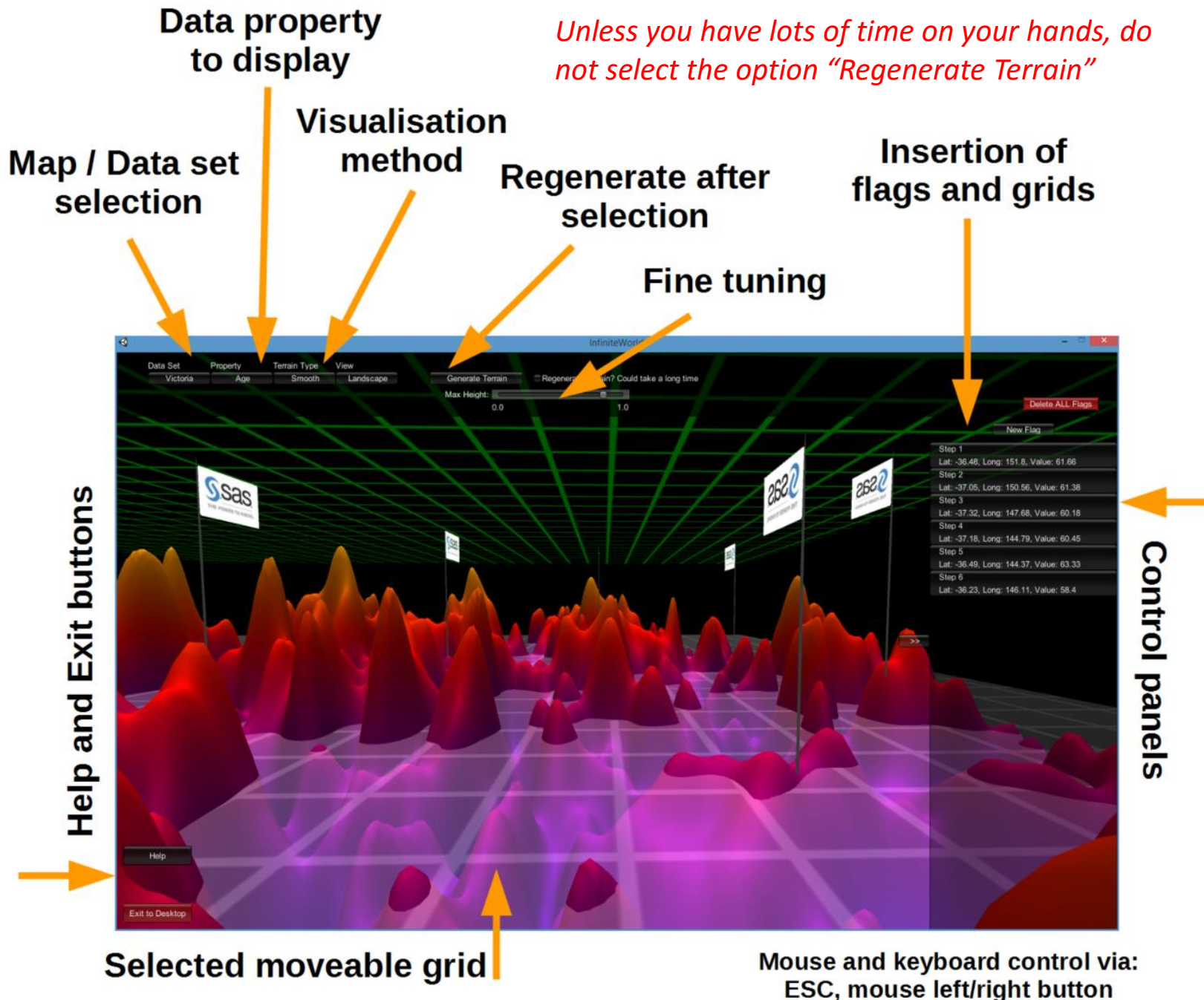


Visual Analyst 3D

User Guide / Cheat Sheet



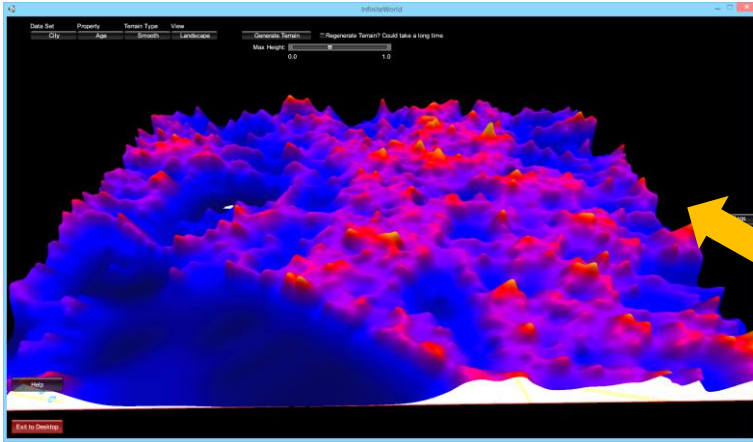
Data comes in the form of a terrain!
Such a terrain visualizes values of data points, which aggregate some aspects of accidents that occurred in geographical areas of Victoria. The areas are defined by splitting a map into a segments arranged in rows and columns (e.g. 16x16, 128x128, etc).

To load a data terrain, select a data set and the property to be displayed, pick the required terrain type (smooth or granular) and its view (peak or landscape) and then press the button "Generate Terrain".

Maps and Data Terrain

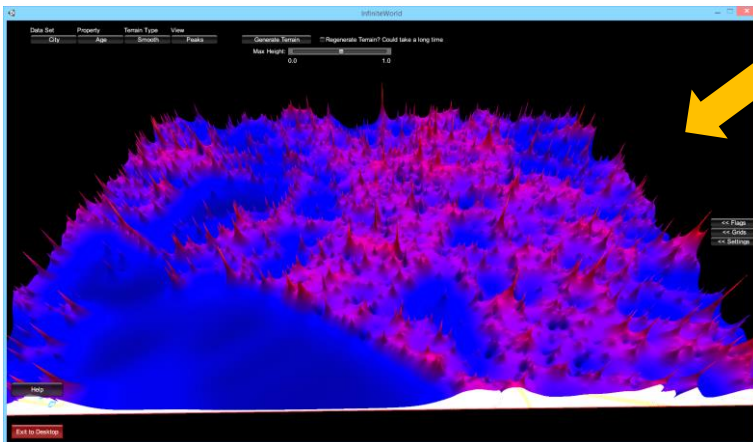
Granular landscape peaks have accurate values at the very tip which, but it may be hard to locate

Smooth Landscape



Smooth landscape may not indicate peaks accurately

Smooth Peaks



Present your data in the right form

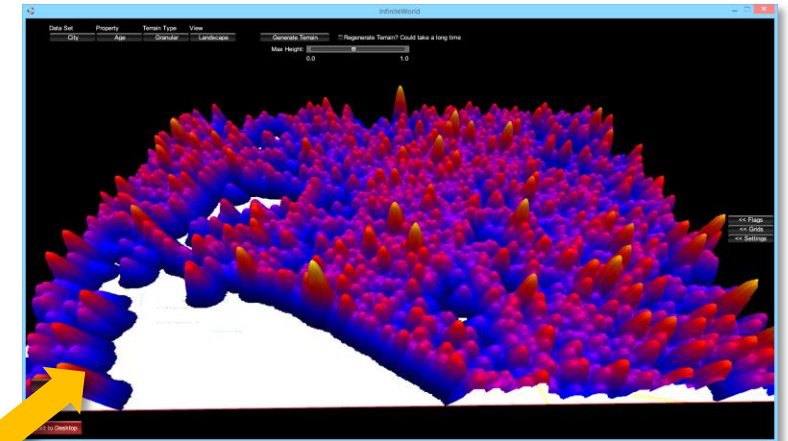
We have a number of terrain types with distinct features, i.e. terrain type and its view.

Landscape terrains emphasize the features of data point groups. Smooth terrains blend and blur these groups, whereas granular ones separate them.

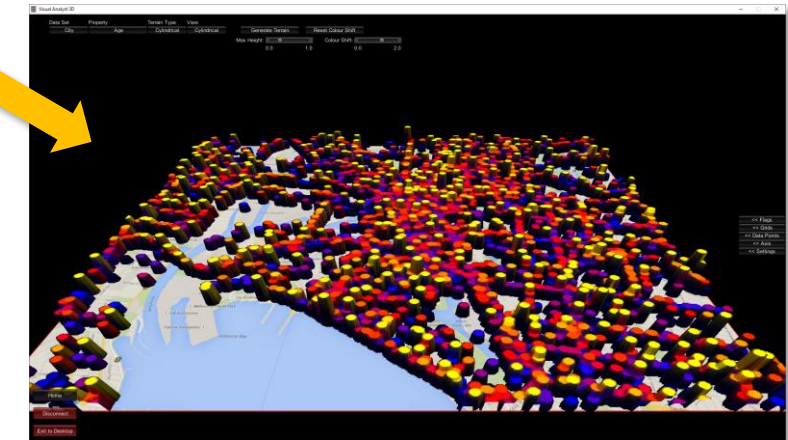
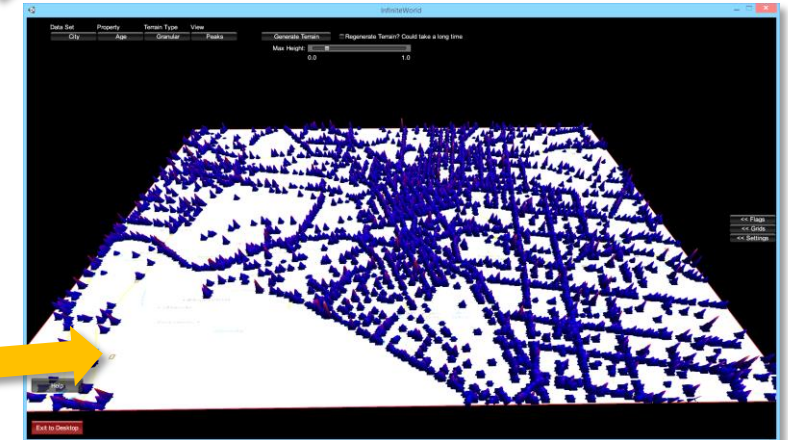
Peak terrains identify single terrain values - individual or aggregate. When smoothed they also highlight similarity of neighboring data points.

Cylindrical terrains present a traditional 3D column chart in a data terrain.

Adjust terrain height with a slider, press "Generate Terrain" to update the view.



Granular Landscape or Peaks

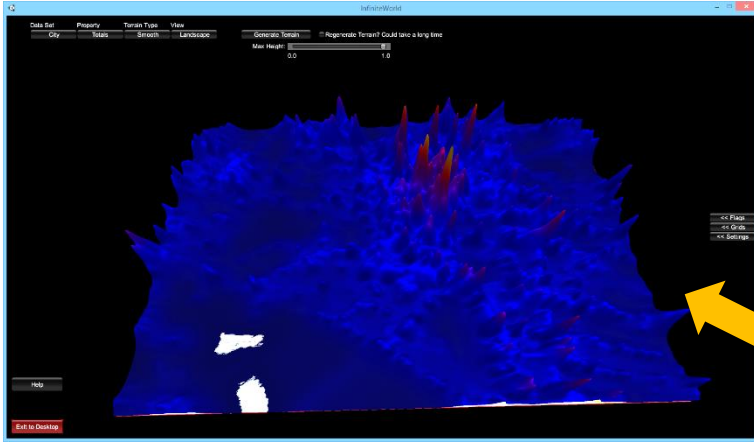


Cylindrical

Navigating Data Terrains

If you get lost, view the terrain from above, or hide the terrain, or press "Home" button to go to the initial position.

1. Press ESC to activate navigation



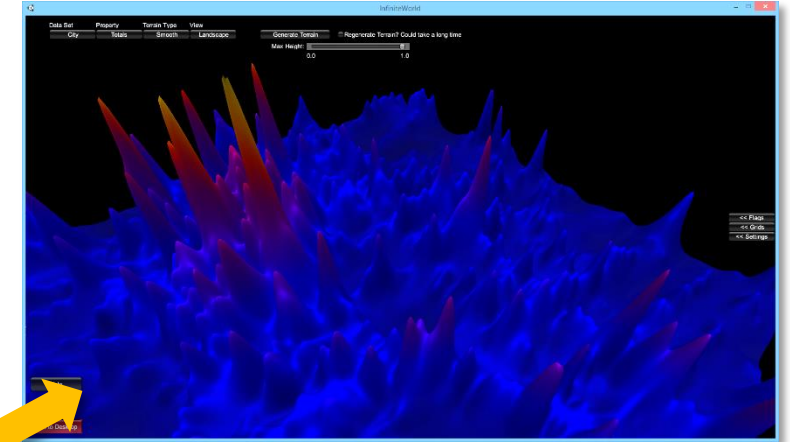
Terrain can be explored as in a game

When a data terrain is loaded it seems static. However, when you press ESC key you start terrain navigation until you pause it by pressing ESC again.

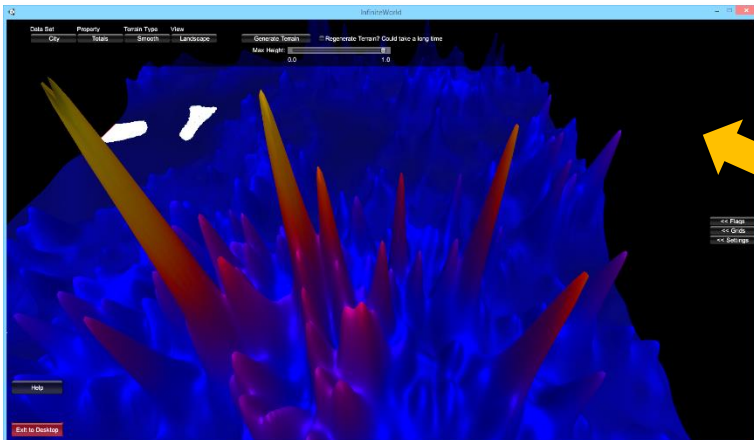
On the left we show the total number of motor vehicle accidents in the city. After pressing ESC you can use the mouse to look around, left and right mouse buttons to move forward and backwards – like in a game.

Select the best view to analyze your data and move around to reanalyze it. You can even go through the hills and end up underneath the terrain, in which case just move back and around to explore the data.

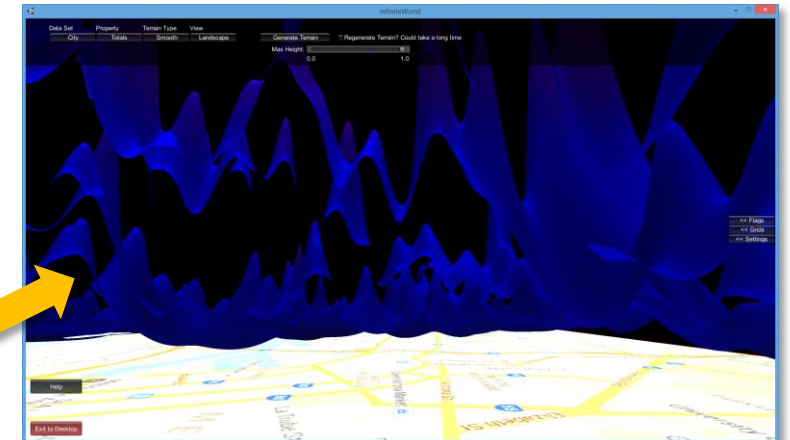
2. Use the mouse to navigate terrain



3. Pause navigation by pressing ESC



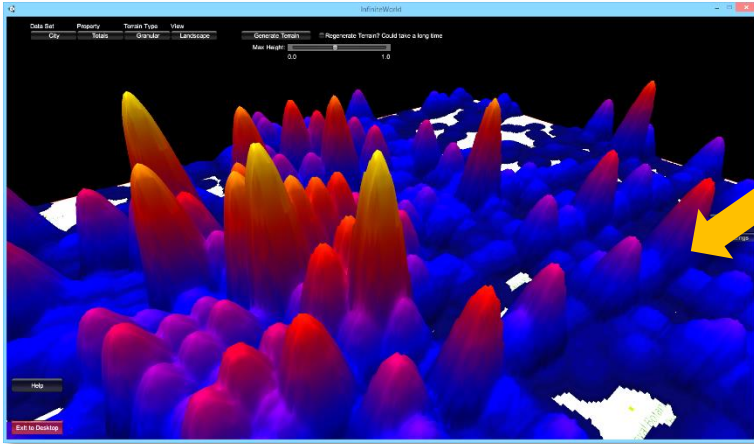
4. You can walk through the terrain



Analyzing and Discovering

Smooth landscape terrain does not represent the peaks' elevation or their distance accurately due to approximation.

1. Landscape works well with grids

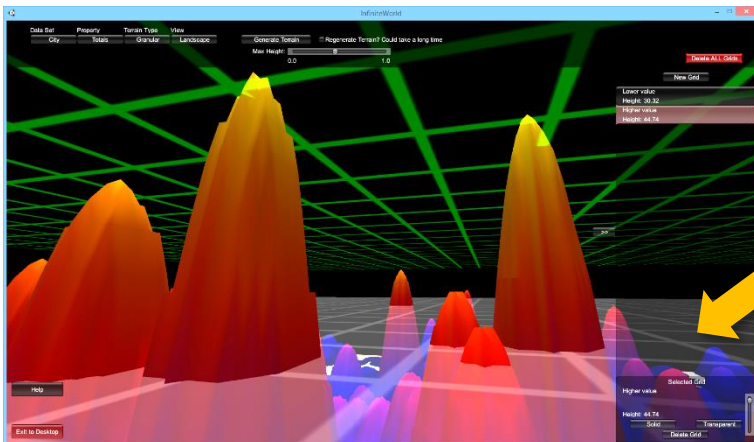


Grids can be used to filter visible data (above certain level) and to compare the heights of data peaks.

Display your terrain in landscape form - works best with grids.

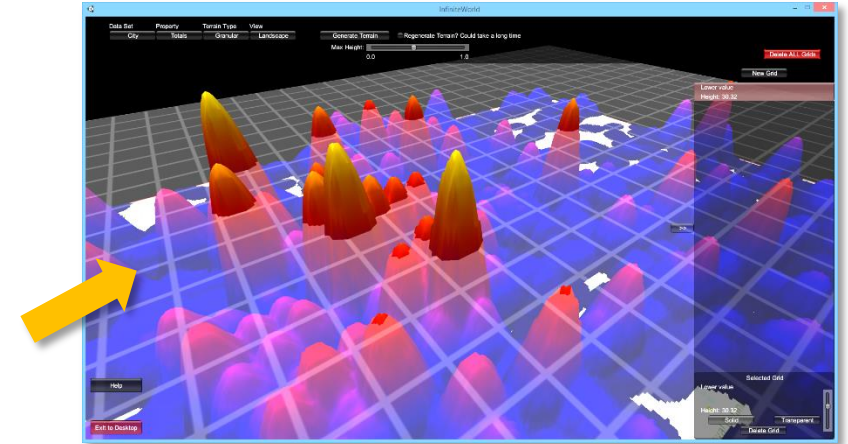
If you were in the navigation mode pause it by pressing ESC. Open the grids panel by pressing a small button "<< Grids" on the right. Create a new grid and name it.

3. Add more grids and position them



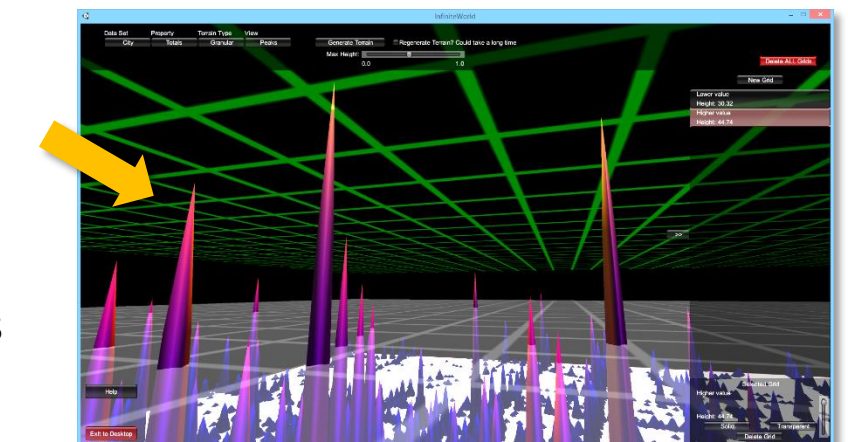
Area at the bottom of the panel allows adjusting the grid position and selecting between grid options. As the "solid" grid moves up, it hides terrain peaks underneath. It is now easy to compare visible peaks.

2. Open grids panel and create a grid



Options of the currently selected grid can be adjusted

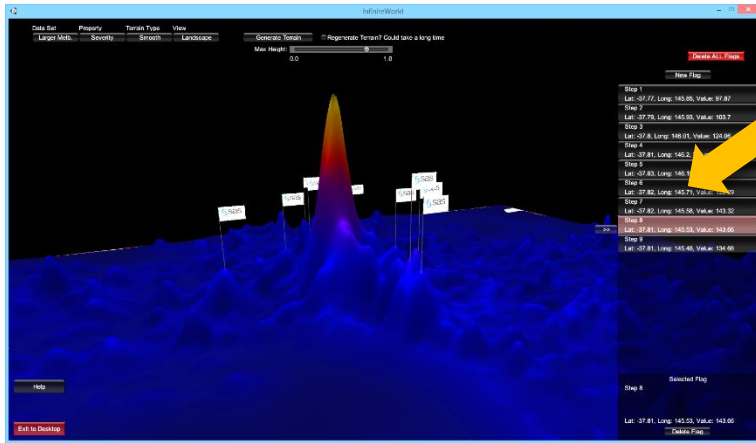
4. Grids are adjusted on terrain change



Observing and Reporting

Terrains are built algorithmically to define elevation of data points, which is used as a flag value at point's geo-location

1. Mark out landscape for orientation



Changing terrain options will change existing flag elevation but not its value

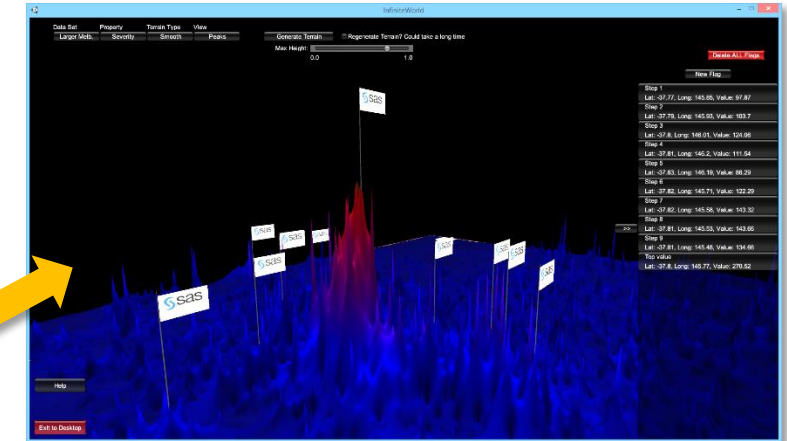
Use flags to record observations

Use flags with landscape terrains for general orientation of where are the highs and lows of your data. Use peak terrains for precision of point elevation as recorded on a flag.

If you were in the navigation mode pause it by pressing ESC. Open the flags pane by pressing a small button "<< Flags". Create a flag and position it on the terrain, then enter its text annotation. A list of flags will appear in the flags pane, useful for reporting of observations. Flags selected from the list will oscillate to easily identify them in the terrain.

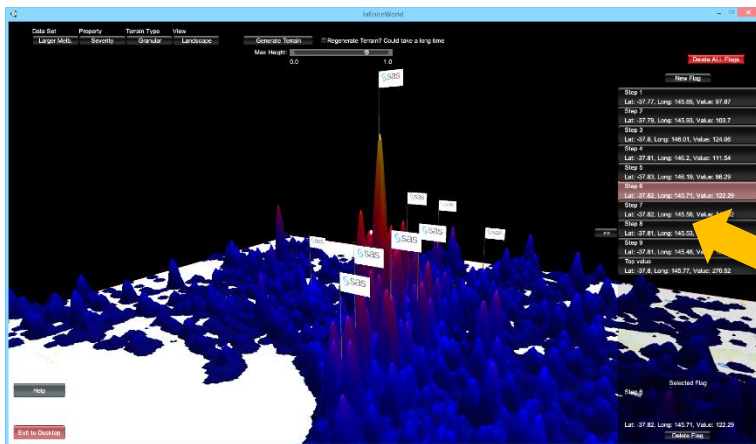
For flags' geo-locations, hide the terrain from the "<< Settings" pane.

2. Place flags on peaks for accuracy

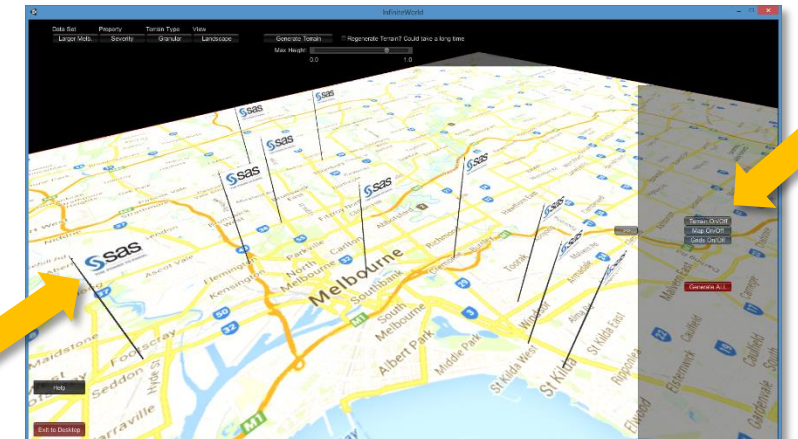


Flag and Settings panes appear by pressing small "<<" buttons on the right.

3. Create flag list for reporting

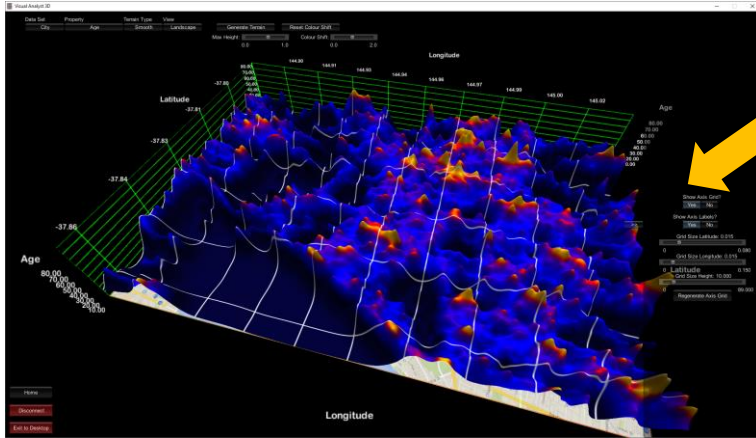


4. Hide terrain to geo-locate markers



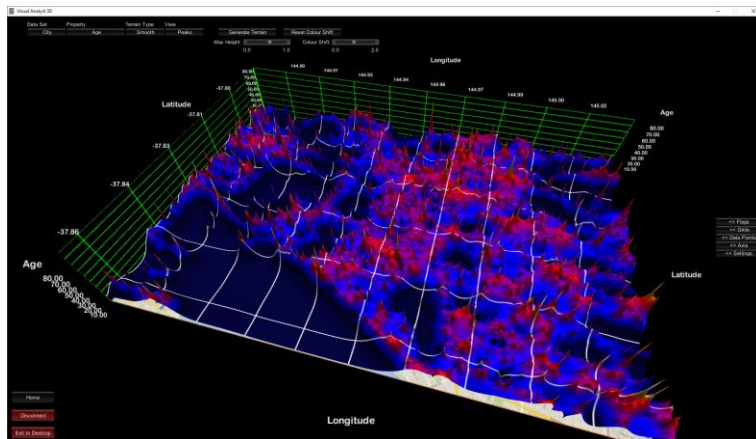
Increasing Visual Precision

1. Add axes and labels for precision



Axes and data points settings can be adjusted on their settings panes.

3. Axes lines are adjusted with changes

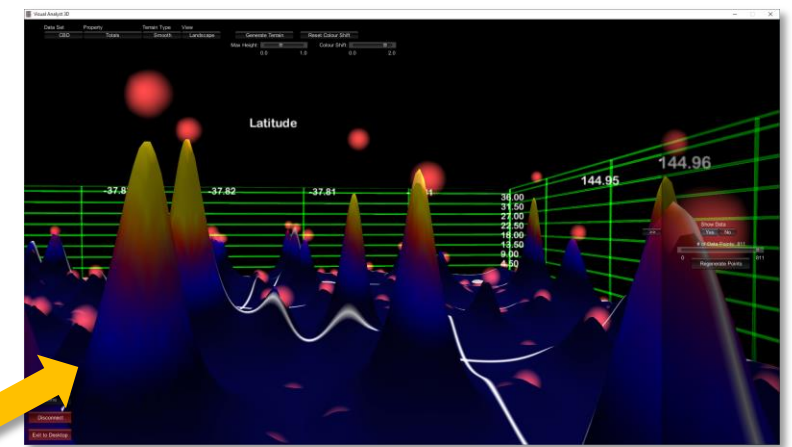


Axes can be activated to plot data coordinates. The terrain will be ruled with lines and the labels placed on axes for identification of value ranges in the terrain. These lines accentuate the terrain shape.

In smooth data terrains, where the terrain surface only approximates the data, the real data points can be displayed to assess the accuracy of the surface spanning the points.

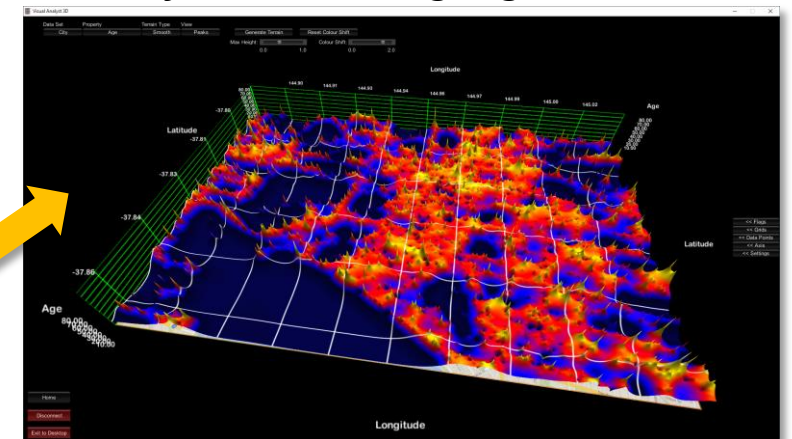
When the distances between data points are small so that visual distinction between terrain features is also difficult, the sliders can be used to increase the terrain elevation and to shift the colour spectrum to highlight differences.

2. Place points on smooth terrains



Axes and Data Points panes appear by pressing small "<<" buttons on the right.

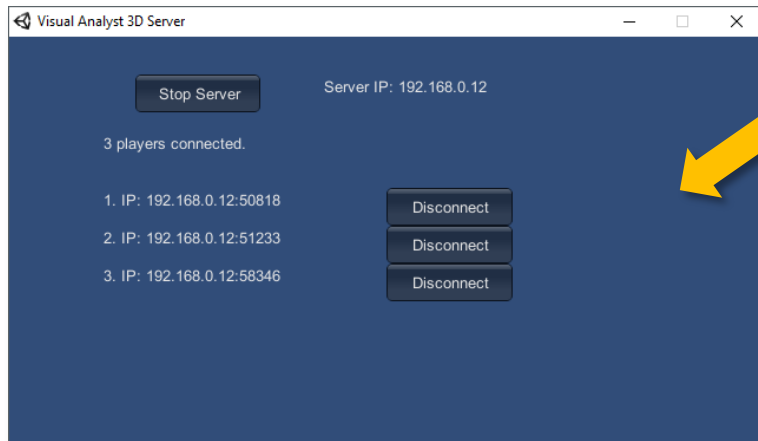
4. Shift colour to highlight low values



Multiplayer Option

When a multiplayer option has been enabled (requires a Visual Analyst 3D server) then several concurrent users can analyse the same data.

1. Run VA3D server

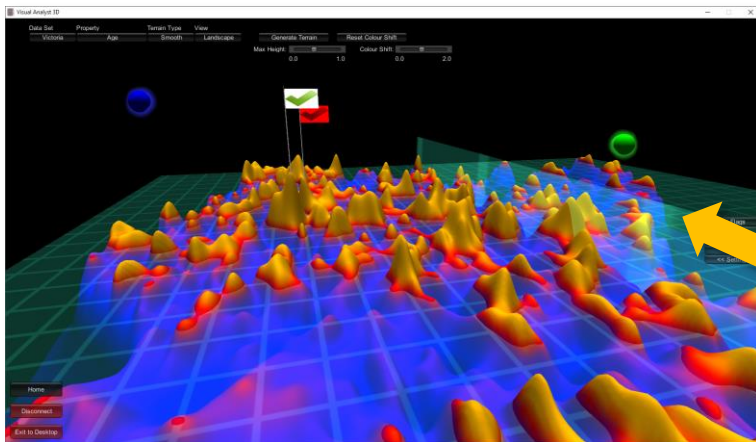


If need to work with other analysts

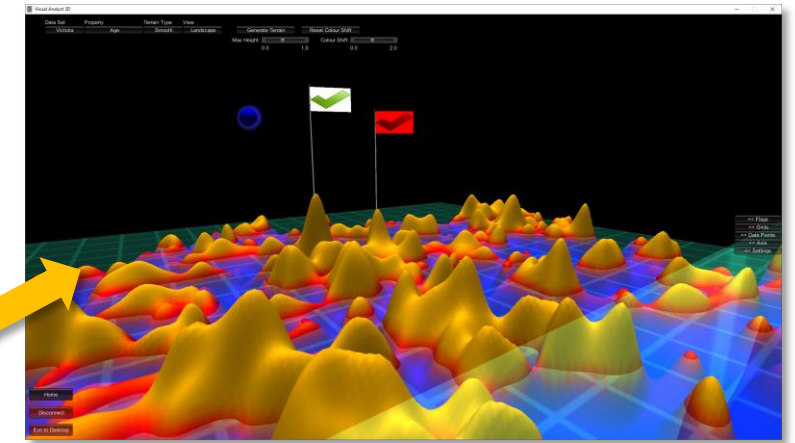
Start a VA3D server and name the session with a unique ID. Each (possibly remote) user will then have to select a multiplayer mode and pick the same (agreed upon) server ID from the list of all currently available servers.

*Terrain options are stored in the server.
Users have distinct views of the terrain.*

3. View of the purple user

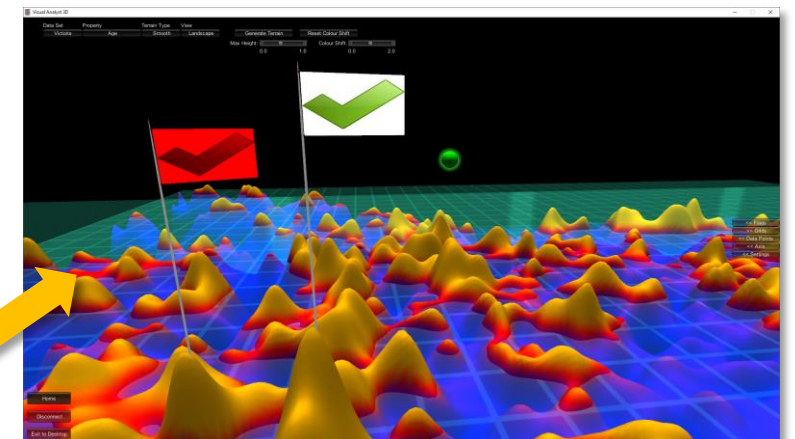


2. View of the green user



Flag and Settings panes appear by pressing small "<<" buttons on the right.

4. View of the blue user



All users in the terrain will be identified with a colour sphere. Each person can independently navigate the terrain and assume different viewpoint. However, all changes to the data terrain will be synchronized and displayed in the same fashion to all users. At this point in time, voice and message communication are supported only via third party products, e.g. Skype.

Acknowledgements

The Visual Analyst 3D was initially developed by A/Prof. Jacob Cybulski in the Department of Information Systems and Business Analytics at Deakin University, as part of the project “Enhancing collaborative learning in information systems business analytics using data visualisation and manipulation techniques”.

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