167-TP-002-001

Evaluation Package 7 (EP7) Results Report for the ECS Project

Technical paper - Not intended for formal review or Government approval.

February 1997

Prepared Under Contract NAS5-60000

RESPONSIBLE ENGINEER

Janice M. Poston-Day /s/ 13 February 1997

Janice M. Poston Day, Science Specialist date
EOSDIS Core System Project

SUBMITTED BY

Joseph T. Senftle /s/ 2/13/97

Joe Senftle, Science Data Engineering Manager date
EOSDIS Core System Project

Hughes Information Technology Systems
Upper Marlboro, Maryland

This page intentionally left blank.

Abstract

This paper describes the results of the evaluation of Evaluation Package 7 (EP7) that was conducted in two phases between 1 August and 13 December 1996. Two methods were used to evaluate EP7: usability testing and an on-line survey. The analyses for these two data collection methods are detailed. A list of all comments received from EP7 evaluators is included in the appendix of this report.

Keywords: EP7, Evaluation Package 7, Usability Testing, Survey, Client

This page intentionally left blank.

Contents

List of Figures

List of Tables

Appendix A. Usability Tasks

Appendix B. Survey Questions

Appendix C. EP7 Usability Participants

Appendix D. EP7 Comments

Abbreviations and Acronyms

1. Introduction

1.1 Purpose

The purpose of this paper is to present the results of the Evaluation Package 7 (EP7) evaluation so that the feedback can be incorporated into the ECS design.

The author would like to thank all of the evaluators who participated in usability testing or provided input through the Comment Survey Tool. In addition, EP7 could not have gotten off the ground without the diligent work of the EP7 developers, the dedication of the Integration and Test team, and the engineering and science support from the ECS Science Data Engineering Office and the DAAC Liaisons; their work was invaluable and greatly appreciated.

1.2 Organization

This paper is organized as follows:

Chapter 2 provides background information about EP7, including Evaluation Package and Prototype Workshop (PW) history, a listing and short description of the tools in EP7 and the methods used to evaluate them. Chapter 3 examines feedback received by ECS during PW2 and the ECS response to that feedback for EP7. The EP7 evaluation methodology is detailed in Chapter 4 and the results of the evaluation are provided in Chapter 5. Lessons learned from the EP7 experience are provided in Chapter 6 followed by the report conclusion in Chapter 7.

The appendices contain the list of usability tasks used during the EP7 evaluation (Appendix A), survey questions (Appendix B), a list of the EP7 usability Participants (Appendix C), and a listing of all comments received (Appendix D).

Questions regarding technical information contained within this paper should be addressed to the following ECS contacts:

- Janice M. Poston Day, EP7 Usability Test Lead, (301) 925-0811, jposton@eos.hitc.com
- Keith Bryant, EP7 Lead, (301) 925-1126, kbryant@eos.hitc.com

Questions concerning distribution or control of this document should be addressed to:

Data Management Office
The ECS Project Office
Hughes Information Technology Systems
1616 McCormick Drive
Upper Marlboro, MD 20774-5372

This page intentionally left blank.

2. Background

2.1 What is an Evaluation Package?

The ECS Team has defined a multi-track development approach composed of an incremental development track and a formal development track. Evaluation Packages (EPs) are part of the incremental development track.

Evaluation Packages focus on the ECS subsystems with heavy user interaction, primarily Client and Interoperability. The EP, as released to the DAACs and evaluators, represents the prototype ECS Client. Using this prototype Client, users can search for data, view data, order data, manage their user environment, and access the data stored in the Data Server.

Evaluation Packages are collections of prototypes that allow ECS developers to test concepts, implementation designs, and develop increasingly mature and robust software for the ECS user interface. Evaluation Packages also allow developers to evaluate the capabilities of Commercial-Off-the-Shelf (COTS) software and hardware in the context of ECS. In addition to designing and constructing the user interface, the "back-end" software and hardware that users do not see (e.g., security and communications software, database design, database population) are also developed. Once complete, the EP is released to the Distributed Active Archive Centers (DAACs) and a set of NASA-sponsored evaluators, nicknamed "Tirekickers", for evaluation

EP7 is the last Evaluation Package to be delivered. Software developed and used in EP7 will be improved based on the suggestions and comments received from EP7 evaluations. Afterwards, the Java Client portions of the EP7 software, will be incorporated into Release B as a just-in-time delivery.

2.2 Evaluation Package and Prototype Workshop History

Evaluation Packages 1, 2 and 3 were small-scale in-house development efforts and were not released to the science community for review. Evaluation Package 1 was a document search interface and database called "Topic" and was populated with ECS-related documents including the Functional and Performance Requirements Specification (423-41-02). Evaluation Package 2 focused on providing a messaging and information exchange software. In July 1994, EP3 was released for in-house evaluation. Evaluation Package 3 focused on providing end-to-end (search, results, browse, and order) screen mockups that were minimally interactive.

Evaluation Package 4, delivered in January 1995 focused, in part, on establishing an interconnected environment made up of ECS workstations at each DAAC and the ECS Development Facility in Landover, Maryland. This "testbed" environment was built upon Open System Foundation's (OSF) Distributed Communications Environment (DCE). Comments collected during EP4 allowed ECS to revise some of the EP4 applications and have them re-evaluated at a Prototype Workshop (PW).

Prototype Workshops consist of new design concepts and partial prototypes usually written using less robust software than is developed for an Evaluation Package. While EPs are developed over a period of six to nine months, Prototype Workshop applications are developed over a two to three month period. Prototype Workshop 1 (held in May 1995) began to explore the potential of HTML-based applications for use within ECS. User feedback collected during PW1 was incorporated into development and revision of applications for EP6. (Note: due to schedule constraints, EP5 was not developed. It was to have contained communications and security software only. No user interface was to be developed.)

Evaluation Package 6, delivered in November 1995, focused on the development and incorporation of HTML applications and tools within the EP6 X/Motif environment. EP6 was supported on Sun and HP platforms and shipped to each of the ECS DAACs and the NASA Tirekickers with the appropriate hardware and software configuration. Comments from EP6 evaluators indicated that ECS should hold another Prototype Workshop to demonstrate HTML-based designs for the ECS client.

Prototype Workshop 2 (January 1996) was a gathering of NASA Tirekickers, DAAC representatives, ESDIS Project Office personnel, and members of the University of Maryland - College Park (UMCP) Human Computer Interface Lab (HCIL). The primary objectives for the Workshop were to provide community visibility into the incremental track development process, evaluate emerging technologies as they relate to the incremental track, gather constructive feedback on the user interfaces and methodology, provide input for EP7 development, and demonstrate advancement from Version 0 and previous Evaluation Packages. At the workshop, four user interface prototypes were presented. Feedback from PW2 and design and implementation ideas from each of the four prototypes presented were directly incorporated into EP7 design.

Evaluation Package 7 was released in two phases, the first from August to October 1996 focused on the delivery of a prototype web-based ECS Client written in HTML and Java. The second phase (November to December 1996) allowed users to evaluate an X/Motif Client as well as an updated version of the Java-based Client. (Due to schedule and resource constraints, the X/Motif Client was not distributed to the DAACs or NASA Tirekickers. To evaluate the X/Motif software, evaluators had to travel to the ECS Development Facility.)

2.2.1 EP7 Phase 1 (August - October 1996)

The following tools were shown to the EP7 evaluators and were accessible from the EP7 Home Page (http://ecsinfo.hitc.com/ep7/ep7_home.html)

- **Java Earth Science Tool (JEST) 1.1**: a Java-based tool which allows users to submit a search for earth science data and retrieve results from the ECS Data Server using a Java interface.
- **Advertising Service**: a web-based searchable index that enables users to submit and search for advertisements related to earth science services, providers, and data.
- **Data Dictionary**: a web-based tool that provides access to the ECS acronym list, glossary of terms, and dictionary of ECS metadata.

- **Comment Survey Tool**: a web-based tool that provides access to an on-line survey where evaluators may answer questions regarding EP7 software, capabilities, design, and performance. A free-text field is provided for evaluators to enter any and all comments they have about EP7, the survey itself, and their evaluation experience.
- **Problem Report**: if evaluators encountered any problems while using EP7 software they could use this tool to email a message to ECS.

2.2.2 EP7 Phase 2 (November - December 1996)

In addition to the tools available in Phase 1, EP7 evaluators could also test the updated JEST tool version 2.0, and the X/Motif Client software.

- **Earth Science Search Tool (ESST)**: an X/Motif application that allows users to submit a search for earth science data and retrieve results from the ECS Data Server. Users can also submit queries using this tool to the Advertising Service, Data Dictionary, and Document Search Tool (Document Data Server) for instrument Guide documentation.
- **Document Search Tool**: a web-based tool used for searching for Instrument, Platform and User Guide documentation stored in the ECS Document Data Server.
- **EOSView**: an X/Motif Hierarchical Data Format (HDF) "cracker" tool that allows users to "crack open" HDF files and view their contents, data structure, and display image data stored within.
- **User Registration Tool**: a web-based tool that allows users to request an ECS account(s), make changes to their existing user profile(s), and obtain ECS client software by filling out the appropriate information.
- **The Desktop Manager**: an X/Motif application that allows the user to access EP7 applications, manage the files and folders stored in their EP7 account. This application contained links to all EP7 applications but was not required for evaluation of the web-based tools.

2.3 Evaluation Methods

As mentioned previously, Evaluation Package 7 (EP7) underwent two phases of evaluation. During both phases usability tests and the Comment Survey Tool were employed to gather user feedback about EP7 applications. Usability tests are designed to capture very detailed data about a user's experience with the software; these tests are very time and resource intensive. The usability tests were administered in a controlled environment that allowed for observation and measurement of user response. EP7 evaluators, selected by ESDIS, DAAC managers, and ECS DAAC Liaisons, were invited to travel to the ECS Development Facility (EDF) in Landover, MD to participate in usability tests. For EP7 Phase 1 there were 18 test participants, for Phase 2 there were 15 participants, 30% of whom also participated in Phase 1.

The on-line user survey, accessible through the Comment Survey Tool, allowed users to evaluate EP7 and comment on it at their convenience. This alleviated the need for a dedicated test

environment and travel. The prime disadvantage of the on-line survey in an uncontrolled evaluation session was that it was difficult to isolate some of the problems users encountered while using EP7. For instance, ECS does not monitor or record information such as system load, or a user's system configuration all of which may have impacted the users' sessions. In this report, users who evaluated the system remotely and returned comments soley via the on-line user survey will be referred to as on-line evaluators. (Note: In past reports these users were referred to as Independent Evaluators.)

2.4 Process for Incorporating Evaluation Results into ECS

All of the comments collected during the evaluation of EP7 were noted, organized, and sent directly to the appropriate developer and ECS Subsystem lead for incorporation into ECS design. The comments were also forwarded to the appropriate Client Design Working Group (CDWG) Tiger Teams for use in researching and discussing details in the design of the ECS Client. The charter of the CDWG is to conduct requirements analysis, design and task analysis for each service or Client feature. The results of these analyses are functional designs and, when necessary, new requirements for each service. For more information about the CDWG go to the CDWG home page at: http://ecsinfo.hitc.com/cdwg/cdwg.html

3. Previous User Feedback Incorporated into EP7

3.1 Prototype Workshop 2 Recommendations

The prototype process takes advantage of lessons learned in previous prototypes. There were over 200 comments from the Workshop most of which were specific to each of the four prototypes presented. Many of those comments, especially those relevant to the Earth Science Search Tool (ESST) and the Java Earth Science Tool (JEST), were incorporated into the EP7 versions of the tools by the developers. For more detailed information about PW2 see the Prototype Workshop 2 (PW2) Results Report (167-TP-001-001) on the EDHS (http://edhs1.gsfc.nasa.gov). In addition to the tool-specific comments from Prototype Workshop 2, there were some key recommendations from the PW2 attendees that addressed Client development in general.

Below, the PW2 recommendation is listed first, followed by the indented accompanying response from ECS.

1) **Tirekickers envision that the majority of users would access ECS through the Web and then get the X/Motif Client to do the more detailed searches.** A simplistic web page will satisfy a large number of users and the full capabilities should be in X/Motif, the interface capabilities do not have to be the same.

   Because of comments from NASA Tirekickers, as well as direction from ECS Management and ESDIS, EP7 developers decided to build on the X/Motif Client that had been demonstrated in each previous EP and PW, and to construct a prototype Java-based Client to explore the capabilities of this new technology. During EP7 Phase 2, ESDIS gave direction to ECS to cease development of the X/Motif Client and focus on providing a just-in-time delivery of the Java-based Client as an alternative to the Version 0 X/Motif Client for Release B.

2) **Tirekickers want a system that can handle searches of empty metadata fields.** If the metadata for a data collection is not complete, the system needs to be able to inform the user that the attribute he would like to incorporate into his query may not be in the metadata for all data collections.

   This capability became known as Metadata Exceptions and underwent a significant amount of discussion within ECS. Because it is a complex issue, EP7 developers were not able to incorporate this capability into EP7, however, a CDWG Tiger Team on Metadata Exceptions has formed and published their findings on the CDWG Home Page (http://ecsinfo.hitc.com/cdwg/cdwg.html).

3) **Need more data of different types to really do an end-to-end evaluation of the system.** Recommended data sets include: simulated data sets, model data, high resolution data, and swath data.

The ECS Science Data Engineering Office (SDE, formerly known as Science Office), with significant input from each of the DAACs, was able to collect and populate the EP7 Science Data Server with a variety (in both type and volume) of data as requested by the PW2 attendees.

4) **Stop/Cancel buttons for searches. Provide the ability to stop one or multiple searches.**

EP7 developers were able to incorporate a "Cancel Search" capability in JEST.

4. Evaluation Methodology

4.1 Usability Test Design and Methodology

Usability testing is a method of quantifying the ease with which a system can be used. It has been utilized to capture various metrics such as user satisfaction, access time, and error rates. These metrics are used to locate areas of the software, system, and process that need improvement. The methodology employed for usability testing of EP7 was adapted from a paper written by Martha Szczur, "Usability Testing on a Budget." Szczur describes an efficient and low cost method of testing and quantifying usability. This methodology was also employed for the evaluations of EP3, EP4, and EP6.

Usability test Participants were selected from the list of EP7 Tirekickers, ESDIS personnel, and other scientists nominated for evaluation of EP7. In addition to the test Participants, one or two Observers were employed to take notes on Participant reactions, comments, and body language. Each test session was conducted by the Facilitator who acted as the host of the session. The records kept by the Observers and the Facilitator were combined with comments and survey scores provided by Participants in the Comment Survey Tool (CST) and used for analysis. Figure 4-1 shows the usability test environment as employed for EP7.

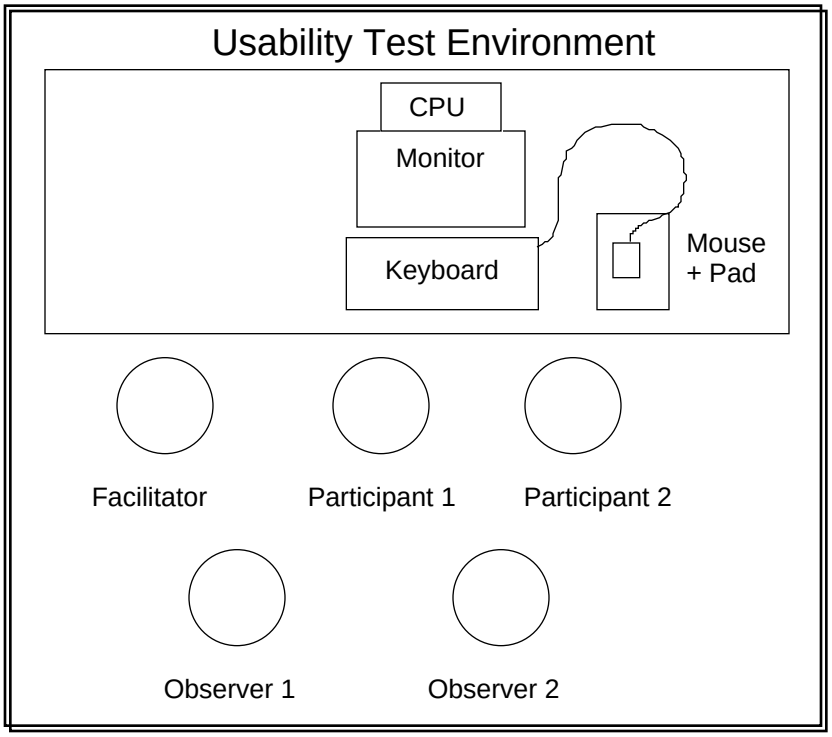

Figure 4-1. Usability Test Environment

Each test session was organized into three parts. The first portion of the session consisted of introductions between Participants and Observers, followed by a brief demonstration of the EP7 software. In the second portion, Participants were given a series of tasks to complete (Appendix A). Lastly, Participants were asked to answer the questions in the Comment Survey Tool. After the Participants left the test area, the Facilitator and Observers exchanged notes and discussed the test session.

4.2 Comment Survey Tool Design

The Comment Survey Tool (CST) was the on-line survey that both the usability test Participants and the On-line evaluators used to record their comments about EP7. The CST was accessible from the EP7 Home Page as well as from the EP7 Desktop. The survey was divided into a number of sections, each corresponding to an EP7 tool. At the bottom of the survey screen was a free-text entry field, available for evaluators to expand on their answers to the survey questions and comment on the features and capabilities of EP7. Because there were two phases of EP7 evaluation, the available survey questions were modified for each phase as appropriate. The lists of questions are provided in Appendix B. The questions were developed by the Usability Test Facilitator, the EP7 developers, other ECS team members, and the ECS DAAC Liaisons.

5. Evaluation Results

There were not enough responses to analyze the usability test session survey results separately from the On-line evaluators' responses. All of the information presented in the following sections should be considered usability test session data unless otherwise noted.

Boldface text is used to emphasize the area of interest or importance recommended by evaluators for re-design.

5.1 General EP7 Evaluation Comments

On the whole, EP7 evaluators were pleased with the software and the capabilities provided for their evaluation. Although there were only nine respondants to these general survey questions from Phase 1 of the evaluation, their answers tend to reflect the comments provided by Participants during the 10 usability sessions. By reviewing the survey scores (Table 5-1), it can be seen that the EP7 evaluators thought that there were both a sufficient amount and variety of data and metadata for them to evaluate the EP7 software. In addition, they agreed and strongly agreed with the statement that it was easy to access EP7 using the World Wide Web. Many evaluators found the EP7 FAQ as well as the Science Scenarios useful. The responses were much more mixed when asked if they found the Tutorials page or the Client Launch page useful.

Some of the comments that evaluators included along with their survey responses dealt with a variety of things. One evaluator suggested that evaluators of the software be able to display both the software they are evaluating, such as JEST, AND the Comment Survey Tool simultaneously so that users can jot down notes as they explore the tool. Users were able to have both JEST and CST displayed simultaneously in EP7, but this capability may not have been obvious to most users. Others commented that it took longer than expected to load JEST. Some requested that the loading process be optimized. The optimization of the loading process will be especially helpful to those who are international users and those who don't have fast Internet access.

Table 5-1. General EP7 Survey Results

Question	Number of Responses for the Following Scores				
	Strongly Disagree (score =1)	**Disagree (score = 2)**	**No Opinion/ Neutral (score = 3)**	**Agree (score=4)**	**Strongly Agree (score =5)**
1) There was a sufficient amount of metadata and data for me to evaluate EP7.	0	0	2	7	0
2) There was a sufficient variety of data for me to evaluate EP7.	0	0	2	7	0
3) It was easy to access EP7 using the World Wide Web.	0	0	1	3	5
4) My experience using the EP7 WWW version was positive.	0	0	1	5	2
5) Links between WWW tools were apparent and navigable.	0	0	0	8	0
6) I found the EP7 FAQ helpful.	0	1	2	4	2
7) The EP7 Help Tutorials page was useful.	1	1	3	4	0
8) The Client Launch page was useful.	0	1	1	6	1
9) I found the Science User Scenarios useful.	0	0	3	6	0
10) I found the EP7 Data Summary tables and graphics helpful.	0	0	5	4	0

5.2 Java Earth Science Tool (JEST) version 1.1 [Phase 1]

5.2.1 Introduction and Getting Started

The JEST 1.1, was a Java application that ran within a Netscape browser window, allowed users to construct and submit queries for earth science data, check on the status of their search(es), review the results once they were returned from the database, and display available browse images. JEST also incorporated the use of “tabs” (a.k.a. “folders”) to organize functionality and aid in navigation; this was the first time this design was used in ECS.

The vast majority of survey respondents strongly agreed that they **liked the use of folders to organize the JEST** capabilities and they agreed that the **hierarchical structure used for organizing projects, searches and results is intuitive** and easy to use (Table 5-2). However it was clear from the majority of respondents that forcing the users to name a Project and New Search prior to constructing a search was counter-intuitive, as well as annoying. The transcript of a usability session sums up the frustration and confusion that many evaluators expressed.

When the New Project window appeared on the JEST main window the Participant said, "I don't want to search on a Project." so the user clicked Cancel. After the JEST Project/Search paradigm was explained by the Facilitator, the Participant said, "I don't want to name a search until I'm done and happy with what I've put together. Then I'll save it to a search and put it in a Project folder."

Users commented that they should not be forced to name a Project or a Search, but that if it were a 'necessary evil' **JEST should provide a default Project and New Search name** (e.g., Untitled_Project_1, Search_1), this is similar to the way Word and Excel handle new documents. **Users should be able to name, edit or rename a Project or Search name** as they desire. Furthermore, evaluators requested that they be able to copy, cut, and paste search criteria used in one Search to another.

Related to the Project and Search folders, some evaluators commented that the icons should be improved and that the user should be given a choice of whether to display the icon, the icon with text, or the text only. In addition, many users did not recognize the icon for open vs. closed folders. The Mac users recommended that a rotating triangle be used to represent open vs. closed folders.

One Participant commented on the fact that **the JEST URL is very cryptic**. Because users would be typing in the URL and viewing the applet name on the JEST window it should be something meaningful in English, not "...ClWbJtStart..."

Along the same lines, the **log window at the bottom of the JEST screen was confusing** to users because of the strange, and sometimes alarming messages that were displayed in it. Evaluators commented that the log window would be useful if the messages displayed were in English and were meaningful, such as "Search running..." To make JEST even easier to use, the **log window should display Help or Tutorial information**, with the option to view the log if users requested it. Some usability Participants were hoping to be able to use the **log file to re-construct actions** they'd done over the course of a session, however, they realized as it is currently implemented it wouldn't be at all useful for that purpose.

Participants thought that the **integration between the Data Dictionary and JEST should be better** than just an icon at the bottom of the JEST page. The users shouldn't 'lose' the JEST window when they're looking up something in the Data Dictionary.

Users were pleased to discover that if Netscape crashed during their session, their search criteria, results, and current state of their account was saved in their JEST "cookie." However, they were not as comfortable with the idea that their results, searches, and all other information resides on the ECS side of the system, rather than on their local machines. Many usability Participants requested that ECS **provide a means of downloading the results, searches, and other information** so that they could store it on their own machines.

Table 5-2. Java Earth Science Tool (JEST) Survey Results

Question	Number of Responses for the Following Scores				
	Strongly Disagree (score =1)	**Disagree (score = 2)**	**No Opinion/ Neutral (score = 3)**	**Agree (score=4)**	**Strongly Agree (score =5)**
1) I like the use of folders to organize the JEST capabilities.	3	0	4	7	15
2) The hierarchical structure used for organizing projects, searches and results is intuitive and easy to use.	1	3	1	19	5
3) It was immediately obvious how projects were used to organize searches and results.	1	12	3	11	2
4) It was easy to construct and submit a search using JEST.	0	6	4	13	6
5) I like the layout of the search attributes and valid values display within the search folder.	0	2	4	19	3
6) It was easy to select temporal search criteria using the timeline tool.	3	8	2	11	5
7) The capabilities provided in the timeline tool meet my needs.	3	6	4	9	7
8) The spatial tool accomodated my need to build searches containing multiple spatial criteria.	0	7	8	8	6
9) I liked being able to zoom in to the exact area of the map in which I was interested.	0	4	4	9	12
10) Adding and removing spatial and temporal search criteria was intuitive.	0	4	4	11	9
11) Selecting and deleting other search criteria was intuitive.	0	6	3	13	7
12) It was easy to interpret the display of my search results.	0	3	4	17	5
13) I like the way the browse images are viewed	2	1	9	12	5
14) Information (metadata) displayed with the browse image meets my needs.	1	7	15	3	3
15) I found the user of the on-line JEST tutorial useful.	2	4	17	3	5
16) I liked the way the tutorial could be synchronized and displayed next to the JEST tool.	0	2	19	3	3

5.2.2 Constructing a Search

The majority of survey respondents agreed that **it was easy to construct and submit a search**. In addition, they agreed they liked the layout of the search attributes and valid values display within the Search folder. One interesting point to note was that some users had trouble figuring out how to delete items from their search criteria. These users looked for a Delete button, tried the delete key on the keyboard, before realizing that they had to return to the attribute and de-select it from the list. The evaluators who were familiar with Version 0 had no problems figuring out how to delete search criteria.

Users requested that they be able to **search on other criteria** such as "% cloud cover," "browse only," and quality flags. Similarly, when a user selects an attribute from the list of 9 default attributes the display should be labeled, "Remaining Valid Values" to show that based on the user's previous selections, not all of the values listed for that attribute are valid for selection.

For the most part the system response time was fast enough that **"system busy" indicators** (e.g., stopwatch, hourglass) were not needed. However, the one place that most users noticed the need for such an indicator was when the Timeline tool was selected. It usually took a few seconds for the tool to load and display. ECS should be sure to include adequate and appropriate "busy" indicators.

Users also requested the capability to construct **concidence searches** with the addition of "tolerences." For example, they could check for coincidence in space and/or time within a specified tolerance level (e.g., +/-10 km, +/-3 hours). This capability was also requested at Prototype Workshop 2 held in January 1996.

The **Timeline tool** elicited a number of comments from evaluators. At the top of the Timeline window was the imeline itself. The x-axis was labeled with the dates 1980 to 2030, the y-axis was not labeled. Because of this, evaluators were not able to figure out what was represented by the blue 'boxes' displayed within the timeline. The Facilitator had to explain that each box represented the range of time for which a data collection was valid. The data collections were organized alphabetically along the y-axis. One of the worries about the Timeline tool is that it isn't **scaleable**. Participants noted, when there are hundreds of data collections displayed in the timeline, it might not be usable.

To learn more about each collection the user could select 'Metadata Inspection,' highlight the blue box (collection) in which he was interested, and a pop-up box would display the metadata for that collection. **Users liked the Metadata Inspection feature** but suggested that the information within the popup window be re-ordered (longname, collection description, start/end date, geophysical parameter, etc.) and be made user-customizable.

A user could select a time range for their search by either clicking their mouse on a start date and dragging it across the timeline to the desired end date, or they could type the dates into fields provided. Users liked having the ability to type in the dates, this was a capability they had requested in previous Evaluation Packages. Some users asked that the tool **dynamically display the date as the cursor is moved across the timeline**, similar to the way latitude and longitude are displayed in the Spatial tool.

Selecting time ranges with the use of the mouse was problematic. Once a time range was selected it could not be adjusted by a day or two, instead, the user had to re-select the entire time range. The previously selected range could not be edited by typing in the new date(s). Evaluators requested that the **start and end dates selected by mouse clicks should have 'handles'** on them so that small adjustments could be made if the user realized he needed to change the dates.

On a related note, evaluators were not sure whether the default start time for the start date was the first second of that day (00:00:00) and whether the end time for the selected end date the last second of that day (23:59:59). Most Participants asked that this be information be provided in the tool documentation or Help so that it would be easily accessible.

To make the selection of dates easier, evaluators requested that a **zoom capability** be provided. For example, as the user increases the magnification on the timeline the scale could go from displaying years, to displaying years divided by months, and then a year with weeks, then a half year with each day delimited on the timeline.

After the selected time range had been added to the search criteria, it was inconvenient for the user to return to the Timeline tool to modify or delete the time range. When the user accessed the Timeline tool, the previously selected time range was not displayed. Many users found it annoying and time-consuming to re-type or re-select the time ranges and commented that the **tool should be able to 'remember' and display the previously selected information**. This was also a problem with the Spatial tool.

The Spatial tool was also available from the JEST Search folder. Users could use the Spatial tool to define geographic regions for incorporation in the list of search criteria. Most evaluators commented that they wanted to be able to type in the geographic coordinates for their search, rather than using a mouse for selecting the region from the displayed map. Related to this was the idea that users should be able to **name areas that they have selected**, for instance "study site" or "Iowa." In many cases, users will use the same search area for multiple searches and they shouldn't have to re-select the area on the map or type in the coordinates each time. Similarly, users should be able to **select pre-defined search areas** by, for instance, typing "Africa" and the search coordinates would be automatically added to the list of search criteria. This capability could be combined with an **integrated gazetteer** to make spatial criterion selection easier. When these named regions appear in the search criteria, they should be labeled "study site: x,y NE - x,y SW," "Africa: x,y NE - x,y SW," etc. One user requested that he be able to **import polygon files from a GIS** into the Spatial tool to define the spatial search criterion.

EP7 evaluators liked that they were able to **zoom** in on the map but requested that as they zoom in the system **display increasingly detailed information**. For example, as the user zooms in on the US Mid-Atlantic region the map should show the Potomac River, the Maryland, Virginia, and DC boundaries, the next level might show the county boundaries and the secondary and tertiary streams that feed the Potomac, and so forth.

Evaluators requested that a **variety of map projections** be available for the user, including a polar projection and some type of three dimensional/global projection that could be rotated.

These maps should also include grid lines, latitude and longitude values. In addition to multiple projections, the users wanted the ability to select a region defined by a multi-sided polygon, and point and radius.

In both the Spatial and Timeline tool, after the user selected the time range or region of interest he could click "OK," "Apply," or "Cancel." Although they are standard X/Motif and Microsoft commands, it was not clear to most users what, if any difference, there was between these three choices. One way to improve understanding would be to have the spatial and temporal windows open offset from the JEST search criteria summary window. This would allow the users to see their spatial and temporal criteria added to the search criteria list when they clicked "Apply."

5.2.3 Search Status and Results Display

After the user submitted his search, the status of the search was available on the JEST "Results" tab. As the status of the search changed from "submitted" to "running" to "completed," the icon (in the shape of a flashlight) would change color from blue to green once it was completed, or to red or orange if there were any errors, or if the search were canceled. A significant number of Participants were **unable to distinguish between the blue and green used in the flashlight icon**, and because of this, could not tell whether their search was completed. Participants also mentioned that the colors chosen would be indistinguishable by those users who are colorblind. It was recommended that the developers make the **icons larger, use different colors**, and perhaps implement a status display that was more like the Version 0 status display. The Version 0 display shows the progression of the search at each DAAC. This was a capability that a number of evaluators requested.

Users expressed the worry that if they did not have the "Results" tab displayed, there was no other way for the user to determine that their search(es) had been completed. Perhaps there should be a status message indicating the search status within the log window at the bottom of the page. Alternatively, a user-customizable tone or chime could play once the search was completed.

As the results were returned to JEST, the **status line** would display a blue flashlight icon, the date and time the search was submitted, and the total number of granules found. Evaluators were surprised to observe that the total number of granules did not gradually increase as the granules were returned, but rather, would jump from 0 to 4000 to 5250. Participants thought the display should say "starting search..." instead of "0 granules" and that there should be a more gradual increase in the number to indicate that the search was still running and loading results. In addition, because the **font and the icons in JEST were too small**, many users found it difficult to read the status screen entirely.

Participants were pleased to discover that it was possible to **cancel a search** once it had been submitted to the system, however, it was not where the users expected to find it. The Cancel Search button was provided under the "Project" tab, rather than at the "Results" tab where the users expected to find it.

Once the search was complete, the system returned a list of data collections and displayed them in the Results tab. By clicking on a collection name, the user could view an HTML page with

the granule level metadata including granule ID, spatial extent, time range, and locality value. Evaluators **liked the display of metadata, and especially, links to the Data Dictionary** from this display. However, they requested that Data Dictionary be populated with more, and higher quality information.

By far, the most common comment was the need for a **customizable results display**. Users will need to change the default displayed attributes in order to display product specific attributes, granule size, and quality flags to help them determine which granules to order.

Within the list of granules for one collection, users could page forwards or backwards to view the results, which was fine when the list was 100 granules or fewer. If the search returned 100 or more granules it became tedious to page forward/back through the entire collection. Evaluators requested a **more direct way of navigating through large results lists**. Users also found it annoying to have to scroll through the entire results listing to see if there were any browse images available. They suggested that a "no browse available for this collection" or "some browse available for this collection" message be displayed along with the granules. Both of these recommendations were incoporated into the Phase 2 release of JEST 2.0.

The ability to re-sort the results display based on parameter, granule ID, DAAC, etc. across multiple collections was a high priority for some of the EP7 usability Participants. Similarly, evaluators wanted to be able to scroll through the granules in a collection then view the granules in collection two, then three, and so on, without having to return to the results folder to do so.

5.2.4 Browse

Evaluators were pleased that the browse functionality was implemented in EP7 as a web application integrated with JEST. They were also pleased with the system response time; it took less than a second to load and display a browse image. However, there were some drawbacks to the EP7 implementation - most significantly, that it was not possible to view two or more browse images simultaneously. In the Phase 2 release of JEST 2.0, this problem was rectified and users were able to view multiple browse images side-by-side.

Some Participants brought up the fact that they would like to order browse images and have the images delivered together on a user-defined media (including FTP), rather than have the images automatically sent to their machine as they were in EP7. ECS should provide a mechanism for users to customize the method of browse delivery. The data should not be sent to the user's machine unless the user has already approved such a mechanism.

Evaluators also submitted comments about the contents of the browse images, including the fact that they should have legends or color keys; without these users can not interpret the colors used in the image. The contents of the browse images are the responsibility of the Instrument Teams and ECS encourages each evaluator to make their suggestions and needs regarding browse images known to the Instrument Team leads.

5.3 Java Earth Science Tool (JEST) version 2.0 [Phase 2]

For the second release of JEST, a number of new capabilities were added - Product Order and Shopping Cart, as well as changes made to the tool based on comments from evaluators who used JEST 1.0. Evaluators of JEST 2.0 asked a number of questions about the use of JEST and other Java applications in an operational environment, integration of JEST with other tools, and the role of Web-based vs. X/Motif applications in the future of ECS.

Participants who had already seen the linkage between JEST 1.0 and the Data Dictionary questioned when JEST would also link with the Advertising Service. There were questions about Java "cookies", what they are, and how long they would remain valid in the ECS operational environment. Evaluators recommended that ECS think about how they will handle storing all of the user session information in each user's cookie. Many evaluators expressed concern about the size of the JEST screens, and that if the developers weren't careful, it would grow to large for display on a 14 inch monitor - the hardware owned by the majority of the anticipated ECS users.

Because of the number of comments received during JEST 1.0 regarding the **need for more Help**, ECS implemented screen-by-screen Help information which was available in the log window at the bottom of the JEST 2.0 screen. Users could toggle the window to display the log information, the Help, or turn it off. Nevertheless, JEST 2.0 evaluators requested that more, and concise help be provided on each page, and that context-sensitive help be available throughout the application.

In JEST 2.0, users were given the capability to edit Project and Search names. The complexity of implementing the much requested **"Copy/Cut/Paste/Save as..." options** was recognized by the developers to be a key search management capability, but it was deemed to be less of a priority compared to that of expanding the Product Order capabilities.

The Search Results Status display was changed based on comments from JEST 1.0 evaluators. The new design provided a display of five different colored flashlight icons representing each possible status (running, progressing, error, canceled, completed). As the search ran in the background, the name of the search progressed through the appropriate statuses. Although this design incorporated some of the elements of the Version 0 status display, many of the JEST 2.0 evaluators found it more **confusing to read and understand** than the JEST 1.0 status display. Some commented that users should only see the "error" status if there were a problem with the search, and if so, there should be a description of the problem. Similarly, the user should only see the "canceled" status if the user canceled the search.

Many evaluators commented that they would rather have the **status and the results information separated**; this would allow for a 'cleaner' display, would free up screen real estate, and might allow for the display of more information. The type of information Participants were looking for were search name, submit time, running..., % results found, and estimated time to complete. Many noted, the system shouldn't display " ...total - 0 granules" because at first glance it appears that there are no results, or that the user selected bad search criteria.

Although the Results display was not significantly changed from JEST 1.0 there were a number of comments from evaluators on ways to improve the interface. They recommended that the list

of **data collections be highlighted so that users would know that they are clickable** (links) to more detailed granule information. They also recommended that a **legend or key be provided on the results page** so that users could interpret the various icons used throughout the results display (e.g., data collection, Document Search tool link). Others asked how they would be notified that the searches they'd entered had been completed (or failed), if they had already logged off the system. They suggested that users could ask for email confirmation of search status.

Evaluators examining the JEST 2.0 **Browse capabilities** were pleased to discover that based on comments from the evaluation of JEST 1.0, users could now view more than one browse image at a time. However, some Participants were disappointed to see that there was no zoom function for the browse images. Others wanted to be able to access subsetting software directly from the browse image.

EP7 developers focused on extending the capabilities of JEST by incorporating a Product Order functionality with Shopping Cart into the tool. Within each results list, users were able to select granules for Order. When they had finished making their selections, they could add these granules to the Shopping Cart. Evaluators noted that they needed a way to quickly **mark all granules for order**. In addition, there should be a mechanism for users to select the Browse granules for order as well as the Data granules for order.

Once the granules had been moved to the Shopping Cart, the user could confirm that the list in the Shopping Cart was exactly what they wanted to order. One of the problems with the EP7 implementation was that there was not enough information to determine which granules were in the Shopping Cart. The Shopping Cart should show (by default) the granule ID and collection name, granule size, media type and format selected for order, etc. The information available on this screen should also be user-customizable.

During the granule selection process, the user must be able to select not only the granules he would like to order, but the media type and format in which he would like them delivered (e.g., tar, compressed). Information on format and media should be available to the user at this point within the system. The system should be "smart enough" to notify the user in the situation where he wants to order 10 granules, 9 of which fit on one CD-ROM. The 10th granule is available on a second CD-ROM. This 10th granule comes with 15 other granules that the user doesn't need, but he'll have to take if he wants that 10th granule.

Before submitting the order, the user should be able to **view the total cost of the order including estimated shipping and handling**, as well as information about his account balance. A number of evaluators thought that the user should be required to enter a "verification code" such as "mother's maiden name" when the user submits an order. This verification code would be especially useful for those people who order data, or change their order via phone call to User Services.

After the user submits the order to the system, he should get an **"order received" confirmation** from the DAAC which will be filling the order. The confirmation should include the contact information for that DAAC in case there is a problem with the order of if the user has any questions, and if the data are being sent by FedEx, a FedEx tracking number. When the DAAC

fills the order, it should also send a message to the user giving him a summary of his order, the media type and format, etc.

The user would like to **check on the status of any of his orders** from JEST as well as be able to **cancel an order**.

The majority of usability Participants thought that the Product Order and Shopping Cart functionality should be better integrated into the JEST application than they were for EP7. They also commented that JEST should be able to handle multiple orders and shopping carts such that as a user orders granules from the Results list, they should be identified in some manner as having been selected for order. This would help to ensure that the same granule isn't accidentally ordered multiple times.

5.4 Earth Science Search Tool (ESST)

Because the ESST was not available for evaluation via remote login, only Tirekickers who traveled to Landover were able to evaluate the ESST. The primary reason for this limitation was the system performance problems that were encountered during the Integration and Test phase of development. Because of the slow response time over the Internet it was decided that the only realistic evaluation of the software could be accomplished within the Landover Development Facility. Because of these limitations and the fact that during the EP7 Evaluation Period, ESDIS directed ECS to cancel development of the ESST, there were fewer comments about ESST compared to the JEST software.

One of the main drawbacks of the EP7 ESST was that the data server to which it was connected was "single threaded," in other words, the system could only handle one query at a time. Because of this, users would have to wait for the first query to finish before the system would begin the second query. After the user submitted his search, a dialog box was displayed on the screen saying "Please wait..." Needless to say, it was very frustrating for users to sit and wait for the server to complete all the previously entered searches (if there were any), then the user's own search, before returning the results to the user's screen. Each of the evaluators commented on the need for the **system to provide an estimate as to how long the search would take**. Evaluators also requested a **"Cancel Search"** capability so that they could avoid potentially long searches. Furthermore, the ESST should also allow the user to start another search or work on another portion of the software while their first search was still running. While this latter capability was available in the EP7 ESST, it was not an obvious, or robust feature and therefore, was not emphasized to the evaluators.

The Spatial Tool received a number of comments from evaluators. Many were pleased with the relatively large selection of map projections from which they could choose. While users found it easy to select different projections, they found it difficult to activate the **zoom, pan, and spatial selection** capabilities. To select a spatial search criterion, the user first had to select the "target shape" option labeled "rectangle" before moving the cursor to the map to define the region of interest. If the user wanted to select more than one region, he had to select "target shape" each time. The activation of the zoom capability was similarly awkward and annoying.

The Tirekickers liked being able to submit queries to the Data Dictionary from the ESST but thought that **parameters which are not used** by the Data Dictionary (e.g., spatial and temporal) **should be greyed out** as soon as the user selects "Data Dictionary" as the search destination. This same capability should be applied to the other search types - Advertising Service and Document Data Server (for Guide documents) as appropriate.

Although the ESST **Order capabilities** were merely screen mockups, the Tirekickers were asked to review them. Tirekickers wanted the Order screen to provide the user information on the various media and format options available for each data granule, (e.g., if a granule were available on both CD-ROM and by FTP). The screen should display the total charge to the user for the data order (including shipping and handling and other charges as necessary) and the amount of money/credit currently in his account. If the user is ordering by priority mail, such as Federal Express, any additional charges should be noted on the screen.

The **"date expected"** was the subject of much discussion. Some thought the date should be "expected shipping date" others said, "expected date of receipt (of the complete order by the user)" and others thought that this information should not be displayed because it would be impossible to control or predict with any accuracy.

After the user submits an order to ECS, he should receive a confirmation noting that the system received his order, the order tracking number, a copy of the contents of the order (e.g., collection names, granule IDs, media format and types selected, delivery mechanism), and information to contact the DAAC in case he has any questions, problems, etc. Tirekickers commented that it was better for ECS to err on the side of having the user receive too many confirmation notices than too few.

5.5 Advertising Service and the Earth Science On-line Directory

5.5.1 Introduction and Background

The Advertising Service is a web-based tool that allows users to submit and search for advertisements related to earth science Services (e.g., software), Providers (e.g., DAACs, university meterology departments) and Data. The EOSDIS system advertises its earth science related data and services via this tool. Other scientists and providers who wish to contribute advertisements of their data and services may also use this tool. This service enables a user to search for, review, download, or contribute their own advertisements. The EP7 Advertising Service contains advertisements for both EOSDIS-related and non-EOSDIS Data collections, Services, and Providers.

During the usability testing, Participants were asked to explore the Advertising Service and provide comments to ECS. Additional comments were provided by those same Participants who were asked to explore the Earth Science On-line Directory (ESOD) - the Release A version of the Advertising Service. Although development of Release A has ceased, the ESOD tool is being re-designed for use in Release B.

5.5.2 Advertising Service

As a part of the usability test session, Evaluators, gave comments on the **name of the Advertising Service and terminology** used throughout the tool. The Evaluators thought the name "Advertising Service" was evocative of a marketing functionality rather than a search tool. Tirekickers suggested the name be changed to something that would more reflect the functionality of the entire tool. One of the suggestions was to rename the tool "Customized Tools and Services." All of the respondents agreed that the name did not provide enough information as to the complete functionality of the software.

The terminology used in the tool was not clear to many Evaluators. One respondent asked "What is the definition of Service?," he thought it meant Help Desk. The users need to know what the differences are between Products and Services. The Tirekickers asked **why have Services and Products?** as it seemed to create a lot of duplication throughout the tool.

Many participants commented that the navigation was confusing. One Evaluator went so far to say that, "...because of this [poor navigation] no pre-college student is going to use this tool because it is too confusing." All the respondents found the content and navigation of this tool was very confusing and misleading to all respondents. Therefore, it was suggested that ECS use clearer and more concise terms for the tool and that navigation techniques be re-examined.

Search Screen:

Comments made during the usability test indicated that users were not satisfied with many of the elements of the search screen, (e.g., the **default settings** in the pulldown menu). Once the users came to the search screen, they noticed that the default for a search was set to "Any" for selecting a type of search. The Tirekickers felt that when selecting a search type, the default for searches should be set to "Product" - in fact, "Any" should be the last choice in the drop down menu**.** Their recommendation was that the order should be "Product," "Provider," "Service," "Any." The reasoning for this was that the majority of users will be focused on finding additional data products, rather than all advertisements related to their search criteria.

Other Participants suggested that instructions given to the user regarding Boolean searches must be carefully explained because many of the Evaluators found the interface confusing. In addition, they requested that a Boolean "Not" option be provided. This would allow a user to create more complex and customized searches for information.

After the user's search had been constructed, submited to the database, and completed, a list of advertisements that met his search criteria was displayed. To view the details of an advertisement, the user clicked on one of the advertisements in the list and the system displayed a short description of the Product/Service/Provider and other relevant information. However, much of the **terminology** used by ECSin the Advertisement was **not clearly defined**, or readily understood by many of the evaluators. For example, use of the term "Guide URL" within the advertisement - it is not clear that this is a pointer to a Guide document for the data advertised. Their suggestion was to rename the "Guide URL," to "Guide Documentation," because this would be more understandable to the general user.

Evaluators also requested that when the list of their results is displayed on the screen, the **search criteria they used to find those results should also be displayed**. This comment was prompted by an Evaluator who noticed the term "Group" used in one of the advertisements. They asked, "What is "Group?" and "Why is this on the result search screen?" Evaluators thought that the term would be better defined as "Affiliation" instead of "Group." They also wanted the **total results from their search listed at the top of each results page.** For example: "Your search for MODIS returned 1034 entries." If a large number of results is returned, the system should allow users to view the results using a **"Get Next 50" button**. Similarly, the users asked to be able to go from reading the detailed advertisement information to the next advertisement using a "Get Next" button within the advertisement itself. This would allow the user to move from one advertisement to another without having to use the back browse button (see the "Electronic Telegraph" http://www.telegraph.co.uk for an example). Others thought would be handy to rate the advertisements within the results set similar to the way Yahoo has implemented this capability with each result receiving a score.

A number of Evaluators suggested that the contact ID, Provider ID, and Services information be provided at the bottom of each advertisement. This would improve the EP7 implementation, which forced users to click on a link to another page to view the detailed contact ID and other information.

Care should be taken to ensure that only appropriate buttons are provided. For example, a "Submit" button should not be available or active when the user is displaying an advertisement. It is highly unlikely that a user would go from a particular advertisement to submit one of his own. This makes navigation in the Advertising Service confusing for users.

Advertisement Submission:

The process a user must go through to **submit an advertisement** to the Advertising Service is very complex and, as some evaluators noted, nearly impossible to do because of the way the task has been divided. This is especially true when the user must enter a Provider, Service and advertisement information in one session. Evaluators suggested that the task flow should be re-examined and the forms should be organized in such a way that they will be easy to use. One way to reduce confusion would be to display a confirmation page after the advertisement has been submitted. This page should be displayed to give the user a change to make edits or cancel the submission.

After the advertisement has been submitted, Evaluators wanted to know:

- "How will I know that the (version of the) software that interacts with my advertised service will still be available? Will I receive notification if software are updated?"
- "Will there be a core set of tools available that users and service developers can count on being there and being supported by ECS? Otherwise, what will happen if I develop a tool/service that requires ESST v 2.6 but once 2.7 comes out my tool is worthless?"
- "Will I be notified that the ECS tools have upgraded/changed/unsupported?"

Many of the participants were confused about how each individual advertisement will be used and viewed. Some participants suggested that clear guidelines for advertisement submitters

should be provided. These will ensure that proper formatting, keywords, and such are submitted to the Advertising Service.

The results of the on-line survey (Table 5-3) reveal that the majority of the 11 respondents thought that the Advertising Service provided the types of capabilities that the user needs. They also responded that they thought it was a useful tool for the discovery of other data and services. However, the responses were mixed as to whether they would advertise their own data or services within the Advertising Service. Part of the reason for the lack of opinion on the subject may be due to the fact that this portion of the tool's capabilities was not emphasized to the usability Participants.

Table 5-3. Advertising Service Survey Results

	Number of Responses for the Following Scores				
Question	**Strongly Disagree (score =1)**	**Disagree (score = 2)**	**No Opinion/ Neutral (score = 3)**	**Agree (score=4)**	**Strongly Agree (score =5)**
1) The capabilities provided by the Advertising Service meet my needs	1	0	2	8	0
2) The Advertising Service is useful for the discovery of new data and services available through ECS or other data providers.	0	0	1	10	0
3) In the future I would use the Advertising Service to advertise data collections and software available through my organization/institution.	0	0	6	2	3

5.5.3 Earth Science On-line Directory

We asked three Evaluators to provide feedback to ECS on the Earth Science On-line Directory (ESOD), while it was still in the development phase. They had numerous suggestions on ways to improve the interface.

Evaluators responded by saying that the name, Earth Science On-line Directory (ESOD), does not explain what the entire tool does. They suggested that the name of the tool be something more acurately reflects what the entire tool functionality. During the discussion, the Evaluators said that based on the name "ESOD," they would have had no idea how useful the tool could be or the scope it encompassed.

Search Screen:

One of the main problems encountered by the users was having various ways to search the ESOD database. While this offered maximum flexibility, in some cases, the Evaluators had trouble interpreting which search should be used to look for specific types or formats of information. In addition, the short description provided for each search type was inadequate and as a result, was interpreted differently by each Participant. The design for the **"Science Search"**

interface was confusing to the users.. To alleviate this problem, ESOD Science Search may need to have "multiple gates" to guide the users to the data, rather than letting them view all the possible choices on the ESOD main page and become confused. A suggestion was made by the Evaluators to re-order the list of search critieria on "Science Search" page and limit the search to find Products only - no searching of Services or Providers.

One of the other search options available in ESOD was the “Group Index.” Unfortunately, it was not clear what the title **"Group Index"** meant. Because of the user confusion, the Evaluator would spend more time trying to decipher the meaning of the terms, instead of performing a task. Simpler terms for these searches would be more useful to the user. These terms should be better defined in order to convey the proper meaning for the search type and for the user to interpret the information.

One Tirekicker wanted to know why the word **"Directories"** was used in the title of this tool, knowing that this word has a very specific meaning to some researchers. For instance at NSSDC where they use this term, Directory is specific data collections, and Catalog means many data collections. These words often lead the Tirekickers in the wrong direction for completing a search. The suggestion he made was that ECS should be more careful in selecting terminology, because these words could be used in the same research area in different ways.

The Participants felt strongly that the tool should **allow users to narrow their searches incrementally**, which would give the user the chance to refine their search if it returned too many results. If the users had more options such as: keyword ___ and/or/not ___ keyword ___ and/or/not ___ keyword, this would allow the users to search for more than two keywords. For any search, the user should have the option to **break the searches down** into more intuitive functional elements.

While the Evaluators were constructing a search, the “Submit” button, was not visible. Instead, the user had to scroll to the bottom of the screento find it. “Rather than making the user scroll all the way to the bottom why not have it a the top of the screen?,” the Evaluators suggested. After the search was submitted and returned a set of results, the total number of hits was not listed on the screen. The Tirekickers suggested that ESOD always display the number of hits returned in the list.

Advertisement Submission:

Evaluators were asked what they thought about the process for creating an advertisement using a template. The current process for submitting an advertisement to ESOD is that the user must download a template to their computer desktop, fill in all required information for the advertisement, and then FTP the template back to a public FTP site at ECS. All three responded by agreeing that the current process was suitable for the advanced user but they suggested ECS add a short form for the novice user.

The long form template for creating the advertisement received few comments. After the respondents reviewed the template, which is in HTML format, they were excited about the idea of being able to add their own style (e.g., images, “look and feel”) to the advertisement if they used the long form template. This allows the advanced user to customize their advertisement.

The short form, which would be available as an on-line HTML form, would include only the required information for submitting an advertisement. This would allow any novice user to create an advertisement by filling in the fields on the page. The user does not need experience in HTML and could submit an advertisement without being discouraged or intimidated by the HTML template.

By providing both options ECS allows the user to determine which is best. Therefore, the Tirekickers felt ECS should provide both options for creating an advertisement.

There was a brief discussion among the Evaluators as to how they would like to submit an advertisement. They each suggested different submission mechanisms, such as: submitting through e-mail, U.S. mail, or fax. They were concerned that a range of options be available to the community to ensure that anyone could submit an advertisement. Once the submission was completed, they wanted to have an automatically generated confirmation from the to let them know that the advertisement was received.

5.6 Data Dictionary

Although there were no comments about the Data Dictionary itself, there were a few respondents to the on-line survey. (Table 5-4)

Table 5-4. Data Dictionary Tool Survey Results

	Number of Responses for the Following Scores				
Question	**Strongly Disagree (score =1)**	**Disagree (score = 2)**	**No Opinion/ Neutral (score = 3)**	**Agree (score=4)**	**Strongly Agree (score =5)**
1) The information contained in the Data Dictionary Tool is the type of information that I expected	0	0	1	3	3
2) I found being able to refer to the Data Dictionary Tool during my use of EP7 to be very helpful.	0	0	0	6	1
3) It was easy to search for and find the information I needed in the Data Dictionary Tool.	0	0	0	4	3

Some usability Participants recognized the importance as well as some of the logistical problems of thoroughly populating the Data Dictionary with information that is correct, well written, and up-to-date.

This page intentionally left blank.

6. Lessons Learned

The EP7 development, Integration and Test, and evaluation team members provided a number of lessons learned from the EP7 experience. Among these lessons learned were:

• Provide continuous visibility of the software development to the external community. Not only was this reassuring to many community members, but it was crucial for gathering early feedback on the software.

• Utilize Java packages for code organization.

• Start the data population and validation early and use Integration and Test personnel to check for consistency. Even though the population and validation activity was lead by the Science Office, the data should be checked by a "fresh pair of eyes."

• Get management "buy-in" for use of software with potentially conflicting goals. If code changes must be made to code shared by more than one group, the management buy-in will help prioritize code modifications.

• Continue the use of Science Office Stress Testing. During the Integration and Test period of the software development cycle, the science testers uncovered a number of scientific inconsistencies in the software. They also assisted I&T personnel in identifying bugs, inconsistencies, and areas for improvement within the tools.

This page intentionally left blank.

7. Conclusion

The comments and suggestions from the usability test Participants and Evaluators have been submitted to the ECS Developers and Client Design Working Group (CDWG) Tiger Teams. At the time of this writing, much of the information passed to the various Tiger Teams has been incorporated into the design of many ECS software components. In addition, the Earth Science Search Tool (ESST) development has been stopped and ECS, with ESDIS approval has decided to focus development on web and Java technology. The Java Earth Science Tool (JEST) is being looked upon as the primary ECS Client.

This page intentionally left blank.

Appendix A. Usability Tasks

Task 1:

Thank you for agreeing to participate in the usability evaluations of EP7.

For the purposes of evaluating EP7 imagine that you are a researcher who wants to determine correlations between land use patterns, vegetation production, and water use for Eastern half of the United States. You have spent time gathering data to create a database documenting changes within the study area.

Today you have accessed EP7 to look for satellite data that contains information about changes in vegetation during the 1992 growing season for the Eastern United States.

Using the Java Earth Science Tool (JEST), create and submit a search for data.

To aid your choice of search parameters, you may wish to use the Data Dictionary to look up the definition(s) of the terms used in the JEST.

Task 2:

When the search is complete, review the search results.

Please list the number of granules returned by your search: _____

Please list the names of collection(s) returned that matched your search criteria:

Examine the search results, are browse images available?

If so, select a browse image or two to examine.

Please list the granule Ids corresponding to the browse images you selected: _____

To aid your review of search results you may wish to access the Data Dictionary using the links provided.

Task 3:

You are also interested in the incidence of fires in Africa and the Amazon from 2000 to 2002. Construct and submit a search for these kind of data.

To aid your choice of search parameters, you may wish to use the Data Dictionary to look up the definition(s) of the terms used in the JEST.

Task 4:

When the search is complete, review the search results.

Please list the number of granules returned by your search: _____

Please list the names of collections returned that matched your search criteria:

Examine the search results, are browse images available?

If so, select a browse image or two to examine.

Please list the granule Ids corresponding to the browse images you selected: _____

To aid your review of search results access the Data Dictionary using the links provided.

Task 5:

Take some time to explore the JEST on your own. You may wish to construct and submit a search for data you regularly use. Explore some of the features of the Timeline and Spatial tools. Feel free to comment aloud on any aspect of the software design, performance, features, etc.

Task 6:

When you have finished exploring the EP7 tools please access the Comment Survey Tool and answer the survey questions displayed. The icon is found at the bottom of the JEST screen.

Appendix B. Survey Questions

General Questions:

1) There was a sufficient amount of metadata and data for me to evaluate EP7.
2) There was a sufficient variety of data for me to evaluate EP7.
3) It was easy to access EP7 using the World Wide Web.
4) My experience using the EP7 WWW version was positive.
5) Links between WWW tools were apparent and navigable.
6) I found the EP7 FAQ helpful.
7) The EP7 Help Tutorials page was useful.
8) The Client Launch page was helpful.
9) I found the Science User Scenarios useful.
10) I found the EP7 Data Summary tables and graphics helpful.

JEST Questions:

1) I like the use of folders to organize the JEST capabilities.
2) The hierarchical structure used for organizing projects, searches and results is intuitive and easy to use.
3) It was immediately obvious how projects were used to organize searches and results.
4) It was easy to construct and submit a search using JEST.
5) I like the layout of the search attributes and valid values display within the search folder.
6) It was easy to select temporal search criteria using the timeline tool.
7) The capabilities provided in the timeline tool meet my needs.
8) The spatial tool accomodated my need to build searches containing multiple spatial criteria.
9) I liked being able to zoom in to the exact area of the map in which I was interested.
10) Adding and removing spatial and temporal search criteria was intuitive.
11) Selecting and deleting other search criteria was intuitive.
12) It was easy to interpret the display of my search results.
13) I like the way the browse images are viewed.
14) Information (metadata) displayed with the browse image meets my needs.
15) I found use of the on-line JEST tutorial helpful.
16) I liked the way the tutorial could be synchronized and displayed next to the JEST tool.

Data Dictionary Questions:

1) The information contained in the Data Dictionary Tool is the type of information I expected.
2) I found being able to refer to the Data Dictionary Tool during my use of EP7 to be very helpful.
3) It was easy to search for and find the information I needed in the Data Dictionary Tool.

Advertising Service Questions:

1) The capabilities provided by the Advertising Service meet my needs.
2) The Advertising Service is useful for the discovery of new data and services available through ECS or other data providers.
3) In the future I would use the Advertising Service to advertise data collections and software available through my organization/institution.

Appendix C. EP7 Usability Participants

The following people provided valuable suggestions and comments about the design, implementation, and deployment of Evaluation Package 7. Because comments stored in the Comment Survey Tool are recorded as "guest" comments it is not possible to know who they are, but there comments are appreciated.

Debbie Blake
Padma Campbell
Mike Caruso
Cheryl Craig
Dan Baldwin
John Daucsavage
Haldun Direskeneli
Ruth Duerr
David Emmitt
Yonsook Enloe
Nazmi Elsaleaous
Giulietta Fargion
Steve Greco
Catherine Harnden
Paul Hertz
Nigel Hinds
Simon Hook
Glenn Iona
Danielle Jackson
Menas Kafatos
Ralph Kahn
Ravi Kartan
Siri Jodha Singh Khalsa
Nettie Labelle-Hamer
Angela Li
Zuotao Li
Dawn Lowe
Chris Lynnes
Lise Maring
Ken McDonald
Joe Miller
Liwen Pan
Robin Pfister
Rogard Ross
David Roy
Alison Walker
Tess Wingo
Hank Wolf
David Woodard
Ruixin Yang

This page intentionally left blank.

Appendix D. EP7 Comments

General (10)

- The tutorials were essentially nonexistent.

- I found it annoying that the comment survey was so far removed from the jest itself. I would have preferred to be able to go back and forth between the jest and the comment page in order to jot things down as they came to me.

- Overall, I liked using the web interface.

- It took a really long time to load JEST. I'm sure that was due in large part to the fact that we are so far away, but it is still an issue if you want to attract/support international data use.

- Without the Help - Scenario, I didn't know what 'Project' was supposed to mean. The Scenario helped me get started.

- I expected the other valids lists to be filtered when I picked a valid. For example when I selected 'SAR' as a sensor, I expected to just see the SAR-carrying satellites listed in the platform valids list. I guess this means I was expecting an 'AND' search rather than an 'OR' search.

- The valids textlist looked like a unique window. I kept trying to move it or close it somehow.

- The temporal graph was confusing. It would be good to have a label for the y-axis - for each box to have a data set name associated as a label. It's kindof funny to just see a bunch of blue boxes scattered across the screen! I called Jan and therefore figured out how to get that pop-up box of metadata. It's a good idea to have such information around, but getting that pop-up box was too tricky. Maybe I could click on the (proposed) data set name labels to get the metadata box?

- I did like having the supplementary information around while picking the time interval to search on.

- I liked the interface to the data dictionary, but it was sparsely populated. Not just few valids, which is fine since this is just a demo, but somewhat poor descriptions of those valids. The entries to the advertising service also seemed to be lacking. Perhaps you could review what people submit and require a minimum quality level?

- 1) Changing the size of the Netscape window always results in the JEST client reloading (this can be about 1 min)

- 2) Temporal Specification - not easy to add start/end by month via highlighting timeline (easier to manually enter date/time)

- 3) Manaul entry of date/time does not result in highlighting on timeline but highlighting timeline changes text in date/time fields.

- 4) When paging through granule metadata records, last page of granules should have next page button to go to the top (first page) of the granules. Otherwise, user must click on previous page to go back to first page.

-The no opinions we did not do. The search did not give you data of just the E. US, which is what we wanted.

-The second search took a long time to complete, over 10 minutes.

-We did manage to crash that program & NS2. We wanted to close the first search to allow more clear space.

-When we select the temporal ranges, the highlighting areas are not corrosponding to the bottom textual shows.

-Also when highlighting, if you choose an incorrect area, you have to reset the whole thing instead of just clicking on that you don't want.

-There is a bug in the report of the actual number of granuels, ie next to the flash light and next to the cylinders.

JEST (30)

- 1)If the user doesn't have Java enabled, then nothing appears to happen. A notice should be provided to tell the user that jave is not enabled and therefore JEST will not be displayed.

- 2)JEST loads very slow. And we have a very fast network.

- The folder layout eliminates the ability to view more than one activity at a time, as you might be able to do with multiple windows (ex: what projects do I currently have created, what are my search criteria, and what are the results rec'd so far -- right now, I can't view any of these things side by side -- I open a folder and that's the only thing I can look at).

- spatial search requires more than one type of map projection. what about cryo spheric scientists?

- zoom capability needs to be improved -- allow the user to specify the amount of zoom (ex: 25% 50% 75% etc.) so that you don't zoom in too far and become disoriented.

- JEST needs to be careful about the size of the templates. Even on my SUN workstation, which has a large screen, I was not able to see all the info.

- Metadata as displayed is insufficient for Landsat data. Will work with the instrument team to identify what constitutes acceptable Landsat browse metadata.

- Much easier to use and more intuitive than the Release A Client.

- It would be nice to be able to use named geographic search criteria, like Amazon Basin, both user defined and provided by the server.

- Would also like to search on Browse Available.

- 1) It would be useful if there was more help on JEST just like for the ad service for the first time users of JEST (or ESST in the future)

- 2) I didn't find the timeline very useful. To enter the start date as April 01, 2002 and end date as May 31, 2002 when we clicked on a bar on the timeline the start date and end dates had same entries. It was easier to enter the dates manually

- 3) After submitting the search it wasn't clear when the search was done. Perhaps, if the cursor can be changed from an arrow to a watch or? while it is working away...

- 4) I couldn't get the results to display after the search was done so...

- 5) I didn't find this tool to be very intuitive being a first time user

- 6) The scenario given took too much time. Perhaps more than one example can be provided so that people get the feel for the tool.

- The tool is not intuitive. Do you expect users to read through all the instructions before starting? There is no help along the way to guide me through the search.

- What is a project folder? I don't understand why you have to have a project folder to search.

- When I submitted a search with the parameter 'radar' and the platform 'ERS-1', I got 0 granules.

- When I submitted the same search with an additional attribute of data center 'landover', I got 0 granules.

- When I submitted a search with just the platform of 'ERS-1', I got 13 granules.

- All of these searches should have given me the same results. Can you explain the difference?

- I didn't understand the temporal search screen. How & what is this displaying.

- More detail on the map would be nice for example rivers, lakes, mountains. If you zoom in on Alaska it has almost no details or reference points.

- #1 It's difficult to tell since most folders are not operational--

things seem to work ok as they are, although I guess it would be better not to have all those Netscape windows popping up.

- #6 It was hard to select the desired time start point using the arrow cursor.

- #8 It would be good have the alternative to enter lat/lon values from the keyboard select specific regions.

- #11 I may have been on the brain-damaged side this morning (coffee delay) but I was out of e.g. the parameter selection tool and thought about deleting a parameter and wanted to be able to do it from the hierarchical display and couldn't. I did discover that if I went back into the parameter selection tool I could deselect something there.

- #13 Although I followed the JEST scenario which indicated that I could get browse images of returned granules, I never saw a Browse button next to a granule.

- #4 The positives were offset by various errors cropping up and the fact that my X-terminal crashed twice during my testing.

- I was confused to find DEM listed as an instrument. No polar projections available in the spatial search.

- Many of the actions I performed were guesses (so I guess the system is intuitive).

- During manual entry of temporal range, I attempted to enter a date prior to 1986 and add. The entry defaulted to 1986; not obvious why.

- item#1 folders are nice but needs some instruction as to how to proceed

- item#8 I would like to be able to type in geographic info if I have it. It appears that if I click on a point the rectangle info will search a point. if that is true then that is a good feature.

- item#14 I could not get metadata on the ASF data. I would have liked to review it but no granules were returned and as far as I could tell I correctly specified the search criteria.

- Overall I liked the look and feel.

- I was annoyed back the persistent reloading which occured with the use of the back/forward buttons when not really appropriate. It also reloaded when I resized the window. I am talking about reloading the welcome screen, not the usual reloading of the page.

- If you select more than one temporal windows and hit add to list only the last window is added.

- It would be nice to be able to double-click on one of the saved temporal windows and have it be shown graphicallly above.

- The temporal graphic is slow to come up.

-Since many of the functions are still under construction, it's hard to give a fair appraisal. Overall, I did not find the "search process" as particularly intuitive on the first go around. However, I think that given a few "dry runs" through, I would get the hang of it. The zoom function in selecting the spatial domain did'nt seem to work for my application (selecting the entire region north of 65 deg. N). Also, the base map needs to have the option for a polar stereographic projection. - I was also initialy at a loss as to how to "work" the spatial domain and temporal selections. Is it possible to provide some very simple instructions as to how to proceed in these trouble spots (e.g., "hold down the left button and drag")?

- I think yu have to realize that that there are a lot of idiots in the community such as myself who need to be held by the hand when on the web.

- 1. The first thing for which I was prompted was project and search, and, being entirely unfamiliar with the EP's, I though it was asking for a "project" to search for!

- 2. The titles of "Topic" and "Parameter" on the attributes list were not intuitive to me, I needed a bit of explanation to get that Topic was really Subject Area. Also, the satellite dish icon for the Archive attribute was misleading. I didn't have time to investigate, but it is not obvious to me what the distinction between Archive and Collection is.

- 3. I had a bit of trouble with the spatial selection tool, in that as soon as I clicked on the map, the Zoom In button became active, but then it didn't actually work until I had added the selection area to my list.

- 4. The MODEs in the temporal selection tool are not intuitive at all, I basically had no idea what the blue bars were, and just by chance happened on the mode switch that activated the pop-up data set descriptions.

- #1. Yes but I was confused by the term Project... Something like Folder would be a better label.

- #3. Not immediately because of comment 1. It didn't take too long to figure it out though.

- #4. Generally but I think that related attributes need to be better tied (e.g. topic and parameter) so that it is more intuitive.

- #5. Yes and no. For a long list of search attributes it might become difficult to navigate.

- And for attributes that need to be closely tied during criteria selection (e.g. topic and parameter - which is now topic, term and variable in the data model) the valids display is limited.

- #6. It was difficult to correct mistakes without resetting the whole thing. Also it was difficult to select at a finer time resolution. It was easy enought to type in but that defeats the purpose of having the slick drawing tool.

- #7. It needs a zoom.

- #8. Yes and no. Yes in that it allowed me to select multiple areas, but No in that it lost the rectange that I had just drawn. Also when I left the screen and came back, it lost my rectangles. Also need to draw polygons, and points.

- #9. Need to go to a greater level of geographic map detail - e.g. county, city, roads... with zoom.

- #13. I would like to see the granule highlighted on the results list so I'm sure which one I'm looking at - especially when I do prev. and next browse, it may be difficult to know which item I'm looking at.

- #14. This is related to my comment on item 13. Also I want to be able to rearrange my results columns so if I'm interested in the more granule specific attributes - e.g. cloud cover and quality, I can put them up front and view them with the browse.

- #15. The idea of having this tutorial is great, but I cant see it with my window. If it showed up in the log area it would be much better. I find it really difficult to navigate all these screens.

- #16. Yes on the synchronized part but I couldn't display it next to the Jest tool so no on the second part.

- The survey is a bit self-congratulatory :) but I have more specific comments that I will send to Jan Poston Day in the near future. Briefly, the interface is excellent, really a good job in concept and execution. There are a few small bugs, but the biggest issue I have is that as an investigator I don't want to be given pre-framed images over the net; I am going to want hundreds of megabytes of SAR raw signal data, for example. That is, I'm a low-level-data user, and I'm not clear on how this very nice interface is going to allow me to get the data I need from the appropriate facilities. I realize that the data set you have is just one center's archive, so its something of a mock-up. I'll send more detailed email soon. Good stuff, though, and thanks for the opportunity to try it out. -Rob Fatland

- The JEST tool could be very good and some aspects are already very attractive, but:-

- (1) search - spatial

- there needs to be a mechanism for increasing and reducing the coverage by a small increment - say, 10% in each direction

- an ability to iterate between the map and the lat/long text would be very useful. I couldnt edit the lat/long figures and get the map to redraw the changed boundaries

- it is particularly difficult at present to fine tune increase the coverage. This would be addressed by the previous 2 comments

- two features which would be useful, but may not be absolutely necessary in the short term, include an ability to specify polygonal coverage and an ability to mask out land or ocean (taking into account some margin of safety)

- (2) Search - temporal

- This is definitely the weak spot in JEST. It is not at all obvious how to use this. I think it needs a fundamental redesign.

- The vertical axis (meaning of different time bars) is unclear. I recommend combining the temporal sampling and metadata information into one timeline and having a pop-up for each bar, perhaps.

- A pop-up for each DAAC explaining the data it holds in a concise form (eg polar oceans) would be useful.

- After temporal coverage is selected, it would be useful to have it highlighted on the timeline so that it can be seen at a glance what datasets are included in the selected interval.

- It should be possible to have the platform and instrument information used as a filter so that other datasets can be automatically deleted from the timeline. This implies that temporal information would be defined last. Someone selecting sea ice radar data will not be interested in vegetation datasets being displayed on the timeline. Also, it seems odd to have the user decide which DAAC he or she is interested in. The source should be transparent to the user, who should simoply be expected to decide what type of data is required.

- (3) search - platform

- A simple summary of each platform would be useful. You should not assume that the user understands all the acronyms. Information on the period of operation of a mission, its sensors, other parameters should be available easily (perhaps via pop-up)

- A help facility defining acronyms would be useful (under "help")

- A timeline showing missions would be useful

- (4) search - instruments

- Same as 1st 2 comments under platform

- Overall, the look and feel of the JEST is quite good. I like the set up and design. The two areas that need the most work are the hierarchy on the project folder and the temporal selection. In addition, the spatial selection should be fine tuned a bit.

- I was disappointed that the valids were totally independent. The user could put together search after search which would not make sense if the attributes are 'or' or would fail if the attributes are 'and'.

- The hierarchy on the project and search folder is not obvious. The little boxes with crosses are not intuitive. As a matter of fact, they created confusion. The file folder--either open or closed--would suffice. Lose the flashlight.

- I was most displeased with the temporal selection. It is not intuitive at all. As a matter of fact, I could not figure it out without calling for help! I was told that if I had attended the workshop, I would have a heads up on how it functioned, but unless you are going to fly all the users to Landover prior to ordering data, then there is a problem.

- Specifically, when the window first fires up there is no information immediately available to the user. A bunch of boxes on a time line appear with no indication of what might be contained in or represented by the boxes. No help can be obtained from the window itself.

- Switching over to 'metadata' something (I don't recall the name of the button) is the only way for the user to get information. But, how the user would know to do that is beyond me. The

user does not need or want metadata details right away, she just wants to know what data is available for a given time frame! So, why not label your y-axis? Your x-axis is time, label the y-axis with the name of the data set. It would then be immediately visible to the user what data sets are available for what time periods.

- Getting at the little metadata boxes requires more dexterity than your average science user possesses. If you label the y-axis with data sets as suggested above, the user could click on the data set name to get the box of info. Much less coordination required.

- The little metadata boxes are difficult to read. The user would like a lot of that info, but it needs to be put in a readable format not just a dump of attributes.

- The forced selection of a data center to view the temporal information is contrary to one of the guiding philosophies of the ECS. That is, it forces the user to know, a priori, where the data she is interested in is archived. The user should not have to pick a DAAC to get the temporal image. What if the data are not stored at a DAAC? Does that mean the user cannot search on the temporal metadata of non-DAAC archived data?

- If I select more than one section on the plot and click add, it only adds one of the selections.

- The spatial selection is not nearly so bad as the temporal. The main refinement I would suggest is a more tuneable zooming. That is, zooming out in small increments is awkward.

- I felt the temporal specification screen was somewhat confusing at first. Will there be help available from these individual screens in future releases?

- I also found it quite annoying that the java client reloaded so frequently (e.g., when I resized my netscape window). Is there anything that can be done to minimize this.

- Why must the user enter a project & search at system activation time?

- I'm concerned about Class & Image transfer times. On my Netscape viewer a new (time consuming) transfer was initiated each time I returned to the JEST page. I realize that Java caching is not very mature, but is there anything that can be done to reduce these library reloads?

- The New Search Frame "Enter Search Name" dialog box is not modal, allowing the user to ignore it.

- Allow zoom on the time-line. It was difficult to mouse-out a range of months on the current scale.

- It would be helpful if upon reentering the Spatial & Temporal specification screens there was some way to pictorially display values.

- I like the hierarchical folder structure; although I would put the Criteria & Results under the Search name, and add comment files or user notes. For example,
  + ENSO Study
    +User_Comments
    +May 2002 (search)
    +User_Comments
    +Criteria
    +Results --- Submitted by Nigel Hinds

- 1) Had a problem finding the actual JEST search engine.

- 2) For browse images to be helpful, more information must be provided For instance, a color palette, and possible a scale to explain the data values.

- 3) If possible, add a feature or timer letting the user know that JEST is still working on the search results.

- 4) On the search result screen, have the ability to sort the returned granules by different criteria. For instance, sort by coverage or

- 5) Add a link to the relative datasets, (e.g.: Avhrr 10 day composite files linking to the actual 10 daily files used to create the composite files.

- 6) As the default, hide the "log" window.

- 7) Could not find the Data Dictionary.

- 8) Under the Processing Level, have the Current Log box, explain what the level was and other terminology used.

- It was easy to construct a search, capabilities such as cut and paste of and across searches are needed

- Zoom was very slow (exception ?)

- Was awkward to try and choose an area from the map initially. It's very hard to outline an area on that tiny map. Suggest that multibrowse images be displayed simultaneously.

- i've noticed that when i resize my netscape window all the Class and image objects are reloaded. has anyone else observed this behavior? is netscape forcing this reload or is JEST? -- Nigel Hinds 9/10/96

- The items that are listed in the shopping cart need a more descriptive name.

- Passing the password back and forth for order delivery does not seem like a good idea to me. Is there a more secure way? Perhaps have a site register via phone or use kerberos ftp?

- questioned whether the user had to create a new project each time.

- requested that the capablity to edit the search summary [for lack of a better name].

- didn’t realize he had to create a New Search after creating a New Project.

- Tried zooming in on the Spatial tool right away before selecting an area in which to zoom.

- Want to type in spatial coordinates.

- They were annoyed that he had to create a New Search and thought that New Search wasn’t obvious.

- User wasn’t ‘sure’ about “Apply” thought it meant “Apply my current search to the dataserver” or something along the lines of “submit search.”

- thought that “model” doesn’t belong in “Platform”

- Want to be able to zoom in on the timeline.

- want a date to appear when the user first clicks on the Timeline.

- Figured out the de-selection capability OK

- Not sure about using the square with cross symbol as “open/close” folders. He said, “I guess you could get used to it.”

RESULTS:

- scrolled to the bottom of page to get the number of results and then realized that the information was available at the top of the page.

- Wasn’t initially sure how many collections he found.

- Because the results (and browse) windows pop open separately from the JEST window he said it was impossible to ignore the “back” button when trying to return to the JEST window.

Second Search:

- easily created a second Project folder

- found it disorientating to have the new project pop right into “search” tab but kind of liked it. At first he thought he’d lost things [from the Project window].

- created 2 searh areas - Africa and Amazonia

- Liked the “Apply” and “OK” buttons

- The Macintosh triangle is good and would be completely obvious “if it were there I would have loved it!”

- was confused over the discrepancy between the number of granules displayed and the numbers listed next to the collection names.

- Would be nice to have a browse summary saying “some browse available” so the user wouldn’t have to scroll through all 2500 granules to see if there were any there.

Exploration time:

- asked if one could copy the folders and parameters by drag and drop or copy/paste?

- would like to make the Project/Search folders editable.

- would be nice to work on the desktop without dealing with other tools.

- can the “delete project/search/results” dialog put more information: delete [project][search]Results_1”? In other words, if the user has two projects (Project 1 and Project 2) and within each Project he has a Search_a, Search_B, and Search_c, it is not clear based on the current implementaiton which Project’s search results he is deleting.

- The use of “Project” name isn’t very clear, user thought he already had to belong to a project.

- Like the spatial tool - cool

- like the way the zoom works and the use of rubber band lines

- tried out the pan buttons

- it would be useful if the map displayed the lat/long grid numbers along with the gridlines.

-

- the icons (especially the Project icon) were difficult to interpret. The user suggested that users be given the option to have the icon, the icon with associated text, or just an icon with text in it.

- He likes the way the spatial and temporal tools tell the user the spacified Project and [search] names

- didn't realize that he had to "add" spatial critieria to the search before he clicked "OK." When he saw the numbers were not included in his search criteria list he realized the problem and went straight back to the spatial tool to correct it. He suggested making the "add" and "delete" buttons more obvious, perhaps by putting them on the left of the window.

- Suggested that search criteria within the search criteria summary list be labelled so that a user could tell multiple areas apart from one another. For example:

spatial:

- Kansas: lat/long - lat/long

- mississippi River Basin: lat/long - lat/long

The users should be able to label their search areas.

- It was not obvious how to delete previously selected search critieria - the user first tried to highlight the critierion with the mouse and then delete it using the "delete" key, the second choice would be to highlight the criterion and use the "delete" button on the screen. Once he found the "deleselect" option he thought that was OK, it just wasn't obvious.

- Timeline tool - liked that he could type in the dates

- The @ sign in the temporal and spatial search criteria is not intuitive, why not just use "to" instead?

- Make the search results vs search icon more clear. The icons are very tiny and it is not easy to distinguish the icons in the search summary.

- I prefer a rotating triangle (in the heirarchical tree), I'm a MAC user.

Results

- showed no hesitation on clicking on the collection icon to get search results.

- not obvious that the icon in the column labelled "browse" meant, "Yes, a browse image is available."

- user liked the quick response time between clicking on browse symbol and seeing the imagery.

- liked the links in the data dictionary that allowed him to move from collection information to more collection information.

Second search:

- created a New Project and New Search

- the multiple selection on timeline creates a distracting “banding” feature.

- want the running numbers for the timeline, just as one has in the spatial tool showing lat/long.

- found it annoying that the software wouldn’t take dates beyond 2002 09 30 - is this the end date of the most future collection? It should display the end date selected by the user.

- The valid values box should be clear when the last item selected was temporal or spatial tool.

- for status a more graphical type of V0 display would be nice. The log box looks handy for debugging but it contains information that the user might find more confusing than helpful.

- The Applet name should be something in English, not ClWbJt... because it is visible to the public at the bottom of the Netscape window.

- When the user wanted to cancel the search he went to the “Search” tab.

- Jest quit and there was a Bus Error.

- Liked that the search results were saved after we recovered from the Bus Error.

- Want to be able to cancel the search on the search page but could live with it on the Results page. If there could only be one “cancel search” button, then put it on Results.

- Using the spatial tool the user selected a region and zoomed in. He selected a region in the zoomed area and added it to his search criteiria. Then he zoomed out to the original world map, however the previously selected search coordinates rubber band box was still displayed.

- The user liked the way the searches are saved and can be edited. He really thought they’d be gone after the system crashed.

- User worried there is only one projection, the polar researchers will probably comment.

- The search doesn’t appear to be any faster when additional spatial criteria were selected.

- When dragging the timeline forward and then backwards it displayed the same date for both start and end date.

- Want to be able to type in lat and long in spatial tool.

- Suggested that ECS provide a means for users to define their own spatial regions and name them (e.g., my study site), in addition to ECS-provided regions (eg, Africa, Australia)

- Spotted the bug that the number of granules displayed was different that the actual number of granules returned.

- The number of granules returned in the search should be more prominent. and included both at the top and bottom of each page.

- Need a way to go to something other than the Next Page. Could something similar to Acrobat Reader be implemented - go to end, beginning, granule #, page #, etc.

- Have to go through the entire collection to see if browse are available.

- Want to be able to set flags for yes/no browse granules as they do in V0, “send me only granules which contain browse images).

- the date in theresults summary is hard to read, may be use “to” instead of “through” other than that it is a good date format.

- the lat/long information in the Results summary needs to show the same number of decimals.

- Why not show all 4 corner points because the current display is not saving any space by showing just 2 corner point coordinates.

- Make the results table display headings defined in the Data Dictionary (e.g., locality value).

- The Advertising Service should list the name of the thing the user was searching for when it returns results, like Earth Pages. For example: Your search for NDVI.

- The user entered tons of stuff into the CST only to have it lost when the JEST crashed.

- In the Timeline tool under mode “metadata exploration” allow the collection name to either be there all the time, or work like “tool tips” (the thing in Word 6.0). The user doesn’t think most users will need all of that metadata information, rather just the collection long_name, better yet, allow users to customize whether they want the collection long name displayed next to each collection all the time, or only when clicked on.

- Within the metadata exploration box why does the black text highlight to blue when the user moves the cursor over it?

- Are the browse images stored in HDF and converted on the fly? User worried about a bug, there doesn’t seem to be enough variation in pixel value in the NDVI images.

- The new search already looks like it is filled in when in reality, it is the Project Name in the Search tab.

- The user likes that the “New Search” dialog took the return key (as well as the mouse click on the “OK” button).

- Submitted the search and waited for results on the Results screen and kept looking at the Log window for information that the search was complete. Because the window never reports that information she assumed that the search was still running. Did not check the Project tab until prompted to do so by the facilitator.

- On second task created a New Project.

- Was surprised when JEST did not prompt her for a new search name this second time. Thought it was a nice feature of the system and that it should come up each time.

- Made one large window for Africa and Amazon region.

- Went to Data Dictionary to look up “albedo”

- Wanted a stopwatch to indicate when the system is running a search.

- Thinks the granule display should increment [I’m not sure what I mean by my own note!]

- the log window is kind of nice to have so that you can see things working.

- The user likes the way it would prompt you for the project/search names

- likes the heirarchical “tree” used for displaying results and organizing projects and searches.

- Would prefer that the log window be in “English” not in log messages.

- Zoom in on timeline would be good and make it easier to use.

- Can you advertise a published research article in the Advertising Service?

- Who populates the Data Dictionary in the Real = Operational world

- Want Help populated in JEST

- the Tabb key on the Advertising Service doesn’t work as expected.

-Not able to see advertisement after it was submitted.

- When the “New Project” window first appeared the user said, “I don’t want to search on a Project” so the user clicked Cancel. When the JEST paradigm of name Project, name Search, then construct search was explained the user said, “I don’t want to sname a search until I’m done and happy with what I’ve put together. Then I’ll save it to a search and put it in a Project folder.”

- Maybe name the “Project” Tab, “Folder” to clarify its purpose.

- Haw many people will use project folders? They’ll probably just go to “search” and get started.

- It took a while to figure out that the user was supposed to name the Project before search.

- On the Search screen, link the Parameter and Topic attributes closer to one another. One button as “geophysical parameter” to go direct to a parameter name or filtering through a topic. Maybe switch the icons too. Present the information together. See the Version 0 system for an example.

- typed in dates on the timeline

- hit “OK” and didn’t know what “Apply” did. Appears to do nothing. [I explained the use of Apply and OK to the user]

- after closing the timeline the user went back to make a correction and was annoyed that she had to re-type the information into the boxes. Can’t the software remember it?

- Opened the map tool and tried to zoom immediately, nothing happened. User thought that Zoom capability wasn’t functioning.

- user thinks there should e one color flashlight icon for each DAAC so that you can see the search (status) progressing from DAAC to DAAC as one can with Version 0.

- went straight to delete a topic criterion, didn’t have any problems figuring out how to do it because it was just like V0.

- When the user re-submitted a search it was not clear if the system was working

- The user submitted a search but neglected to highlight the search name so the search wasn’t actually submitted. However, there was no indication from the system that it wasn’t searching. It should be smart enough to “catch” the fact that the item she did highlight was part of the search she wanted to submit.

- The user went to delete one of the parameters from her search and then re-submitted the search to the system. IT turns out that the system didn't delete the parameter she thought she deleted. In reality, it was re-submitted to the system as if she hadn't deleted anything at all. She had to create a new search and run it.

- Wants to zoom on the map tool to select on the timeline.

- didn't really notice the white boxes with cross-hair but liked the idea of using Mac-like rotating triangles.

- asked where "the grand total of granules" is listed, didn't see the number next to the search icon.

- not clear that user is on granule X, any way to highlight the table so that the user can look at the table and tell which granule it corresponds with?

- some of the descriptions are cut off in the Data Dictionary tool

- for the second search user created a New Project.

- the parameters from previous searches appeared seleted but weren't really. User deleted them and then got an error message in the log window.

- user was a bit surprised when the previous searches "disappeared" [they were in the previous Project folder], once explained it seemed like an OK paradigm.

- Want the temporal tool to remember the previous search in the type in boxes. Annoying to type in everything again.

- Why does the temporal criteria appear closed in the search summary? The default should be open.

- Want to type in "Africa" and have it added to the lsit. Also want to type in lat/longs on the spatial tool.

- Need better communication status. Like the V0 page.

- When the results are returned they close previously opened search criteria.

- Needs to be a link from the JEST tool that links the user to the Data Dictionary tool without losing the JEST window.

- Noticed the buy when displayeing total search results returned.

- The results window should pop up on top so that user can see it.

- Want to jump to the next data set results from the previous set of collection results, a Get Next/Previous dataset/collection.

- Where will the "resort" functions go? Will this be taken care of when they are displayed in the Results tab?

- What abou;t the "Browse Only" flag like V0?

- Want the spatial tool to re-display the boxes of previously selected spatial areas.

- Want the timeline tool to rememver each slice of time. Say the user wants to select 3 time ranges using the drag tool. The user should be able to select each slice of time, and when finished, select "ADD" to list. The system should remember each individual slice.

- Don’t like having to start over when re-selecting drag areas because of the edit capabilities

- like the metadata inspection feature but would like to re-order the data:

longname, collection description, start/end date, geogphysical parameter... The short name is not useful at all.

- If you make a temporal selection it should stay drawn, not go away automatically.

- Want more detailed information to appear as you zoom in on the map tool (tertiary rivers, county boundaries, etc.)

- More consistent busy signal needed from timeline, to spatial, to search...

- Want to be able to arrange the results display columns to contain user-customized topics (granule #, % cloud cover, geographic area, time range, etc.)

- have the tutorial information show up in the “log window” rather than on a separate window.

- Synchronized tutorial is limited in functionality just because you can’t put the tutorial and JEST windows side-by-side.

- This has got to be “idiot proof”

- What if I don’t “have a project?” I wouldn’t know what to enter into “New Project” dialog box.

- This is just for the file for storing the search and results? Say that in the dialog box!

- This will dump lots of stuff into my system folder. I want to know where the systems is putting stuff.

- spatial corners should be listed in the summary: spatial - X,Y lat, long NE - X, Y lat, long SW.

- The search results should increment, now it goes from “0 granules” to “4,000 granules” and nothing inbetween. No gradual indication that the search is running and loading results.

- There are some color blind issues to deal with regarding the colors of the icons.

- ASF data should point users to information on how to become a registered SAR data user.

- Want to the browse images to go to an FTP site, rather than directly on to my machine unless I’ve already “OK-ed” it.

- Want to be able to do a multi-sided polygon search.

- Can’t read the numbers in the spatial tool, they’re very small

- I like that rectangles stay in place so she can add mulitple search areas.

- thought that “Apply” would submit the search

- didn’t remember she had to create a New Project/New Search

- Search dialog popped up in a different place than the Project dialog, they should appear in the same place.

- want to be able to zoom in on the timeline.

- default should be open on temporal criteria in summary window.

- want any open windows to pop to the foreground, exaple is the spatial tool window. The user selects spatial tool uses it, goes to JEST window, then clicks the spatial tool attribute icon. The system should know to pop the still-opened spatial tool window into the foreground.

- Want to edit a search by selecting “spatial” in the attribute summary.

- Want a link directly to the Data Dictionary Tool from JEST more than...

- could fit the level 1B-4 definitions within the valid values window = saves space makes the system more usable.

- Change valid alues title to indicate remaining valid values for “Project_name [search a]”

- icons are too small

- deleting attributes was not a problem.

- created new Project but not new search - the system didn’t prompt her with a New Search dialog box.

- the line in the drag-n-click is not at the tip of the arrow. Not easy to select a time range.

- Is the start date the 1st second of the day and the end date the last second of the day? ex: 12:00:00 and 23:59:59?

- Don’t like the refreshing, it is too abrupt. The user initially thought that all the information was lost.

-Need to add a space to the collection titles, it looks like “AM14 10 day...”

- want to refine the search further, there are too many granules.

- Want to have other search shapes available for spatial

- Want to search a cloud cover, quality flags, etc.

- Want to order data by seasons or subset.

- Want granules size - doable?

- Is there are quality flag at the collection level? Is it possible to refine the search by scanning through the granule level metadata?

- Do changes to the User Profile change the user’s record?

- Can you edit ftp sites in your User Profile, or Registration, or Order information to be valid for the various searches?

- User shouldn’t be able to edit options in the Profile that will impact orders that have not been filled/finished yet.

- How does the user customizable subsetting thing work?

  - data and algorithm sent to the user? sent to the algorithm site, or sent to the DAAC?

  - what abou;the processiong setting where non-ECS custom subsetting algorithms at the DAACS?

- Why are there “Collaboration Tools” in JEST?

- Why not put “Collaboration Tools” information for all types of tools, not just JAVA, on the Home Page. The collaboration tools listed are not really related to JEST, more to overall science usage. This pages seems almost “FYI”

- Too far down the levels/tabs to find these tools, I wouldn’t have thought to look here.

- Controls on the bottom of the Configuration Tabs are not completely obvious that they’re there.

- Subset Tab default toos should have pointer to have to change it. Can the user only have ONE subset tool at a time? Will the user be able to use multiple subset tools?

- User wants an easy list of what works and what doesn’t.

- A contact phone number on the screen would be VERY helpful.

- would like an “untitled” Project/serach

- spatial and temporal buttons are confusing add/ok/apply

- the timeline is especially confusing, especially the y-axis.

- can you select order from the Results list or browse image?

- liked the Data Dictionary link

- noticed that there was no Project window automatically displayed. “Don’t like this Project stuff”. It is OK. I see the use for it.

- Wanted to Zoom in on the timeline tool.

- couldn’t find clear button to ns on the timeline tool.

- no y-axis information

- hard to figure out how to delete criteria

- What other browse capabilities do you want? - have only needed browse for cloud cover, quality, coverage. Not sure what else I’d need it for.

- Would like to sort on results by parameter, granule, etc. DAAC,...

- Granule browse metadata doesn’t list which DAAC it came from.

- multiple parameters will be displayed separated by a comma

- is this supported in the metadata model

- the multiple windows must reflect the current state

- have project and search name displayed in the results window!

- make the results window user-customizable

- clicked zoom on the spatial tool. Made one box to target both areas.

- want to be able to navigate from page to page

- granules could be listed by “region 1” “region 2” etc.

- information on results screen should be well-connected to the search parameters and spatial area should be clearly identified with the appropriate granules.

- going to the web really set the project bacck, otherwise, by this time we'd have a truely prototype data system.

- new search is it better to have the previous searches close? Have new search appear at the top of the page.

- continuous update in temporal tool with start and end date would be good, just as with lat/long in the spatial tool.

- discrete value needs a delete key. Toggle is not intuitive, but no problem after playing with it for a little bit.

- Results integration, like to see the full view of results set especially the originating DAAC

- Are parameters populated at the granule level?

- Multiple windows need a way to close them.

- Need to have the capability to compare multiple browse images.

- results granule metadata customization requested.

- forgot to create a new search, like the popup window thing.

- the log message is/are confusing.

- hide the user log

- wanted to select an area and just click "OK'

- how to clear the timeline - found "Reset"

- is the growing season a parameter?

- selected "Land Process Science" and "Geography and Land Cover."

- Have color or something flashing to indicate that the search is running.

- I like the Data Dictionary tool display of NDVI collection information.

- Need a scale within the image. If you're displaying the images in .gif from an HDF file you should be able to extract the color palette from the HDF file.

- want to get to the data collections which created the 10-day composit. Is this possible? Would the raw data that made up the composite collection have been returned in the search?

- If you start a new project the new search window should pop up.

- want to get to Data Dictionary from the Attribute List.

- Like the tutorial.

- Users were able to easily spot that there were no browse images available for the MODIS collections.

- Want the browse flag similar to that in Version 0.

- Want a "no browse" symbol.

- want to be able to sort the search results. Is this possible?

- Like the attribute icon things. The customizable default attribute icon set.

- Easy to use, may take a lot of workshops to educate people.

- Make sure the database is VERY well populated before you take your show on the road.

- think the spatial and temporal are good.

- once you learn it, it is easy.

- beautiful tutorial, like the synchronization.

- want to be able to re-size the windows.

- make the default “log” off

- looked at icons on the bottom of the window and though they’d take the user out of JEST to, for example, another DAAC. That is what the GSFC DAAC home page does.

- Put an explaination next to the attribute in JEST, especially processing level.

- When starting the asynchronous searches it is a good idea to have a chime/alarm when the results are returned for the 1st search. Otherwise, the user has no idea that there search is complete.

- Data dictionary returned results “no matches found” yet the alphabetical index was displayed. Very confusing.

- Why does the temporal tool take so long to load?

- Want search attribute “cut and paste” capability.

- User customizable results columns - very important. Would want “% Cloud Cover” and other attributes.

- Overlay the spatial criterioa over the map tool...

- Zoom on a browse image is important.

- Viewing images side-by-side is not as high a priority as doing an animation.

- What to do with multi-channel imagery? How will this be stored and displayed as a browse image? Will only certain channels of the image be available in browse.

- good inforamation in the Data Dictionary.

- Campaign would be a good thing to be able to search on. Is this stored at the collection level?

- Did two search areas.

- Went to results and then clicked on Title to go to the Data Dictionary. The window appeared behind all of the other windows.

- MODIS product 14? Is the Real Name for this product “Temperature Anomalay?” or is it “Fire.”

- When you get results you should be able to see them and their location on the map tool.

- Want to be able to refine the search from the Results search screen.

- Have a buffer to prevent mouse clicks going out of control. This would allow the software to "catch" just the first click, and ignore any subsequent clicks.

- Want to be able to copy/paste search criteria.

- user entered asynchronous searches.

- why does it take so long for the asynchronous searches to display after submitting them?

- tried editing the search but it didn't "take" the edits. It did for one re-submitted search but on the other one.

- want the PW2 timeline

- went to Data Dictionary to look up terms, searched on "vegetation index" and got NDVI. Went to AVHRR I km data.

- Didn't create new search.

- wanted the area they selected previous to zooming to be displayed when the image was zoomed in upon.

- thought they were in the search because it was highlighted, it was really the New Project name.

- hard to draw a box on the map. Couldn't tell if it was a mouse problem, or user infamiliarity with the mouse curser thing. Didn't do "Add" to list.

- Clicked and dragged on the timeline then edited when they realized the dates were not correct.

- Don't like the panning arrows.

- want confirmation when they click "Apply", on the spatial and temporal screens. Not always easy to see that the information has been added to the search criteria list.

- When the user submits the search and they return to the Project Tab, their current project should, by default, be open so that they can view their current search.

- Need better indication of open/closed folder in the tool.

- tried to link to granules 1424 and 1427 and wanted to see just those two granules. Users were surprised to see 1424, then 1425, 1426, and 1427. Wanted to be able to view the two browse images side by side.

- Suggested there be a legend in the browse window, otherwise it will be very difficult to use the data.

- created a new search

- typed in the dates in the timeline.

- when the tools opens (spatial and temporal) it should be more offset or change color when "Apply" is clicked so that there is an indication that some action has been accepted.

- political boundaries on the spatial tool are a must!

- noticed that the search results icon was visible

- is the search still running? Checked the log window to see.

- wondered if they could have had a better response timme if they had structured the query better.

- DDTS was strange, couldn't get definitions to come up.

- want to get the 2nd collection results from the 1st set of collection results = "Get Next Collection" information.

- don't want to scroll through all granules to find a browse granule, is there any way to indicate this somewhere on the results?

- want to "Browse granules only" flag, just as in Version 0

- want to be able to sort results geographically.

- want to zoom in automatically

- make sure that Data Dictionary tool pops up on top of all the other windows, it is very hard to spot otherwise.

- liked being able to zoom but not the way I was forced to do it.

- want the map in the spatial tool to be bigger to start with.

Data Dictionary (40)

- The data summary was useful and a great idea

- 1) I couldn't map it back to the product adverstised (MODIS level 2 cloud)... in MODIS case.

- 2) The data dictionary does not allow searches by collection names, for example MOD_AM09. Perhaps this may be not be the intention of the data dictionary.

- 3) I'm not familiar with non-MISR data so the the acronyms such as SDSRV and MIG weren't easy to figure out.

- It would be nice to have glossary information show up automatically when available for an acronym selected from the acronym list so you don't have to go to a second place to get the rest of the information you probably need

- The look, feel, and functionality of the data dictionary was quite good. If it is considered fully populated, I am worried. If not, then all is well.

- I found many definitions to be incomplete, an example follows: (Incomplete glossary description) http://ephp.gsfc.nasa.gov:3000/cgi-cls/ClWbDdDisplayItem?action=item&category=Glossary&categoryIconPrefix=ep7&keyword=variance+analysis&userId=ecsGuestvariance analysis Identification of variation from a planned baseline and analysis to determine its scope, cause, impact, and corrective action. body compared t

- I liked the many choices of displaying the data dictionary!! Dana Larsen, EROS Data Center, Sioux Falls, SD, (605) 594-6917

- There needs to be a way to "and" keywords together. When I submitted "MODIS temperature", I found anything with either MODIS OR temperature. I want an easy way to

find "MODSI AM14 10 day Temperature anomaly" without remembering all of the words in between.

- The links don't stay red, they always look blue. Hard to tell where one has been.

- the index shows up all blue and no response.

- bigger, better message about needing the New Search/Project before the user gets too far along.

- didn't find the tree intuitive, but found it easy to use.

- didn't konw she could zoom in on the spatial tool.

- need a 20" monitor or greater to run this, not good for the small monitor crowd. Most researches have 14" monitors.

Advertising Service (60)

- Search by text string would be much more useful if it had an advanced search option that included AND, OR, and groupings, something like Alta Vista's advanced searching:

http://altavista.digital.com/cgi-bin/query?pg=aq&what=web

or Excite's advanced searching:

http://www.excite.com/Info/advanced.html

- On the "Install Service" page, you need to provide a link by which the user can obtain the ECS Desktop if he/she doesn't already have it.

- The Search Results Screen for Alphabetical search should show the letter at the top of the screen.

- Make the Advertising Service graphic smaller--it takes up too much room without adding much info and forces me to scroll more.

- For FIRE_MS_ER2_LIDAR, there was no provider. Shouldn't this be prevented by the submission mechanism?

- What is a Mime Service, as opposed to a Generic one? It should be explained in the submission screens.

- How can I update a Provider or Contact? That was unclear.

- 1) The help page on the adversting service has been very helpful.

- 2) it would have been helpful if there was some MISR data available

- 3) After submitting a product it would be nice if we were taken back to the product submission page.

- 4) How do first time users know about the product type, collection ID...

- 5) Under advertising service the service for each product is just SEARCH?

- 6) While submitting an order the tab doesn't work correctly and take us to a new field

- 7) After sumitting the product I wasn't able to display it back.

- 1. Why is the ID # (provider # and DAAC #) being displayed? I don't think that the users need to know the internal IDs.

- 2. URL for the ORNL DAAC is not complete. The URL used points to the ORNL home page, not the DAAC home page. Please change it to http://www-eosdis.ornl.gov/

- 3. I don't like the convention that name starting with 'The' is listed under 'T'. This will generate too long a list for 'T'. This is not a general practice. If you look under a phone book or a TV guide listing, 'The' is not listed under 'T'.

- 4. Services should not be named with the most common name first. For example, the search service is listed under 'S' which makes the services listed under 'S' very very long, because each and every dataset will have a search service.

- 5. The services listed under 'S' are all search services. The listing under the services are not ordered alphabetically. They are ordered by ID# which has no meaning to the users.

- 6. EP7 does not prohibit a PC/MAC users without ECS desktop come in and "install" the available services. EP7 actually installed an application when I pressed the "Install Service" button on the Install service page. Netscape will come back with "Unknown file type" dialogue window for /ecs/yaskin.

- 7. I searched by Text String using "AStER". The result I got was "Consortium for International Earth Science Information Network Gateway (ID:500219)" under service, and "Oceanography at the University of East Anglia (ID:500237)" as providers. Do these have anything to do with ASTER?

- 8. Why are ESA Multimission Earth Observation Browse (ID:500215) and Interdisciplinary Data Collection (ID:500239) listed under providers, and not products, when I did a search by Text String on "avhrr"? Why are they even listed as result for this search?

- II Submit

- 1. I submitted service through generic option. Browse existing contact is a good feature. However, it should be displayed alphabetically.

- 2. Contact/Provider/Products require a selected or inserted ID. This is very badly designed. ID should never need to be visible to users. You can use ID for your internal link, but should design such that usrs only need to select by name. You can pull the ID internally.

- 3. When you display the browse list, they should be selectable right there. Users should not need to use paper and pencil to write down the ID # and then come back to enter it. It introduces chances for error.

- 4. Why are JPL and LaRC the only group listed in service, contact and provider submission form? What is the definition of group there?

- 5. There are not enough help. There are no explanation on group or product type in help.

- 6. What is provider role in the provider submission form? There is no help.

- 7. What do you expect people to put under access restriction? Free text? What is the purpose or usage of this information? No help again.

- 8. Protocol was used in the help text, but there is no protocol field in any of the forms.

- #2 It is useful as long as it is populated.

- I think that in theory, the advertising service is a good idea.

- I don't know how to tell you this, but the advertising services is seriously ugly. 'Advertising' has connotations of glossy, polished, and sexy images and copy. What I see instead are grey pages with unformatted text and lists of obviously fill-in-the-blanks type info. It does not have to be as slick as Madison Avenue, but it should not offend.

- What possible gain would a producer or service organization have in utilizing the service? Many of the data producers have well thought out home pages. Why not go directly there from the search results? For example, the user does a search on 'education' and gets back two hits with hyperlinks. Why not have the hyperlinks go directly to the URL provided by the advertiser?

- I see no purpose in looking at the page of information from the submittal form. It does not provide the user with any information they could not get from the homepage. If the advertiser does not have a homepage, then they have a choice: one could be created--for a price--or the grey page now seen will be used instead. Or maybe there is another way around the issue of the advertsers who do not have homepages. It just seems to me that the main info that is gathered from the grey page is the URL. Just go there.

- I do not understand the 'install' button. I placed a file in my home directory. Is that all that is supposed to happen? It is not obvious to me that it does anything.

- I did not understand what a contact submission was all about.

- I still do not see what the link is between JEST and the advertising service.

- ADVERTISING SERVICE:

- Constructive Criticism - I would recommend someone correct spelling and grammatical errors. I found the following links with errors: http://epsun.gsfc.nasa.gov:3001/cgi-ios/IoGenSrch?type=Provider&count=150, USGS Earth Resources Observation Systems (EROS) Data Center (ID: 500220), NASA Earth Observing System Interdisciplinary Science Volcanology Team (ID: 500235), NOAA Network Information Center (ID: 500236), NASA Landsat Pathfinder Humid Tropical Inventory Project (ID: 500225), http://epsun.gsfc.nasa.gov:3001/cgi-ios/IoContactSrch?count=150, Donna K Scholz , Earth Resources Observation Systems (EROS) Data Center, ID: 10, Dawn P Erlich , Capital Area Internet Service, ID: 16, Note: I recognized that all names had the middle initial attached to the front end of the person's last name = misleading.

- Positive Feedback - I really liked to see a section on "Access Restriction" for Providers. This will make the customer's and the customer service person's availability interpretations easier.

- Overall, I see major improvements with EP7 from my last exposure! Dana Larsen, EROS Data Center, Sioux Falls, SD, (605) 594-6917

- There needs to be a way to find "MODIS AM14 10 day Temperature anomaly" by just specifying "MODIS" and "temperature". Specifying either one separately returns too many hits. If you put them together, it doesn't find the hit because "AM14 10 day" is in between.

- The limitation of 300 maximum is not good. There needs to be a way to select the next 300 once the first have been ruled out.

Abbreviations and Acronyms

ECS	EOSDIS Core System

This page intentionally left blank.