



Esri International User Conference | San Diego, CA
Technical Workshops | July 14th 2011

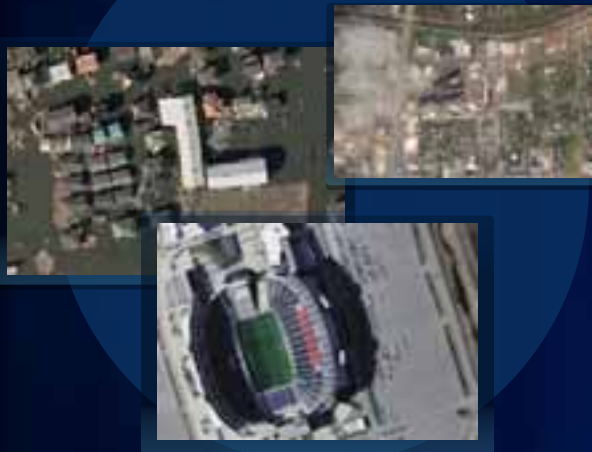
Road Ahead - Imagery

Peter Becker



ArcGIS Online – Imagery

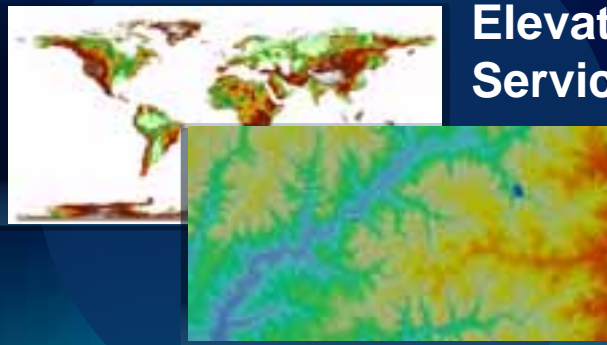
Imagery



Landsat Services



World Elevation Services

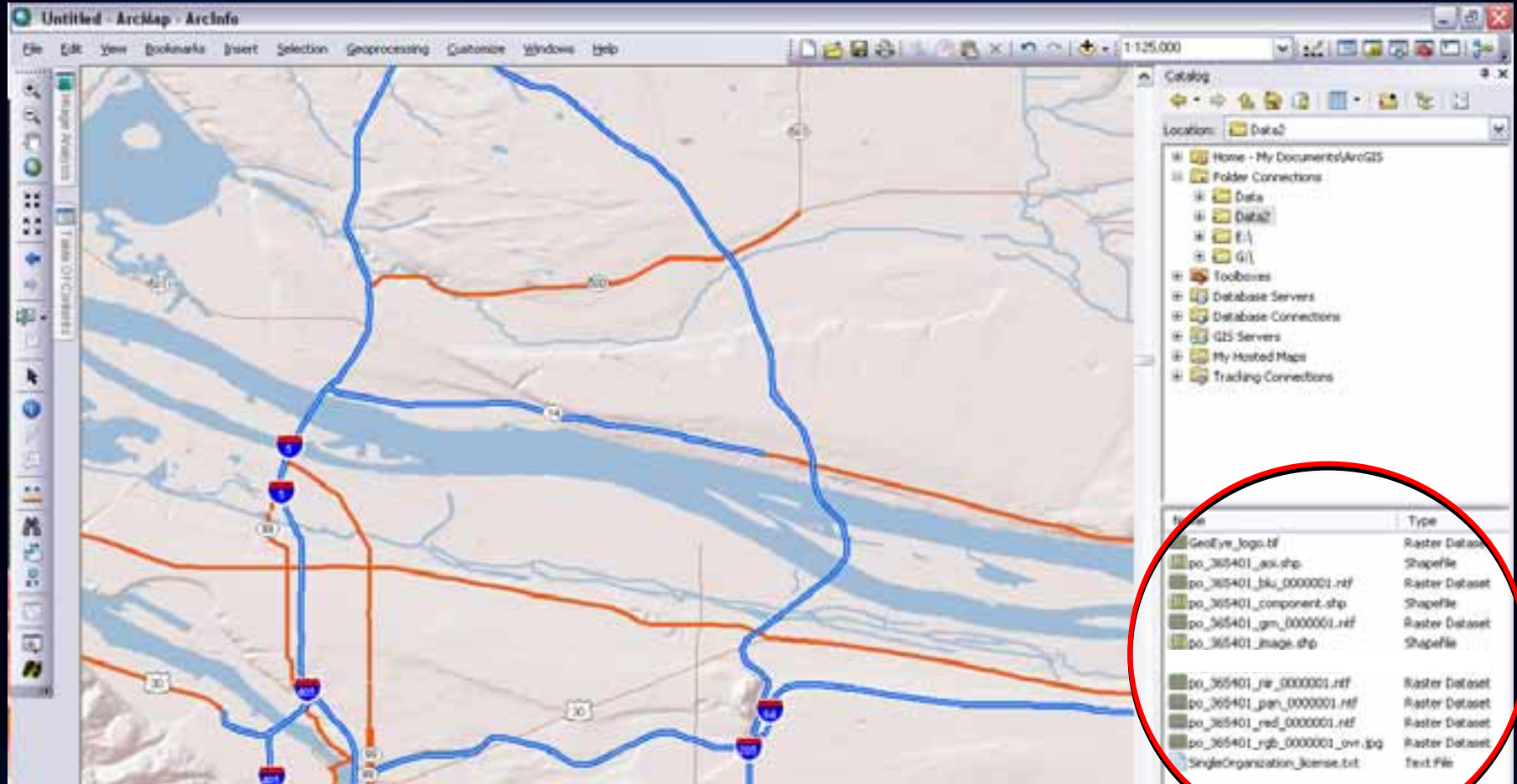


Making Imagery Easier to Use



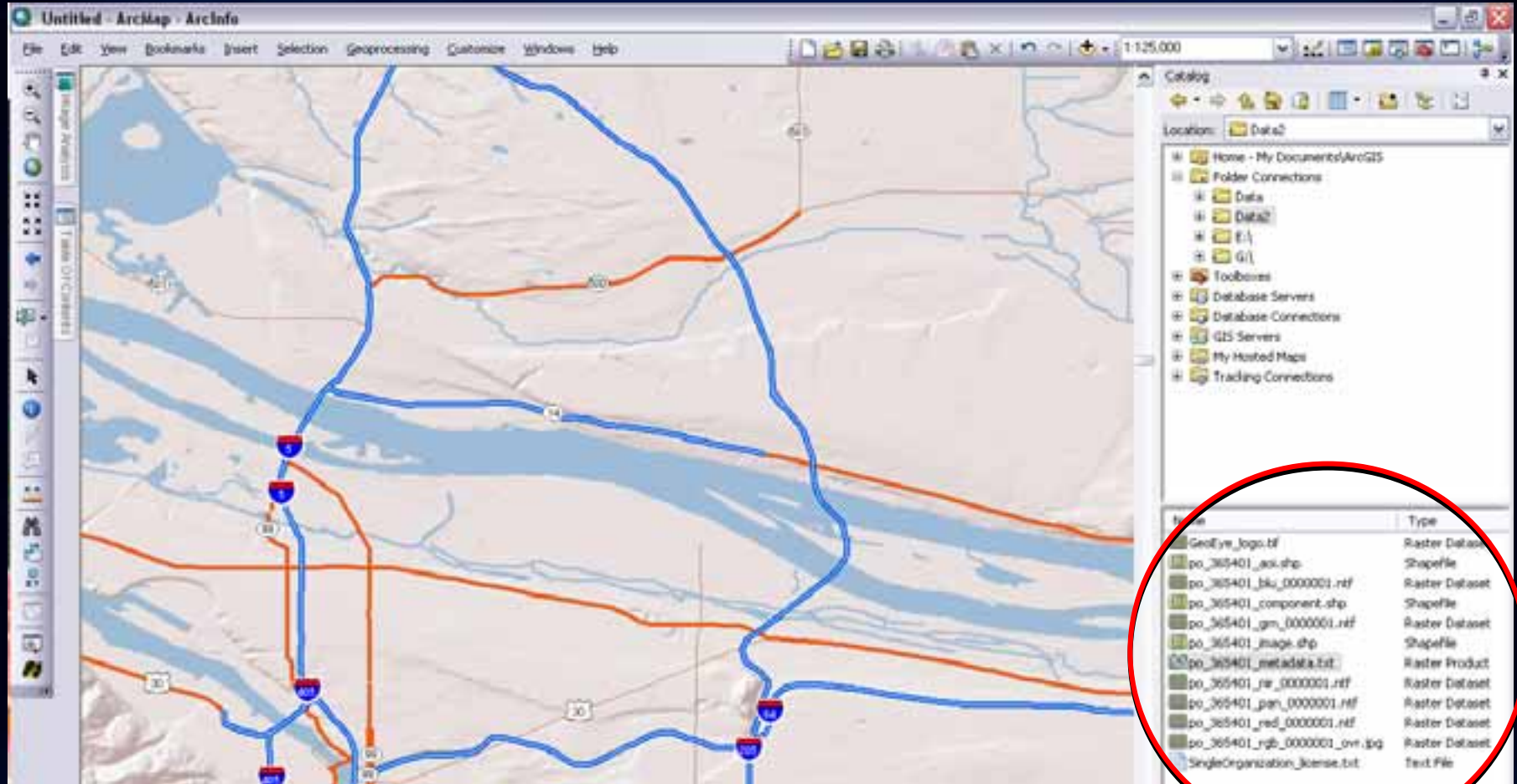
Raster Products

Simplifying Adding Imagery



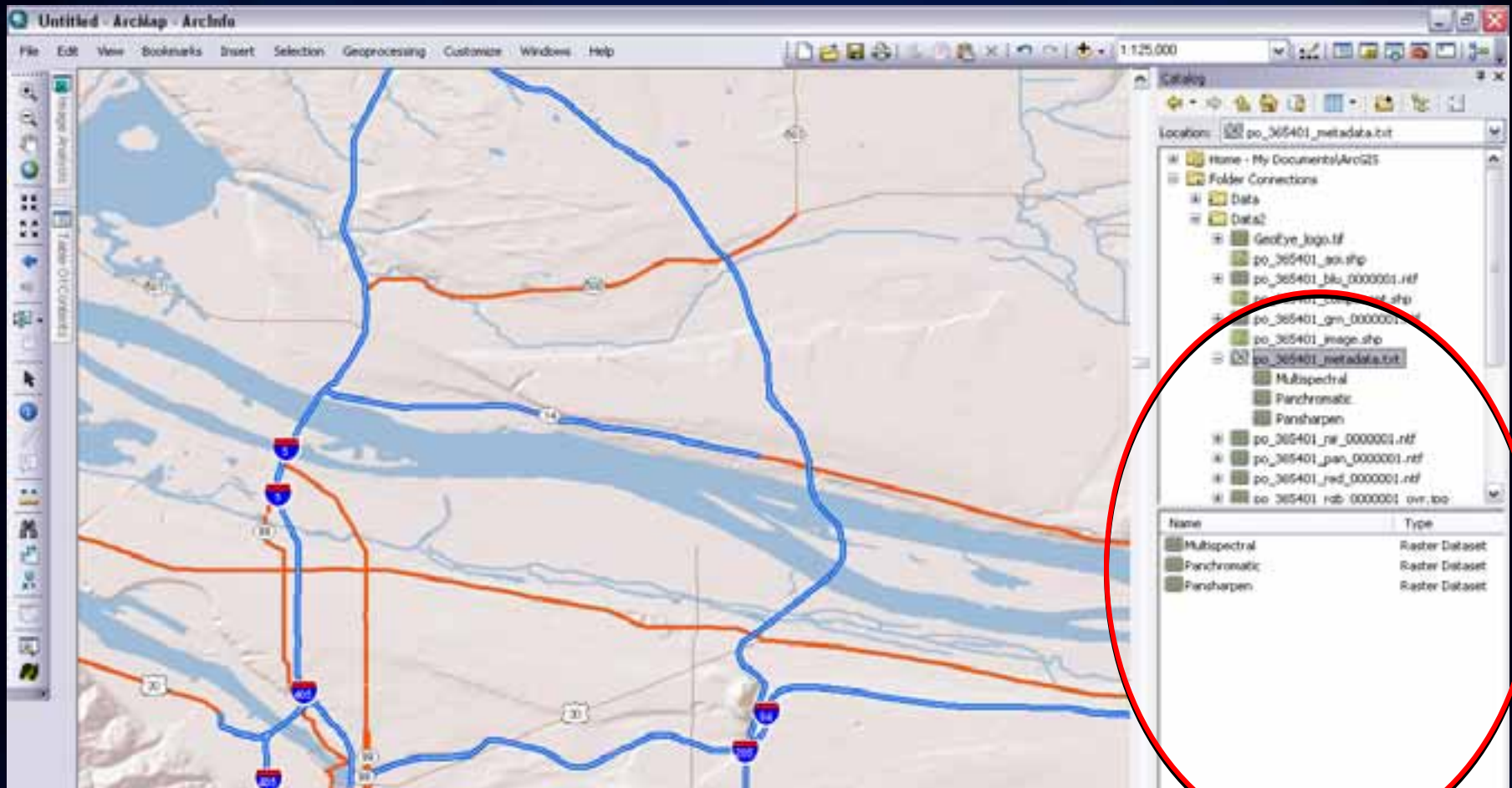
Raster Products

Simplifying Adding Imagery



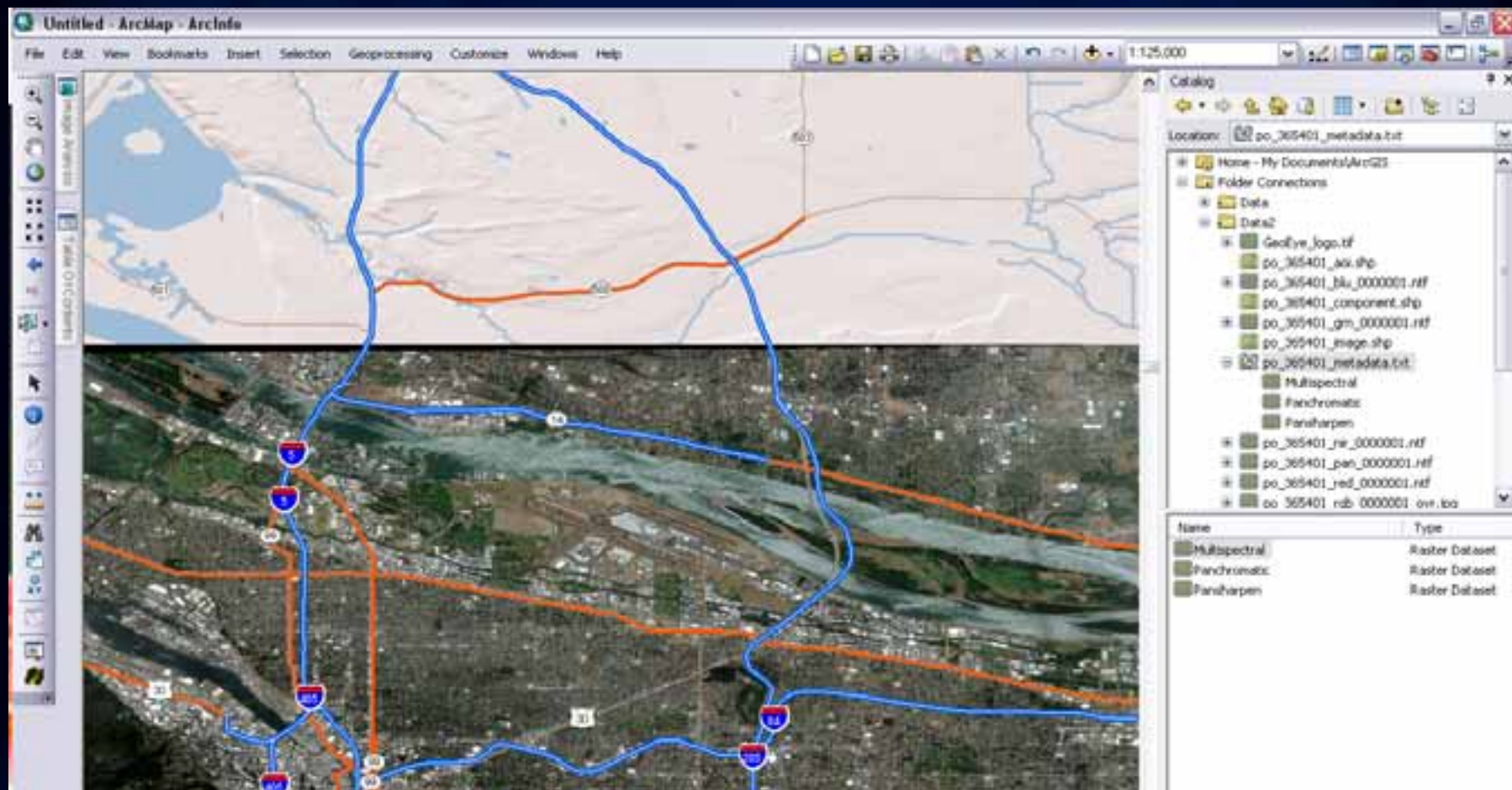
Raster Products

Simplifying Adding Imagery



Raster Products

Simplifying Adding Imagery



Improved Metadata

Standardizing how Metadata is Extracted and Accessible

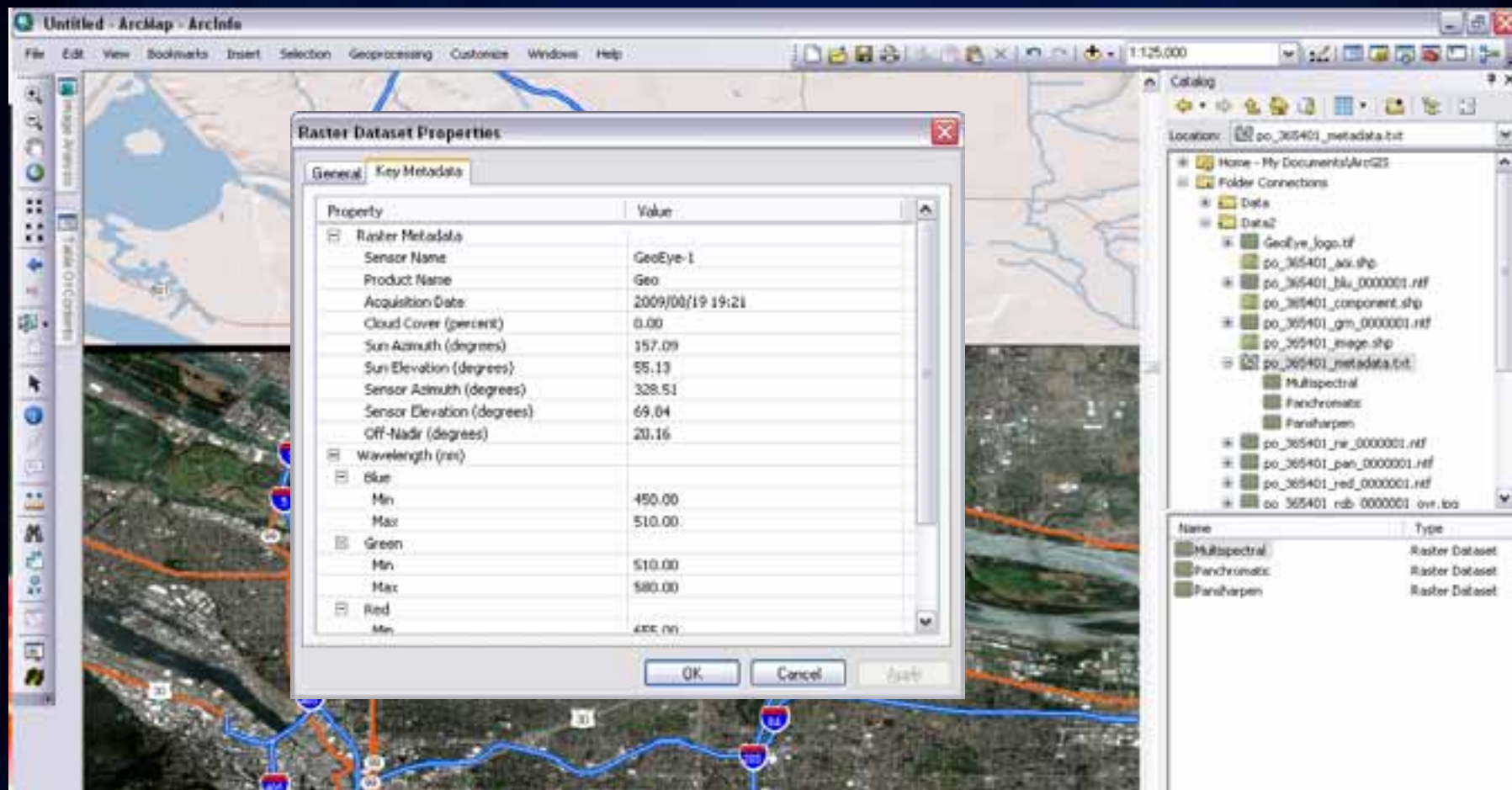


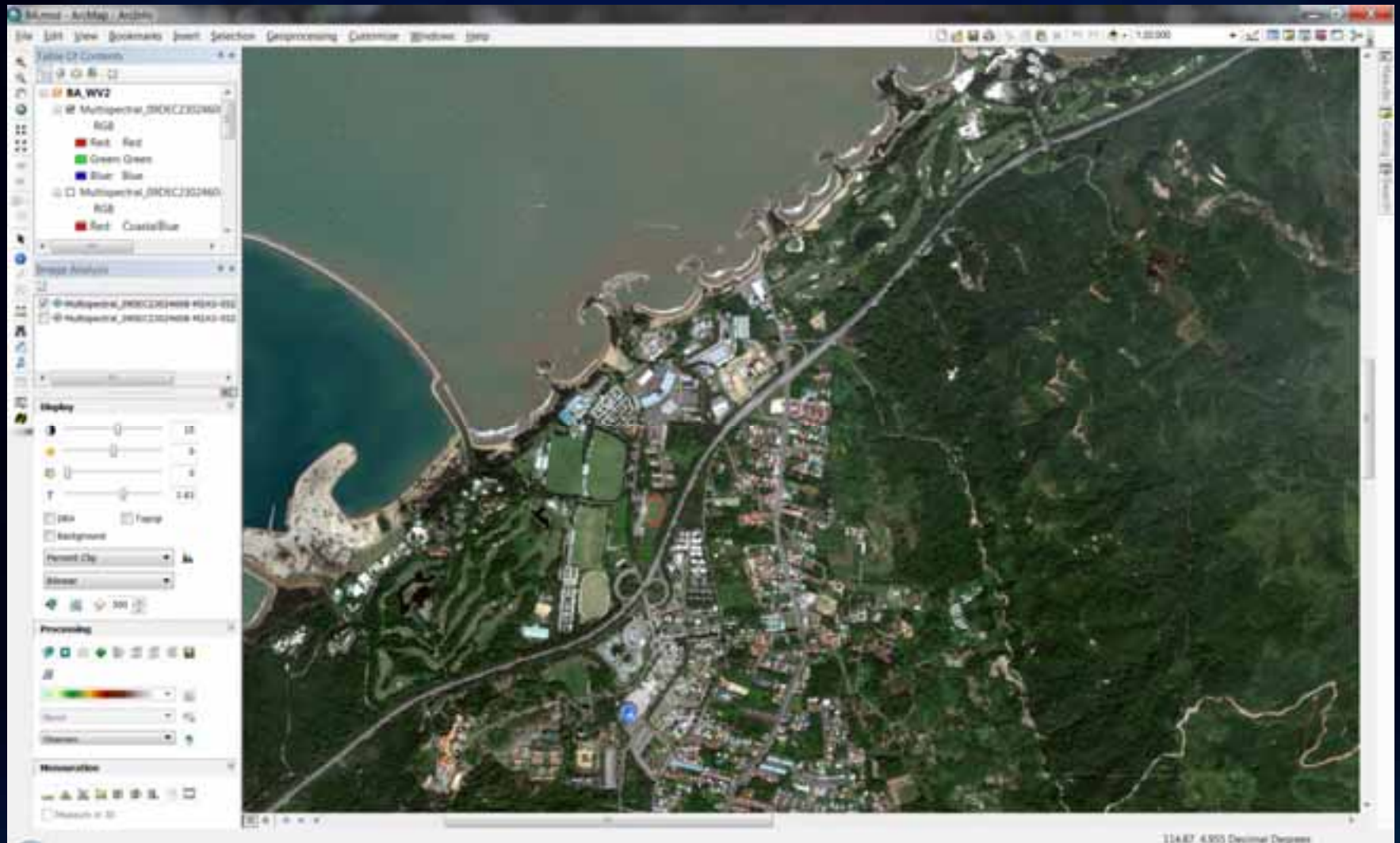
Image Enhancement

Automated Determination of Optimum Color

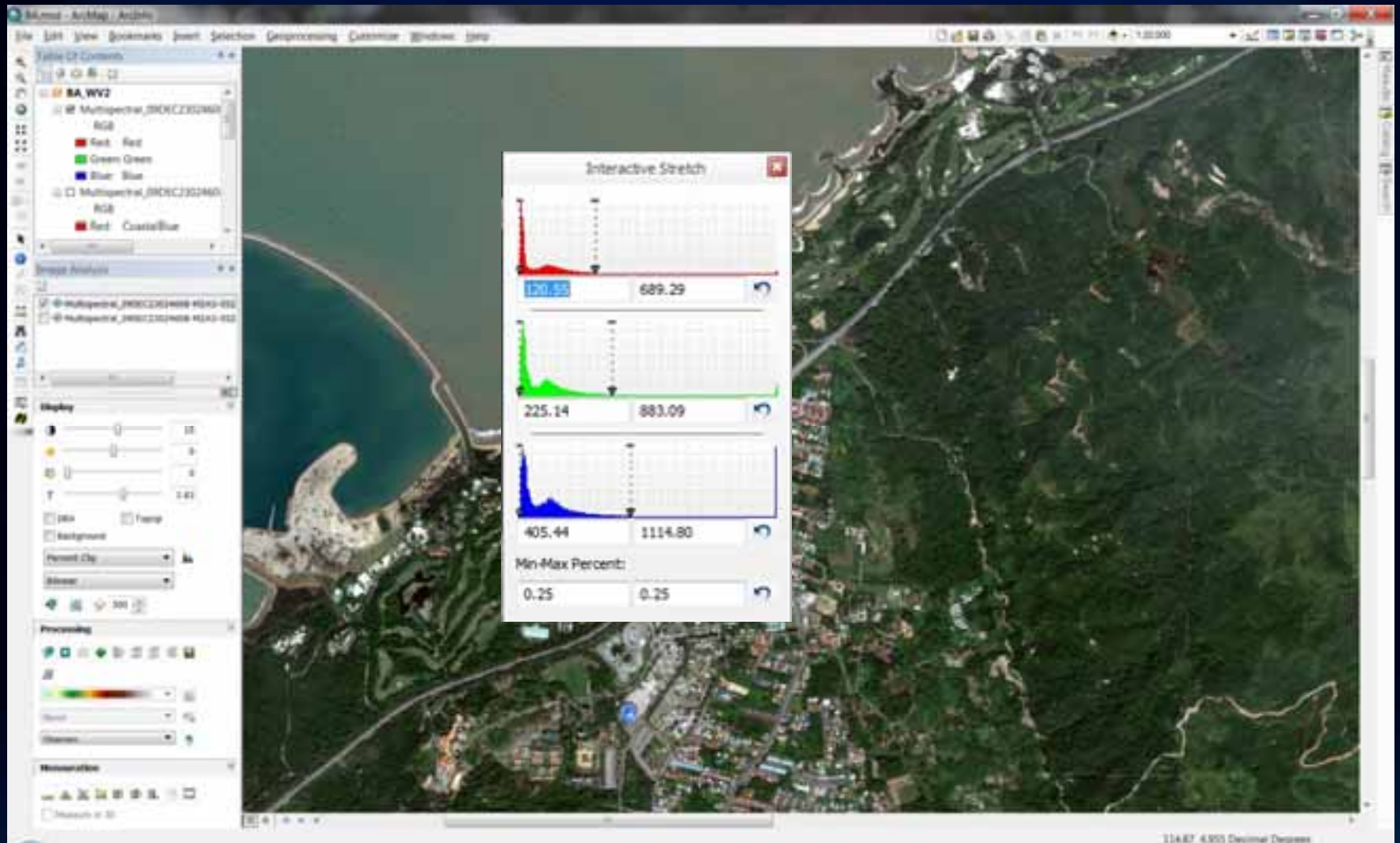


Image Enhancement

Automated Determination of Optimum Color

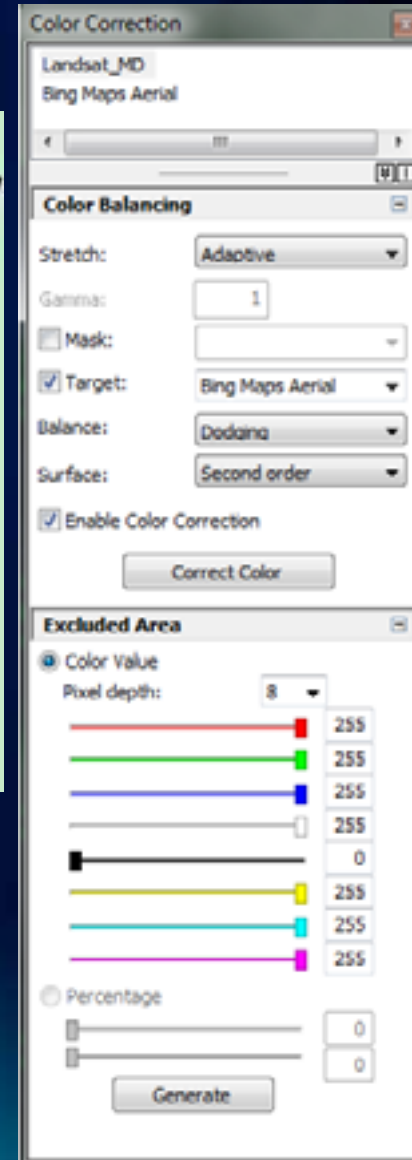
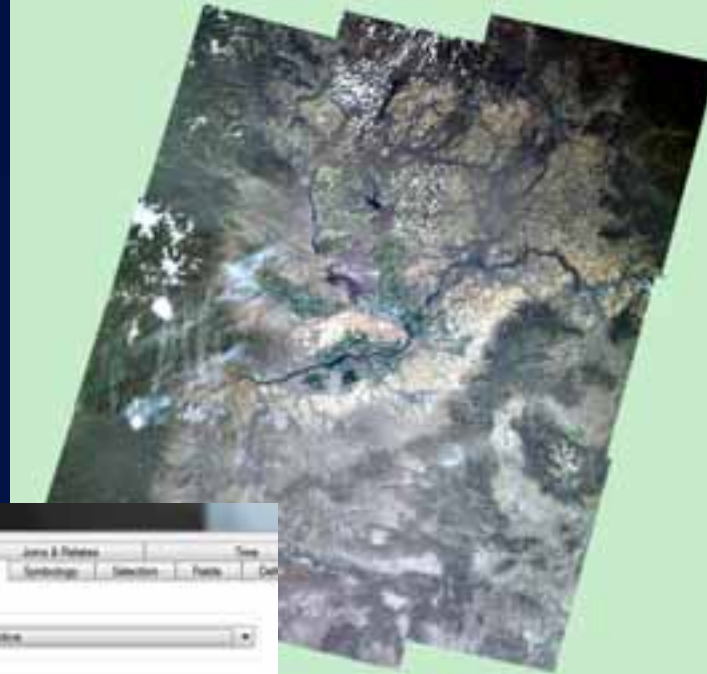
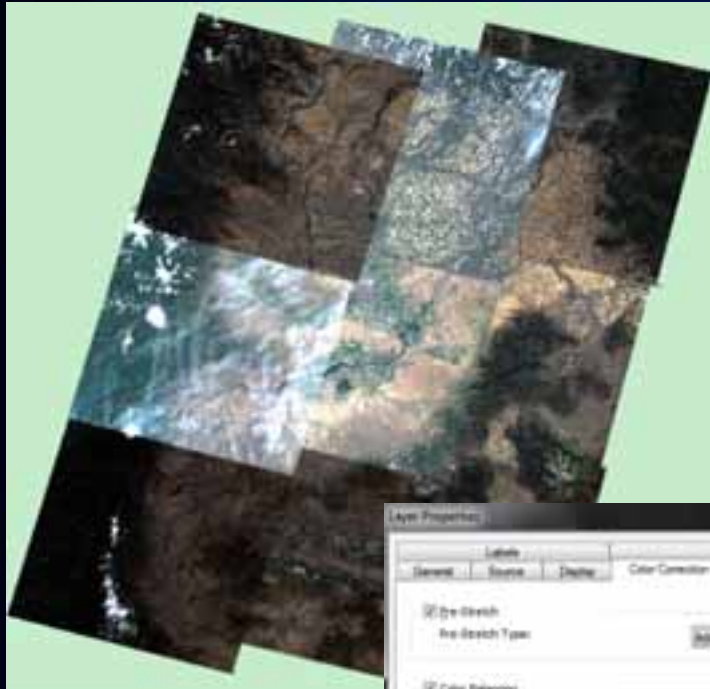


Interactive Stretch



Color Correction Improvements

Color Balance Collections of Imagery



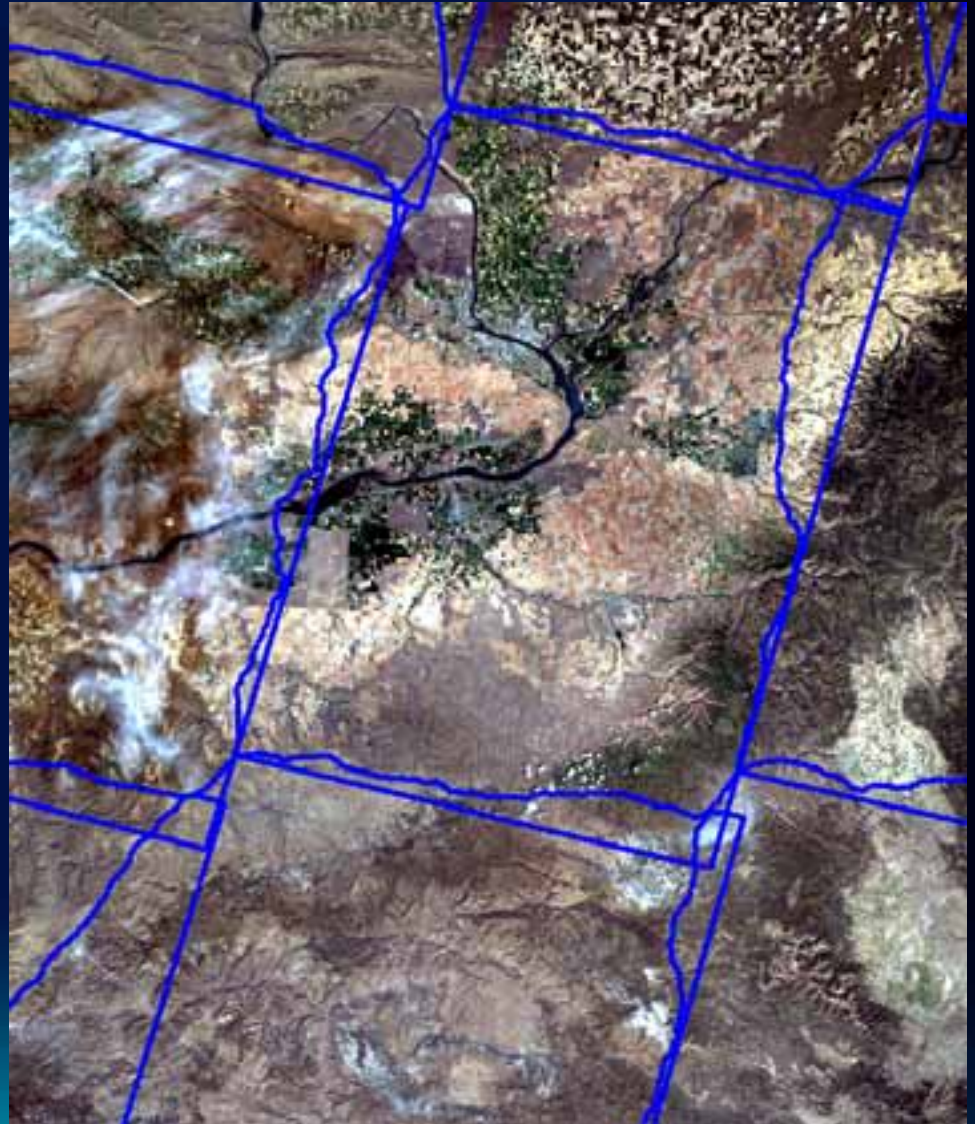
Seamline Generation

Hide Transitions Between Images



Seamline Generation

Hide Transitions Between Images



Seamline Generation

Hide Transitions Between Images

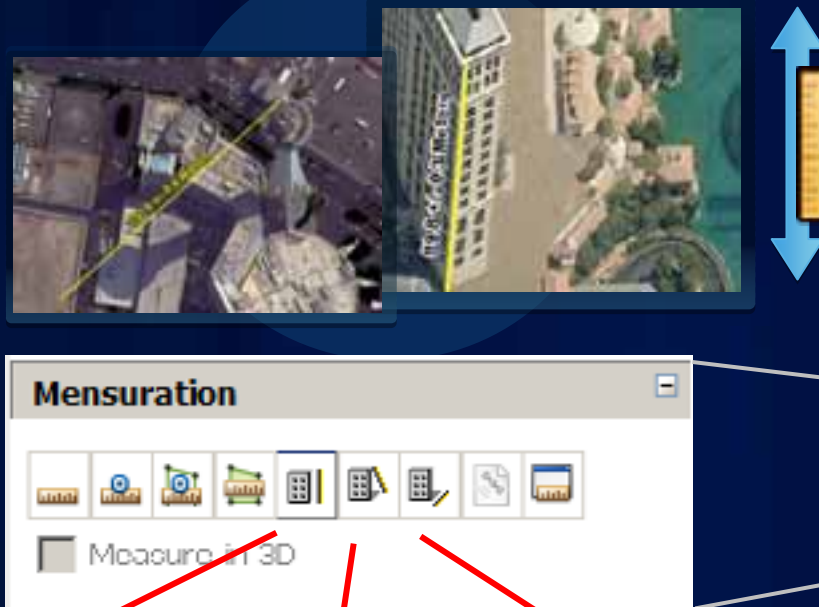


More Information From Imagery



Mensuration

Measure Height Information Directly From Imagery

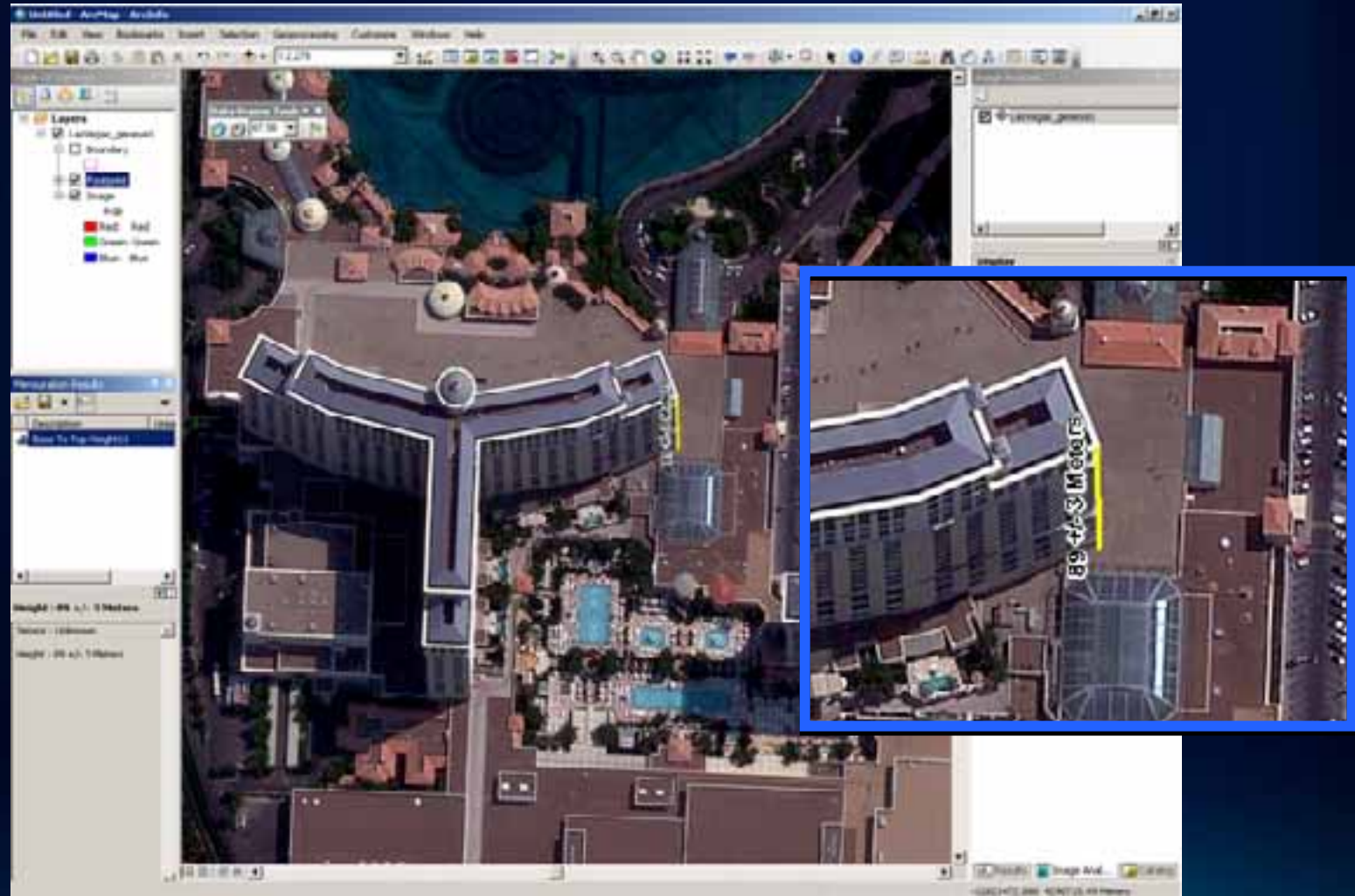


Base to Top, Base to Shadow, Top to Shadow

- Includes Accuracy Estimate
- Also Accessible via REST
- Optional Classified Version

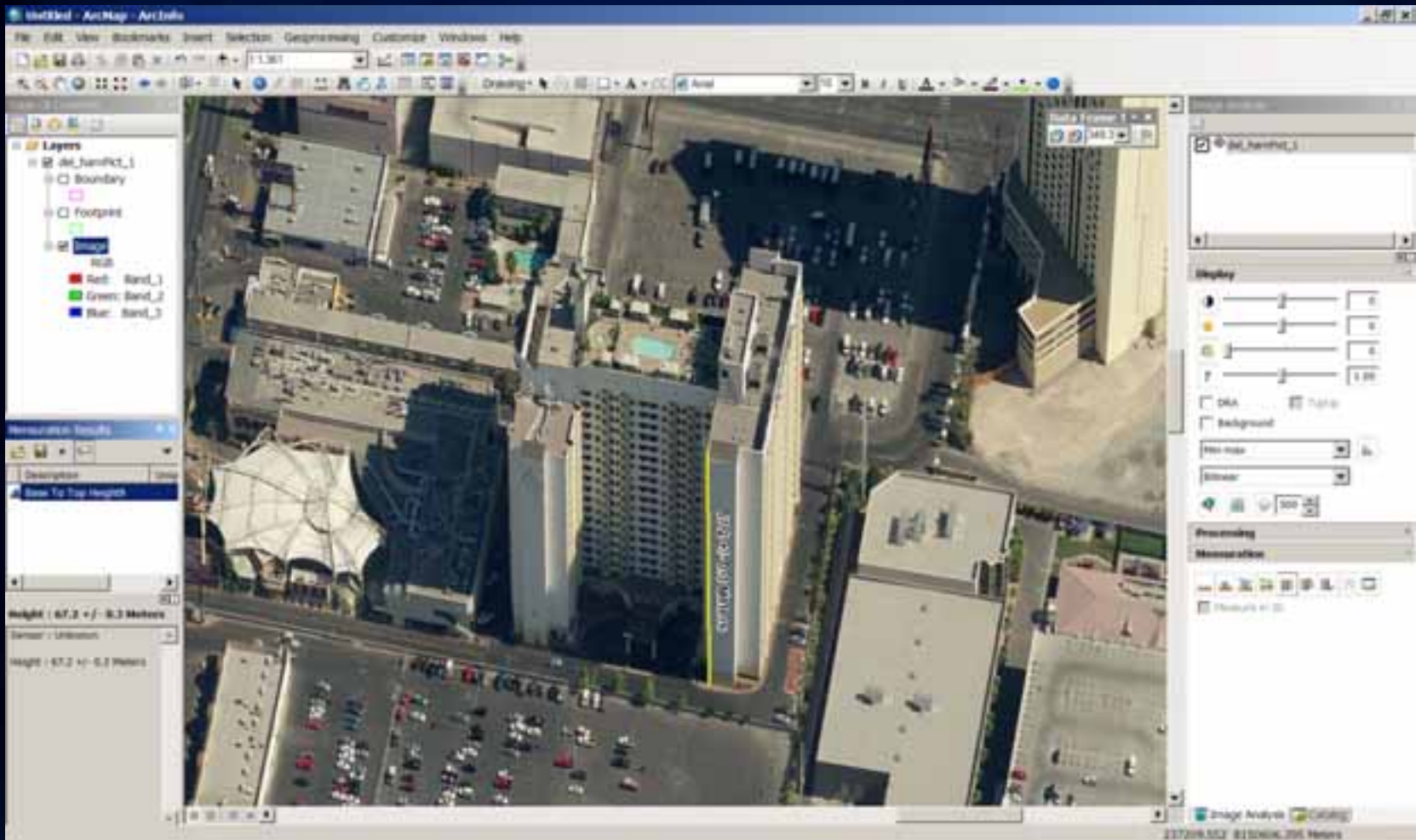
Mensuration

Measure Height Information Directly From Imagery



Mensuration

Measure Height Information Directly From Imagery



More Data Sources



More Formats & Raster Types

- **16 Additional Formats**
 - Inc: MrSID MG4, GXF, DOQ2, PCI.aux, TerraSAR-X
- **Improved Raster Types**
 - SPOT 5
 - RadarSAT 2
 - Landsat
 - ...
- **CSM Support**



Full Motion Video Integration

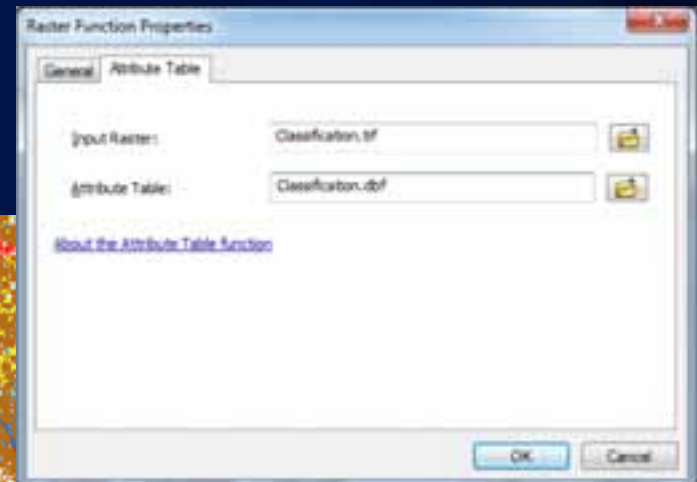
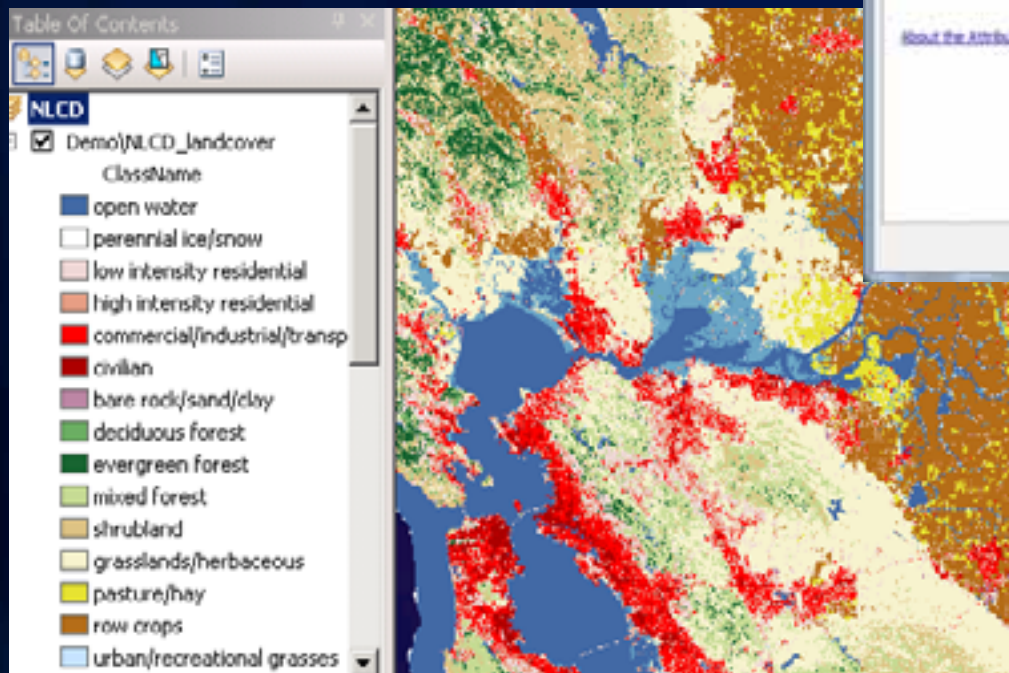
Connect to Live and Archived Georeferenced Feeds



Categorical Data

Support Categorical Data in Mosaic Datasets and Image Services

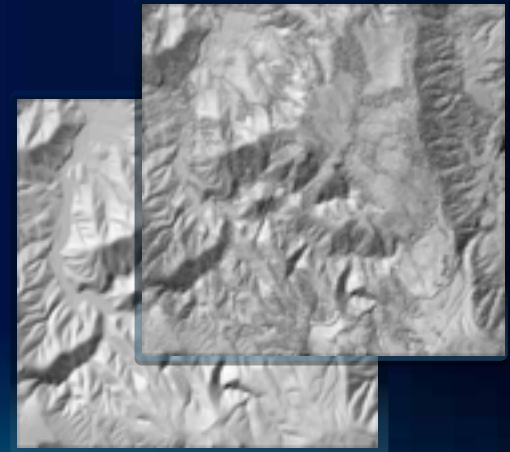
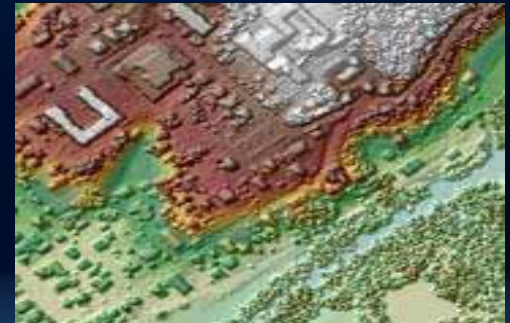
- GRID,VAT
- Raster + DBF



Lidar (LAS)

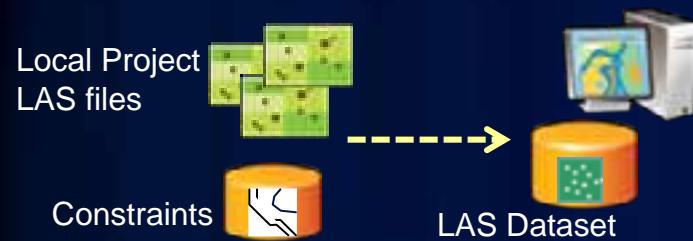
Direct Management, Dissemination, Visualization & Analysis

- **LAS Dataset**
 - Collection of LAS files + Constraints
 - As: Point, Surface, Raster
- **Mosaic Dataset**
 - Catalog of
 - LAS, LAS Dataset, Terrain, Rasters
 - + Functions & Metadata
 - Directly use or Serve as Image Service
 - As: Raster, Catalog, Download LAS



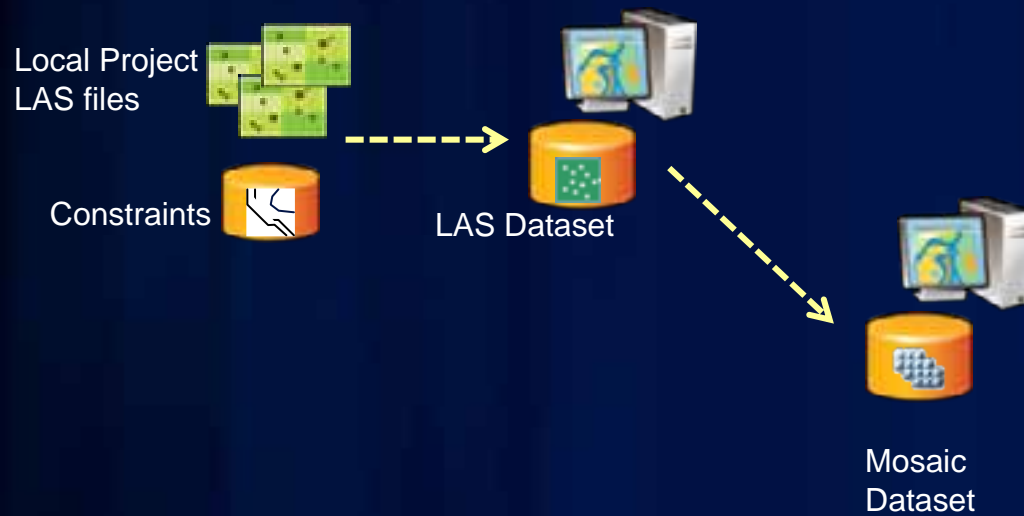
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



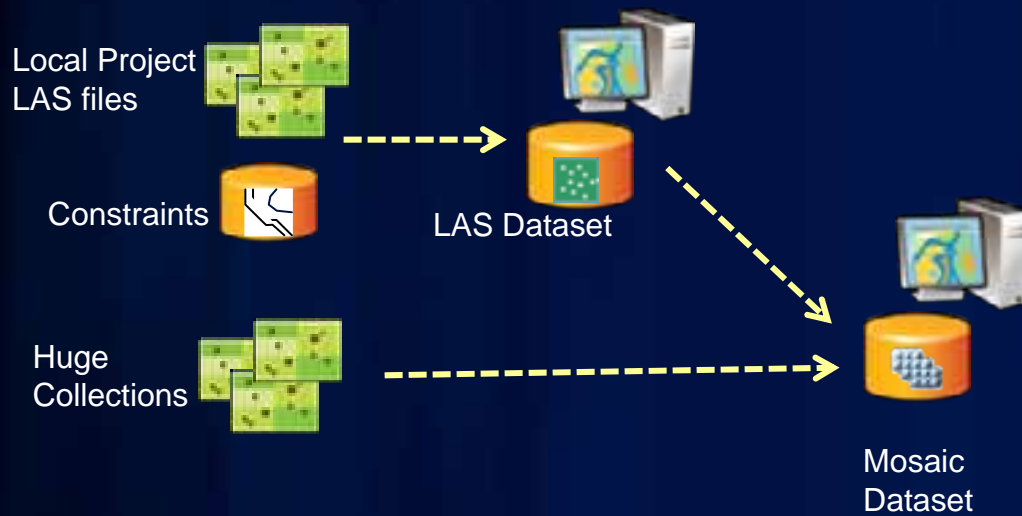
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



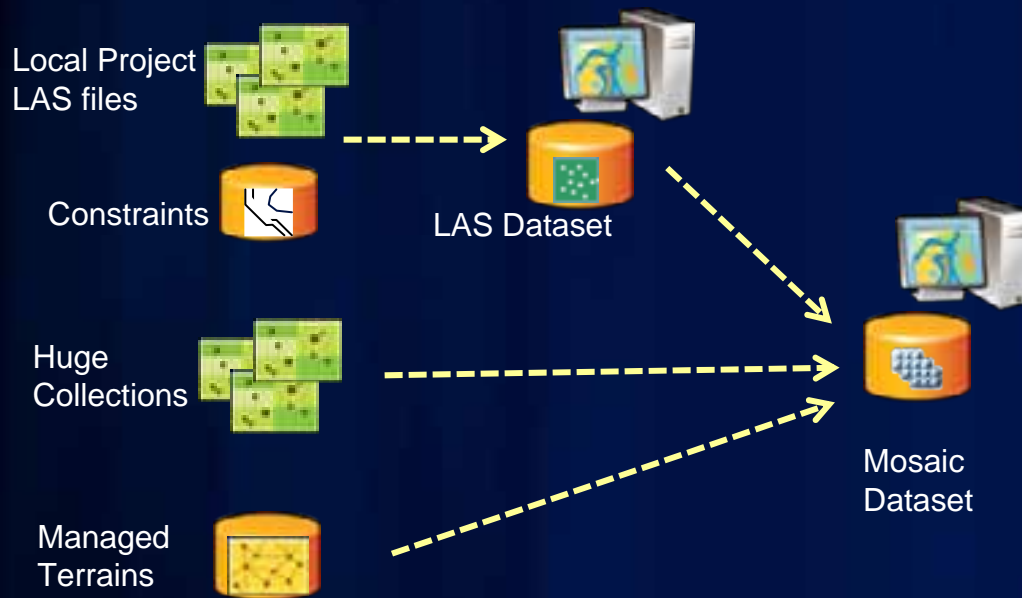
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



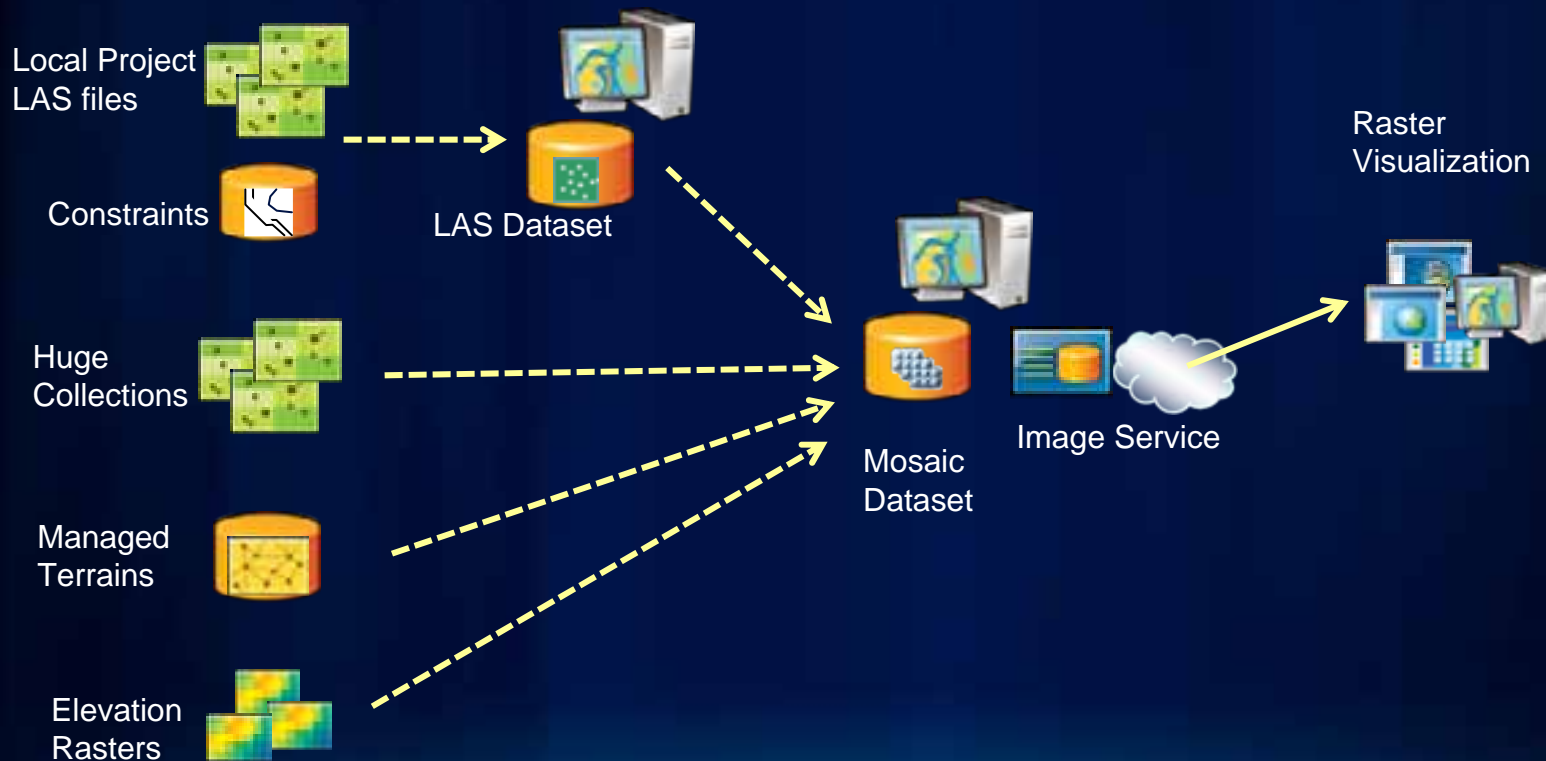
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



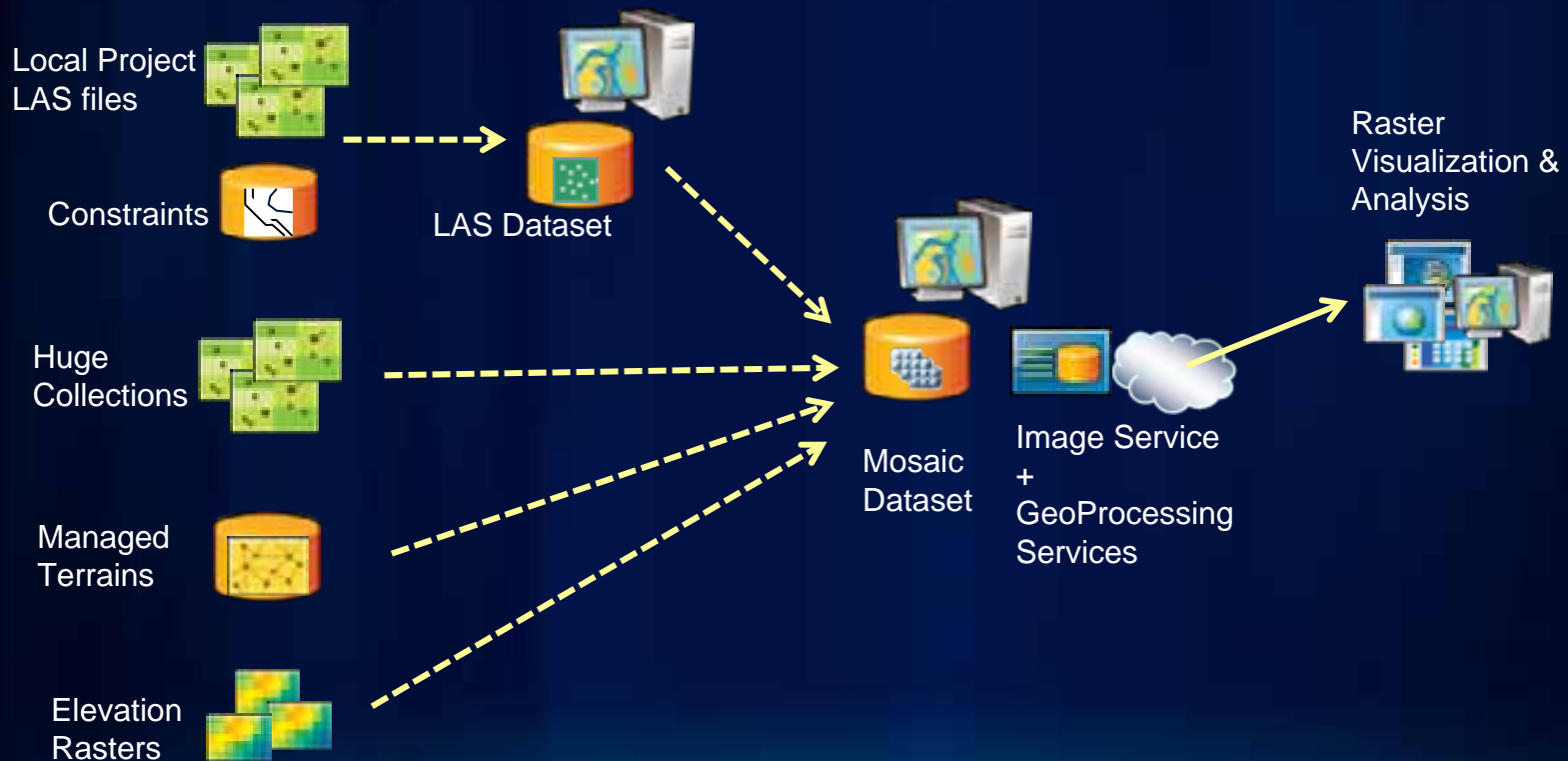
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



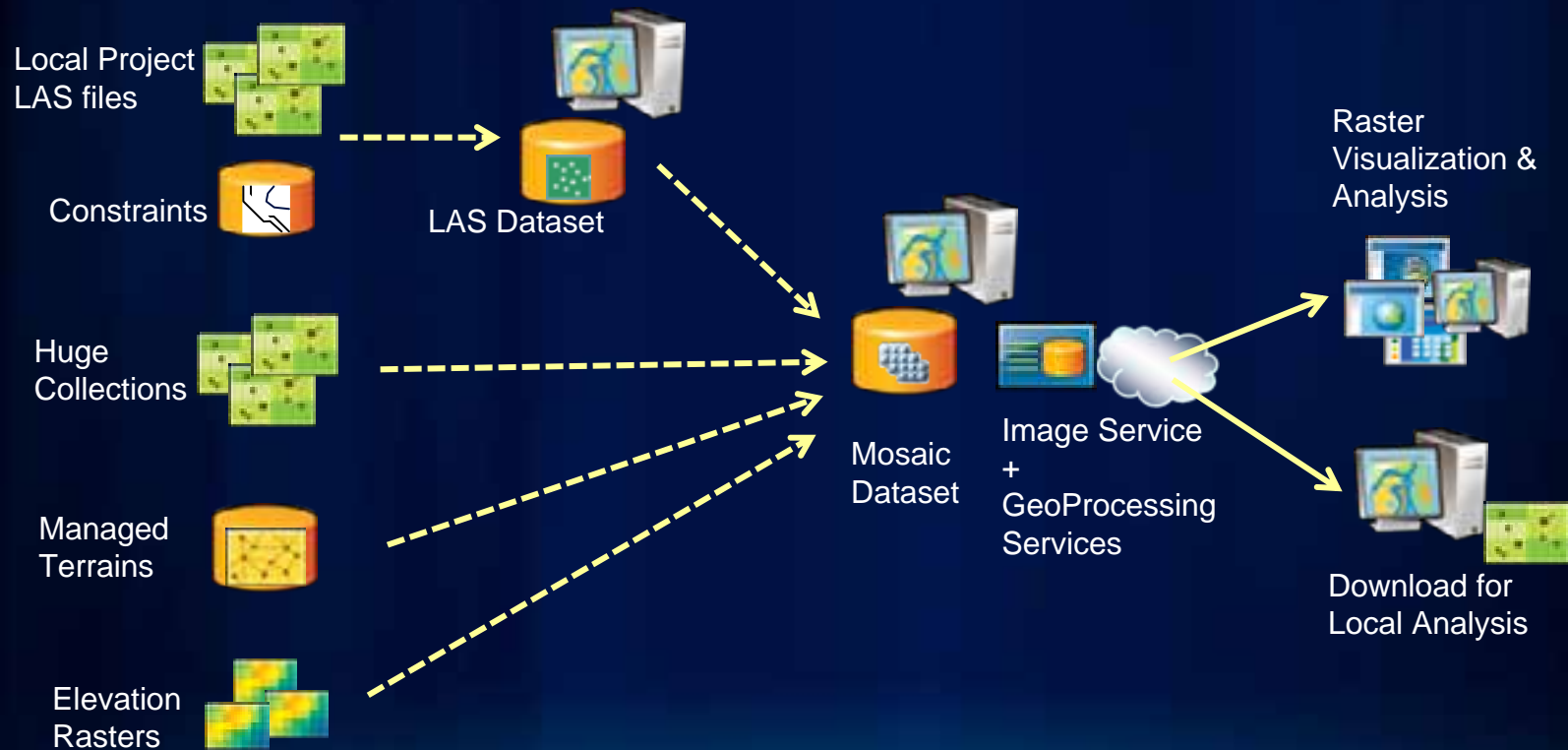
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



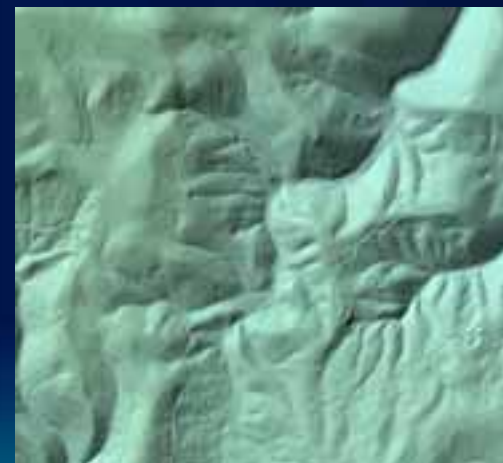
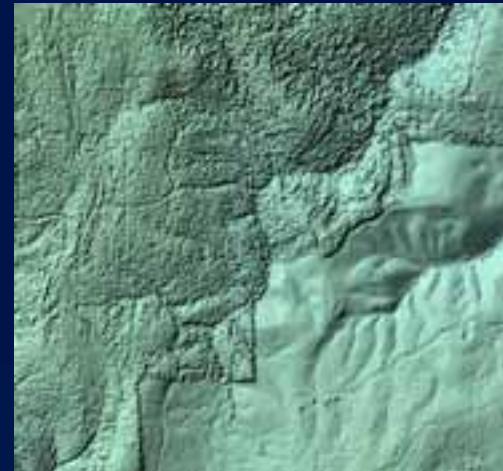
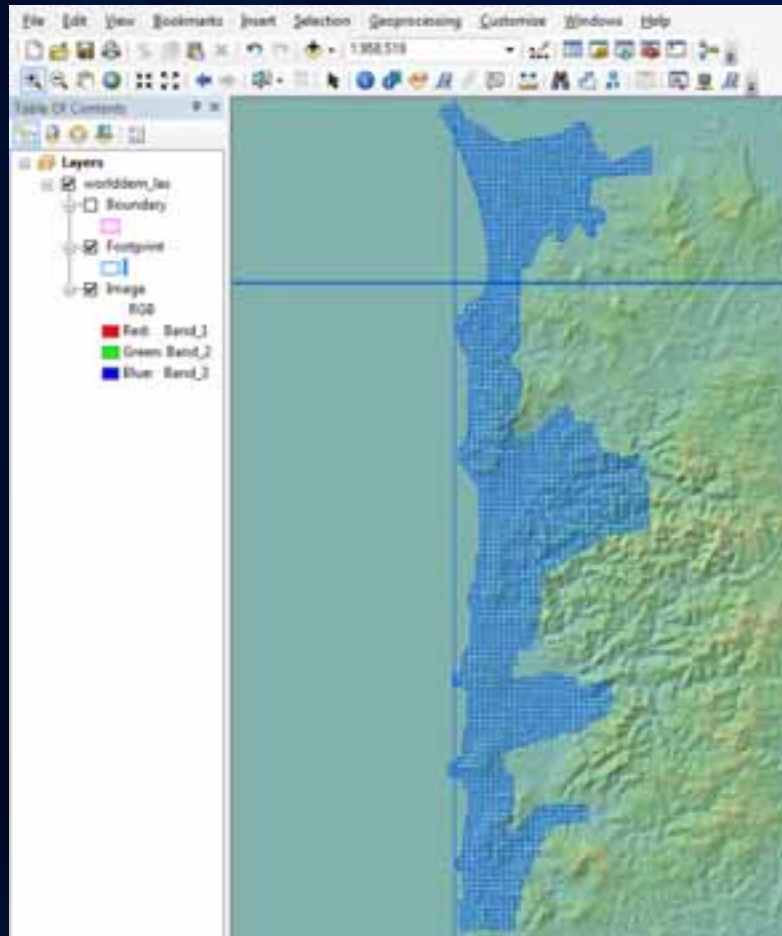
Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



Lidar (LAS)

Direct Management, Dissemination, Visualization & Analysis



Improved Tools

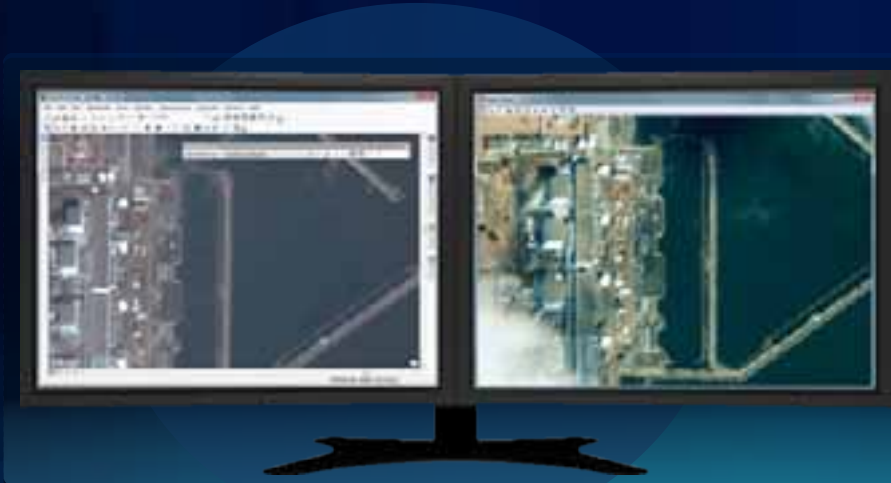


Improved Georeferencing

Quickly and Accurately Align Imagery

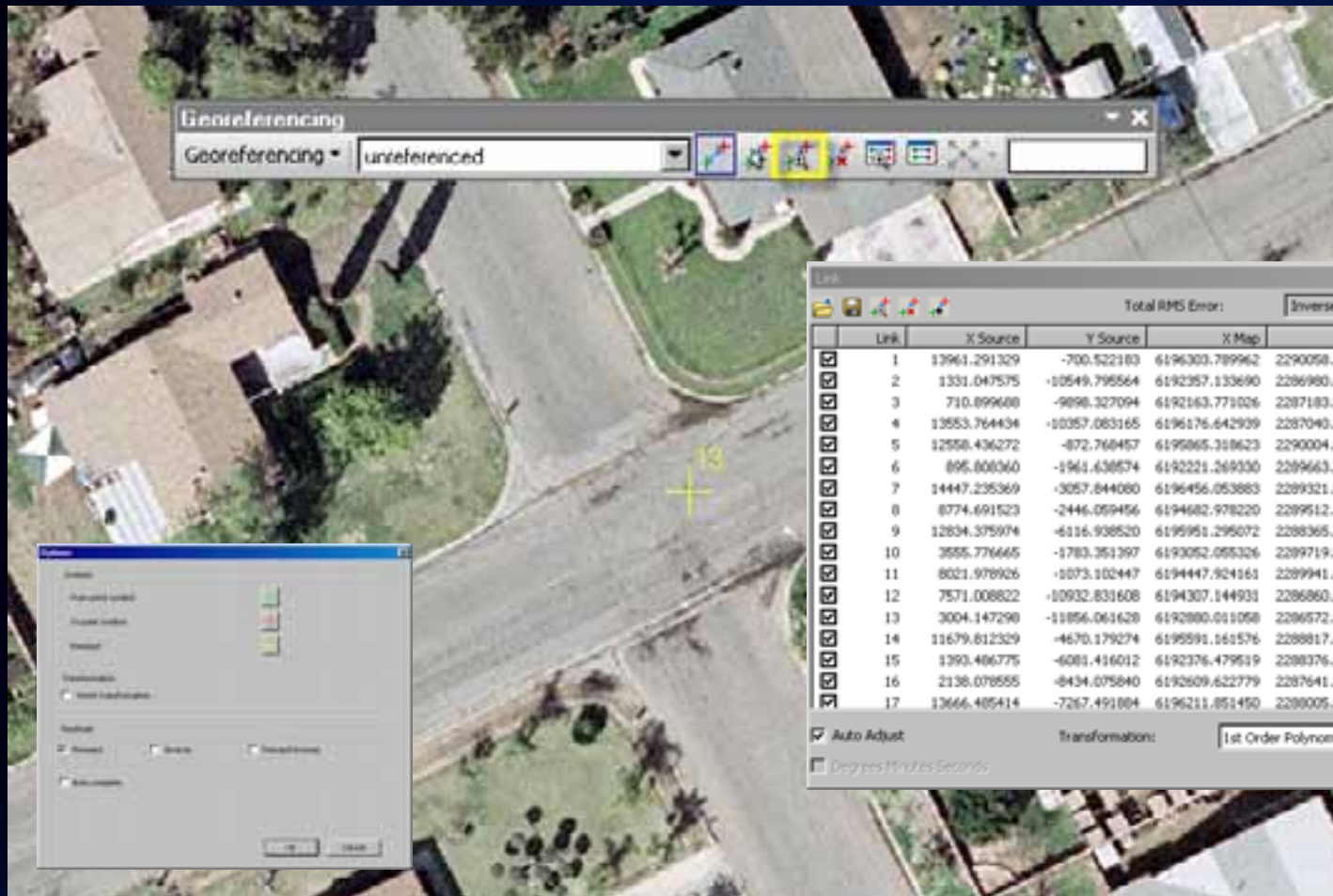


- Improved User Interface
- Dual Monitor Mode
- Increased Accuracy – Image Space
- Additional Transforms



Improved Georeferencing

Quickly and Accurately Align Imagery



Additional Raster Functions

Extending On-The-Fly - Pull Based Image Processing

The image displays a QGIS workspace with a satellite image of a landscape. Overlaid on this are several dialog boxes and a list of functions. The 'Raster Function Properties' dialog is shown in three instances, illustrating the configuration of different processing steps. The top instance shows the 'General' tab with 'Input Raster' set to '<Stretch Function Output Raster>' and 'Method' set to 'Modified SAVI'. The middle instance shows the 'General' tab with 'Input Raster' set to '<Stretch Function Output Raster>' and 'Method' set to 'Modified SAVI', with an example of the formula:
$$2 \cdot \frac{(2 \cdot \text{NIR} + 1) - \text{Sat}((2 \cdot \text{NIR} + 1) - 2 \cdot 0 \cdot \text{NIR})}{(2 \cdot \text{NIR} + 1) - \text{Sat}((2 \cdot \text{NIR} + 1) - 2 \cdot 0 \cdot \text{NIR})}$$
. The bottom instance shows the 'General' tab with 'Input Raster' set to '<Stretch Function Output Raster>' and 'Method' set to 'User Defined', with an example of the formula:
$$\frac{(B2 - B1) / (B3 + B1)}{(B4 - B2) / (B4 + B2) * 100.0 + 100.00}$$
. To the right of the dialog boxes is a list of functions: NDVI, User Defined, NDVI, SAVI, Transformed SAVI, Modified SAVI, GEMI, PVI, GVI (Landsat TM), and Sultan's Formula.

NDVI

User Defined

NDVI

SAVI

Transformed SAVI

Modified SAVI

GEMI

PVI

GVI (Landsat TM)

Sultan's Formula

Raster Function Properties

General Band Arithmetic

Input Raster: <Stretch Function Output Raster>

Method: Modified SAVI

Band Indices: 1

About the Band Arithmetic Function

Raster Function Properties

General Band Arithmetic

Input Raster: <Stretch Function Output Raster>

Method: Modified SAVI

Example: 2 1

Input: NIR, Red

Output:
$$2 \cdot \frac{(2 \cdot \text{NIR} + 1) - \text{Sat}((2 \cdot \text{NIR} + 1) - 2 \cdot 0 \cdot \text{NIR})}{(2 \cdot \text{NIR} + 1) - \text{Sat}((2 \cdot \text{NIR} + 1) - 2 \cdot 0 \cdot \text{NIR})}$$

About the Band Arithmetic Function

Raster Function Properties

General Band Arithmetic

Input Raster: <Stretch Function Output Raster>

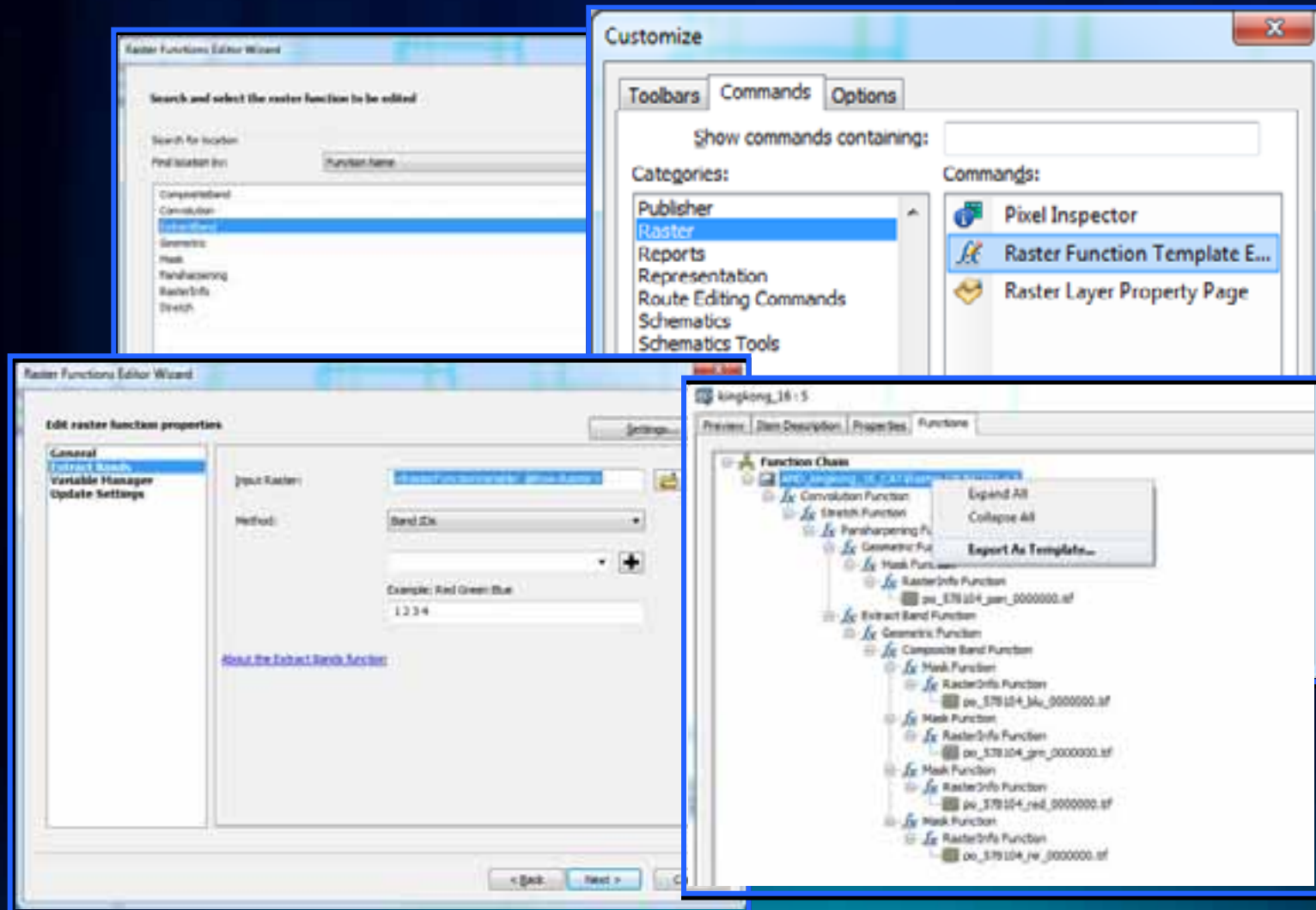
Method: User Defined

Expression:
$$\frac{(B2 - B1) / (B3 + B1)}{(B4 - B2) / (B4 + B2) * 100.0 + 100.00}$$

About the Band Arithmetic Function

Developers Continue to Extend Custom Functions

Change Functions, Individually or in Batch



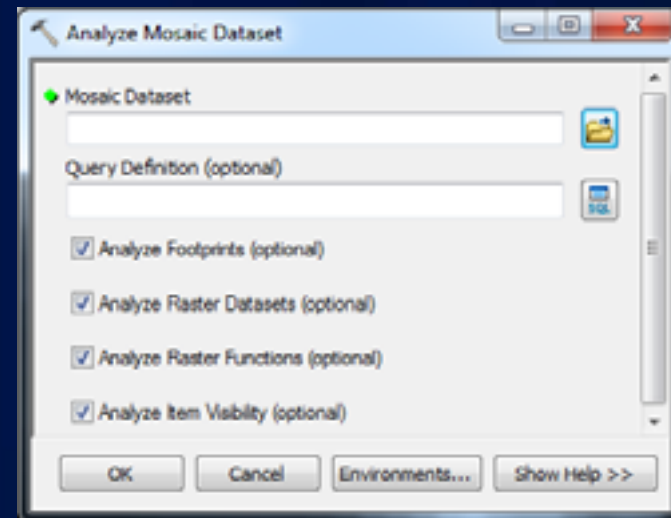
Improved Management



Analyzers

Evaluate and Optimize

- Mosaic Dataset Analyzer
- Image Service Analyzer



Automation Improvements

- **Additional GPTools**
 - Set Parameters
 -
- **Enhanced Synchronization**

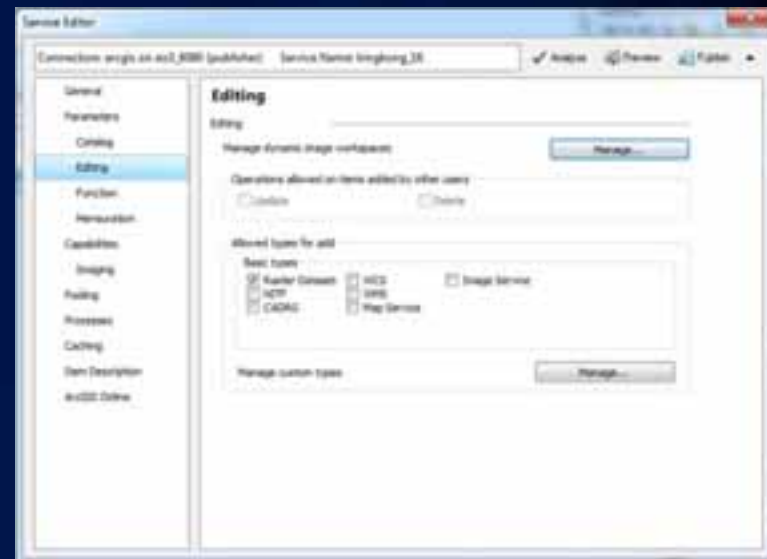


Improved Serving



Improved Serving

- Simplified Serving Experience
- Scalability Improvements
- Image Service Caching
- Server Side Functions
- Image Service Editing
- Extended REST



Questions?

Please provide feedback for this workshop:

www.esri.com/sessionevals