02-423-HQ, 44 p., http://www.nasa.gov/pdf/142302main_2006_NASA_Strategic_Plan.pdf (accessed August 17, 2006).

Partner Organizations

The project network includes other organizations that contribute to and benefit from overall Crosscutting support activities including the following:

- Applications Implementation Working Group
- NASA Distributed Active Archive Centers
- Earth and Solar Science Modeling Labs
- Mississippi Research Consortium
- National Applications Programs and Projects
- Jet Propulsion Laboratory

C.4. Roles and Responsibilities

Stennis Space Center: Specific responsibilities include coordination with NASA HQ Program Manager, requirements management; resource allocation; quality control of scientific, cost, and schedule control; and oversight of related support contractor activity. The NASA SSC Information Technology Services contractor will perform technical responsibilities for each sub-element of this project as described in Stennis Work Requests (SWRs) issued to the contractor through the project manager.

C.5. Implementation Approach

The following sections detail the FY 2007 planned activities for Knowledge Management project elements. Funding levels for FY 2007 may cause increase, decrease, or elimination of project scope pending funding received and/or NASA HQ direction.

C.5.1. Earth Science Systems Components Knowledge Base

The Earth Science Systems Components Knowledge Base (also known as the Coin Card Chart, Missions to Models, M2M) systematically catalogues NASA missions, sensors, models, data products, model products, partner agency decision support tools, and network partners appropriate for consideration in NASA science applications projects. The Systems Components Knowledge Base is made available to Earth Science partners and the general public as an informative web-site with drill-down and cross-reference capability. It provides the ability to perform an easy preliminary assessment of NASA capabilities most useful for a given partner's decision support tool. The Systems Components Knowledge Base also consists of the development, maintenance, and online posting of booklets that contain information extracted from the database and web-site. Hard copies of these booklets are also available upon request: *Space Observations Systems*, *Models & Assimilations Systems*, and *Partner Decision Support Tools*.

For FY 2007, this project will focus on completing many of the enhancements started in FY 2006. Several NASA direct funded projects, such as Rapid Prototyping Capability (RPC), as well as funded solicitations from ROSES, are now using this web-site and the data within it to directly support their projects in ways beyond the original scope of the systems components project. In FY 2007, the project team will continue the effort with periodic updates to keep the information and data in the knowledge base as current as possible. However, in FY 2007 many enhancements started in FY 2006 will continue through completion, such as the conversion to the Global Change Master Directory (GCMD) and certification and validation of the database contents by experts at the Jet Propulsion Laboratory (JPL). With GCMD at its base, the Systems Components Knowledge Base will have a common set of parameters not only among Federal agencies but also within the International community.

C.5.2. Research Projects Knowledge Base

The NASA HQ Crosscutting Program wishes to investigate the development of a Research Projects Knowledge Base in FY07 to support Applied Sciences activities. Details for this activity have not been finalized to date. More details concerning this project will be formalized at a later date.

C.5.3. Earth Science Architecture Tool

The Earth Science Architecture Tool (ESAT) is a FY 2006 legacy project that will end in FY 2007. ESAT was developed using the enterprise architecture software, Metis®. Metis is a family of client and server products for creating, visualizing, changing, sharing, and managing visual enterprise models. Metis allows the user to capture and link information in multiple areas of an enterprise from products to processes to systems, to view an enterprise as a whole, or to focus on the details. Although Metis is a proven industry and government modeling tool, the software has never been used within NASA. In FY 2005, this project implemented Metis within NASA's Applied Sciences Program using existing data within the Systems Components Knowledge Base. FY 2006 activity centered on functionality and attempts to make the tool useable within the Solutions Networks framework. To date, ESAT has been a conceptual tool used primarily for a "proof-of-concept" activity to answer basic business questions and to display relationships to satisfy Solutions Networks activities. The focus in FY 2007 will be to complete a major beta-test activity and to forward results to the Solutions Networks Council. The SN Council will then provide recommendations to the NASA HQ Crosscutting Program Manager. No FY 2007 funds will be used to support this project.

C.6. FY 2007 Deliverables by Project

1. Update master database (Systems Components Knowledge Base/Coin Card Chart input) on NASA Earth Science Systems Components missions/sensors/models/data products, model products, and partner networks available through Web interface:
    a. Develop updated database capability of NASA Earth Science missions/sensors/models/data products, model products available through Web interface (June 2007).
    b. Update Earth Science Systems Components Chart as directed by the Crosscutting Solutions Program Manager, NASA Headquarters (June 2007).
    c. Continue updates on Earth Science System Components Chart (June 2007).
    d. Update booklets on NASA-affiliated Earth Science missions, models, & DSTs (June 2007).
    e. Complete GCMD updates to physical parameters (November 2006).
    f. Complete independent analysis of database to validate data (January 2007).
    g. Develop middleware interface with Mississippi Research Consortium's Research Projects Knowledge Base activity (September 2007).*
2. ESAT project deliverables include:
    a. Beta-test version of ESAT, Beta-test session (October 2006).
    b. Mission and sensor timeline enhancement prototype (October 2006).
    c. Develop a report documenting findings of beta-test feedback (January 2007).
    d. Deliver beta-test report to NASA HQ (February 2007).

* Based on initial discussions with NASA HQ. Details still TBD.

C.7. Budget

Table C–1 breaks down the budget per NASA Center to support this activity.

Table C–1. Knowledge Management FY 2007 budget.*

Activity	Procurement	NASA SSC Civil Servant FTE
Knowledge Management Total (SSC)	$500	2.85

** All funding amounts given in $ k.*

C.8. Performance Measures

Project performance will be assessed using several methods:

1. Technical team meetings or teleconferences, at least one per month between the NASA project team and technical contractor project staff to assess project task status.
2. Weekly activity reports provided by contractor staff to NASA.
3. Weekly activity reports provided to the NASA Headquarters Applied Sciences Program of the Earth Science Division, Science Mission Directorate.
4. Participation in weekly NASA Applied Sciences Program staff teleconferences.
5. Program reviews conducted every other month at NASA Stennis Space Center.
6. Presentations to NASA Applied Sciences Program managers.

C.9. Signatures

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Date