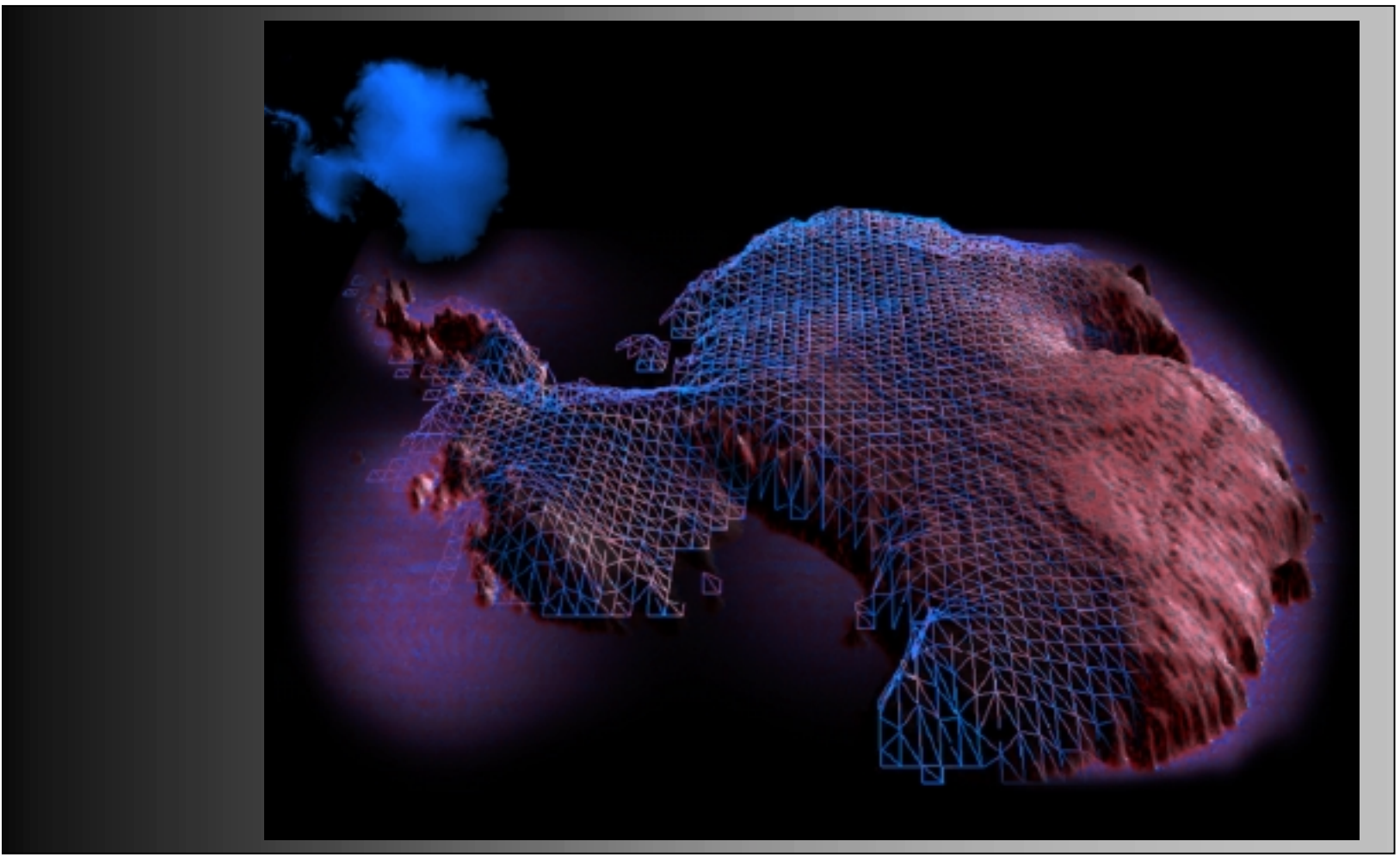
TerraForm3D

Terrain Modeling Software User Manual



Version 1
20 April 2000

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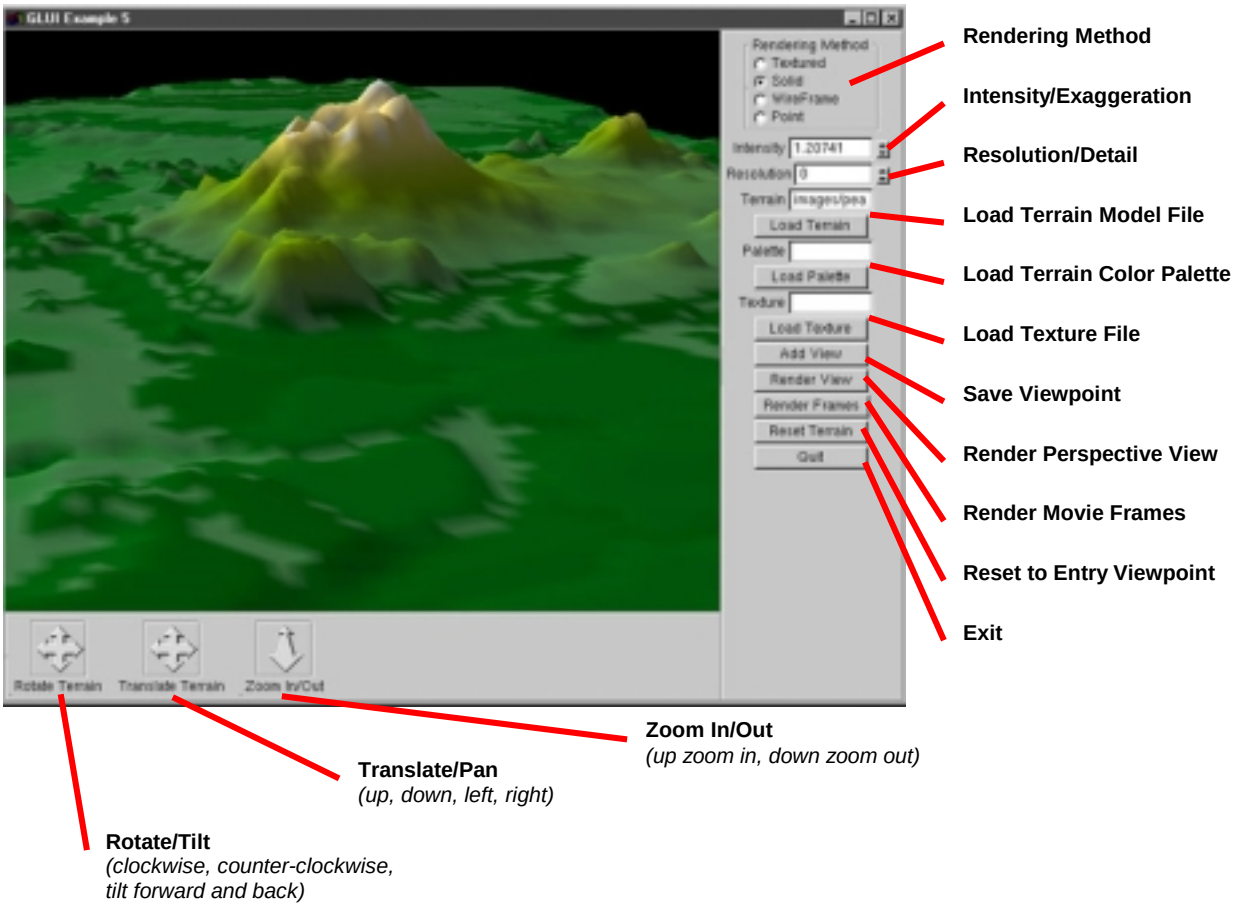
TerraForm3D User Interface



Keyboard Controls

Key	Action	Key	Action
W	Zoom In	**I**	Tilt Back
S	Zoom Out	**K**	Tilt Forward
		J	Turn Left
A	Pan Left	**L**	Turn Right
D	Pan Right		
E	Pan Up	**Q**	Quit
C	Pan Down		

Using TerraForm3D

RENDERING TOOLS

Clear Viewpoints List:
Deletes all the viewpoints saved using the Set Viewpoint command

Set Viewpoint:
Saves information about the current view in a list

Write Perspective View:
Saves POV-Ray files using last saved viewpoint information

Write Movie Frames:
Saves animation POV-Ray files using all the viewpoints to create flight line instructions

Render Movie Frames:
Renders movie frames using all the saved viewpoints to create a flight line

Render Perspective View:
Renders last saved view as perspective view image

Frame Rate:
High: Creates 50 frames between each viewpoint
Medium: Creates 25 frames between each viewpoint
Low: Creates 10 frames between each viewpoint
None: Creates one frame for each viewpoint
Frames: set the exact number of frames to create for the entire movie.

All renderings will be done as solid surface using the terrain, texture, and color code palette files currently loaded.

Movie Width/Height:
Sets the width and height of the Movie Frames (in pixels)

Image Width/Height:
Sets the width and height of the Perspective View (in pixels)

TERRAIN SETTINGS

Quit:
Exit the program

Reset Terrain:
Reset screen to original display parameters

Load Terrain:
Open a terrain from file entered in edit box. If using the Windows version, POV-Ray for DOS

requires 8.3 naming convention. Three characters of the first eight are reserved for TerraForm3D, therefore terrain files MUST be named with NO MORE than five characters plus the extension.

Load Texture:
Open a new texture from file entered in edit box. The texture will not be displayed, but will be written as a component of the rederings. If using the Windows version, POV-Ray for DOS requires 8.3 naming convention for the texture.

Load Palette:
Open a JASC format color palette used to color code elevations in the terrain.

Resolution:
Detail level of screen display

Intensity:
Vertical exaggeration

NAVIGATION TOOLS

Zoom In/Out:
Move viewpoint closer or farther away from terrain

Translate:
Pan terrain left/right or up/down

Rotate:
Spin terrain around its center point in any direction

DISPLAY OPTIONS

Solid rendering method:
Displays elevation data as a solid surface

WireFrame rendering:
method: Displays elevation points and connecting lines

Point rendering method:
Displays elevation data points

Textured rendering method:
Not implemented

Tutorial

Requirements: For the tutorial, you will need:

- unzipping software, such as WinZIP,
- movie assembly software, such as a registered version of QuickTime,
- an image viewer, like Paint Shop Pro or Microsoft Image Viewer, and
- POV-Ray and TerraForm3D installed, plus
- 200 MB or more of free disk space is recommended.

Some Windows utilities are provided on the CD –ROM in Software/ThirdParty/Utilities/

STEP 1: Put the data on your hard drive

Extract using unzipping software antarctica.zip to your hard drive. The data is located in Downloads/SampleData/ on the CD, or open the file index.html on the CD in a web browser, click on **Downloads,** then **TerraForm3D,** then **Antarctica Sample Data.**

STEP 2: Load a terrain

Start TerraForm3D. Use the **Load Terrain** command to open **ant.img** from where you unzipped the sample data on your hard drive by typing the full path to the data, e.g. d:\MyFiles\Antarctica\antdem.img

STEP 3: Load a color scheme

Use the **Load Terrain** command to open the file **ant.pal** from where you unzipped the sample data on your hard drive. This loads the color scheme the terrain is displayed with on your screen.

STEP 4: Load a satellite image overlay

Use the **Load Texture** command to open the file **antx.img** from where you unzipped the sample data on your hard drive. This loads satellite image data which will be rendered as a texture on perspective view and movie frames.

STEP 5: Navigate and render a scene

Use the navigation buttons and spinners to move the terrain on the screen until a view you like is displayed. Click the **Set Viewpoint** button to save this view. Click the **Render Perspective View** to render the view to a high quality image file. Depending on the speed and configuration of your computer, this may take several minutes.

STEP 6: Set several viewpoints and render movie frames

Use the navigation buttons and spinners to move the terrain on the screen to set several (five to ten) viewpoints along a the flight path you'd like the movie to present. Click the **Set Viewpoint** button to save each view before navigating to the next viewpoint. Choose a frame rate or specific number of frames to render. Select a **Movie Hgt/Wid** size for your movie. Click the **Render Movie Frames** to render the movie Frames. Depending on the speed and configuration of your computer, this may take more than two hours. Refer to **Movie Making Tips** for hints on how to set sizes, frame rates, and view points.

STEP 7: Make a movie

Close TerraForm3D when it has finished rendering the movie frames. Render Movie Frames will save a number of images with sequentially number filenames. If you own a full version of ***Quicktime***, use "**Open**

Image Sequence" to open the first image - this will bring all the frames into Quicktime as a movie, which can then be saved as Quicktime format movie. Use the “Play all frames” to ensure no frames are dropped when playing the movie.

Movie Making Tips

Frame Rate

The higher the frame rate or number of frames you choose, the smoother the movie will run. The lower the frame rate, the less time the movie frames will take to render. The **Frame Rate** setting renders a predefined number of frames between viewpoints:

- ***High***: 50 between each view point
- ***Medium***: 25 between each view point
- ***Low***: 10 between each view point
- ***None***: 1 per view point
- ***Number of Frames***: only the number of frames specified will be rendered

Set the Frame Rate according to how long you want the movie to run and what the frame rate (frames per second) of the movie you are making. 30 frames per second is a very high frame rate used for high quality movies. 15 frames per second may run better on many systems without losing much quality.

Movie Hgt/Wid.

Smaller movies will render faster and run more smoothly. Larger movies will display detail. Movies are generally created at computer monitor resolutions ratios, such as 320 x 240, 640 x 480, etc.

View Points

The closer the viewpoints are set, the more smoothly the transitions along the flight line will appear. If setting more ten viewpoints, consider lowering the preset frame rate or setting a specific number of frames to render according to the formula:

Number of frames = Running time of movie (seconds) x frames per second

For example, a one minute movie at 10 frames per second requires 600 frames.

Movie Compression

most movie making software give the option to save your movie with different compressions. The higher the compression level, the lower quality the movie will be, but will gain a file size savings. It is recommended for Internet applications to keep the movie between 1 and 2 MB, and for viewing from a hard drive or CD-ROM to keep the movie between 1 and 10 MB. Factors such as computer speed and memory are factors to consider. The best approach is to experiment with different frame rates, compression types, and movie sizes to determine the best options for you application.

FAQs

How do I make a movie with my Movie Frames?

Render Movie Frames will save a number of images with sequentially number filenames. If you own a full version of Quicktime, used "Open Image Sequence" to open the first image - this will bring all the frames into Quicktime as a movie, which can then be saved as Quicktime format movie. Quicktime is one of several movie assembling software packages available. Refer to Movie Making Tips for more about rendering movie frames.

Where do I find my files?

POV-Ray *.pov and *.ini files are saved into the same directory the terrain data is located.

Movie Frames and Perspective View images are saved into the current working directory. If you started TerraForm3D from the command line, the directory you launched from is the current working directory. If you launched from a Windows shortcut, the Start In attribute under the shortcut's properties is the working directory.