Voxel Space Visualisations using Geoserver and Javascript

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OSGeo

COMPASS INFORMATICS

Marine Institute
Foras na Mara
Terrain rendering algorithm in less than 20 lines of code
VoxelSpace

Colour map representing surface
Greyscale map representing height
Basic algorithm

For a 3D engine the rendering algorithm is amazingly simple. The Voxel Space engine rasters the height and color map and draws vertical lines. The following figure demonstrates this technique.
Geoid height (EGM2008, nmax=500)
Topology + Bathymetry

Geoid height (EGM2008, nmax=500)
The INtegrated Mapping FOr the Sustainable Development of Ireland's MArine Resource (INFOMAR) programme is a joint venture between the Geological Survey of Ireland and the Marine Institute.
Bathymetric Surveys

Multibeam Sonar

INFOMAR
Integrated Mapping for the Sustainable Development of Ireland’s Marine Resource
Bathymetric Surveys

Multibeam Sonar
Images created using desktop screenshot + imagemagick
Could we load the images using Infomar data from a tile server?

1. Image from tile server

Kinda boring. No shadows.
Could we load the images using Infomar data from a tile server?

1. Image from tile server
2. Digital Elevation Model calculated from image, in javascript
Could we load the images using Infomar data from a tile server?

1. Image from tile server
2. Digital Elevation Model calculated from image, in javascript
3. Hillshaded image by combining 1 + 2.
Could we load the images using Infomar data from a tile server?

1. Image from tile server

Folded image calculated in javascript for continuous space...
Could we load the images using Infomar data from a tile server?

1. Image from tile server

Kinda boring. No shadows.
Could we load the images using Infomar data from a tile server?

Hillshaded image for Color Map.

More Interesting.
Could we load the images using Infomar data from a tile server?

This is inaccurate because cannot create a true height map from the color map. Really need the greyscale height map as input.

Hillshaded image for Color Map.

Terrain rendering algorithm applied to Vancouver LIDAR data

89 commits

1 branch
Wow! It’s fetching tiles from S3 as you navigate.
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Could it work for WMS?
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Could it work for WMS?

With a bit of work, YES!!!
Fly controls **WASD** or **Cursor Keys** or **left click** move, **R|F** up | down, **Q|E** pitch,

**Distance**

**Project Information**
Using Geoserver as the WMS server.

W.I.P.

https://github.com/IrishMarineInstitute/Geoserver-Voxel-Space
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