

**2013 Esri Europe, Middle East,  
and Africa User Conference**

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# What's New with Imagery in ArcGIS

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# ArcGIS is a Complete Geospatial Platform

Imagery is an Integral Component

Provides  
Advanced  
Imagery Tools



Web



Devices



Desktop

Online

Manages Massive  
Image Collections

Server

Comes with Imagery

*Easy, Open and Cloud Enabled . . .*

# ArcGIS is a System for...

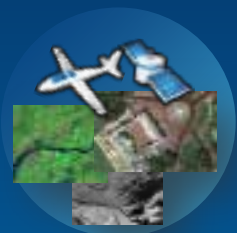
## Imagery Managers



## Imagery Users



# What's New with...



Ready to Use Imagery Content



Managing Massive Collections of Imagery

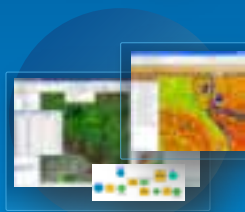


Image Processing & Visualization



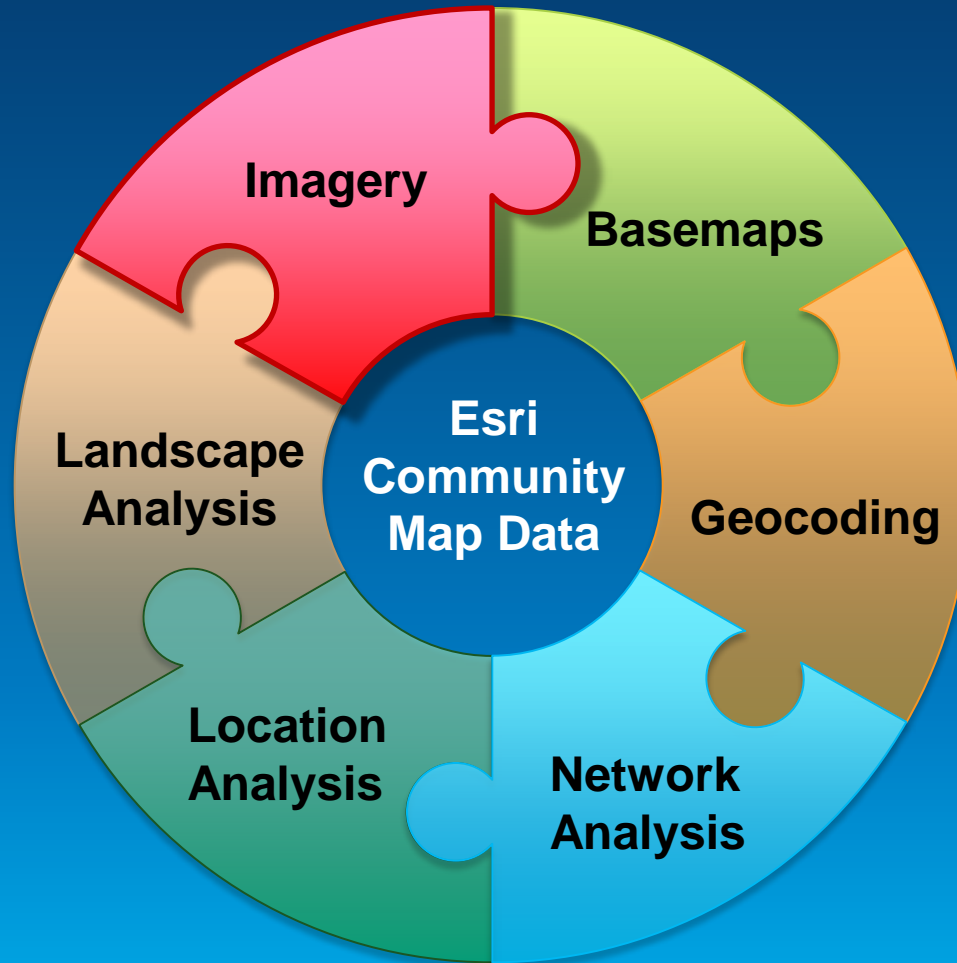
Image Services

# Ready to Use Imagery Content



# ArcGIS Content Portfolio

Imagery Content is an Important Piece



# Global Imagery

## World Imagery Basemap

- high-performance visualization
- recent updates
  - United States (DG 0.3m)
- in progress updates
  - Western Europe (DG 0.6m)
  - Other (DG 1m)
- Select Community Provided Imagery
  - Switzerland, Liechtenstein, Cities in USA and Canada
  - more coming (e.g. Denmark)





# Global Imagery

World Imagery Basemap Coverage - Summer 2012





# Global Imagery

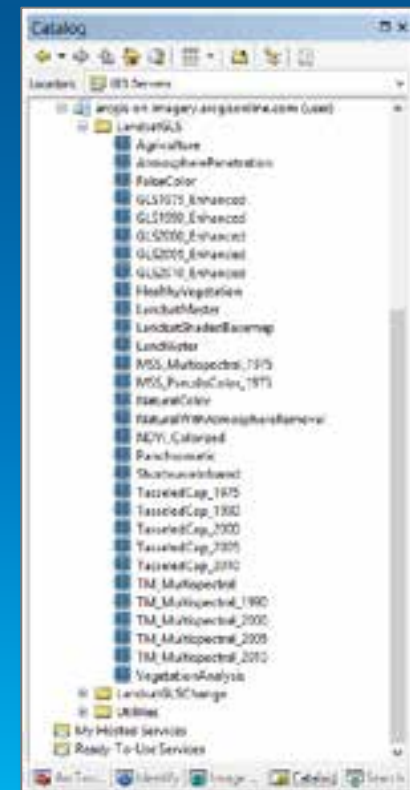
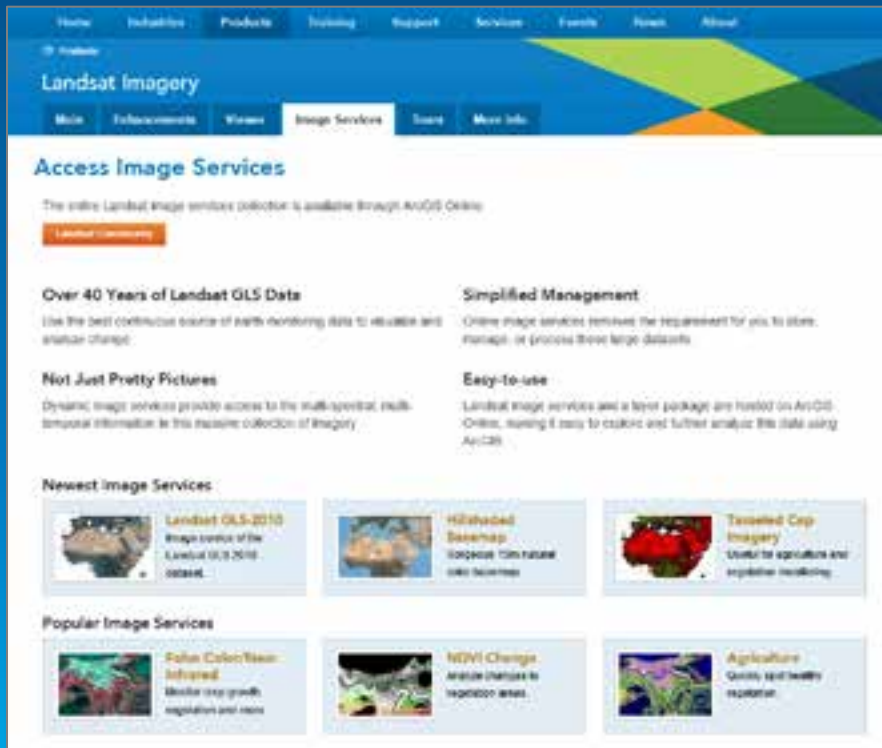
World Imagery Basemap Coverage - Summer 2013



# Global Imagery

## Landsat Global Land Survey (GLS)

- 5 epochs (1975, 1990, 2000, 2005, 2010)
- dynamic services appropriate for analysis



# Partner Imagery

Subscription Based

- Bing Maps (requires “your” Bing key)
- Premium Services through Esri Marketplace for ArcGIS Organizational Account Subscribers

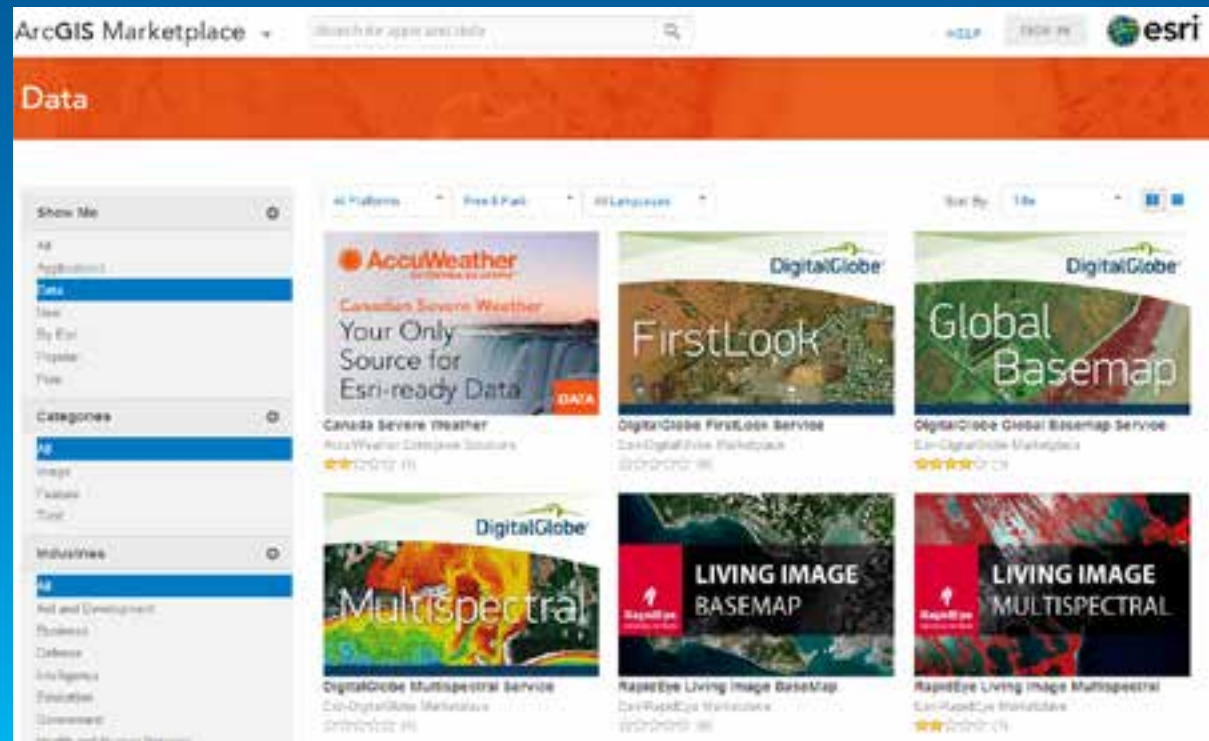
- Digital Globe

- Global Basemap (“best off – most current”)
- Multispectral (8-band 50cm)
- FirstLook (before/after event imagery)

- RapidEye

- Multispectral (5m)

- More Coming...



Demo

# Ready to Use Imagery Content



# Managing Massive Collections of Imagery



# New Sensors

## ArcGIS Supports a Wide Range of Sensors

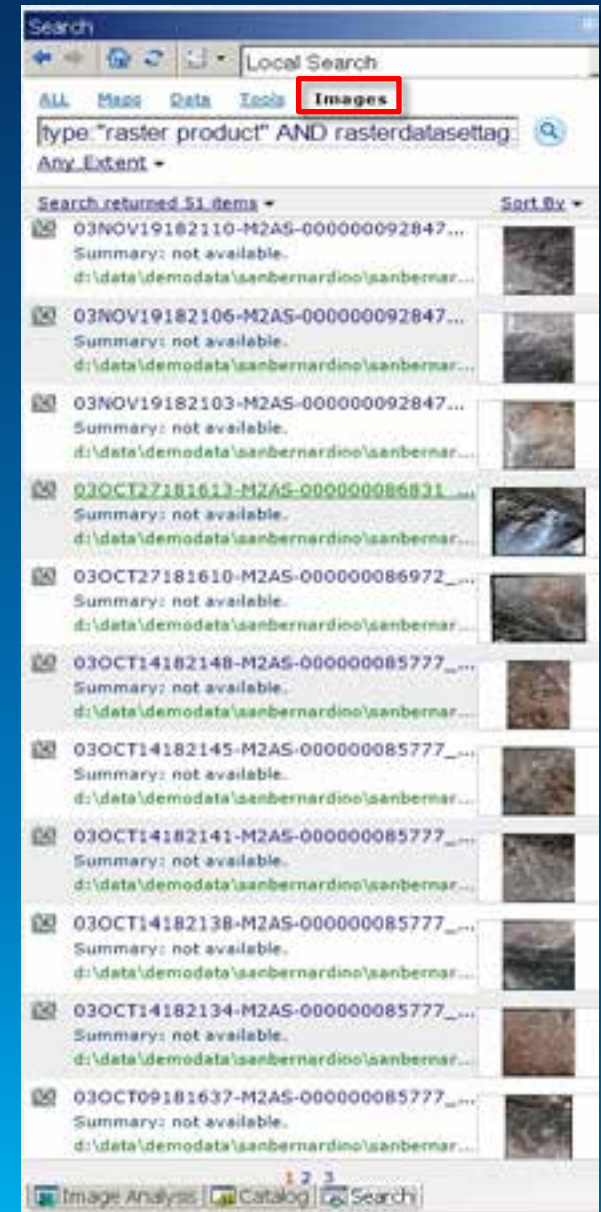
- Sensors
  - SPOT 6
  - Pleiades
  - DMCii
  - ZY-3, ZY-1 02C, HJ 1A/1B (China, CRESDA, SASMAC)
  - Landsat 8
- Better Partner Integration
  - BAE (Socet GXP) .sup files



# Enterprise Image Search

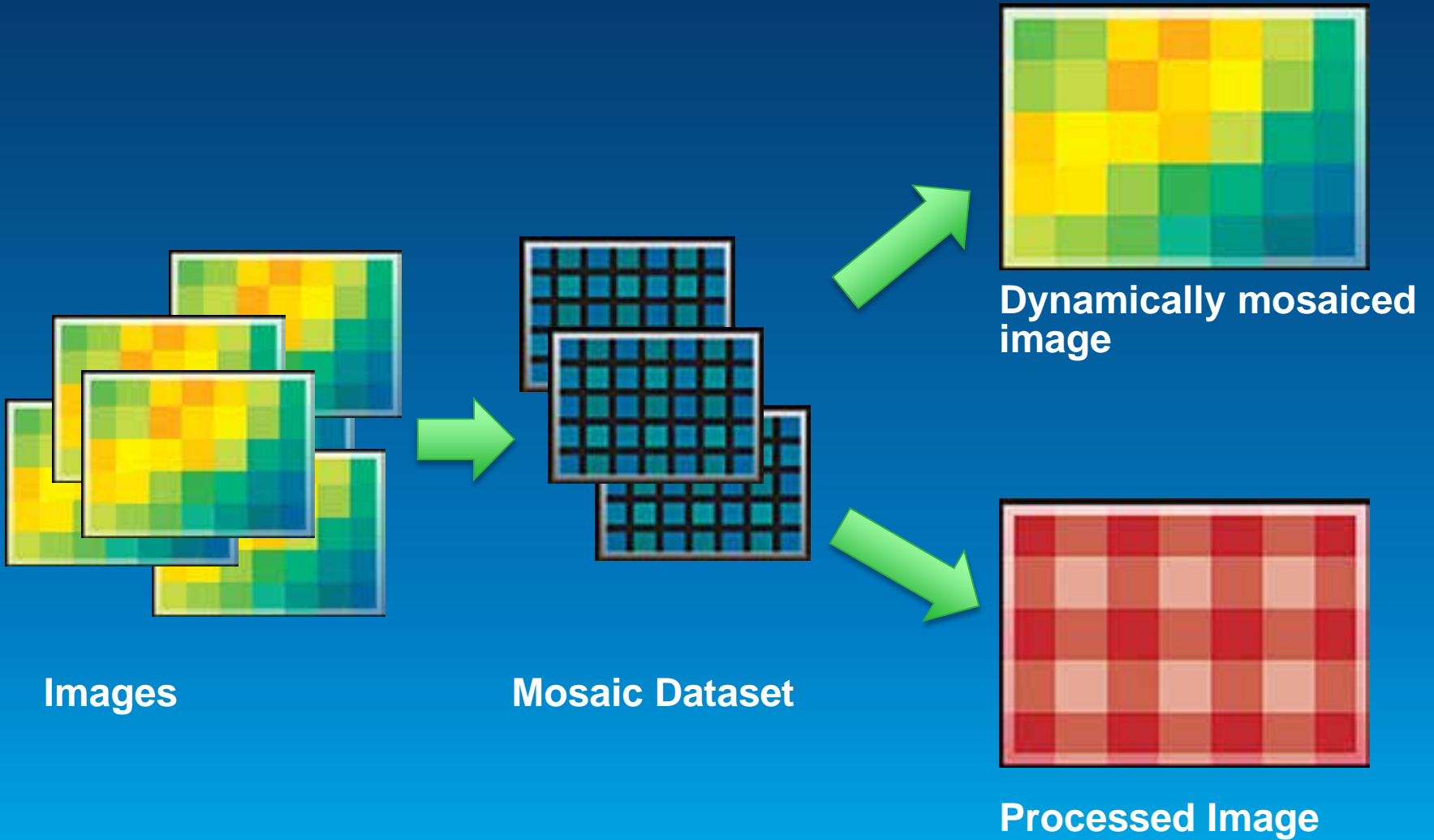
Easier to Find Imagery

- Desktop and Server Indexing of Image Metadata
- Improved User Interface in Desktop
- Fast Results!





# Mosaic Dataset



# Geoprocessing Tools

## Easier to Build and Manage Mosaic Datasets

- **New Tools**

- Merge Mosaic Dataset Items
- Split Mosaic Dataset Items
- Compute Pansharpen Weights

- **Improved Tools**

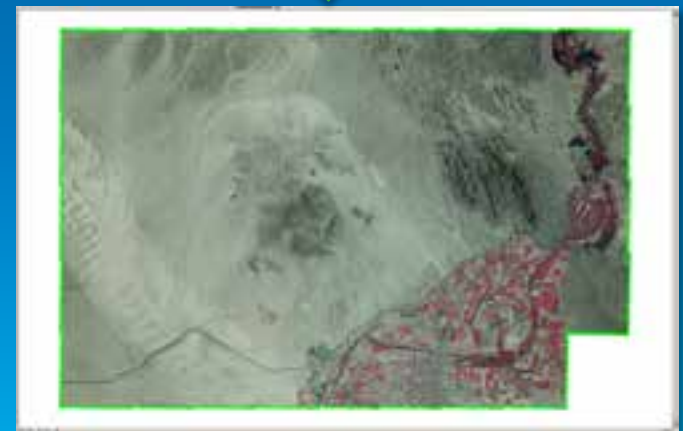
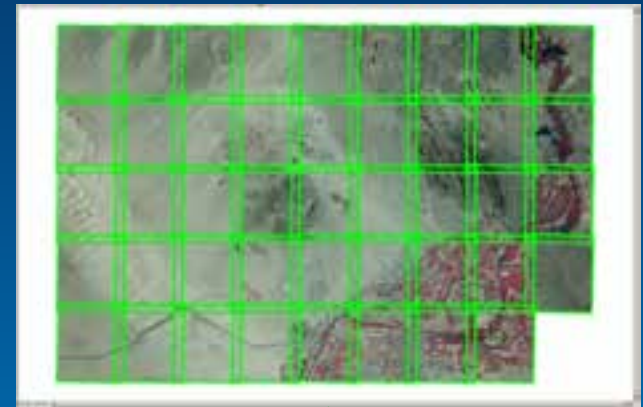
- Manage Tile Cache (mxd support)
- Synchronize (multiple options)
- Set Mosaic Dataset Properties (multiple additions)
- Build Seamlines (added blend unit)
- Clip (maintain clip extent without resampling)
- Register (register MS to Pan)
- Build Overviews (Gaussian Blur resampling)



# New Geoprocessing Tools

## Merge/Split Mosaic Dataset Items

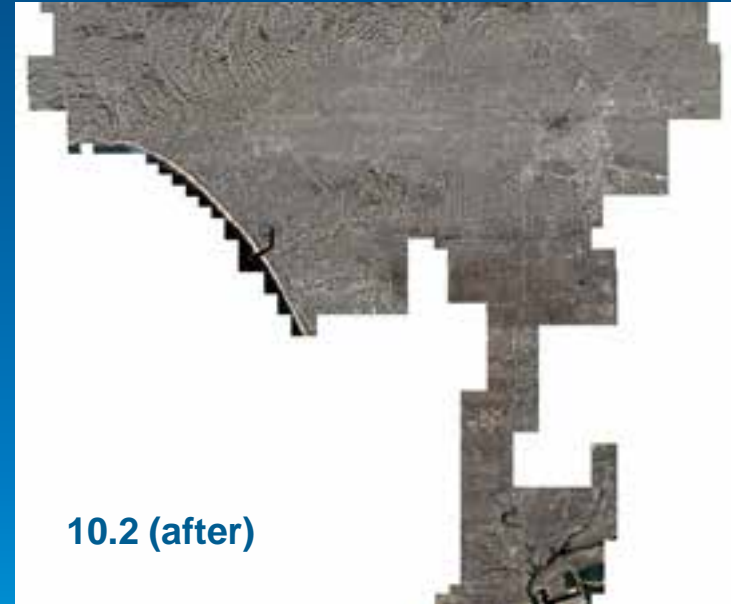
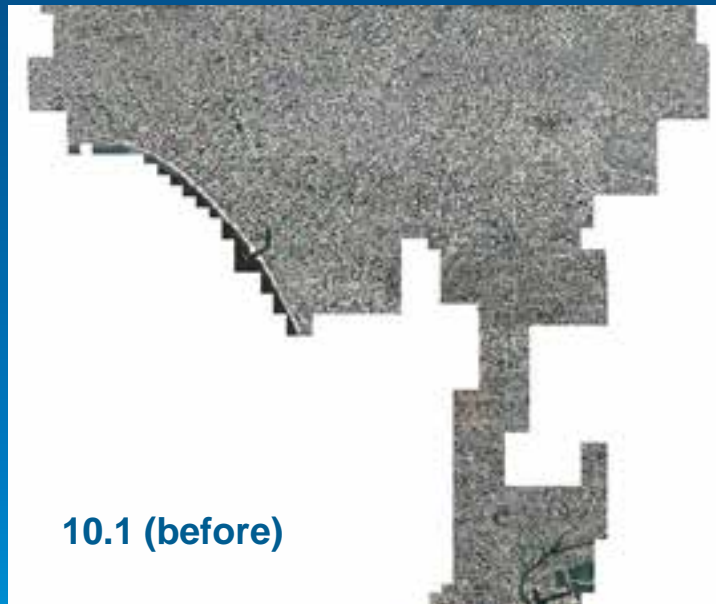
- Used when images...
  - are identical in nature
  - have no metadata or identical metadata
  - are scenes split for distribution
- Helps eliminate tonal balancing issues
- Some cases it reduces the need to generate seamlines



# Improved Geoprocessing Tools

## Build Overviews

- Gaussian blur resampling

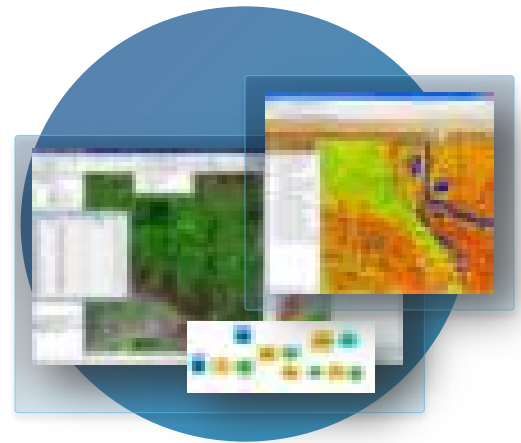


Demo

# Managing Massive Collections of Imagery



# Image Processing and Visualization



# New Image Processing

## Raster Functions

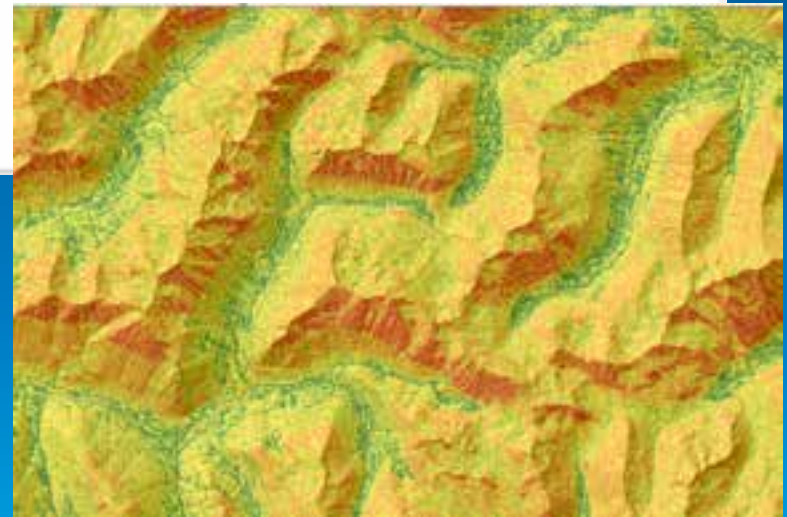
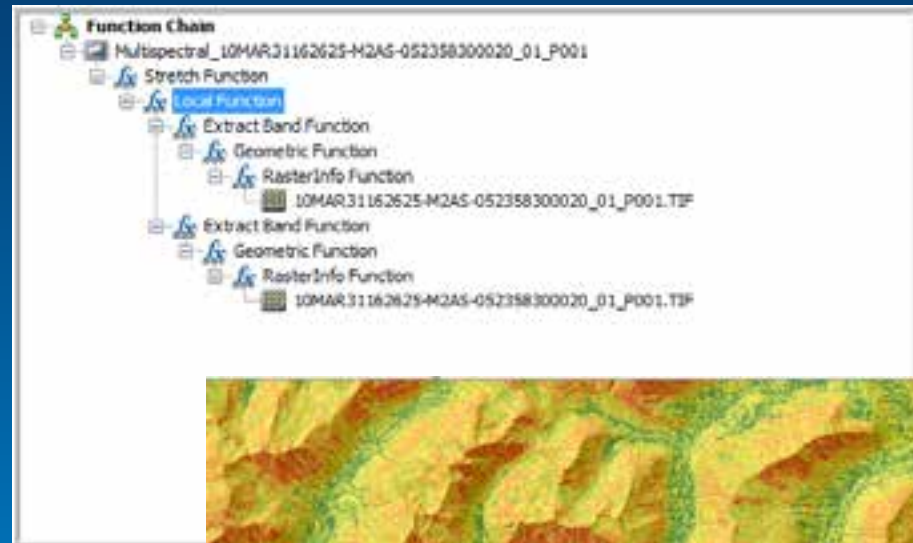
- New Functions
  - Local Function
  - ML Classify (Maximum Likelihood)
- Improved Functions
  - Extract Bands (configure missing band behavior)



# New Image Processing

## Local Function

- per pixel operations
  - bitwise
  - stats
  - conditional
  - logical
  - math/trig
- “on-the-fly raster calculator”
- advanced calculations

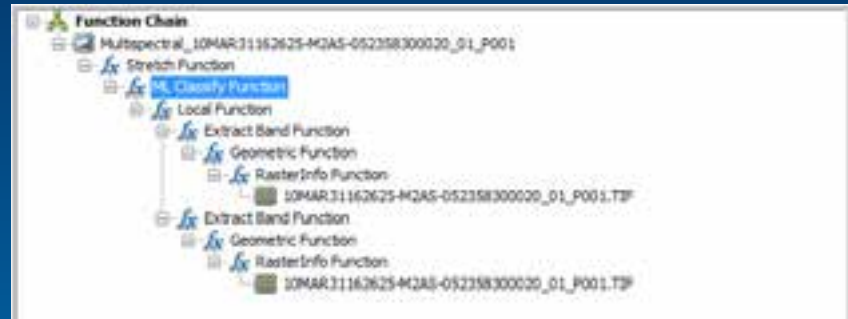


Example: on-the-fly Avalanche Risk Assessment

# New Image Processing

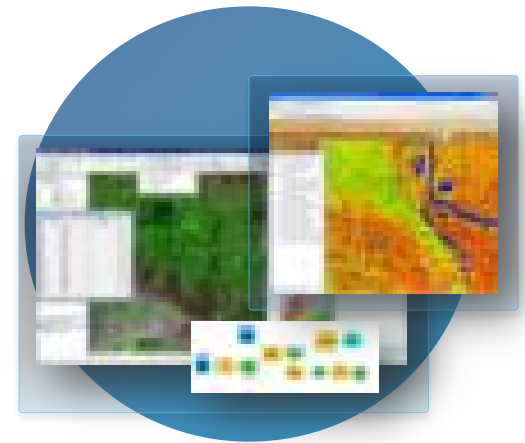
## ML Classify Function

- maximum likelihood
- signatures...
  - can be configured using a file created in desktop
  - can be passed by-value to services which publish the function



Demo

# Image Processing and Visualization



# What's New with...



Image Services



Web Mapping Using Image Services

# Image Services



# Image Service

## Enhancements for Developers

- **New REST APIs**

- **getSamples**
  - sample pixel values using a geometry and parameters
  - profiles and more...
- **computeTiePoints**
  - generate matching tie points to a reference image
- **computeClassStatistics**
  - generate statistics needed as input to ML Classify
- **legend**
  - request legend information (labels, graphics, etc...)



Class ID	Number of Cells	Area
0	1	1
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
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99	1	1



# Image Service

## Enhancements for Developers

- Improvements

- exportImage
  - support for TIFF compression (none, JPEG, LZ77)
  - support for png32
- mosaicRule new operation MT\_SUM
  - advanced workflows for summarizing overlapping imagery



# Image Service

## Enhancements for Developers

- SOE development officially supported
  - SDK help and sample

```
using ESRI.ArcGIS.Server;

namespace SimpleSOE
{
    [AutomationProxy(true),
    ClassInterface(ClassInterfaceType.None),
    GuidAttribute("a9ed9e17-d2b2-461c-9da3-2915af9a3f00")]
    public class MySOE : ServicedComponent, IServerObjectExtension
    {
        private IServerObjectHelper m_SOH;

        public IGeometry ReturnCircle(ref IPoint inpoint,ref double radius)
        {
            ESRI.ArcGIS.Geometry.ITopologicalOperator topop = (ESRI.ArcGIS.Geometry.ITopologicalOperato
            ESRI.ArcGIS.Geometry.IGeometry circle = topop.Buffer(radius);
            ...
        }
    }
}
```

# Web Mapping Using Image Services



# Image Services in Web Maps

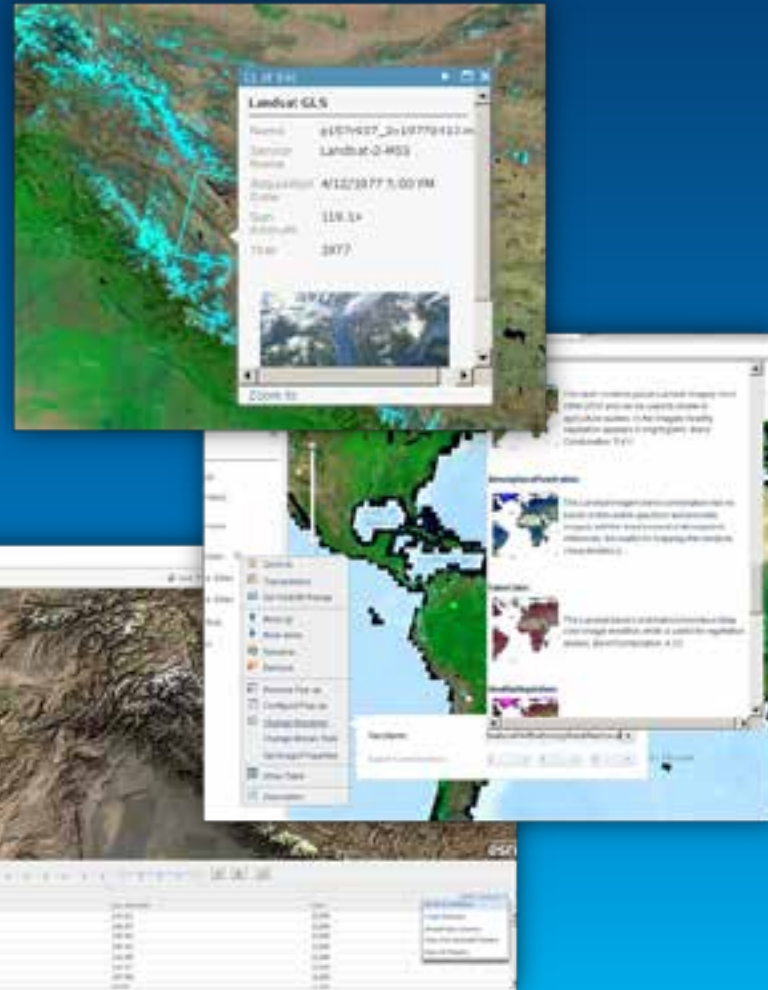
Enhancements for Web Map Authors

- **Configurable**

- Image Rendering
- Image Display Order
- Image Quality (compression)
- Pop-ups! (metadata and pixel values)

- **Catalog Table**

- Viewing
- Filtering



Demo

# Web Mapping Using Image Services



