Generation of a 3D object from a Digital Elevation Model (DEM)

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07-04-2016

1 Abstract

Digital Elevation Models (DEMs) are 2D maps in which each point is associated with its height.They can be obtained through techniques such as *photogrammetry* [1] ,*lidar* [2],*land* [3],*surveying* [4],*etc* [5].They represent the elevation of a terrain map.

2 Bibliography

For this project, the first thing to do is to do a state-of-the-art of DEMs, that is, to try to *classify DEMs models (stereography, satellite, etc.)* and to *identify the differents formats*[6]. The Project will be implement in *C++/ Qt framework*[7] and a visualisation in *OpenGL*[8].

[1] https://somesite.net
[2] http://somesite.net
[3] http://somesite.net
[4] http://somesite.net
[5] http://somesite.net
[6] http://www.ngdc.noaa.gov/mgg/dem/
[7] http://http://www.qt.io/ide/
[8] opengl-superbible-comprehensive-tutorial-and-reference-5th-edition-2010

2.1 What is digital elevation model (DEM)?

A digital elevation model (DEM) is a digital model or 3D representation of a terrain's surface commonly for a planet (including Earth), moon, or asteroid created from terrain elevation data

2.2 Types of DEM models

- A raster: grid of squares, also known as a heightmap when representing elevation
- A vector-based triangular irregular network (TIN)

2.3 DEM file formats

- USGS DEM
- SDTS DEM
- DTED
- DIMAP