Esri International User Conference | San Diego, CA

Technical Workshops | July 13, 2011

Creating Animations

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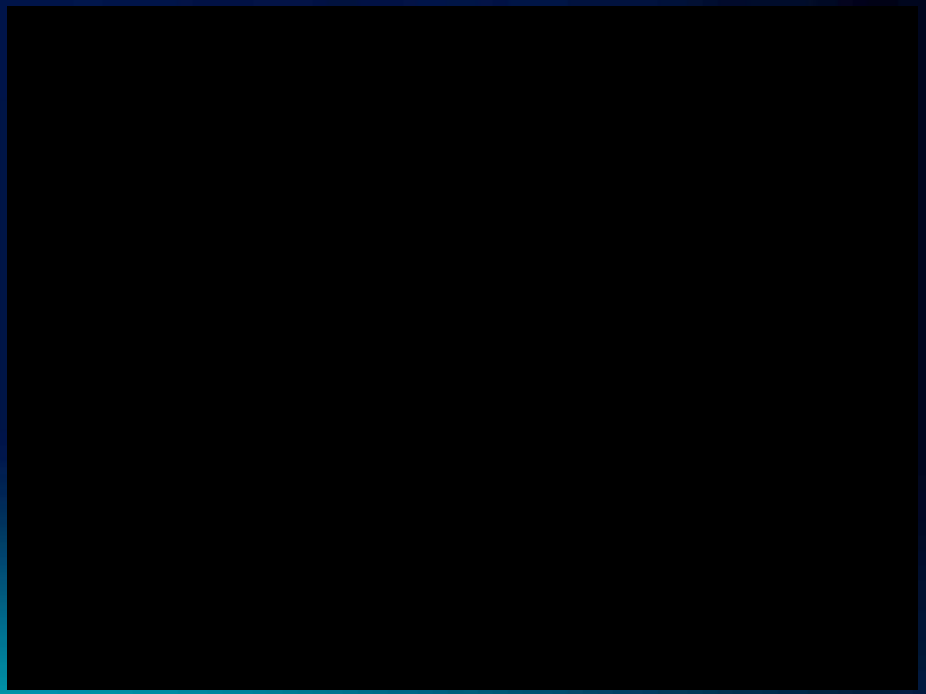
Colin Childs

Overview

- Animations
- Basic Animation Concepts
- Types of Animations
- Managing Animations
- Visualizing Temporal Data
- Exporting Animations



Animations

- Available in: ArcMap, ArcScene, ArcGlobe
- Create simple and complex dynamic effects
  - Visualize changes in perspective
  - Geographical movements
  - Scene properties
- Automate the process of effective demonstration and visualization of data

Basic Animation Concepts

- **Animation**
  - **The rapid display of a sequence of 2-D or 3-D views in order to create a dynamic visual effect**
  - **Consists of :**
    - **One or more animation tracks**
    - **Similar or different types of tracks can be played independently or together**

Basic Animation Concepts

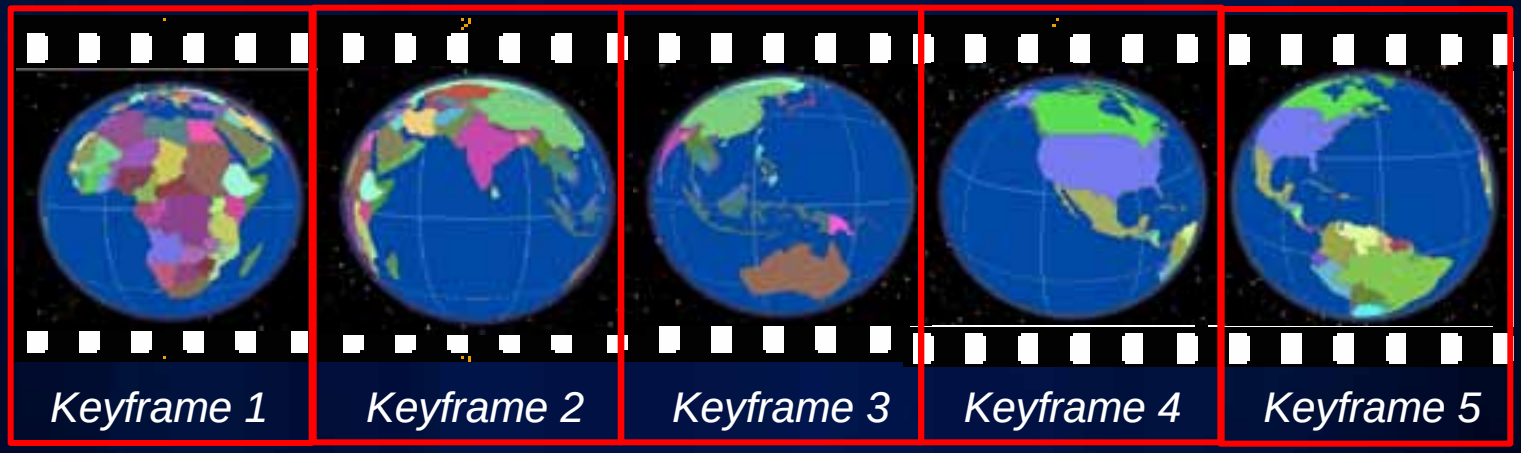
- **Animation Track**
  - **Collection of keyframes**
  - **Each track is bound to one or more objects and describe their behavior over animation time**

Track 1-
Camera

Track 2-
Transparency

Basic Animation Concepts

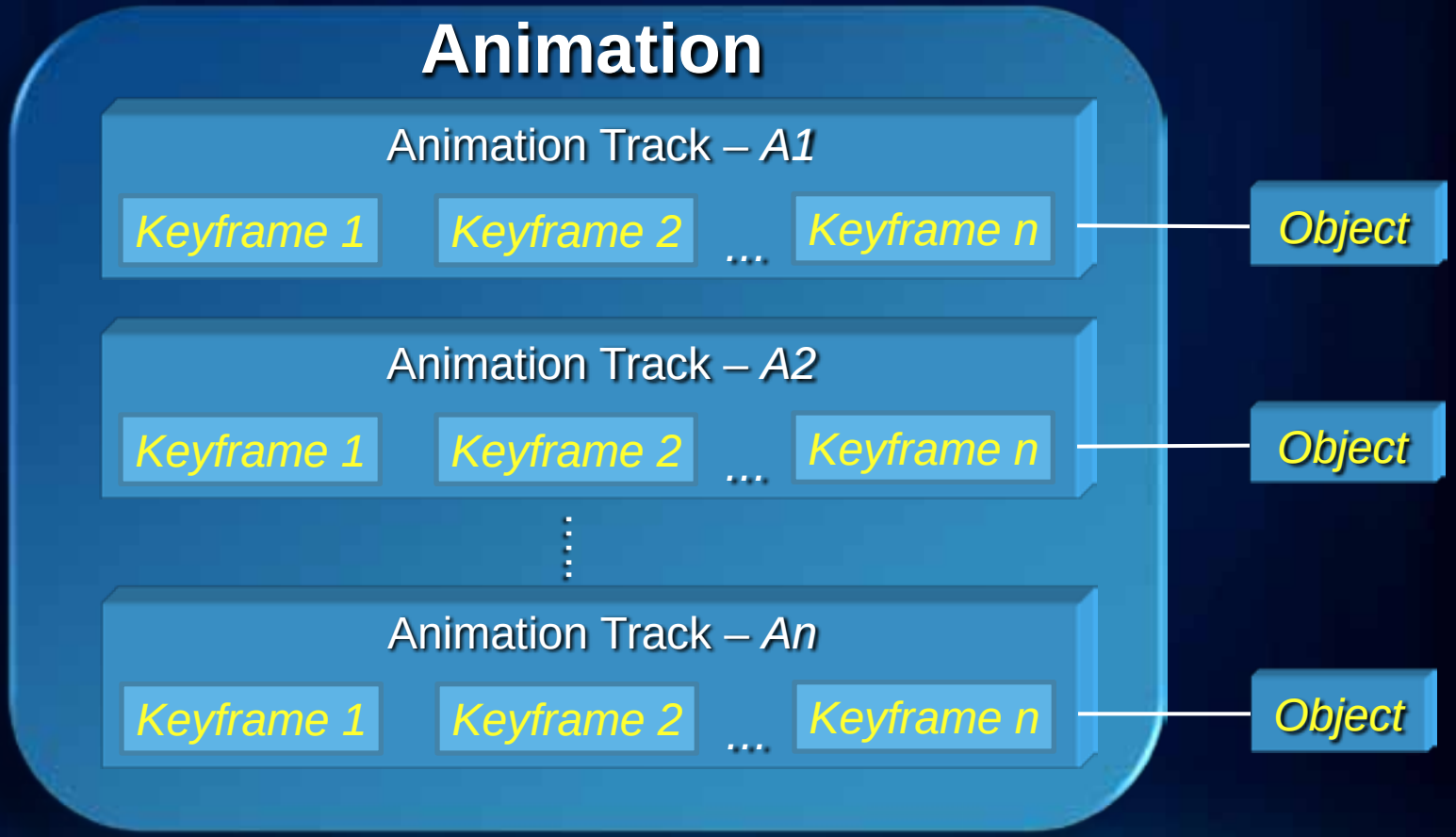
- **Keyframe**
  - **Snapshot of an object's properties at a certain time**



  - **Objects can be -**
    - **Camera, Layer, Scene, Map View and Map Time**

Animations – putting it all together

- **Building blocks of an animation**



Object – Camera, Layer, Scene, Map View, and Map Time

ArcMap Animation Examples

Map View Animation

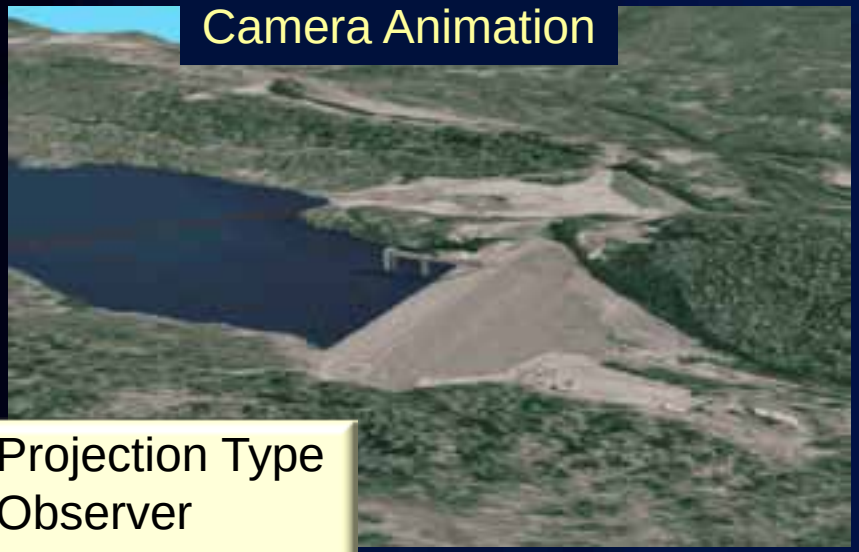
View Extent

Map Layer Animation

Visibility
Transparency

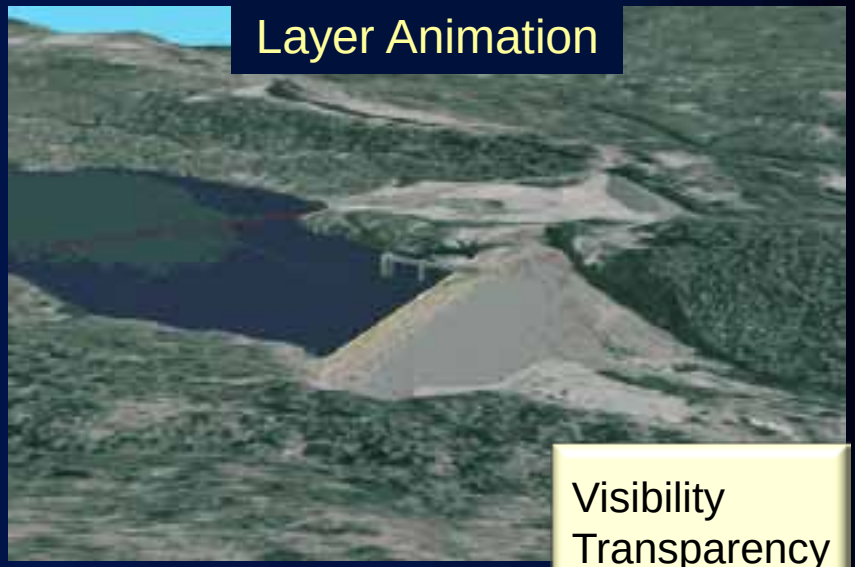
ArcScene Animations Examples

Camera Animation



Projection Type
Observer
Target
Azimuth
Inclination
Roll
Distance
View Angle
Ortho Extent

Layer Animation



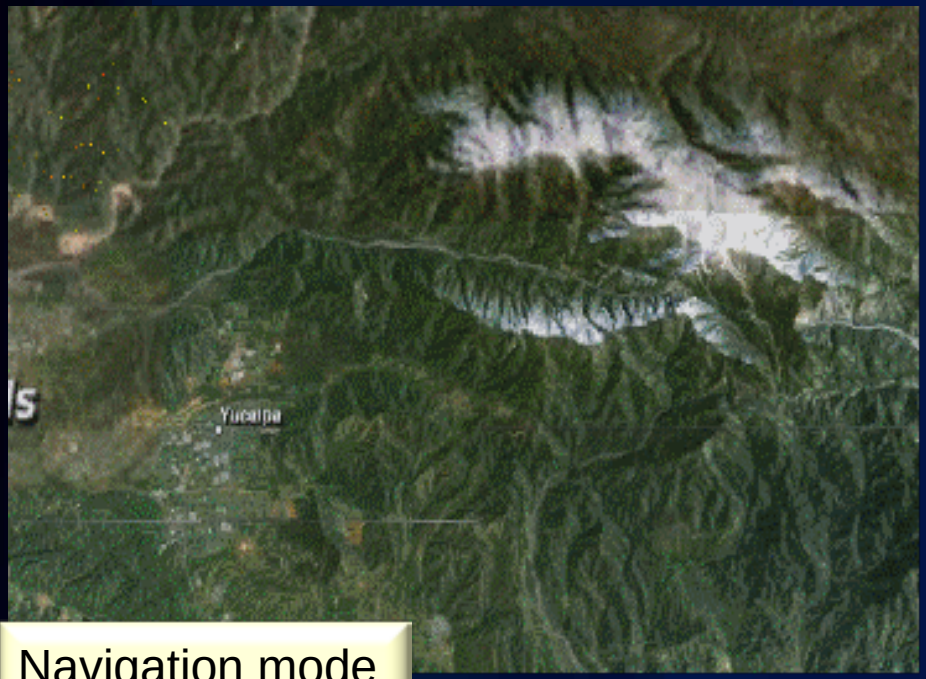
Visibility
Transparency
Translation
Scale
Rotation
Center Offset

Scene Animation

Vertical Exaggeration
Sun Azimuth
Sun Inclination
Sun Contrast
Background Color

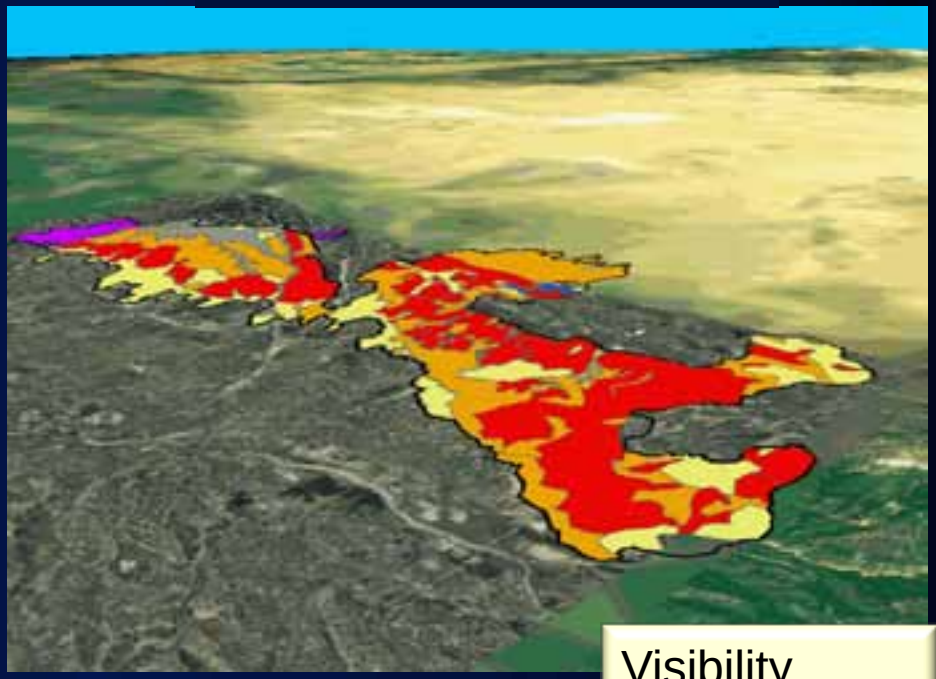
ArcGlobe Animation Examples

Globe Camera Animation



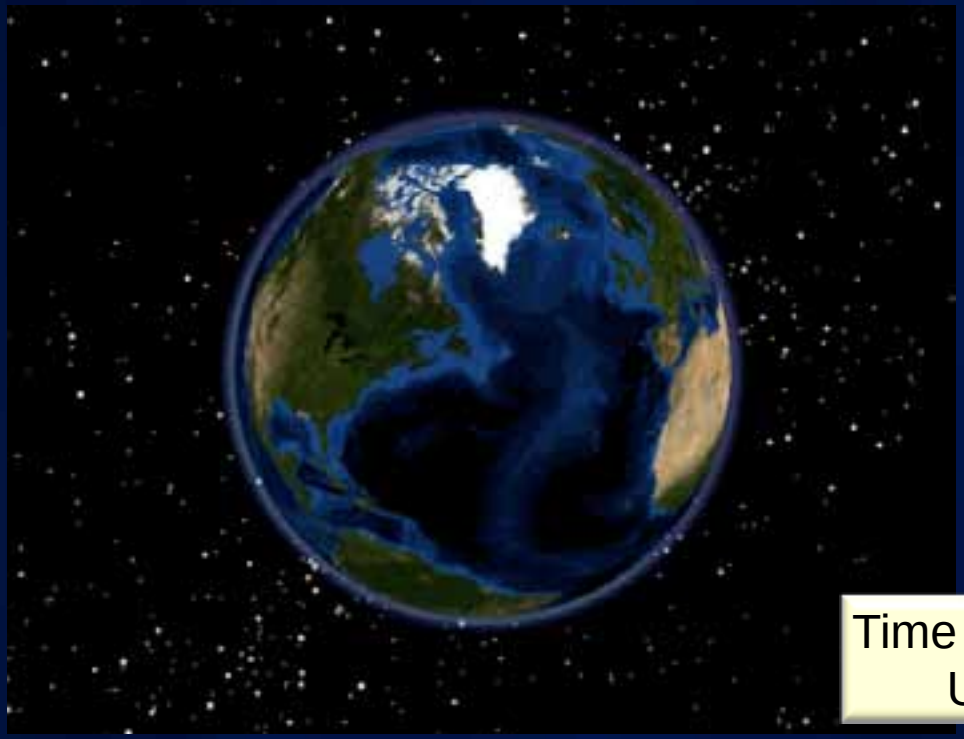
Navigation mode
Target
Observer
View Angle
RollOffset

Globe Layer Animation



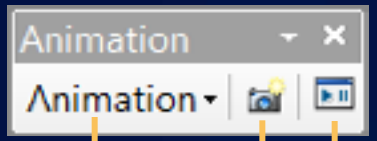
Visibility
Transparency

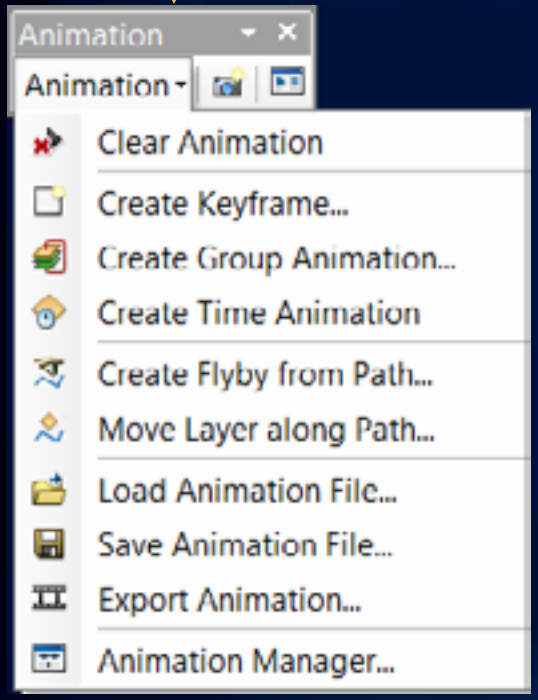
Time Animations



- **Available in – ArcMap, ArcScene, and ArcGlobe**
- **Time animations should be used "only for specific" scenarios**
  - **Example – Creating a flyby while visualizing temporal data**

Exploring the Animation Toolbar





Capture the current view to an animation

Creating Animations

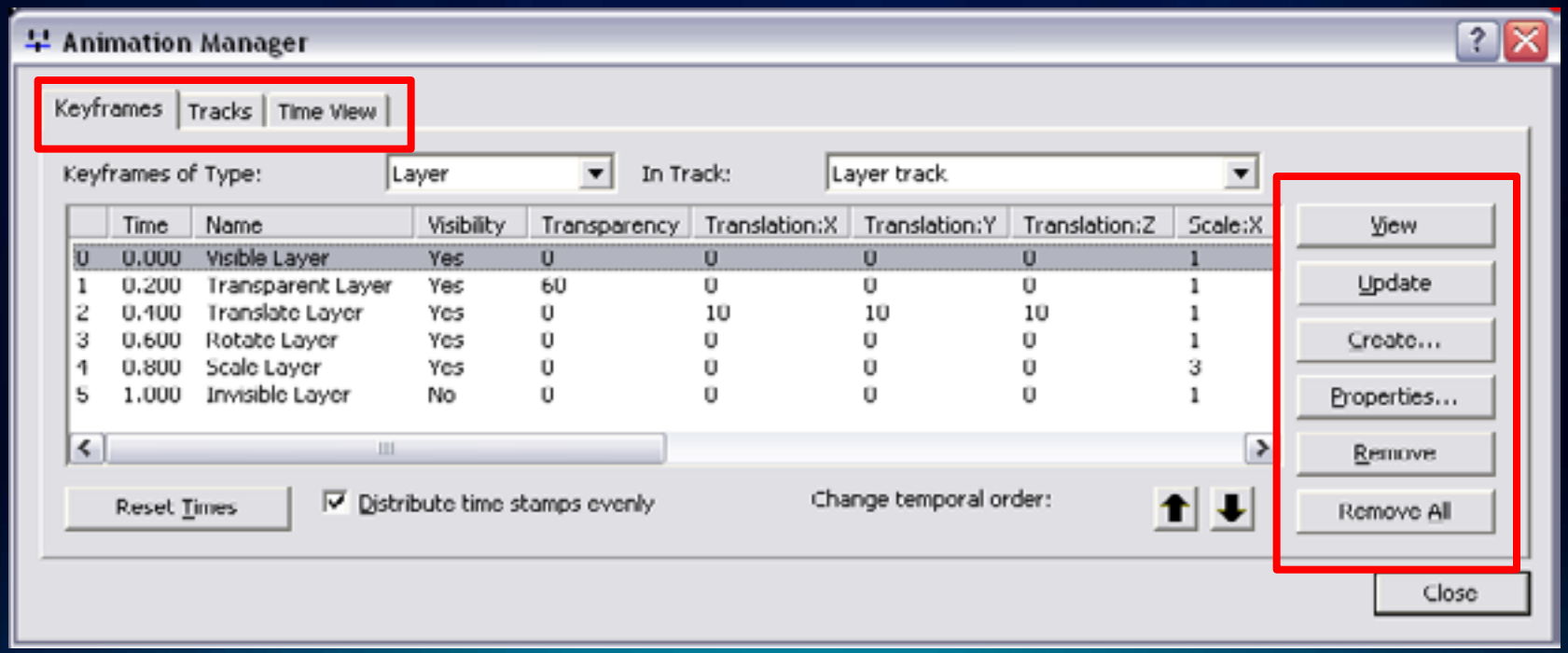
Simple	Build animations from keyframes	• Capture current view to animation • Record and play a flyby
	Create Group Layer animations	• Toggling layers on and off
	Build animations from paths	• Create flyby using flight paths • Move layers along a path (Scene)
	Time animations	• Temporal visualization (specific use cases)
Advanced	Manipulate object properties	• Use the Animation Manager • Edit keyframe and track properties
	ArcObjects customization	• Animate objects

Demo

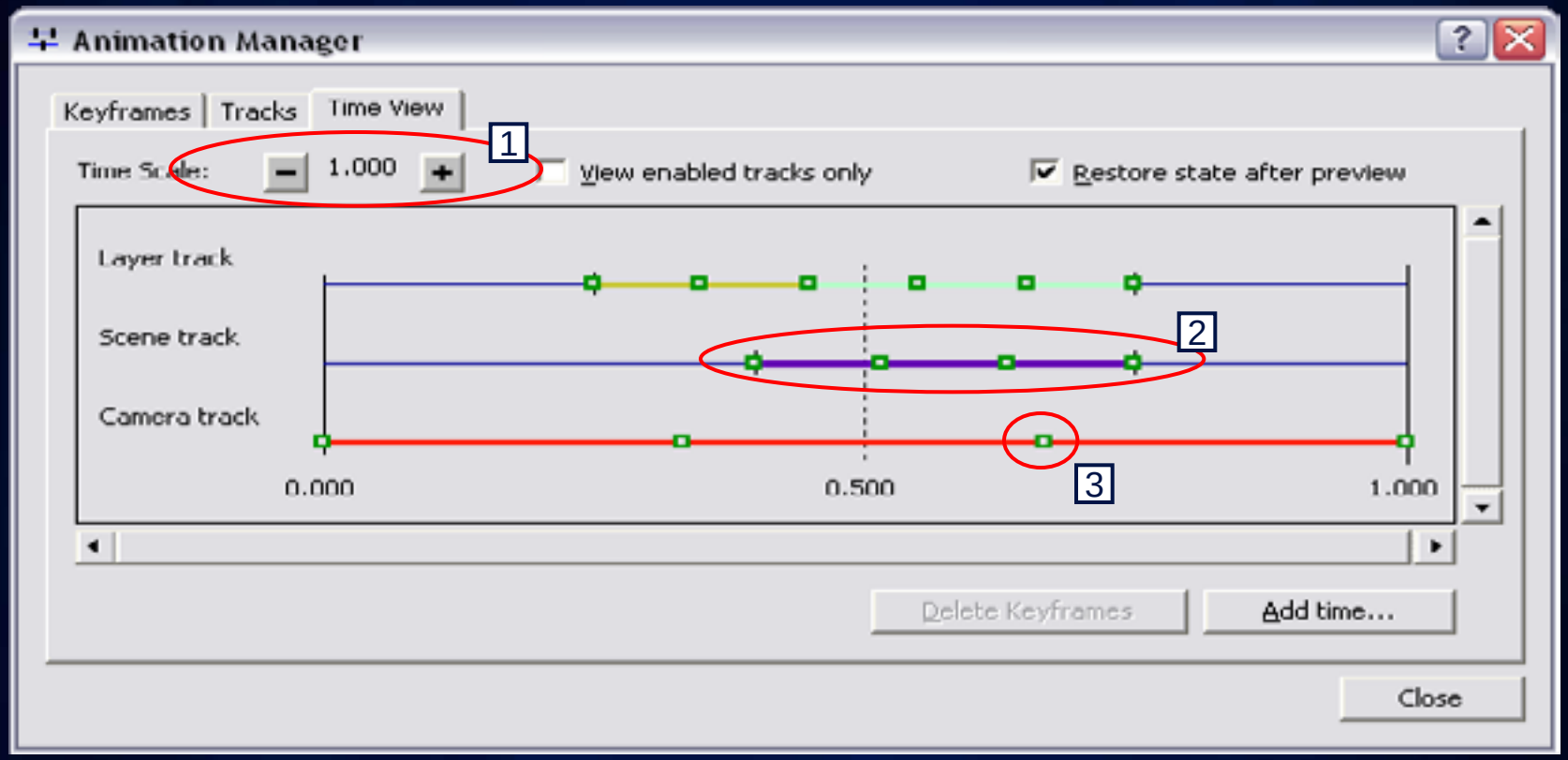
Simple Animations

Animation Manager

- **Used to:**
  - **Organize and manage animation tracks and keyframes**
  - **Arrange animation tracks and keyframes along animation timeline**



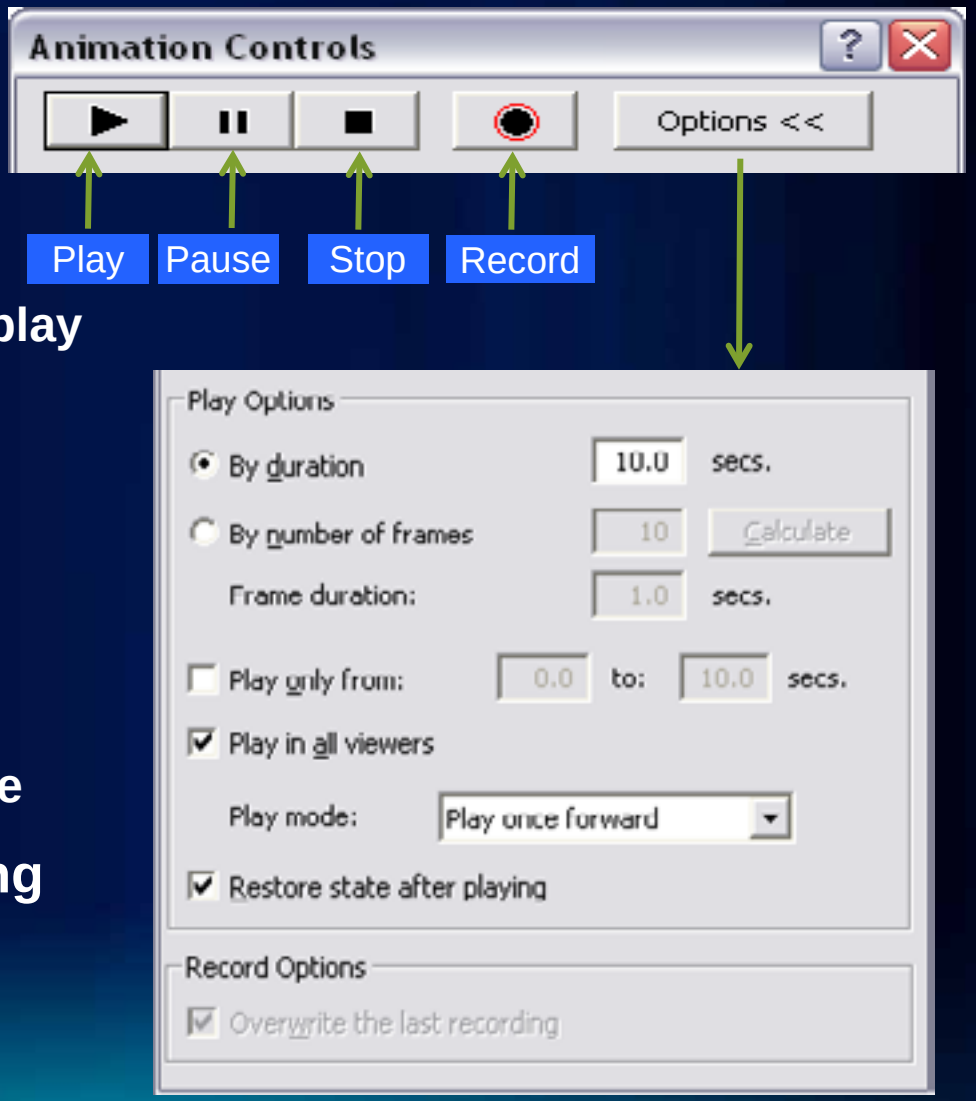
Time Scale Properties



1. Entire animation time is normalized from 0 – 1 range
2. Individual animation tracks can span any section of this range
3. Keyframes have a timestamp within the 0 – 1 track time range

Playing Animations

- **Play options:**
  - **Duration (speed)**
  - **Number of frames to display**
  - **Play portions**
- **Looping options**
  - **Play once forward**
  - **Play once reverse**
  - **Loop forward**
  - **Loop forward and reverse**
- **Restore state after playing**



Demo

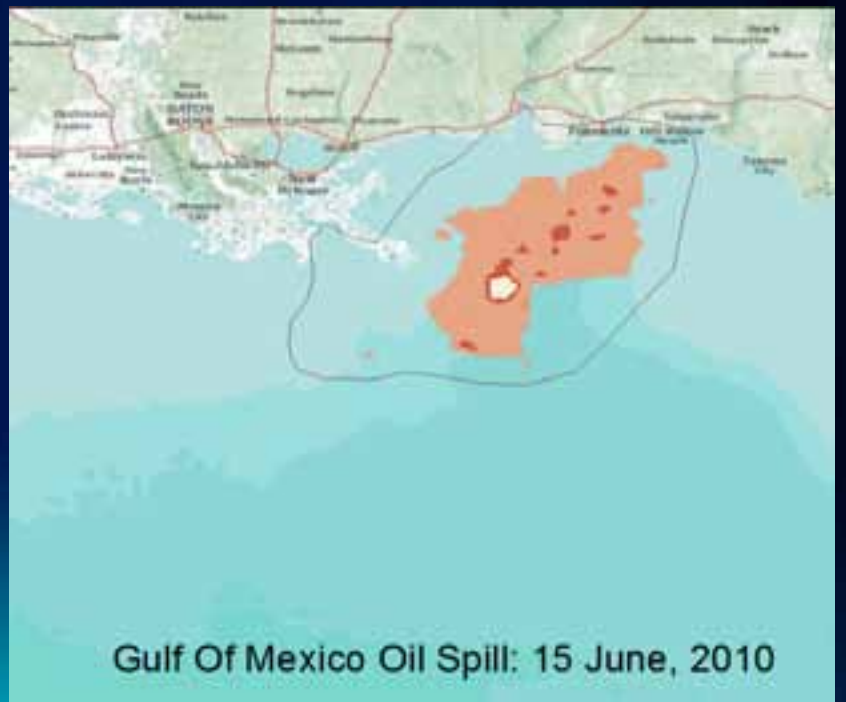
Advanced Animation Concepts

Group Animations

Flyby’s

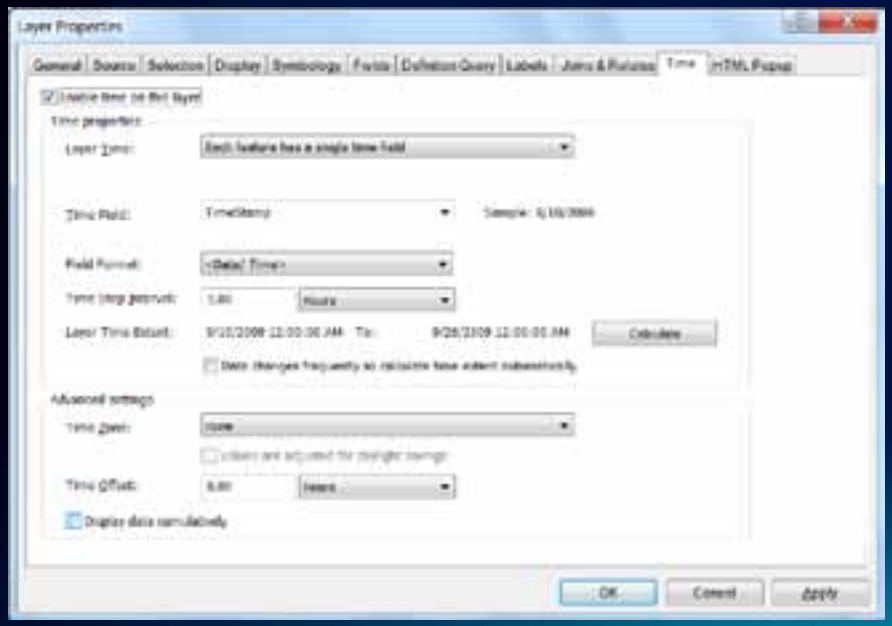
Visualizing Temporal Data in ArcGIS 10

- **Simplified Temporal Mapping**
  - **Map is time aware**
- **Create, interact with, and serve temporal maps**
- **Unified experience for working with temporal data**
  - **Desktop, Engine, and Server**



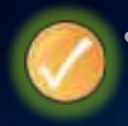
Simplified User Experience

- Configure time properties on the layer
- Use Time Slider to visualize temporal data
  - Common experience in ArcMap, ArcGlobe, ArcScene



Time Animations

- Use Time Animations ***only for specific*** scenarios
  - Visualize temporal data while flying over an area
  - Fading in/out layers while visualizing temporal data
- Existing ArcGIS 9.x Time Layer Animations
  - Should work in ArcGIS 10
  - Time properties on layers are set automatically
  - Time animation tracks in ArcGIS 10 control the Map Time
    - Time animations tracks are not tied to specific time layers



- If you just want to visualize data over time, use the Time Slider (new in ArcGIS 10)

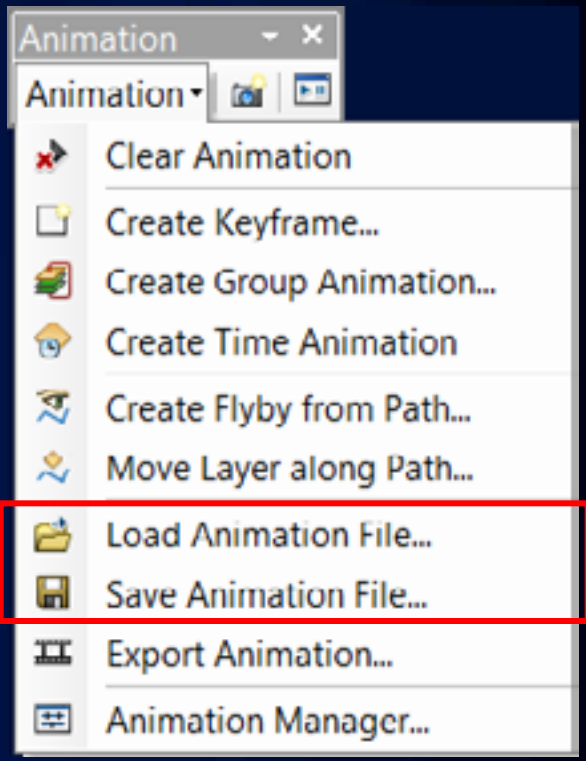
Demo

Using the Time Slider

Creating Time Animations

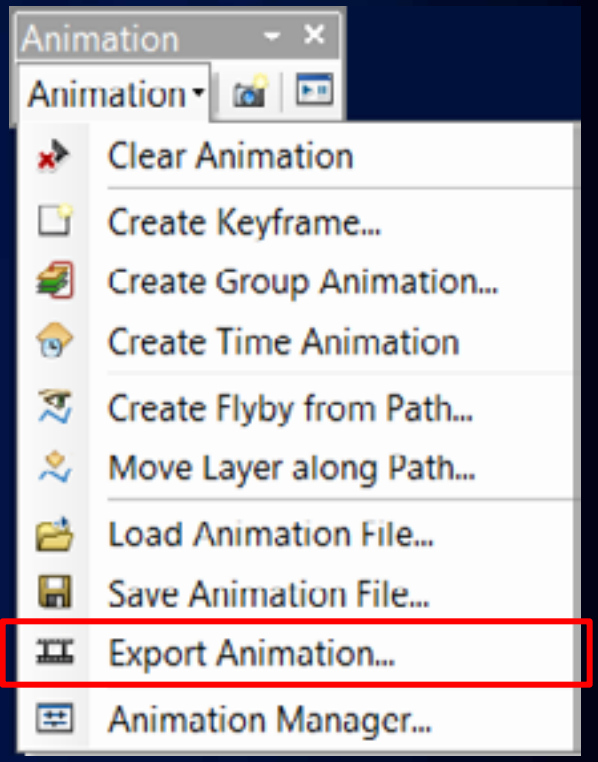
Storing and Sharing Animations

- **Formats supported**
  - **ArcMap animation (*.ama) file**
  - **ArcScene animation (*.asa) file**
  - **ArcGlobe animation (*.aga) file**
- **Reusable in the same or different document**
  - **The Table Of Contents should contain the same data for Layer and Time animation**



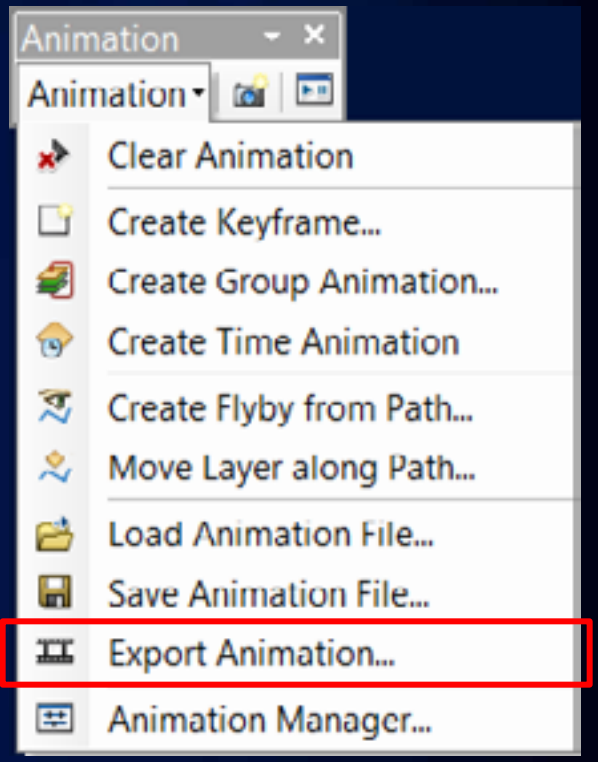
Exporting Animations as Videos

- Formats supported
  - Audio Video Interleave (*.avi) format
  - QuickTime (*.mov) format
    - Apple QuickTime Player required
    - Not supported on Windows Vista & Win 7
- Can be played by standard media players
- Video properties
  - Resolution and quality can be controlled
  - Select different codecs
  - Custom resolution videos without distortion
    - ArcMap and ArcGlobe



Exporting Animations as Sequential Frames

- Supported output image formats
  - Windows Bitmap (*.BMP)
  - JPEG (*.jpg)
- Frames are written to a specified folder
- Exported frames can then be edited or modified
- Frames can then be processed into a video using the **Raster to Video** GP tool



Demo

Exporting Animations Sequential Frames

Documentation on Animations

- **ArcGIS 10 Desktop Help**
  - **Professional Library > Mapping and Visualization > Animations**
- **Online Help under ArcGIS.com > Resource Center**
  - **http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What_is_an_animation/00090000001000000**

Additional animation related UC activities

- **Thursday, July 14**
  - **Working with Temporal Data in ArcGIS**
    - **Room 4 - 1:30 PM - 2:45 PM**
  - **Creating Animations (Offering 2)**
    - **Room 7 A/B – 3:15 PM – 4:30 PM**

Questions

Please remember to complete the session survey

http://www.esri.com/sessionevals