



# Managing Imagery and Raster Data Using Mosaic Datasets

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Technical Workshop

## Topics covered

- **What is the mosaic dataset and why you should use it**
- **Sharing Imagery using mosaic datasets/image services**
- **Analyzing data with mosaic datasets/image services**

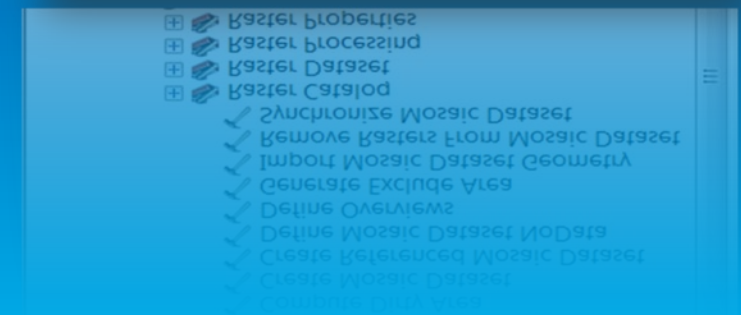
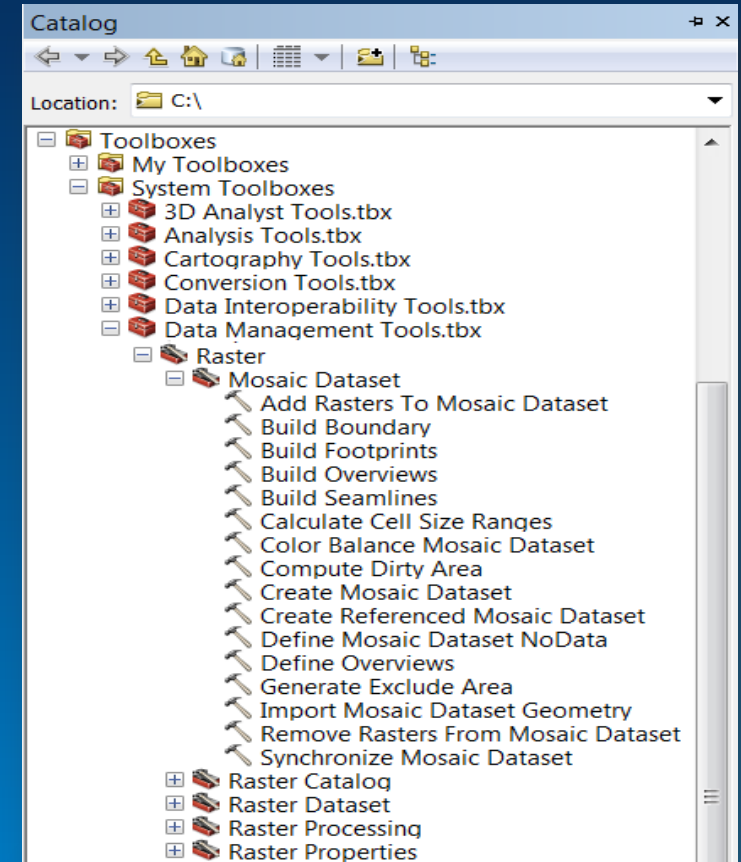
# Imagery and Raster Management Issues

- Multiple Sources
- Multiple times
- Multiple Formats
- Increasing Bit Depths, resolution and Bands
- Metadata standards vary
- Storage Requirements
- Access and Performance














# What is a Mosaic Dataset?

- Catalog of
  - Imagery
  - Associated metadata
  - Processing functions to be applied
- Stored in Geodatabase
- Authored using ArcGIS for Desktop
- Enables
  - Dynamic Mosaicking
  - On-the-fly processing



# Creating a Mosaic Dataset

Demonstration

Name	Type
 CLT_BareEarth	Mosaic Dataset
 CLT_FirstReturn	Mosaic Dataset
 CLT_Intensity	Mosaic Dataset
 Guilford	Mosaic Dataset
 LandSAT2011	Mosaic Dataset
 Mecklenburg2007	Mosaic Dataset
 Mecklenburg2009	Mosaic Dataset
 Mecklenburg2011	Mosaic Dataset
 MecklenburgMaster	Mosaic Dataset
 NAIP	Mosaic Dataset
 NOAA	Mosaic Dataset

# Dynamic Mosaicking

- Mosaicking Multiple Images On Demand
  - Mosaic imagery from multiple tiles
  - User can query mosaic
    - Year = 2014



# On-The-Fly Processing

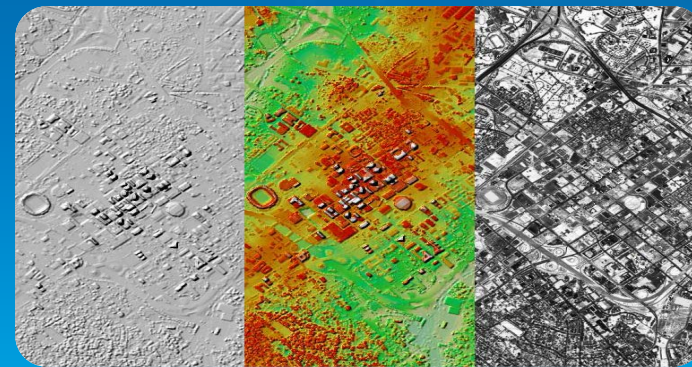
- Creating Multiple Products from a Single Source

- Processes

- Extract Bands
- Hillshade, Shaded Relief
- Stretch

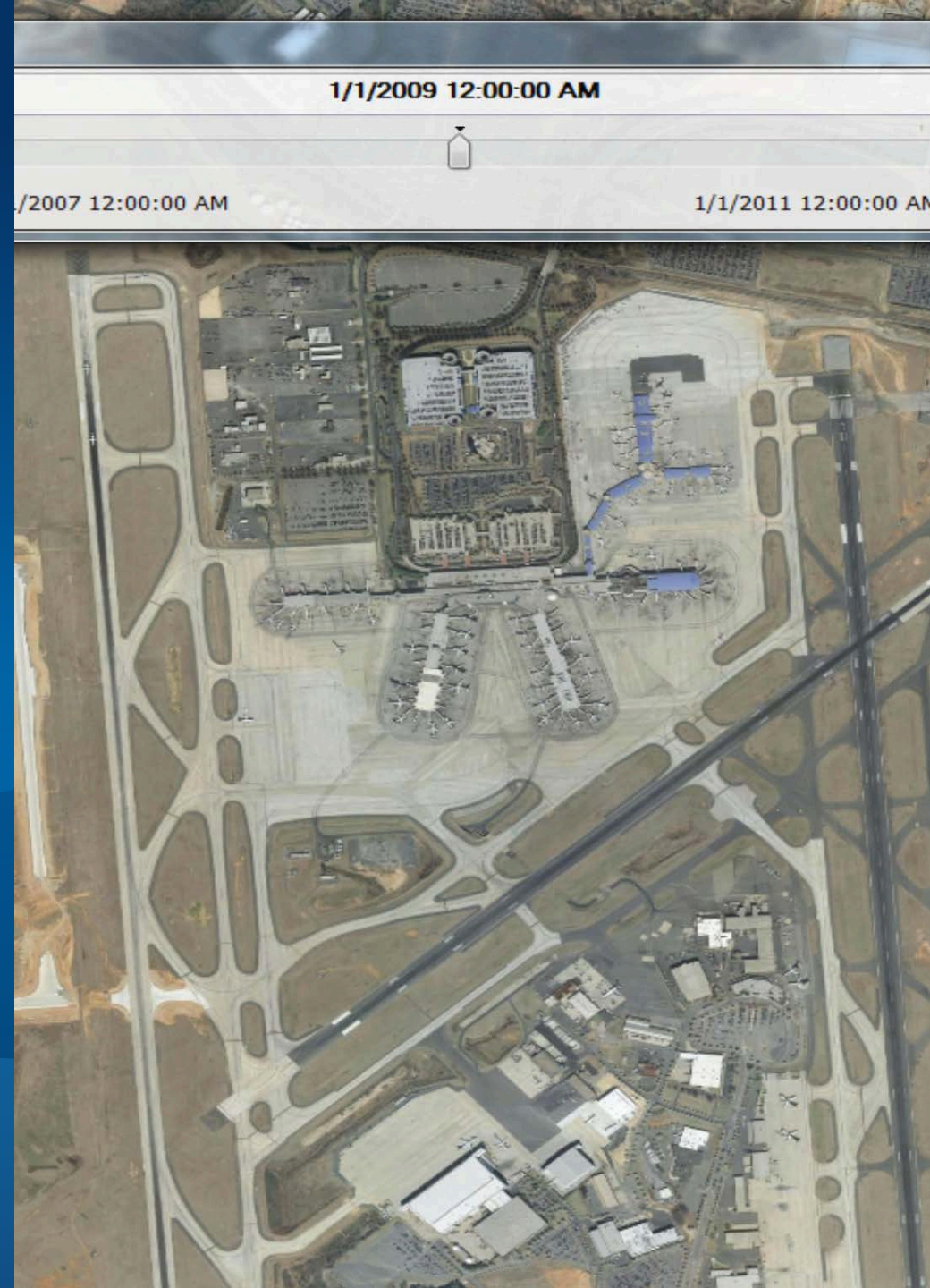
- Applied to

- Individual rasters
- Composite Mosaic



# Working with Mosaic Datasets

Demonstration

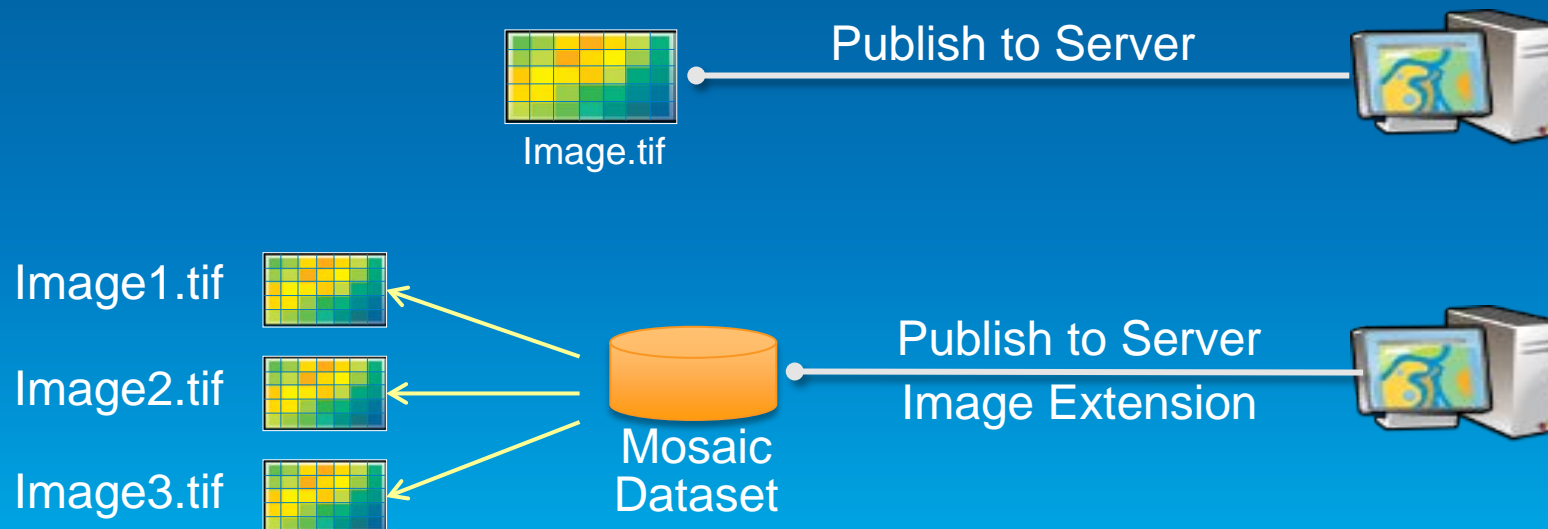




# Sharing Imagery

## 2 Ways to Serve Imagery

- Directly from individual raster dataset
- From mosaic dataset (requires image extension)

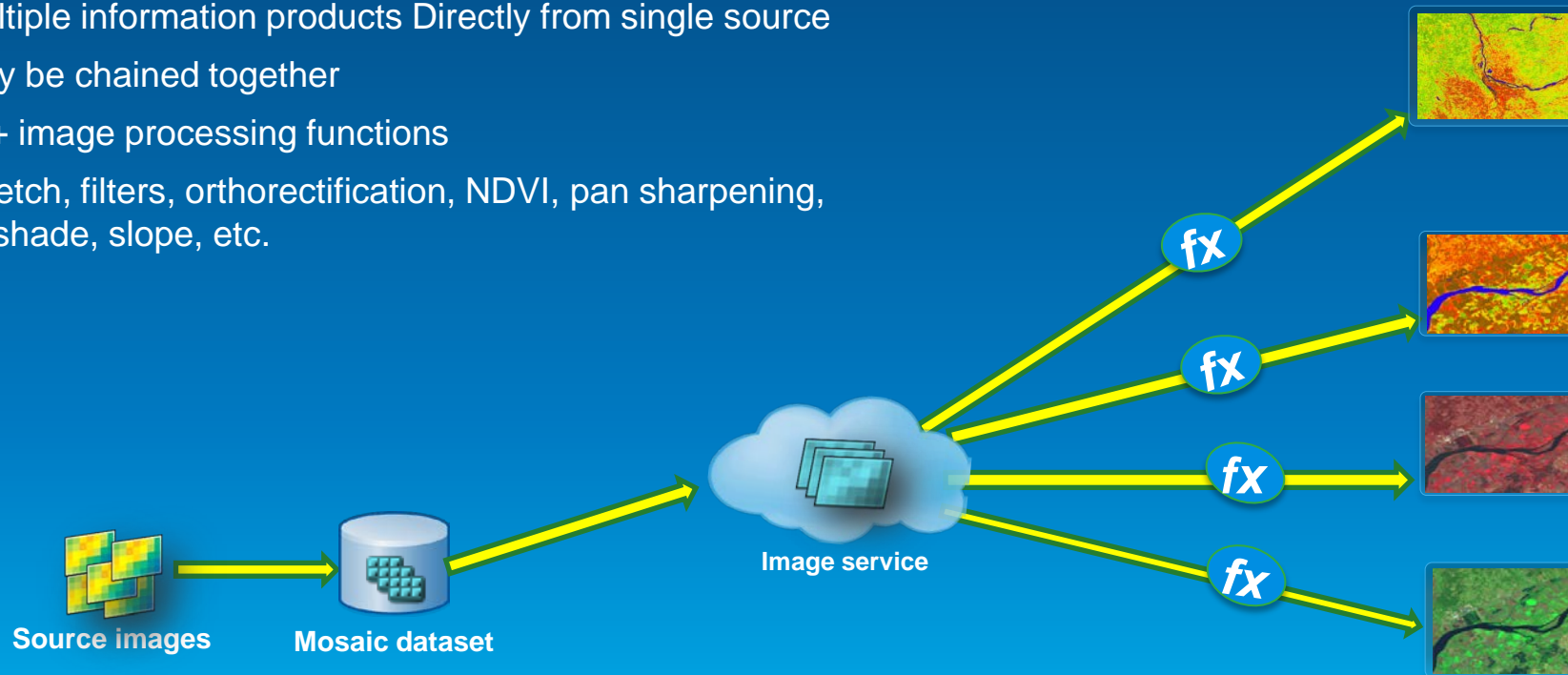


# Image Services

Empowering technology - On-the-fly Processing

- On-The-Fly Processing - Raster Functions

- Image processing algorithms OTF
- Process Imagery as Accessed
- Multiple information products Directly from single source
- May be chained together
- 40+ image processing functions
- Stretch, filters, orthorectification, NDVI, pan sharpening, hillshade, slope, etc.



*Image services Empowering technology on-the-fly processing*

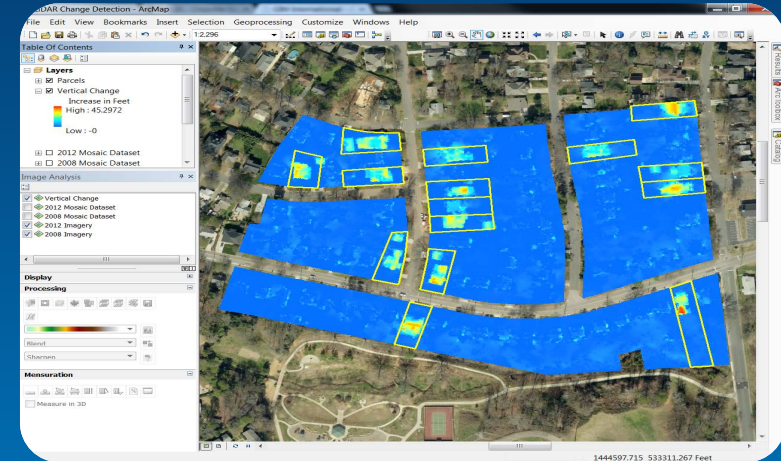
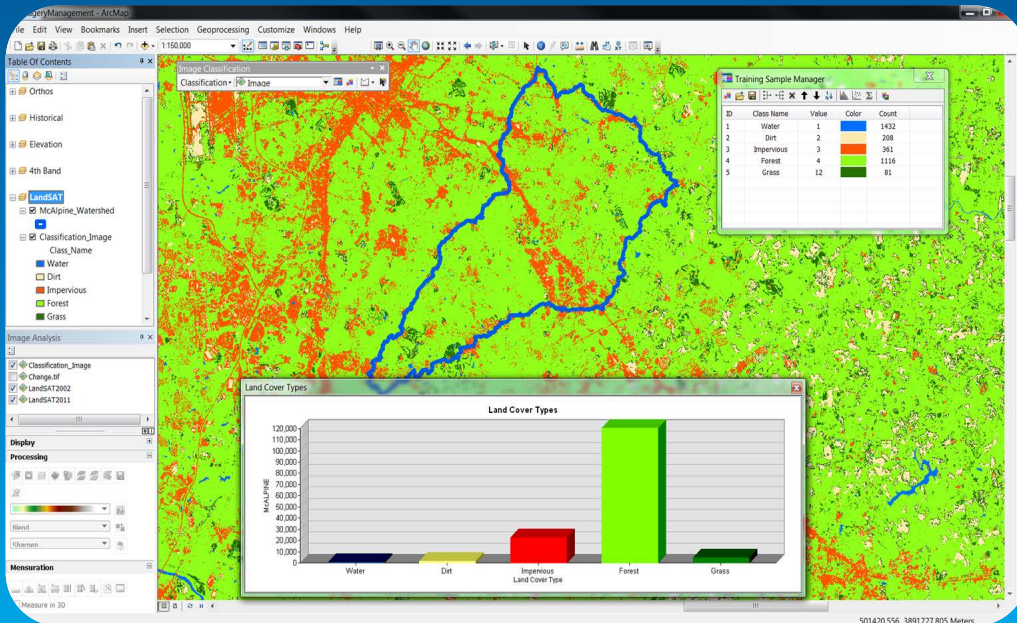
# Sharing Mosaic Datasets

Demonstration



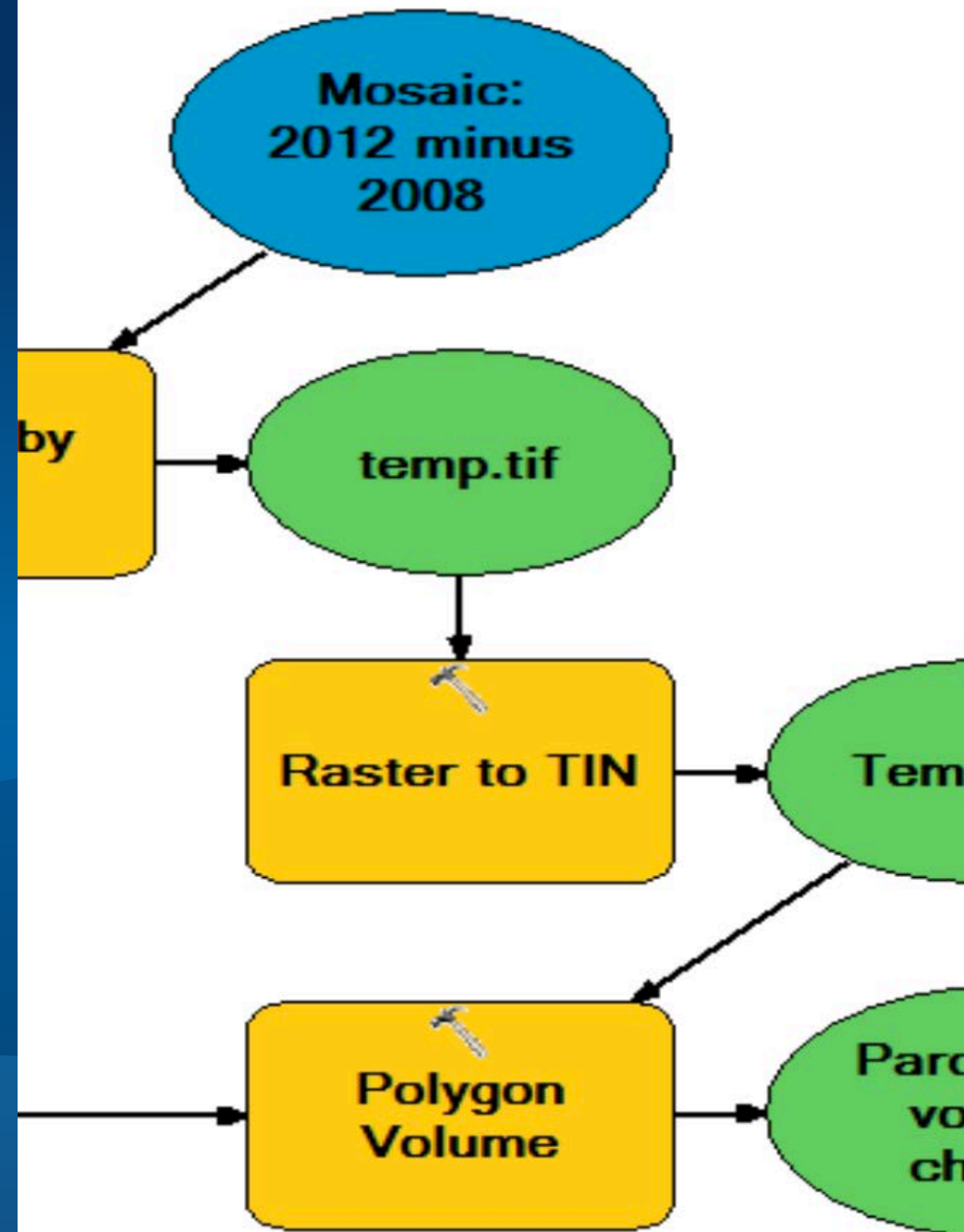
# Image Analysis

- Image Classification Tools
- Change Detection Workflows
- Geoprocessing Tools



# Analysis

Demonstration



# What's coming in the next release

New Raster Types, New Functions, New GP Tools

- **Multidimensional capability**
- **New Raster Types**
- **New Raster Functions**
- **New GP Tools**
- **Image Segmentation (Spatial Analyst Tools)**

# More on Mosaic Datasets

## Resources

- **Mosaic Dataset Configuration Scripts**
  - <https://github.com/Esri/mdcs-py>
- **Image Discovery Application**
  - <https://github.com/Esri/image-discovery-app-js>
- **Image Management Workflows**
  - <http://resources.arcgis.com/en/communities/imagery/01850000000v000000.htm>
- **Image Management Guidebook**
  - [http://resources.arcgis.com/en/help/image-management-workflows/10.1/index.html#/Image\\_Management/02qr00000002000000/](http://resources.arcgis.com/en/help/image-management-workflows/10.1/index.html#/Image_Management/02qr00000002000000/)

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Understanding our world.