



IMAGINE VirtualGIS[®] DESCRIPTION

IMAGINE VirtualGIS®

Product Description

IMAGINE VirtualGIS® extends the powerful viewing and fast display of ERDAS IMAGINE® with its range of superior 3D visual analysis capabilities. Going beyond simple 3D renderings and basic fly-throughs, IMAGINE VirtualGIS allows users to quickly and easily create accurate and useful interpretations of the terrain.

Users can perform a number of tasks such as:

- Drape aerial photography, satellite imagery, and airborne scanner data onto the terrain and then add annotation, vector GIS layers, symbols, billboards, and texture mapped 3D objects to create realistic views of the study area;
- Animate objects so they move around the scene;
- Perform practical tasks by combining remotely-sensed data with GIS layers, and enhance, query or analyze the results;
- Perform intervisibility calculations with observable results in the terrain, or create 3D movies for presentations;
- Navigate scenes using mouse controls or user-defined flight paths;
- Create 3D movies or “fly” automatically to a selected database feature; and
- Rapidly swap out existing layers for new ones as users receive new, updated imagery of a region.

IMAGINE VirtualGIS is an add-on module to the ERDAS IMAGINE suite of geographic imaging software, and requires IMAGINE Essentials®, IMAGINE Advantage® or IMAGINE Professional®.

Key Features

Visualize 3D Geographic Data

Terrain geometry or topographic surface:

- USGS DEM, NIMA/DMA DTED, Openflight databases, raster surfaces interpolated from ASCII or vector sources, IMAGINE OrthoBASE Pro™ - derived DEM, and geophysical data surfaces
- Any other raster data in the ERDAS IMAGINE image file format (.img)
- Other raster formats supported directly through raster DLLs (GIF, GRID, GeoTIFF, etc.)
- Generate multi-resolution Triangulated Irregular Network (TIN) terrain geometry in order to thin the number of triangles being rendered and thereby improve performance while maintaining fine detail
- Multi-resolution morphing helps seamlessly render greater terrain detail as it comes closer
- Access terrain in its native formats through VirtualDEM technology which enables multi-resolution and multi-source DEMs to be seamlessly rendered without the need to pre-process

3D raster drape:

- Aerial photography, satellite imagery, scanned maps and thematic images
- Raster surfaces interpolated from ASCII or vector sources
- Geophysical data surfaces

3D vector drape:

- Drape ArcInfo coverages, Shapefiles, ArcSDE, Geodatabase or annotation features over the surface
- Create buildings by extruding vector GIS feature sources in the Z direction using a user-selected attribute as the height
- Use attribute fields to define texture images to apply to the sides and roofs of extruded polygons
- Open 3D Shapefiles, such as those produced by ERDAS Stereo Analyst® and the Leica Geosystems range of GPS surveying instruments

- Full support for texture-mapped 3D features, such as buildings created in Stereo Analyst for ERDAS IMAGINE Textel Mapper
- Control the level of detail for vector features through distance-based thinning and generalization for faster rendering

Virtual World Editor

- Provides system load management via distance-dependent, multi-resolution rendering and tiling
- Preprocesses data layers for faster, smoother fly-through and scene manipulation
- Drag and drop data loading in Windows
- Data layers can be re-ordered, replaced and opened at any time
- Export the database to other virtual-reality formats such as VRML

Visual Navigation

- Mouse-operated 3D angular pan, zoom and flight control
- Interactive pivoting around a defined target point
- Windows Joystick support for navigation
- SpaceMouse and SpaceBall support
- User-defined flight paths
 - Manual digitizing in a standard viewer
 - Define by selected GIS vector feature
 - Record and playback path flown in IMAGINE VirtualGIS
 - Record and playback from GPS device
 - Manual digitizing from a digitizing tablet
 - 3D editing and update in the IMAGINE VirtualGIS viewer itself
- View in directions independent of user flight direction
- Ground level and terrain following offset motion or flight
- Heads-up flight displays (HUDs), showing pitch and azimuth
- Automatically fly to selected features
- Link 3D views with 2D viewers for planimetric control/overview

Topographic Surface Parameters

- Interactively change height exaggeration
- Separate layers of data in the Z direction
- Interactive sun shading control
- Date/Time option for calculating sun position
- Ability to display multi-resolution DEM surface layers for dynamic visualization
- Wire frame, solid color relief, and reduced resolution image overlay display modes
- Seamless rendering of geographically adjacent DEM data
- Ability to include non-topographic DEM surface layers for dynamic visualization

Visual Analysis

- Overlay and control the opacity of multiple raster, vector and annotation layers
- Swipe selected layers away from other layers for change detection or to explore internal details (or features otherwise obscured by other layers)
- Query geographic location (including MGRS coordinates) and pixel categories/values while moving the cursor across the 3D environment
- Query draped layer attributes
- Modify styling for draped raster, vector or annotation layers
- Query attributes for vector data rendered as 3D objects
- Modify styling for vector points, lines, or polygons rendered as 3D objects
- Display annotation text and symbols as billboards
- Interactively change band combinations of multi-spectral images
- Interactively enhance features with lookup table adjustments
- Interactively apply filters to clarify subtle features
- Specify the level of detail at which to render images

- Interactive 3D stereo display mode
- Sky background and atmospheric fog options
- Sun position and lens flare simulation
- Simulate night-time and night-vision device environments

Background Panoramas

- Define 180 degree, 360 degree or surrounding-cube images to provide an encompassing environment
- Moving cloud layers with user-defined control over
 - Cloud texture, color and opacity
 - Altitude
 - Speed
 - Direction
- Day/night transitions

3D Model Layer

- Import realistic 3D models (e.g., 3D DXF, MultiGen OpenFlight, 3D Studio Max, etc.)
- 3D model wizard is useful to turn 2D GIS layers into groups of 3D features
 - Randomly place specified models in polygons
 - Place 3D models at point locations or along lines
 - Type of model and other parameters controlled by attribute fields
- Interactively position and size the models in the 3D environment
- Easily clone existing models
- Use pictures as billboard textures to enhance realism in the scene
- Add hyperlinks to models, enabling a file to be launched in a specific application (on Windows) or to link to a web page
- Extensive library of tree textures supplied for use as models
- Model browser enables libraries of textures and models to be graphically previewed before being added to a scene

Animation

- Graphical Timeline Editor for defining animation properties for camera and 3D models
- Load existing flight paths or positions to animate a particular model
 - Digitize new paths from viewer, digitizing tablet or selected vector feature
 - Control display of the paths for each animated object in 2D and 3D Viewers
 - Keyframe Editor
 - Set speed for each animated path or per keyframe segment of the path
 - Spline paths
 - Loop, reverse or stop each path at the end
 - Play controls, including fast-forward (and reverse), pause and stop
- Render animation to a movie format

3D Fog Layer

- Simulate fog, mist or smog
- Control over the altitude at which the fog occurs
 - Simulation of a cloud ceiling
 - Use with Water Layer to simulate decreasing visibility with depth

3D Cloud Layer

- Volumetric cloud placement
 - Cloud texture, color and opacity
 - Shape
 - Position (including altitude)
 - Size (X, Y, Z dimensions)
 - Density (number of slices)
- Cloud builder dialog

- Show / Hide clouds

3D Intervisibility/Threat Analysis

- Define single or multiple observation or signal initiation points
- Specify up to 360 degrees for field of view
- Precisely define relative or absolute point height, colors and viewing range
- Point and click to determine which observers have line-of-site to a particular location
- Generate viewshed domes interactively within the 3D viewer
- Import observer locations from Shapefiles, ASCII or Arc Coverages

Logo Layer

- Paste a 2D image over the current 3D image
 - Useful to give credit for movie by giving company's logo or name
 - Can be moved and resized with an option to show/hide the logo images
 - Use to create foregrounds, such as cockpits

Water Simulation

- Add water layers(s) to the scene
- Control over water properties
 - Surface color
 - Opacity
 - Ripples/texture
 - Reflective surface
- Calculate and store area and volume attribute information
- Fill depression in the DEM to differing heights, or add a single global water surface

Planimetric Overview

- Embed a 2D overview layer into the 3D scene, locked to the camera position
- Auto-rotate map to flying direction, or lock to North-up
- Toggle viewing cone (field of view) and center of view
- Auto-scale or maintain single scale

About ERDAS

ERDAS – The Earth to Business Company – helps organizations harness the information of the changing earth for greater advantage.

ERDAS creates geospatial business systems that transform our earth's data into business information, enabling individuals, businesses and public agencies to quickly access, manage, process and share that information from anywhere.

Using secure geospatial information, ERDAS solutions improve employee, customer and partner visibility to information, enabling them to respond faster and collaborate better. It also means better decision-making, increased productivity and new revenue streams.

ERDAS is a part of the Hexagon Group, Sweden. For more information about ERDAS or its products and services, please call +1 770 776 3400, toll free +1 866 534 2286, or visit www.erdas.com.