USGS
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FY 2006 Projects for DASA (Data Acquisition, Storage and Analysis)

February 2-3, 2005, TWG meeting

U.S. Department of the Interior
U.S. Geological Survey

Project A.4. Airborne, Digital Imagery and Automated Photogrammetry

Purpose is to obtain a system-wide, multi-spectral dataset for the CRE in May 2006

Similar to May 2002 Mission (ISTAR)

Digital sensors collect Red, Green, Blue, Near-Infrared and Panchromatic Data

Pixel Resolutions of 44 cm (color bands) and 22 cm (pan)

Automated Photogrammetry produces a Digital Surface Model (DSM)

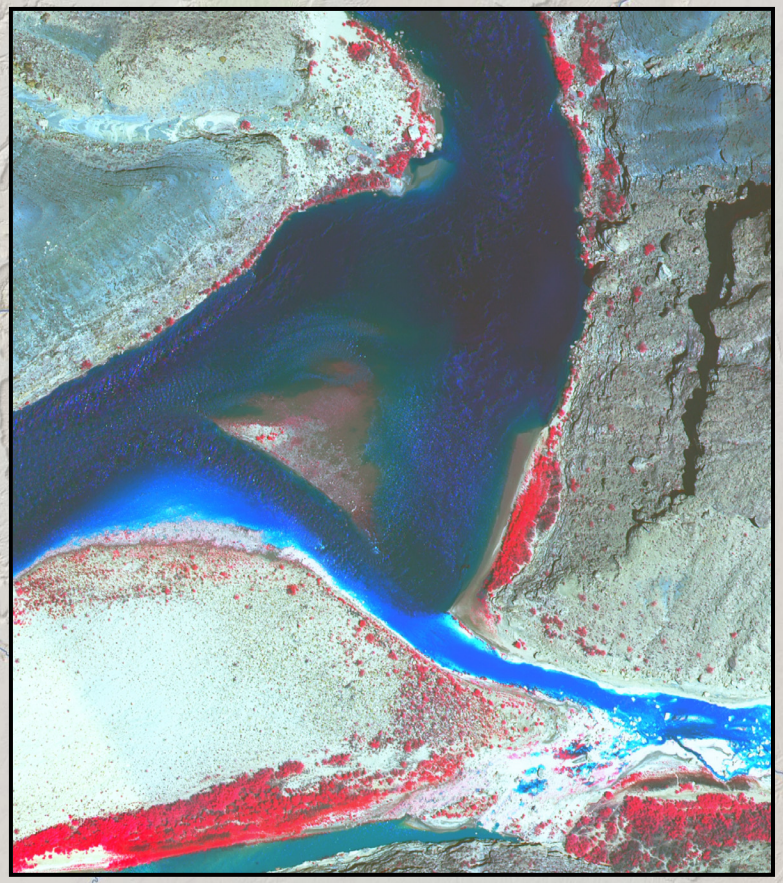
- *1-meter resolution*
- *Elevation values for surface including vegetation tops*

Digital Sensor Technology was Recommended in Davis (2003)

Project A.4 – Justification for FY06 Costs

- May 2006 mission will provide the DASA team with the necessary source data to repeat procedures developed in FY2003 and further support the scientific goals of GCMRC through mapping and spatial analysis.

- Increased costs reflect industry trends in the availability of the digital sensors required to capture the necessary data proposed in this project.



Example of ISTAR Imagery from 2002

Project A.5. Grand Canyon Integrated (Oracle) Database Management

- The purpose of the GCMRC DBMS is to store all tabular and spatial data gathered as the result of GCMRC investigations and legacy data.
- AND make these data available via our Spatial Data Engine (SDE) and other web accessible platforms
- Many datasets have been integrated into our DBMS with additional datasets in working progress. These can viewed through the GCMRC's IMS web site as part of DASA's work on improving Data Access and Availability
- Internet Map Server (IMS)
  GCMRC IMS Web Page
- Surface water data downloadable from web site
  Discharge Data Web Page

Project A.5. Grand Canyon Integrated (Oracle) Database Management

Consequences of FY06 Funding Levels:

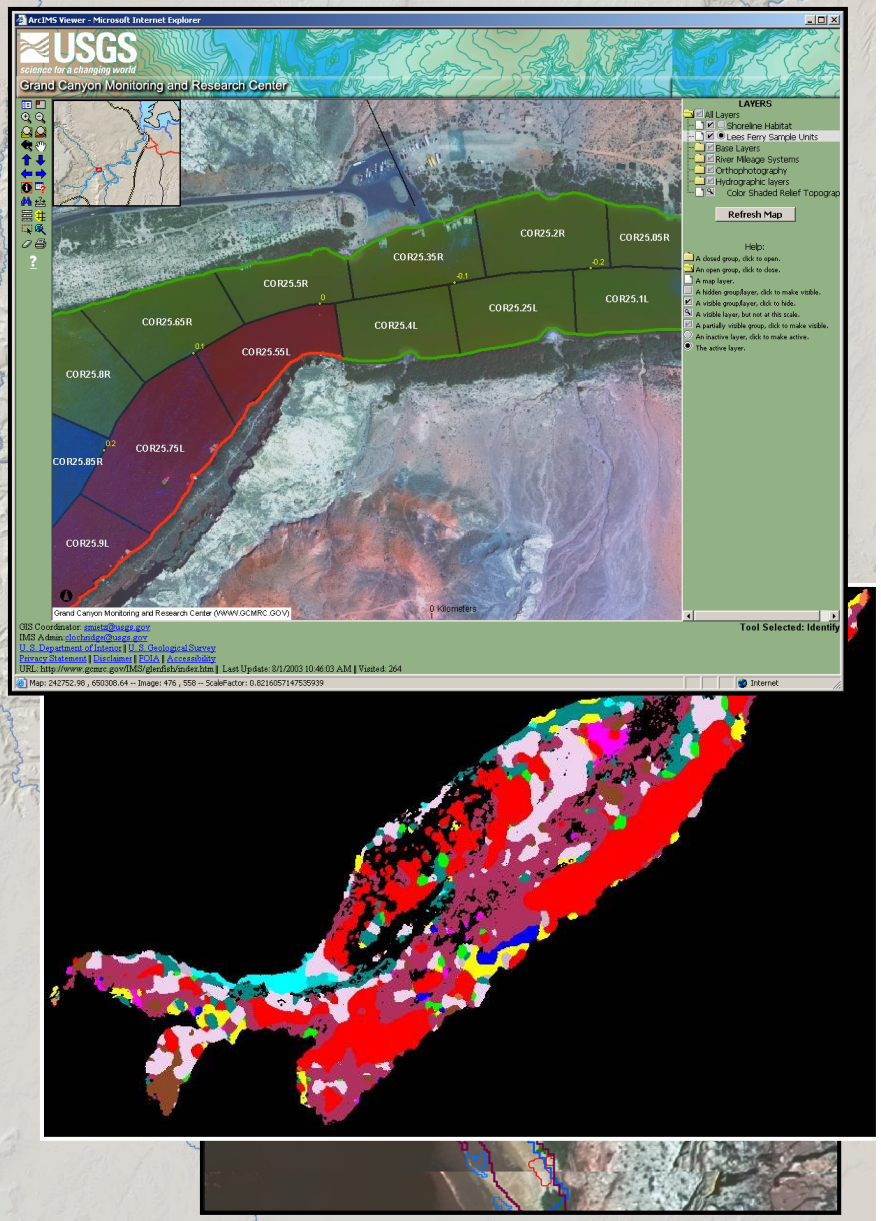
- Progress made during FY04 in Database Development will not continue at the same pace under proposed funding levels
- Additional advances, such as web-based database access (i.e. water discharge page), will need to be delayed

Project A.6. GIS: Automated Monitoring Technologies and Applications

- ***Automated processing of remotely sensed data products***
  - ***designed to quickly and accurately classify large sets of raster and vector data into useful monitoring information***

- ***Examples of products derived from automated procedures include:***
  - **Exposed Sand Area**
  - **Terrestrial Vegetation Mapping**
  - **Downstream Fish Sampling**

- ***Remote Data Access & Control***



Project A.6. GIS: Automated Monitoring Technologies and Applications

Products derived from multi-spectral digital imagery datasets between May 2002 and May 2006

Fine-grained sediment inventory & change detection

Undifferentiated vegetation inventory & change detection

Campsite change detection (sand area, vegetation encroachment, etc.)

Project A.6. GIS: Automated Monitoring Technologies and Applications

Consequences of FY06 Funding Levels:

Funds previously used for GCMRC salaries FY04-FY05 have shifted to reflect a change in the organizational structure of the Center

With fewer resources available, however, it is expected that the time frame in which the procedures and analyses can be tailored to the new datasets will be somewhat longer.

Project A.7. GIS: General Support for Integrated Analyses and Projects

- ***The GIS component of DASA is service-oriented, providing spatial database development, programming and analysis support to the science programs***

- ***GIS work includes:***
  - ***Data entry and GIS database development,***
  - ***analysis of new and existing spatial data,***
  - ***map and graphic generation for field collection, presentation and publication purposes.***

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