NASA ARC Project   *1-9-2001*
Web-based Geospatial Information Services and Analytic Tools for Habitat Conservation and Management

Expert Review and Questionnaire (PART I)

Thank you for participating in this SDSU/NASA project to assist habitat conservation and resource managers. This document will provide an introductory tutorial for using the prototype of a web-based GIServices and remote sensing set of tools for Natural Habitat Conservation and Management. Please help us improve these tools by filling out the questionnaire and providing your comments to our research team after the tutorial exercises. Thank you for helping us refine these on-line tools and web user interfaces. This project will benefit from evaluation by experts like you.

System Requirement for accessing the Web-based Tools: (http://map.sdsu.edu/arc)
- o *Hardware:* Standard PC or Mac. 300MHz CPU or above recommended,
- o *Operating Systems:* Windows 95, 98, Me, 2000, or XP. Mac 9.0 or X. Linux.
- o *Web Browser:* IE 5.5 or above, or Netscape 6.0 or above.
- o *Screen Resolution:* 1024 x 768 or above Recommended.

Before we begin…

Please indicate what type of machine you are working on?
[ ] Windows(PC)   [ ] Mac   [ ] Linux   [ ] Other_____

Please indicate what type of Web Browser you are working on?
[ ] Internet Explorer   [ ] Netscape Communicator   [ ] Other_____

Please indicate the display resolution are you using (1024x768 or above is recommended)?
[ ] 640x480   [ ] 800x600   [ ]1024x768   [ ] 1280x960 [ ] Other_____

Where is your test site? _____
What is your job title? _____

What is today's date? _____
Please write down the time you begin this tutorial.   _____(Hour): _____ (minutes)

SECTION 1 – TUTORIAL (15-20 minutes).

The major goal of this tutorial is to help you become familiar with three kinds of geographic information services developed by this project:
- o Data Warehouse
- o Internet Map Server, and
- o On-line Analytical tools.

The first step is to launch your Web Browser.
1. Type **http://map.sdsu.edu/arc** on the URL address window.
2. You will see the home page of the NASA ARC project as the following picture.
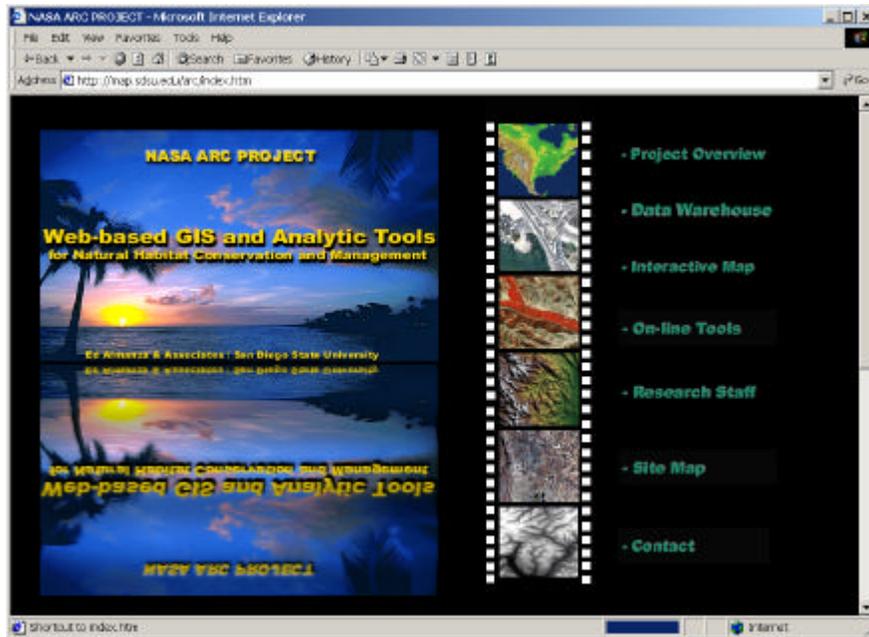
3. Click on the "**Data Warehouse**" label on the home page window.
4. Scroll down the page. You will see the Data Warehouse for the MTRP including three ADAR remote sensing images, two IKONOS images, two DOQQ images, and fifteen vector-based GIS data layers.
5. Click on the "**2000 Mission Trail Imagery: Metadata Simple Version**" label.
6. The next window shows the metadata information about the 2000 image.
7. Please review the content of the metadata.
   Can you find out when the image was taken? (In the *Description:*
   Abstract: Four band ADAR 5500 image mosaic of southeast portion of Mission Trails Regional Park. Imagery was acquired on May 3, 2000)
   What is the spatial resolution? (in the *Supplemental_Information:* 1 meter)

   The purpose of metadata is to help you to understand the characteristics of these images and GIS datasets. Also, metadata can provide contact information and data lineage.

8. Click on the back button from your Web browser and return to the Data Warehouse page.

   (Optional: you can browse the "Metadata Detail version" to see the differences between the simple version. The detailed version follows the FGDC's metadata standards, which include seven sections and hundreds of metadata elements.).

9. Now click on the "**download**" button from "**99 Mission Trail Imagery Simple Metadata version.**" A new file download dialog window will pop up.
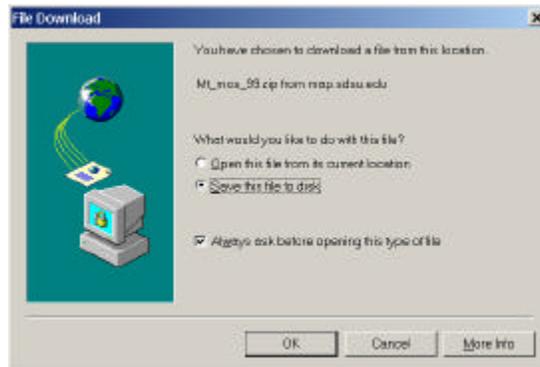

10. Click on the "OK" button and save the compressed image file into your local disk (such as C:\temp). *(This is one of the major functions of data warehouse, which can provide the data download functions for users. Note: In this prototype, the compressed image is only a JPEG picture.)*

Now you are familiar with locating and downloading data warehouse files. We will begin to evaluate the Internet Map Server in the next section.

Internet Map Server

1. Click the Home label (upper left on page) to return to the Home page of ARC project. Click on the "Interactive Map" label.
2. There are two kinds of interactive mapping tools developed for this project. The first one is a simple static map. The second one is interactive ESRI ArcIMS Internet Map Server.
3. Move your mouse cursor to the "*contour*" button. The contour lines will be overlaid over the Mission Trail Regional Park.
4. Try **Roads**, **Stream**, and **Urban** button. This mapping tool only displays graphic overlay onto an image. Users can not perform attribute query or advanced mapping function in the static map. We will use ESRI ArcIMS to perform advanced mapping functions next.
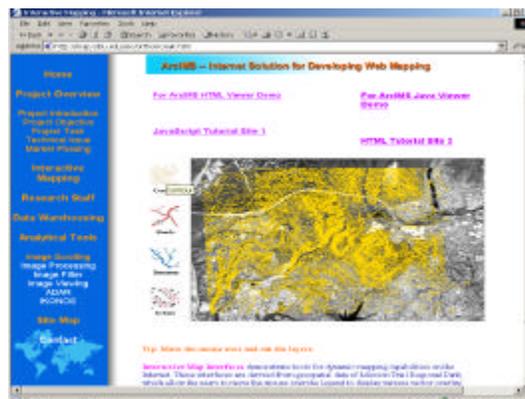
5. To access the interactive map, click on the "*For ArcIMS HTML Viewer Demo*"
   hyperlink to launch the ArcIMS. After several seconds, the interactive map (see
   below) will appear.
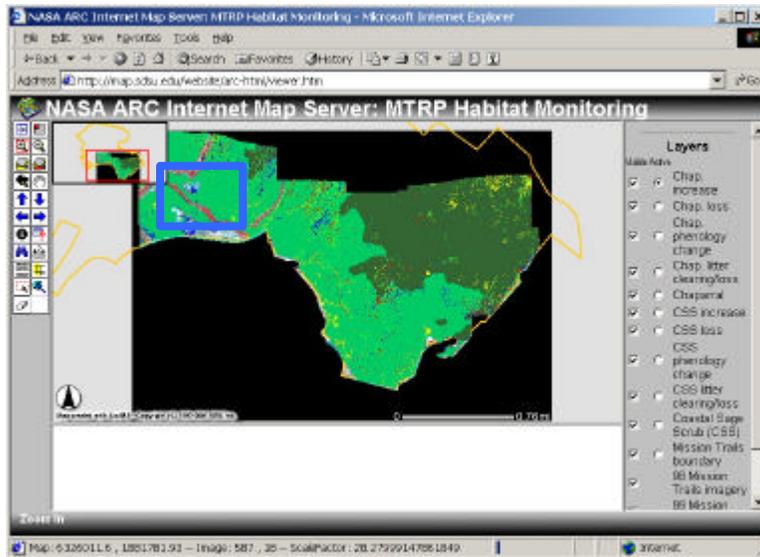
6. Click on the **zoom-in** button (the magnify tool icon) to activate the zoom in
   function. Using your cursor and mouse button, draw a box around the visitors
   center. (See the picture above). After a few seconds the map will zoom-in to the
   visitor's center.
7. Now click on the Toggle Legend button (the upper left button, see picture below)
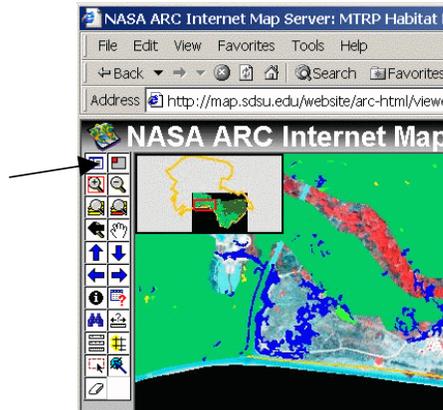
8. From the legend, we can see that the dark green color indicates the area of Coastal
   Sage Scrub (CSS) and the blue color indicates the loss/clearing of CSS around the
   visiting center.
9. Click on the "Toggle Legend" button again to return to the interactive map layers.
10. Uncheck the box of the "**Coastal Sage Scrub (CSS)**". Then click on the "**Refresh
    Map**" button.
11. Now click on the radio button for "**CSS litter clearing/loss**" to activate this map
   layer (blue color one).

12. Click on the "Identify tool" to activate the tool.. (The icon with an "**i**" inside the circle).
13. Move the cursor to any blue colored area and click on the polygon. Read descriptive attribute information about the polygon.
14. Please write down the attributes of the polygon. (The area units are square feet.)
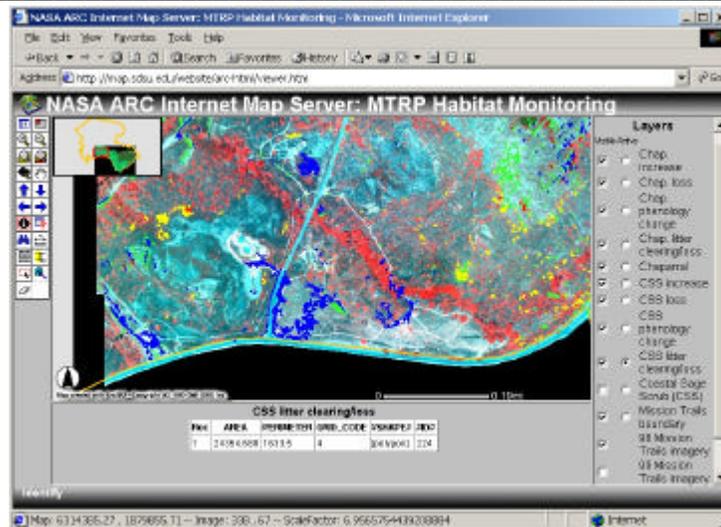

Now that you are familiar with how the tool functions of the interactive map work, you will start to use the on-line analytical tools to explore the MTRP map data next.

On-line Analytical Tools.

1. Close the Internet Map Server Window. (Click on the "X" icon on the upper right window).
2. Click on the "Home" label to Return to the NASA ARC project Home page.
3. Click on "On-line Tools" label to open the **Analytical Tools** window.
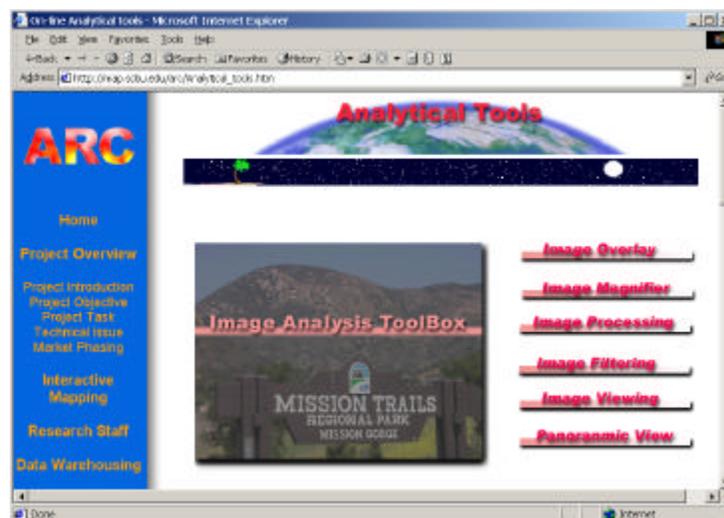
4. Click on the "Panoramic View" button" to open the Panoramic View window. An interactive panoramic image of Lake Murray will appear. Move the mouse cursor to the image and change the view angel. (You can change the view angel by either clicking on the image or the index map.) This tool can provide a ground level perspective to interactive map analyses.
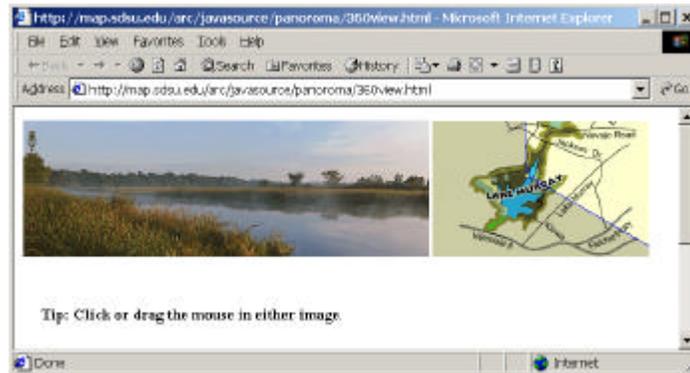
5. Close this window by clicking the X box in the upper right. The Analytical Tools window will reappear.
6. Click on the Image Filtering button to open the image filter tool.
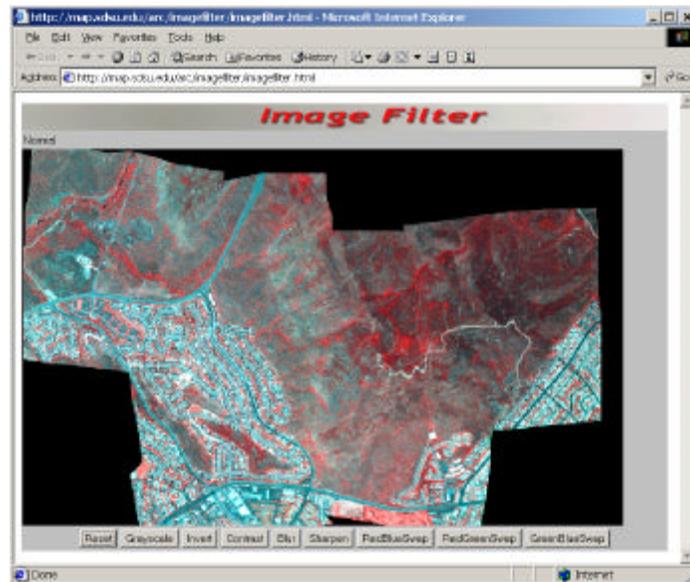
7. The image displayed is a 1998 ADAR image of MTRP. *(Four band ADAR 5500 image mosaic of southeast portion of Mission Trails Regional Park. Imagery was acquired on June 27, 1998.)*

The red color in false color infrared remote sensing images usually indicates vegetation and the blue color usually indicates the human-made building and roads.

8. Can you find out where is the visitor center? What colors is it?_____

9. Click on the "Grayscale" button to change the display from color to grayscale.
10. Now the visitor center becomes a white band.
11. Try the Contrast button. What happen? _____
12. Close this window and return to the Analytical Tools page.
13. Click on the image Magnifier button.
14. Move the small white rectangle in the lower-right corner to browser the ADAR image. Try to move to the Visitor center and view the detail images. Can you recognize the structure of Visitor center?
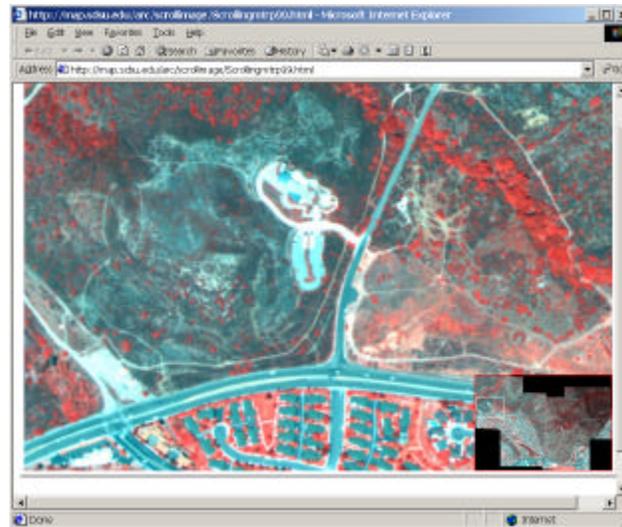
15. Close this window and return to the Analytical Tools window.
16. *Click on the "Image Overlay" button. (Note: If you are using IE5.0 or earlier version, this tool may not be available. Please skip this section.)*
17. This is image change detection tool. The tool overlays two ADAR images (1998 and 1999). You can move the slider bar to see the differences between the two images.
18. Can you find the burn area in the image?
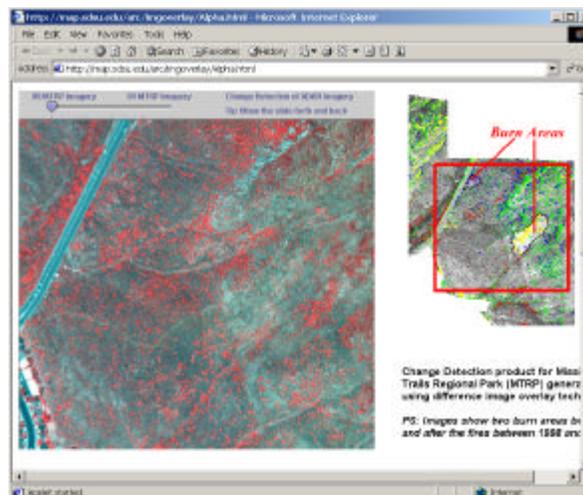
19. Close this window and return to the Home page.
20. Now the tutorial is completed. Please help us to fill out the questionnaire.

SECTION 2 – Questionnaire (15-20 minutes).

Please record the time you completed the tutorial. _____(Hour): _____ (minutes)

How long did it take you finish this tutorial? _____

Data Warehouse

1. What do you like about the data warehouse? (functions/user interfaces/data contents/others?)

    _____

    _____

2. Is there anything you do not like about the data warehouse?

    _____

    _____

3. Which data sets (from the current data warehouse) are the most important for your job? (Please write down the top three data sets.)

    _____   _____   _____

4. Can you think of any GIS or remote sensing data sets you feel are missing in the data warehouse?

    _____

5. Assume you have 10 "importance points" to distribute among the four Data Warehouse services list below. Please distribute the points to indicate the value of each service to your job. (Note: a score of 0 means the service is of no value and should be deleted.)
    o   View the thumbnail images.   _____
    o   View the metadata descriptions.   _____
    o   Download the image/data sets.   _____
    o   Query/Search data set.   _____

Internet Map Server

5. What do you like about the interactive map? (functions/user interfaces/data contents/others?)

   _____

   _____

6. Is there anything you do not like about the interactive map?

   _____

   _____

7. Please write down the top three important functions of the interactive map. (Zoom-in/Zoom-out, Pan, Identify, Multiple-layers on-off, measure distance, Attribute query, others.)

   (1)_____   (2)_____   (3)_____

8. Can you think of any GIS/Mapping functions you feel are missing in the interactive map?

   _____   _____   _____

On-line Analytical Tools

9. What do you like about the on-line analytical tools? (functions/user interfaces/data contents/others?)

   _____

   _____

10. Is there anything you do not like about the on-line analytical tools?

   _____

   _____

11. Which tool provides the most useful function for natural resource management?

Assume you have 20 "importance points" to distribute among the four analytical tools listed below. Please distribute the points to indicate the value of each tool to your job. (Note: a score of 0 means the service is of no value and should be deleted.)

- o Image overlay (change detection)
- o Image magnifier
- o Image filter
- o Panoramic viewer

12. Can you think of any functions that are missing in the on-line analytical tools?
   _____

   _____

General

13. Can you think of any system functions that are missing?

   _____

14. What kinds of tasks are the most important or useful for your job?

   [ ] Data warehouse   [ ] Interactive Maps   [ ] On-line tools
   [ ] All of them are equally important.
   Others_____

15. What do you like about this expert review tutorial and questionnaire?

   _____

16. Is there anything you do not like about this expert review tutorial and questionnaire?

   _____

Thank you for answering this questionnaire for the NASA ARC project. Next week, we will bring two user scenarios and their walkthrough examples to demonstrate the capability of this prototype. The format will be similar to today's tutorial. Thank you so much for helping us.