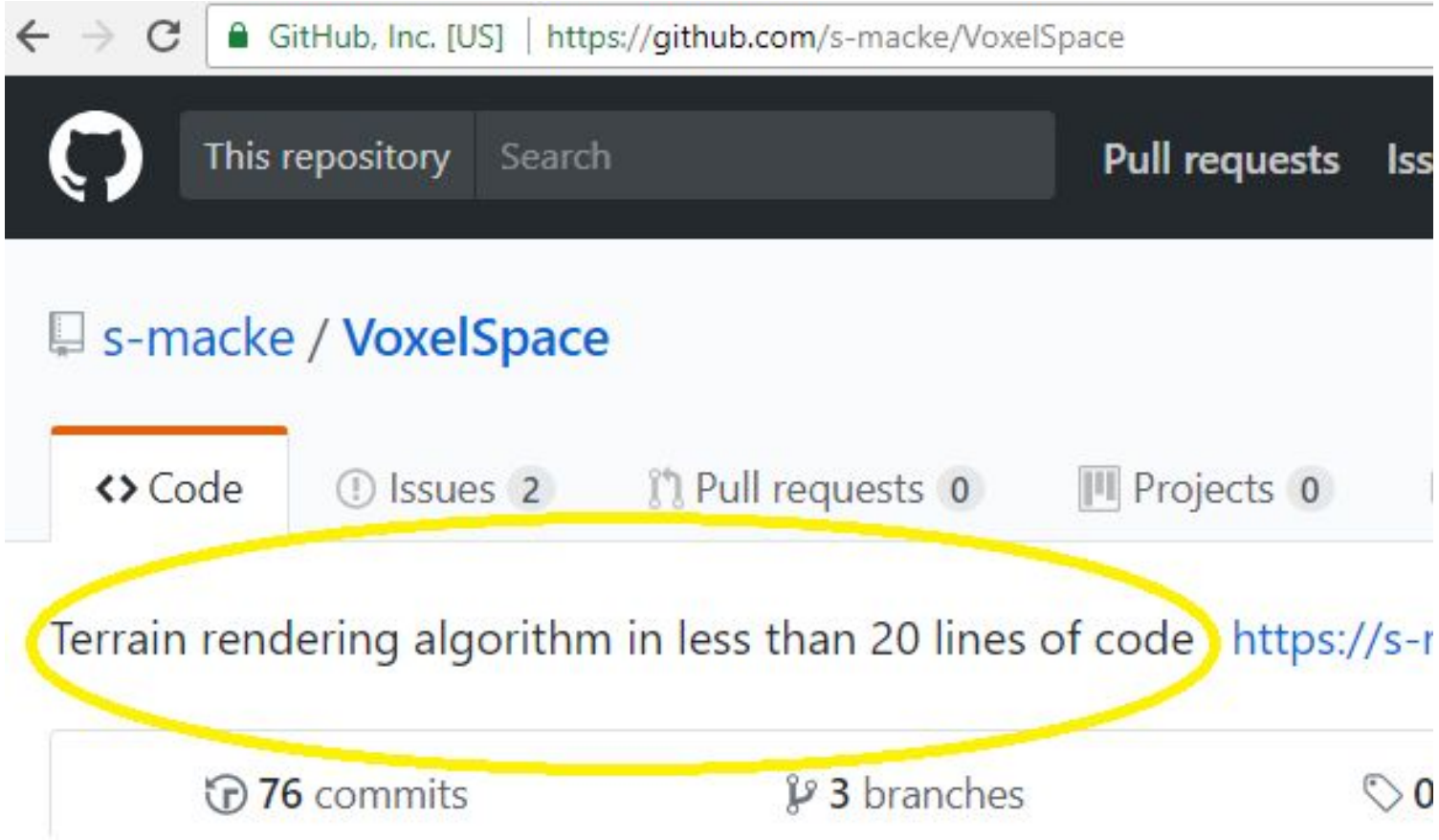
Voxel Space Visualisations using Geoserver and Javascript

Rob Fuller

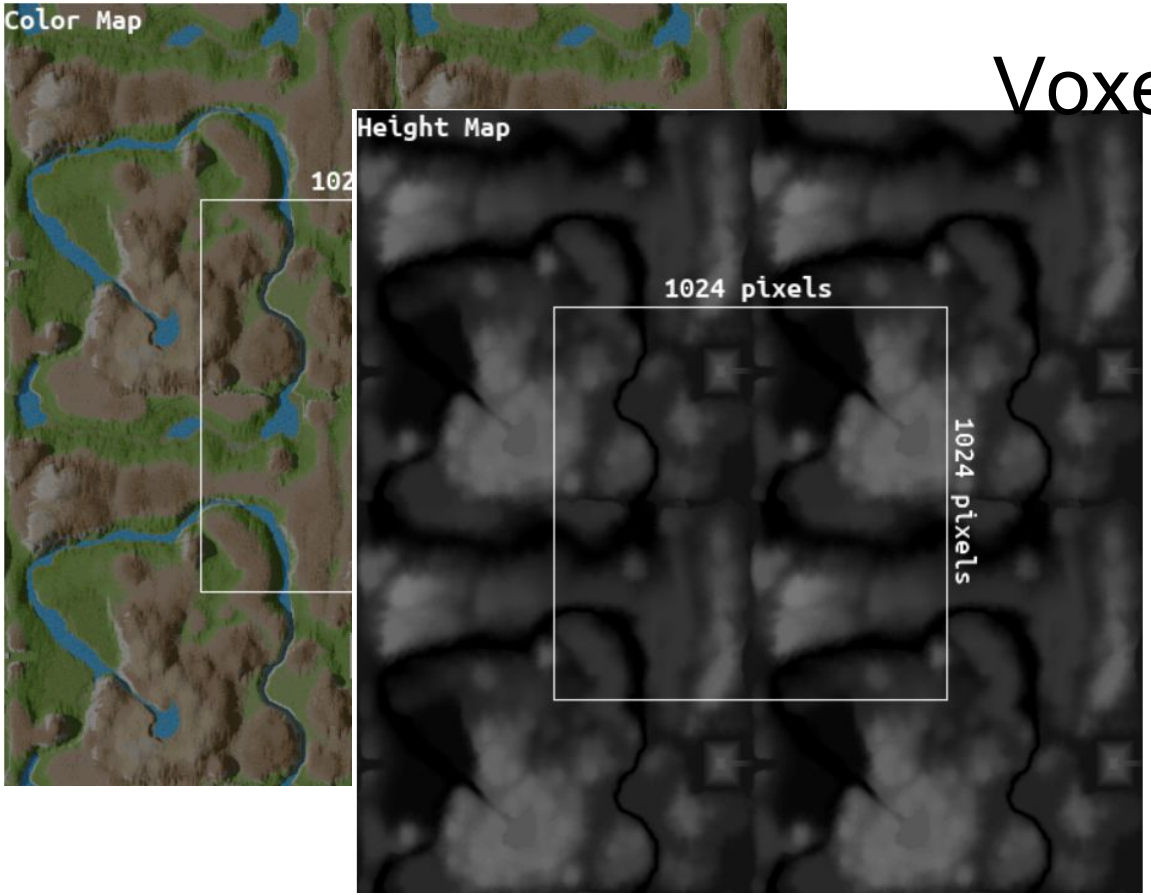
OSGeo

Marine Institute
Foras na Mara


GitHub, Inc. [US] | https://github.com/s-macke/VoxelSpace
This repository
Search
Pull requests
Iss
s-macke / VoxelSpace
Code
Issues 2
Pull requests 0
Projects 0
Terrain rendering algorithm in less than 20 lines of code
https://s-r
76 commits
3 branches
0

VoxelSpace

Colour map representing surface



VoxelSpace

Greyscale map representing height

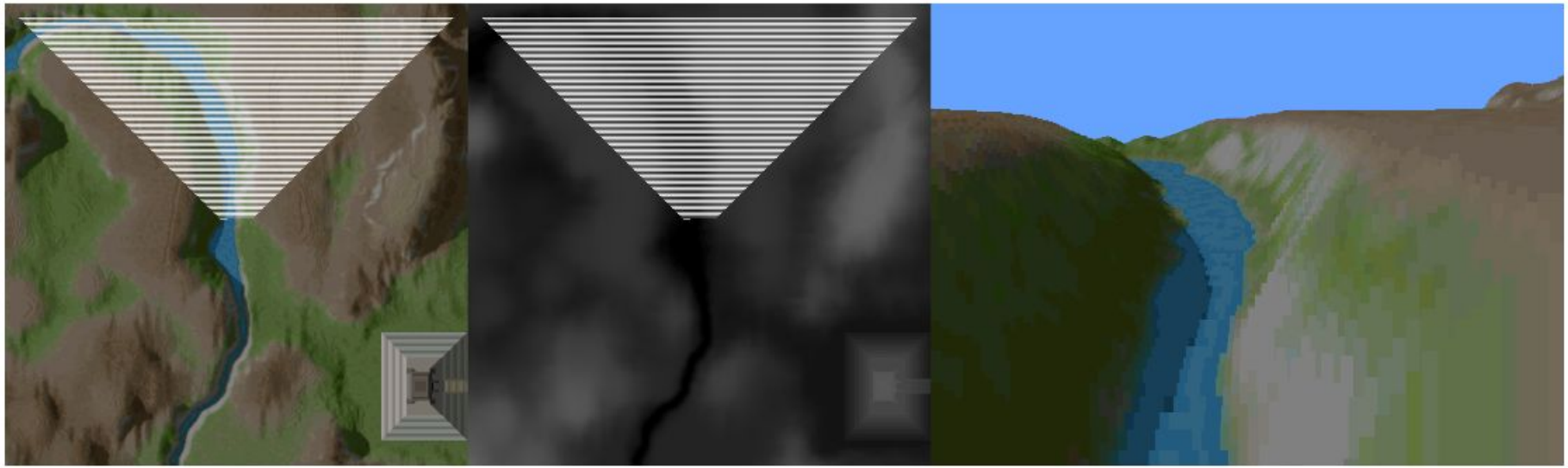
VoxelSpace

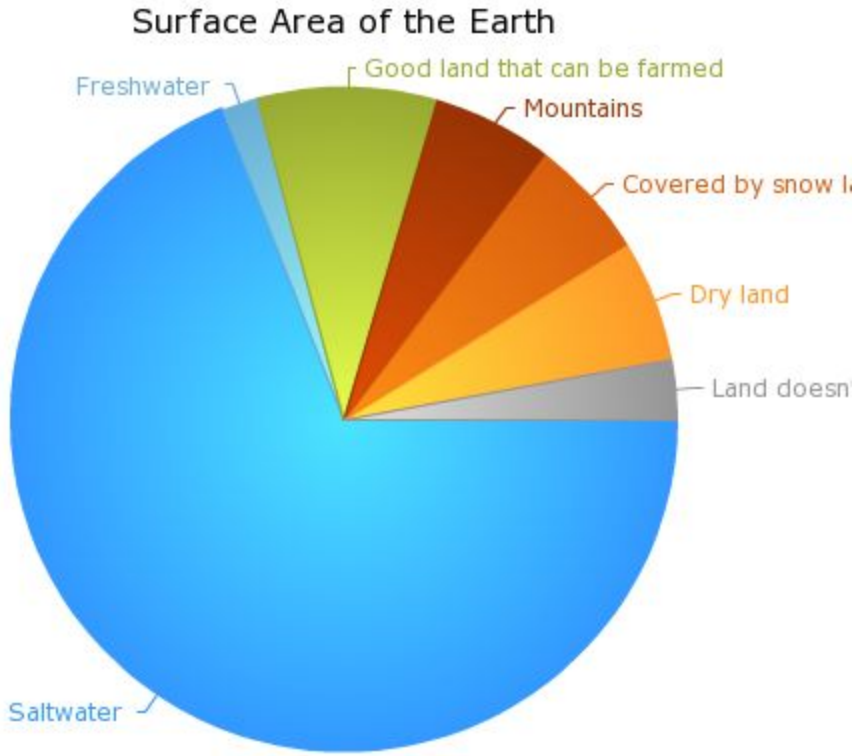

Color Map
Height Map
Fly controls WASD or Cursor Keys or left click move, R|F up | down, Q|E pitch,
0.0 fps
Map C1W
Distance
Github project page

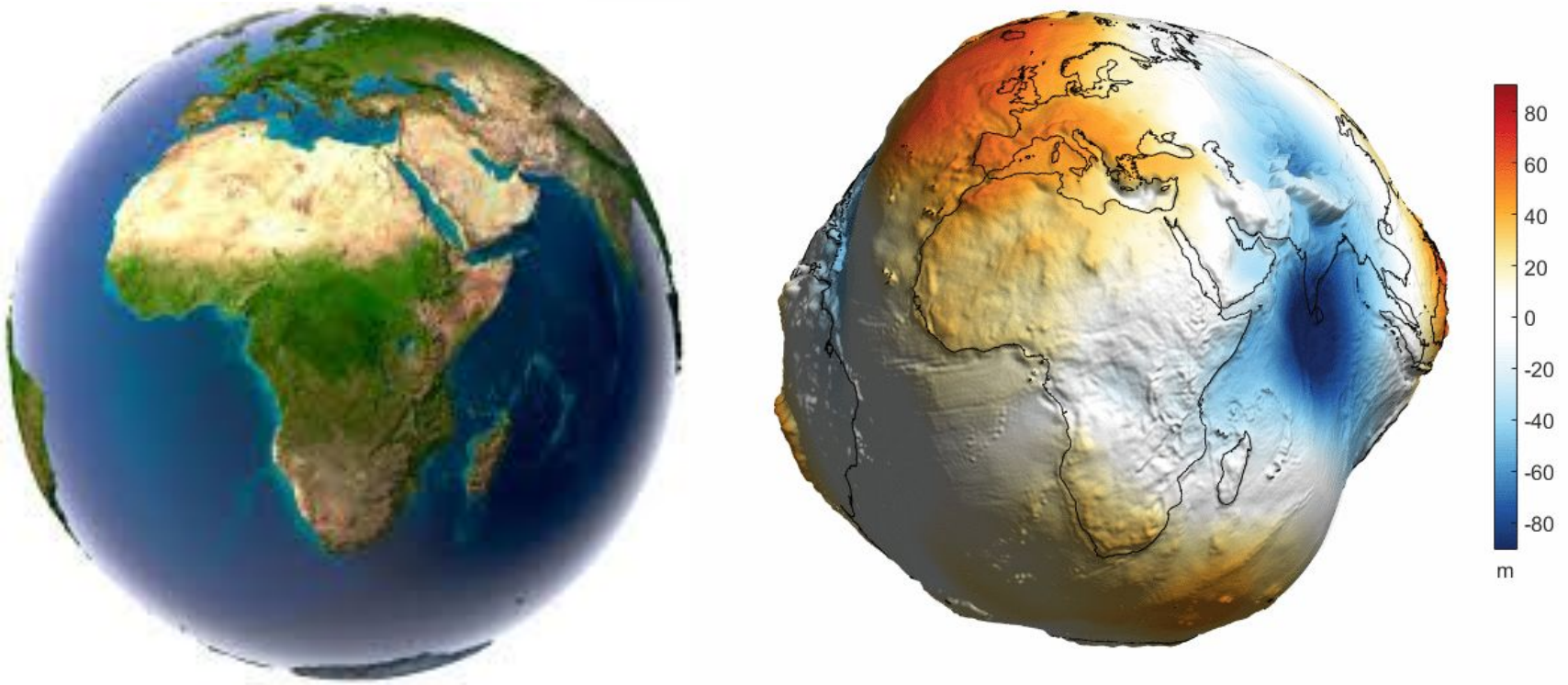
VoxelSpace

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 demonstrate this technique.

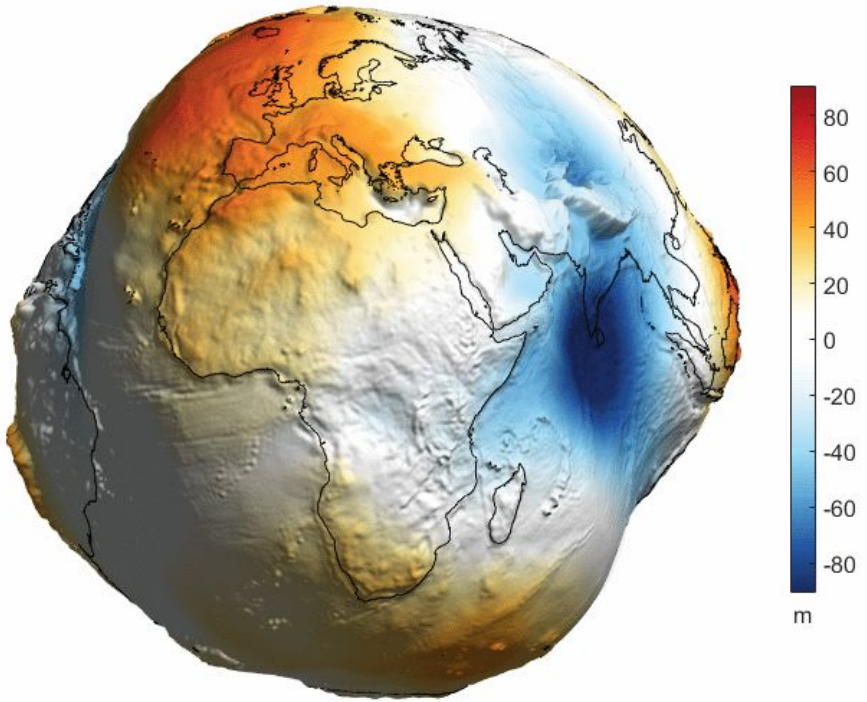



Surface Area of the Earth
Freshwater
Good land that can be farmed
Mountains
Covered by snow l
Dry land
Land doesn
Saltwater



Geoid height (EGM2008, nmax=500)

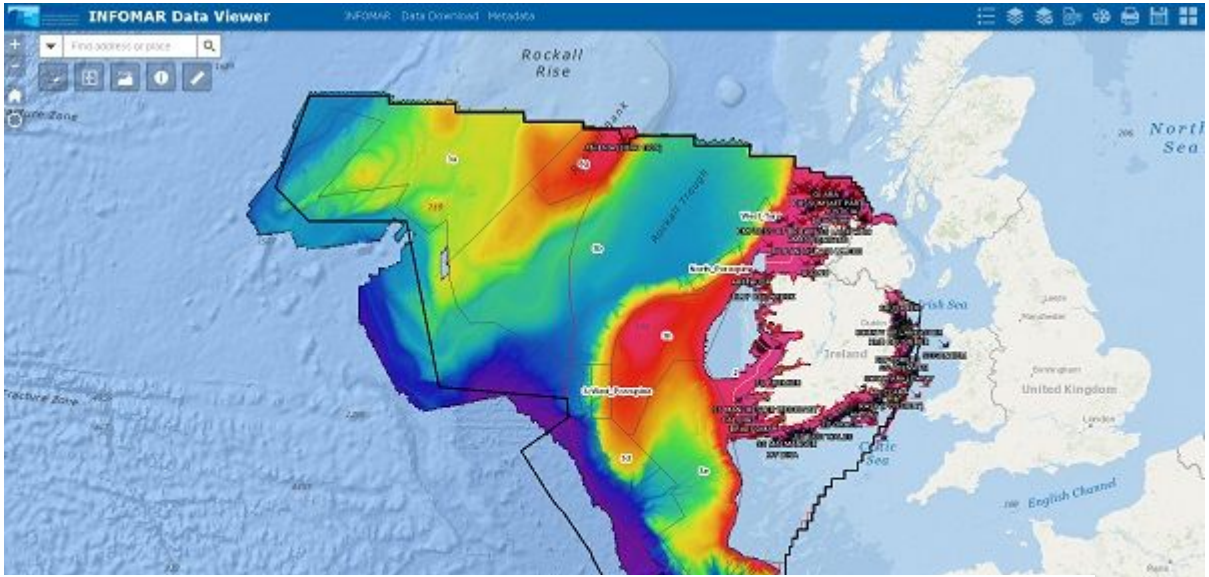
Topology + Bathymetry



Geoid height (EGM2008, nmax=500)

INFOMAR

Integrated Mapping for the Sustainable Development of Ireland's Marine Resource

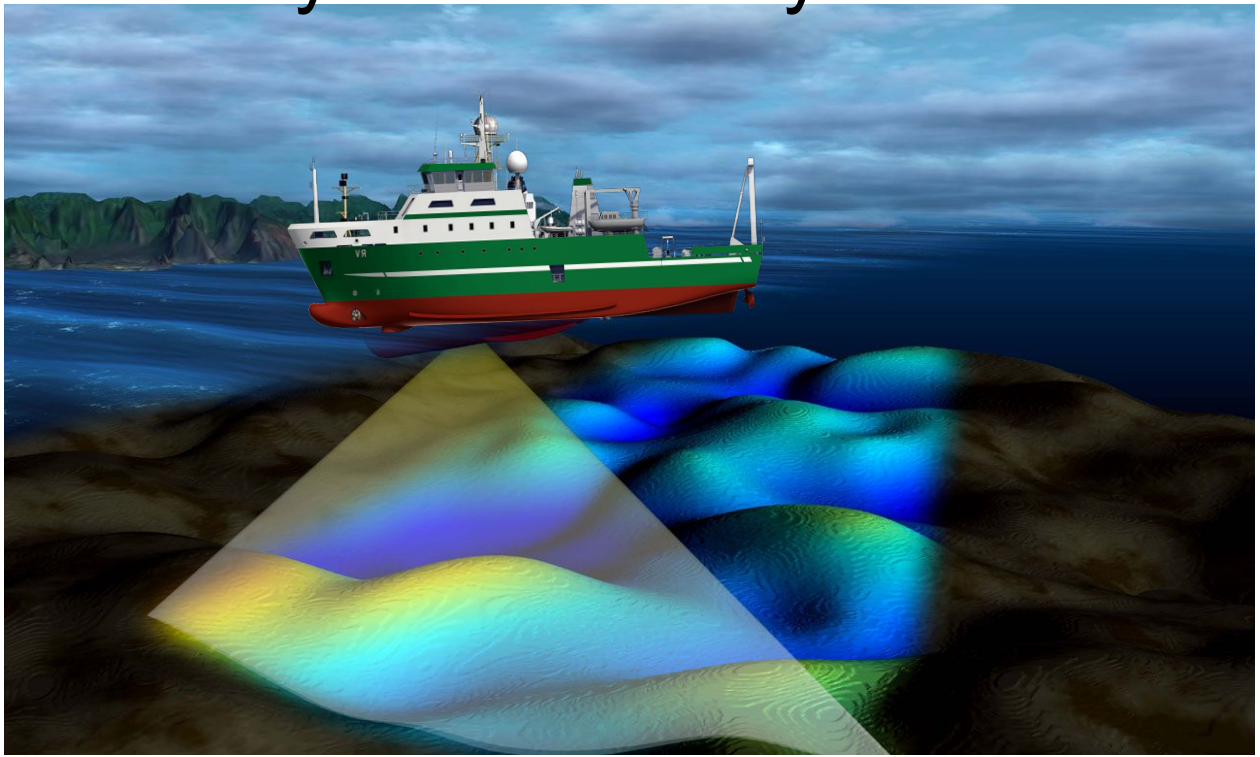


The **IN**tegrated Mapping **FO**r the Sustainable Development of Ireland's **MA**rine **R**esource (INFOMAR) programme is a joint venture between the **Geological Survey of Ireland** and the **Marine Institute**.

INFOMAR

Integrated Mapping for the Sustainable Development of Ireland's Marine Resource

Bathymetric Surveys

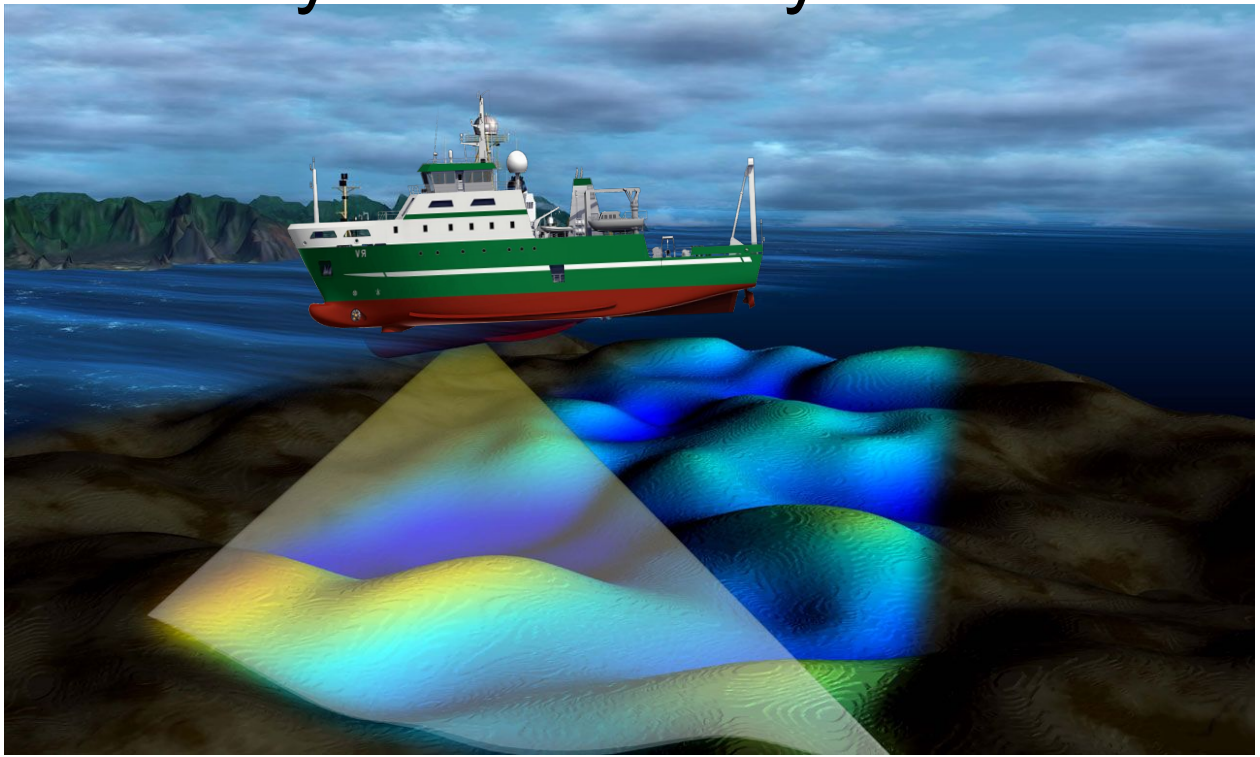


Multibeam Sonar

INFOMAR

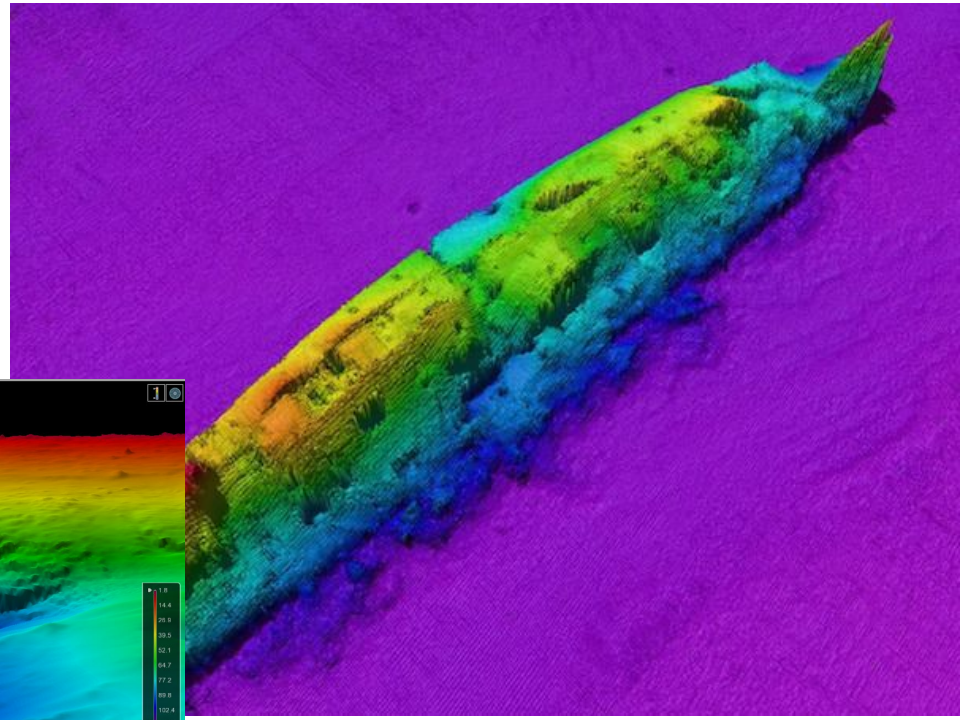
Integrated Mapping for the Sustainable Development of Ireland's Marine Resource

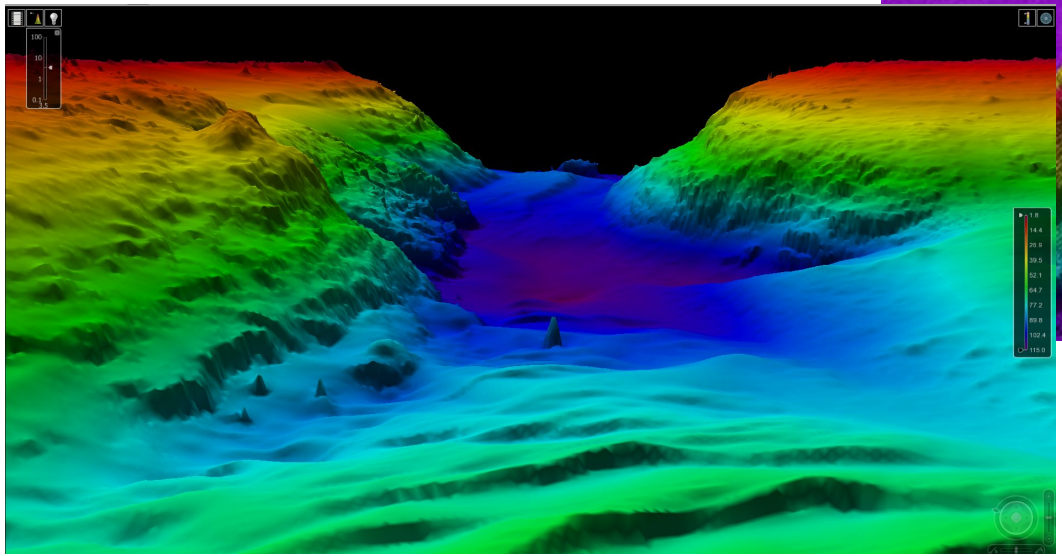
Bathymetric Surveys



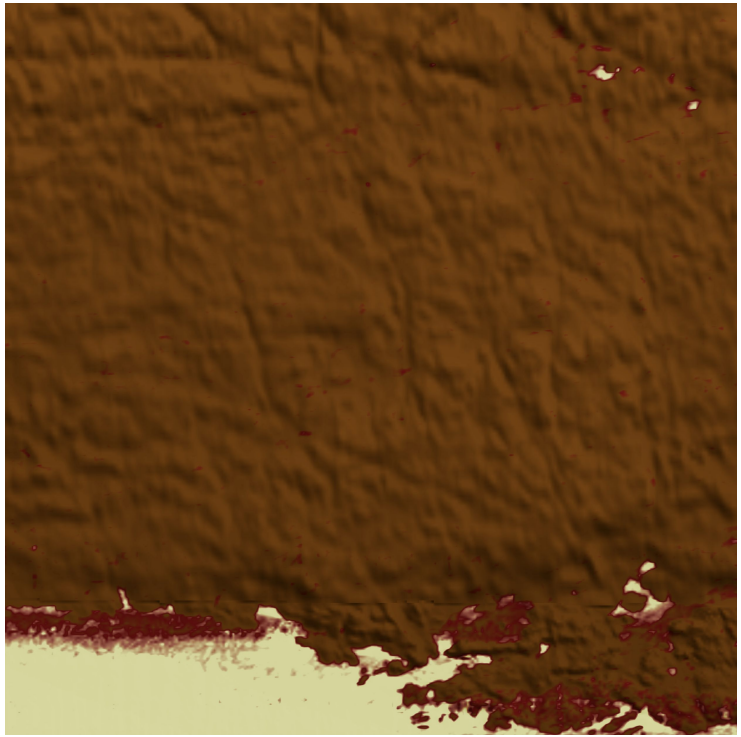
Multibeam Sonar

INFOMAR

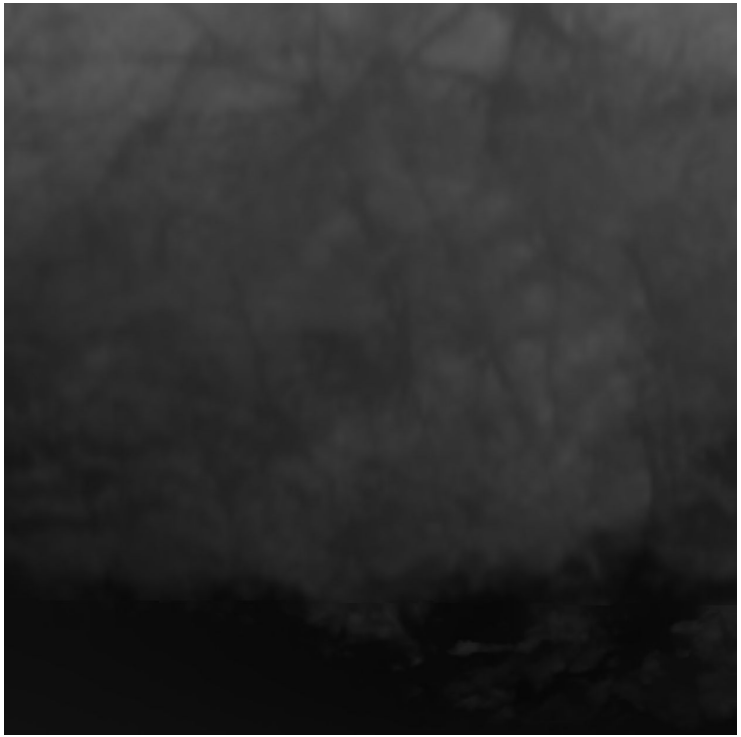




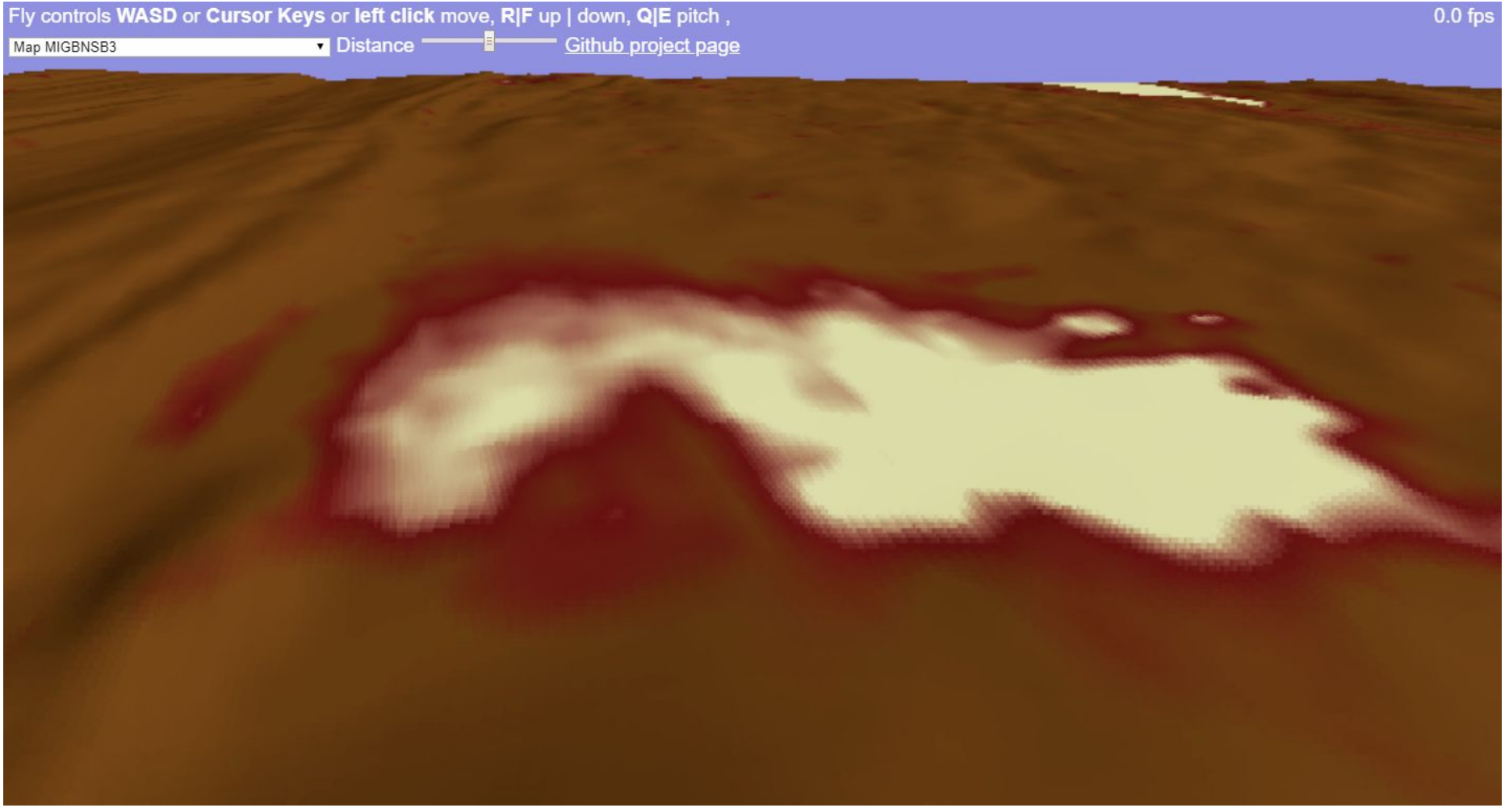
Color Map



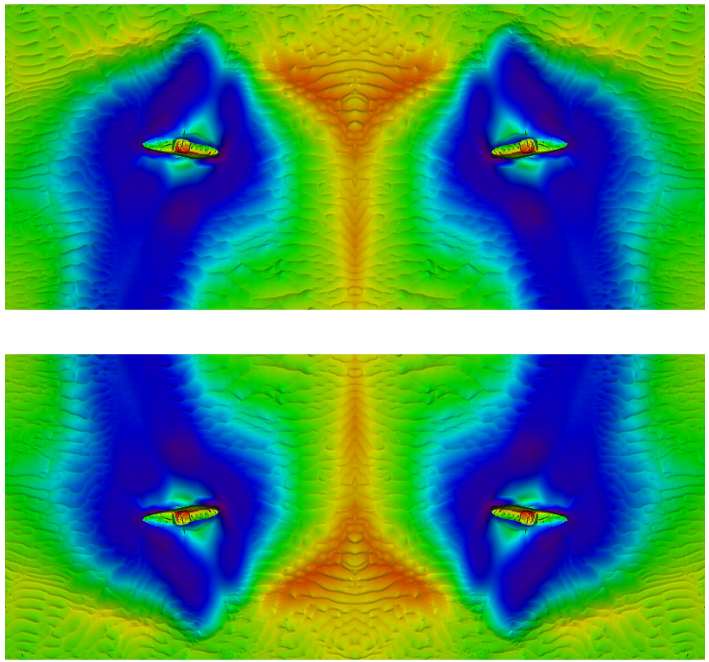
Height Map



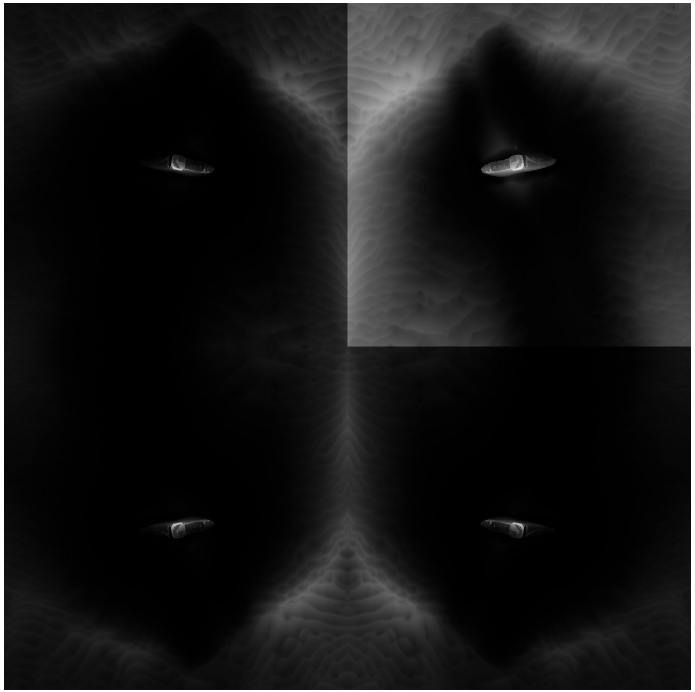
Images created using desktop screenshot


Fly controls **WASD** or **Cursor Keys** or **left click** move, **R|F** up | down, **Q|E** pitch ,
0.0 fps
Map MIGBNSB3
Distance
Github project page

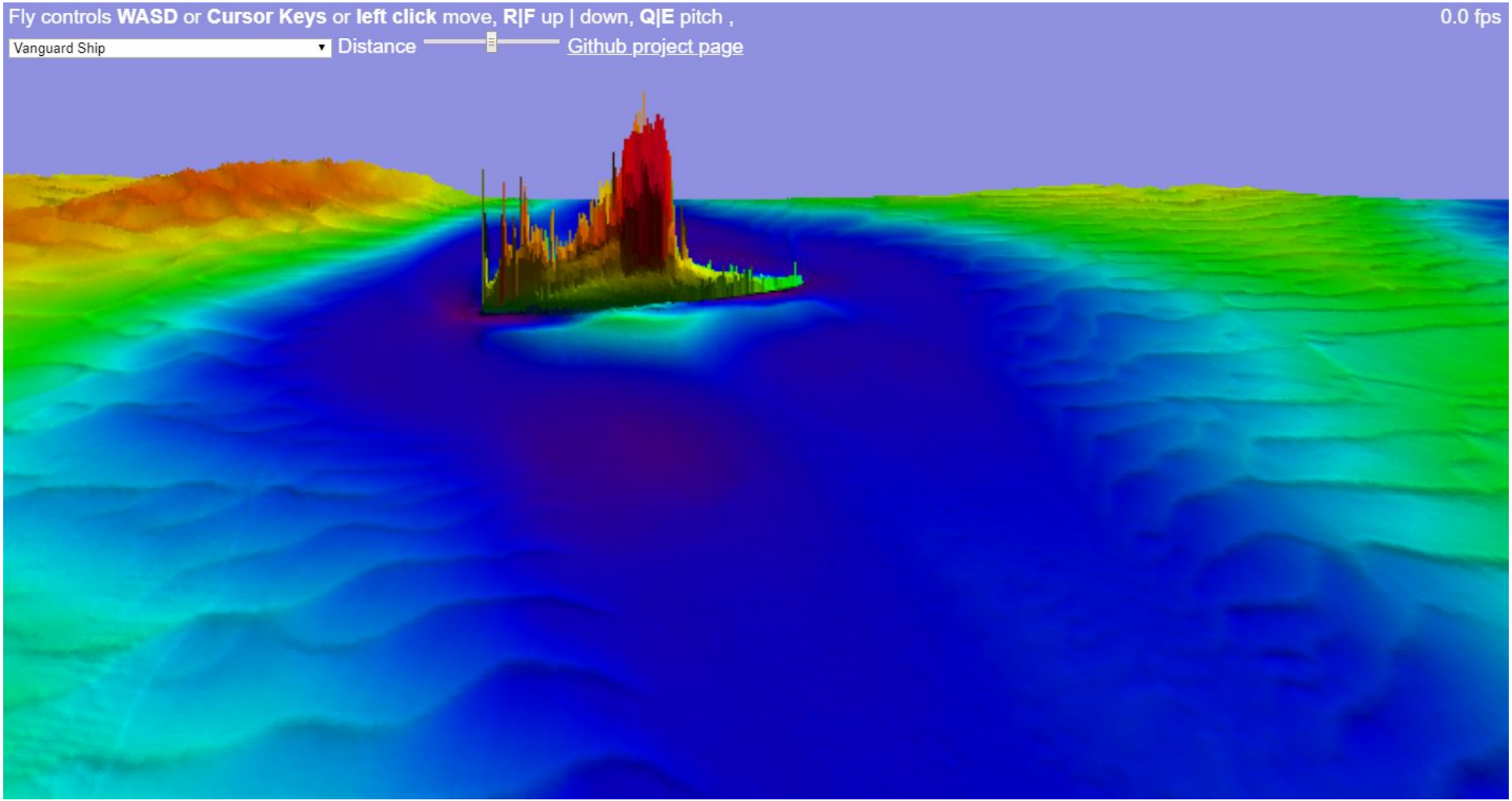
Color Map



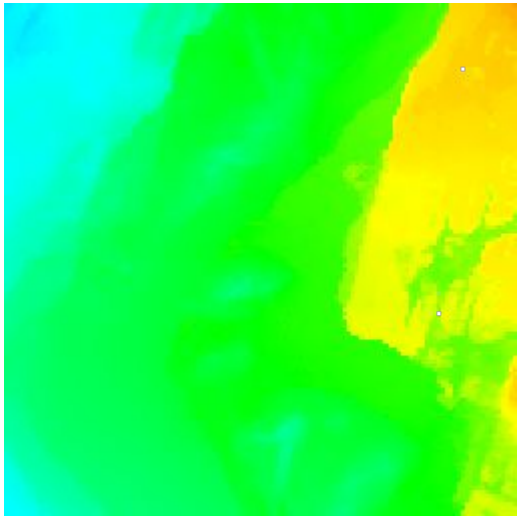
Height Map



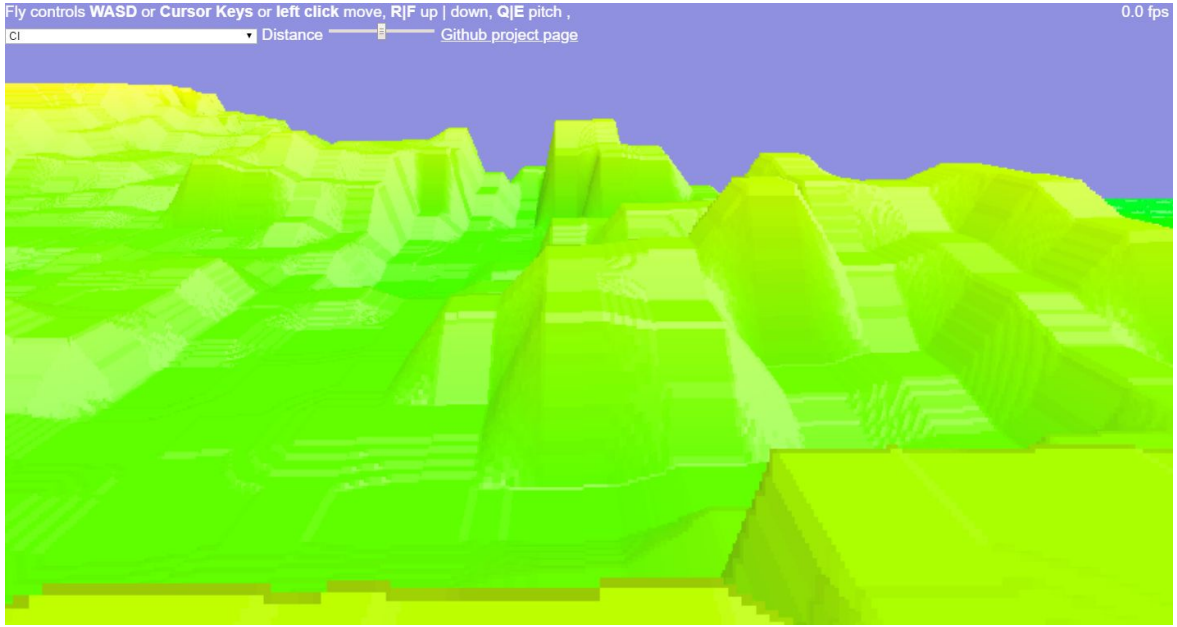
Images created using desktop screenshot + imagemagick


Fly controls WASD or Cursor Keys or left click move, R|F up | down, Q|E pitch ,
0.0 fps
Vanguard Ship
Distance
Github project page

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

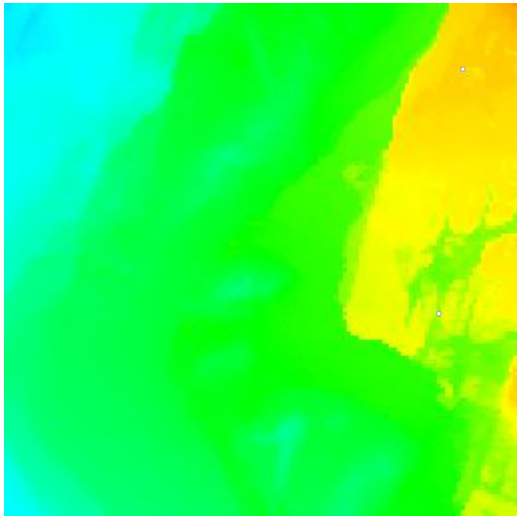


1.Image from tile server



Kinda boring. No shadows.

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



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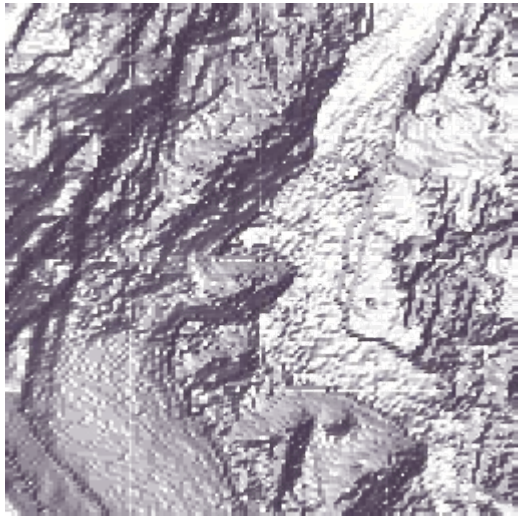
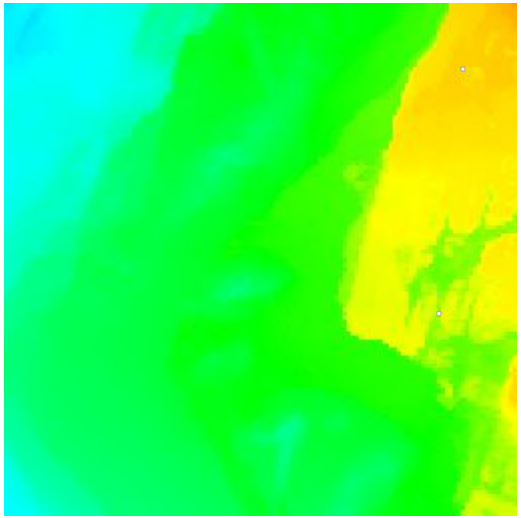


2. Digital Elevation Model calculated from image, in javascript

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



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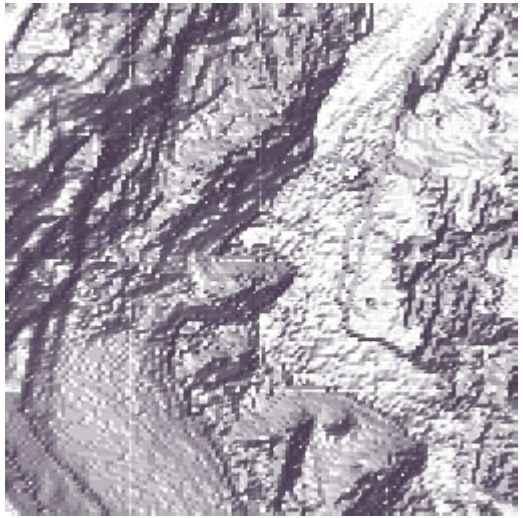

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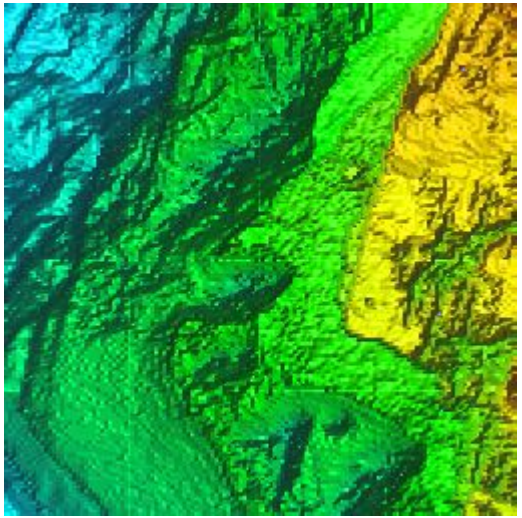
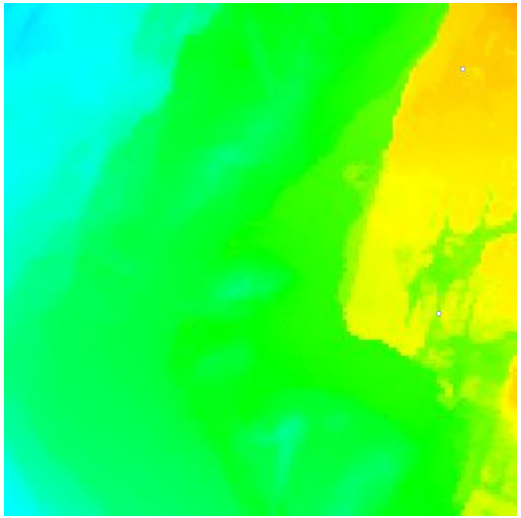
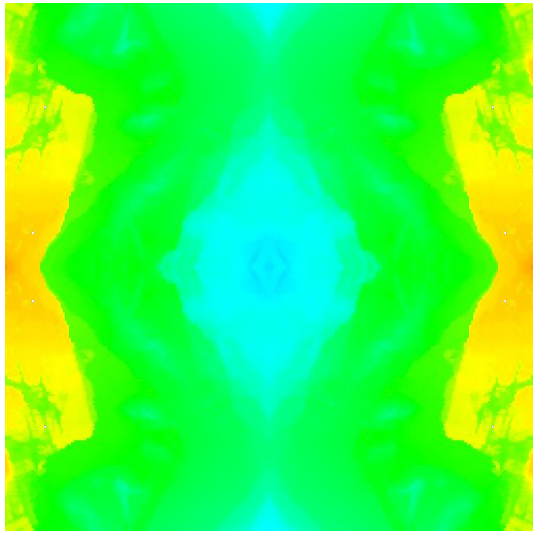


3. Hillshaded image by combining 1 + 2.

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

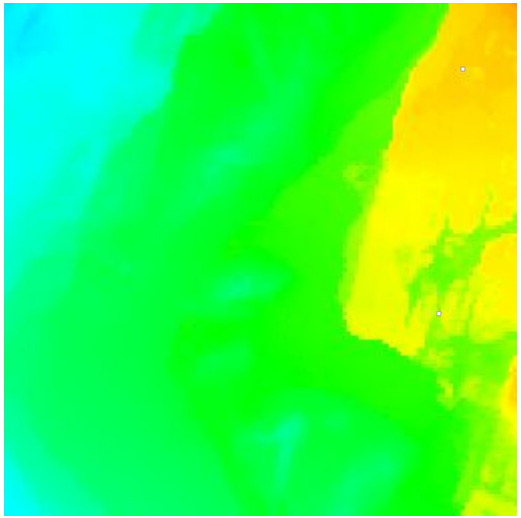


1.Image from tile server



Folded image calculated in javascript for continuous space...

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



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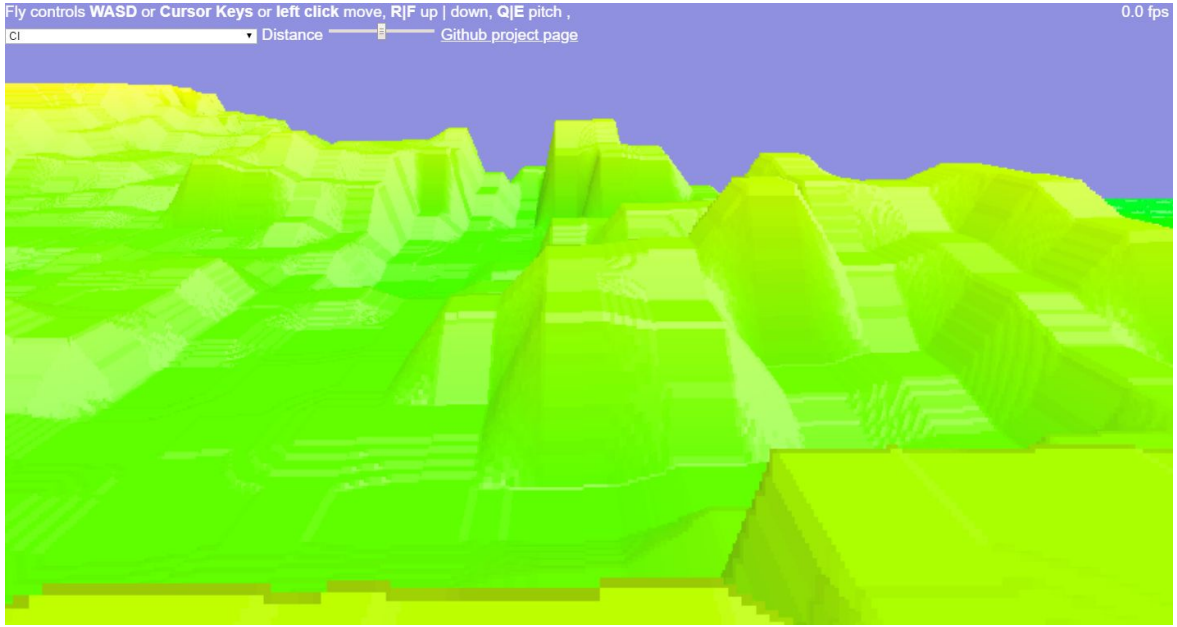

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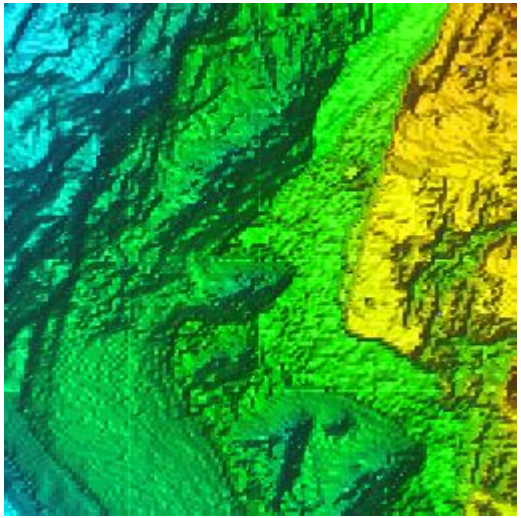
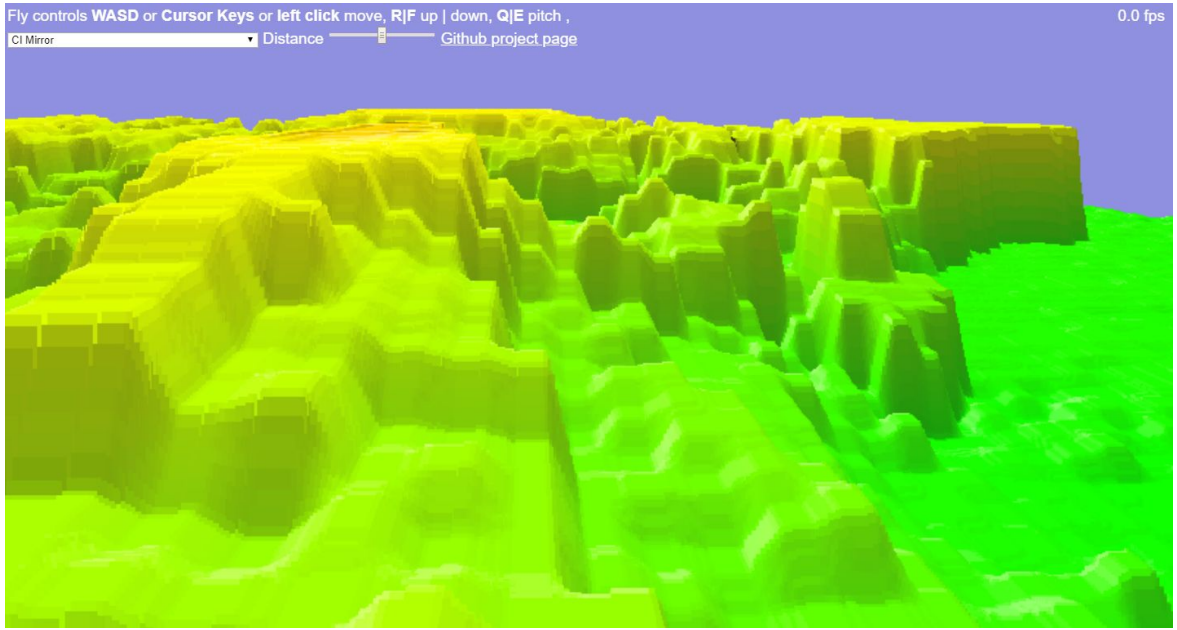
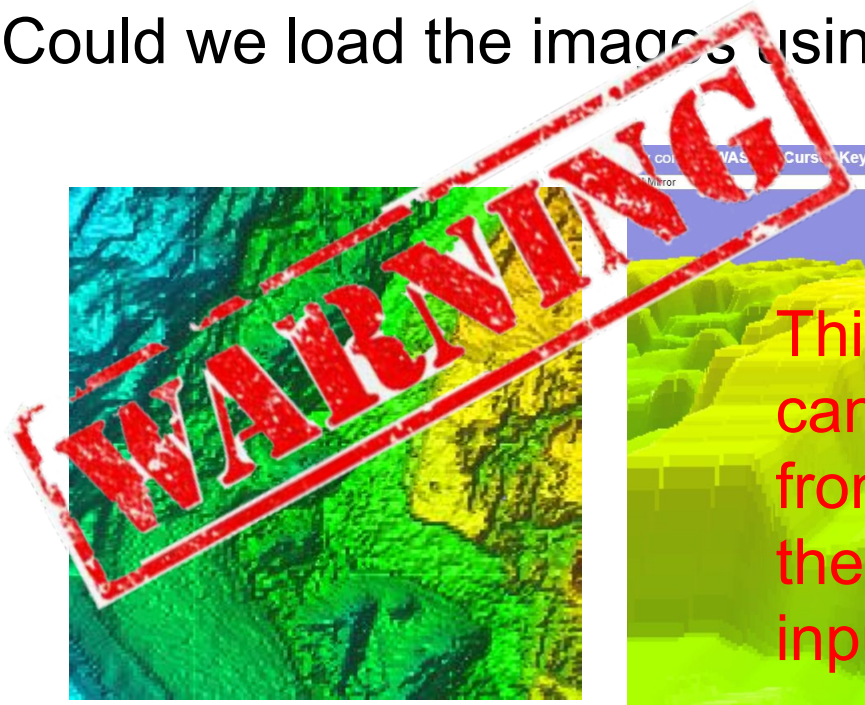


Hillshaded image for Color Map.

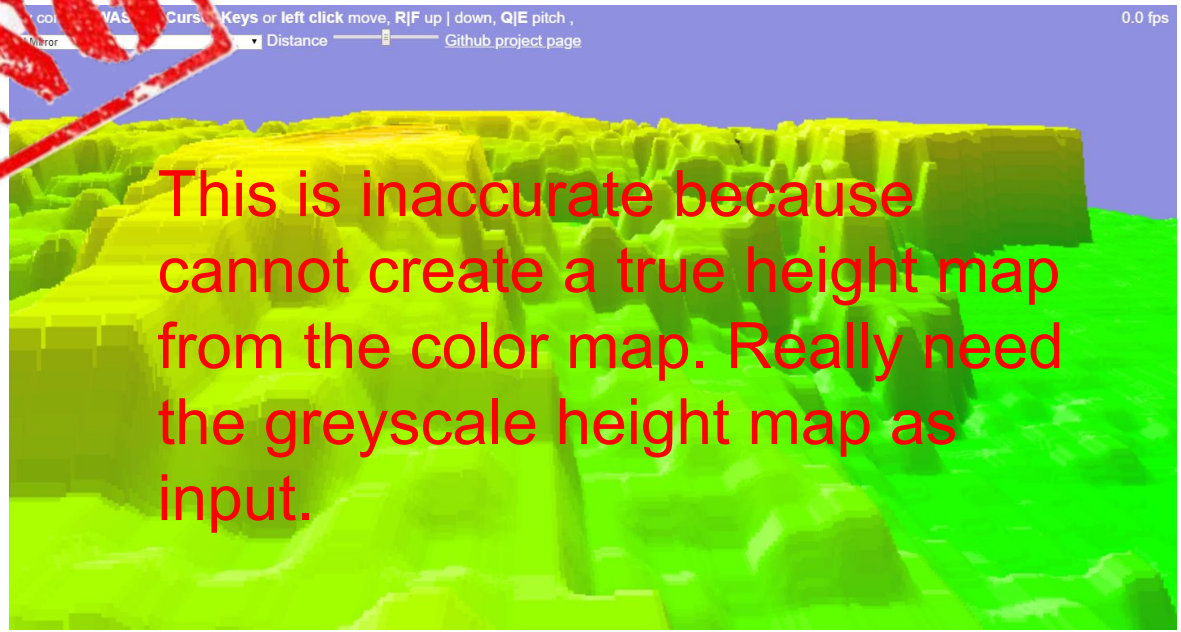


More Interesting.

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

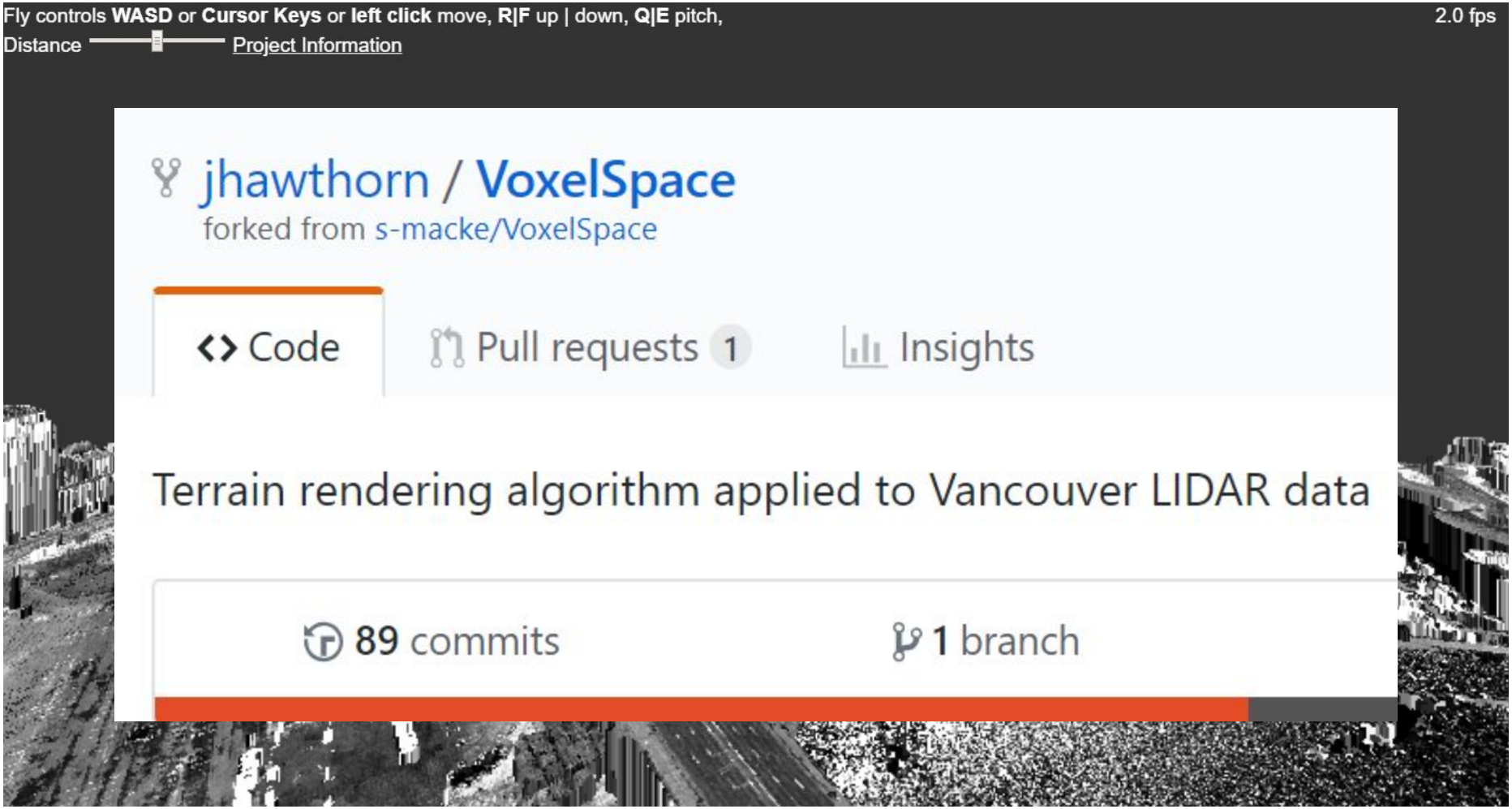


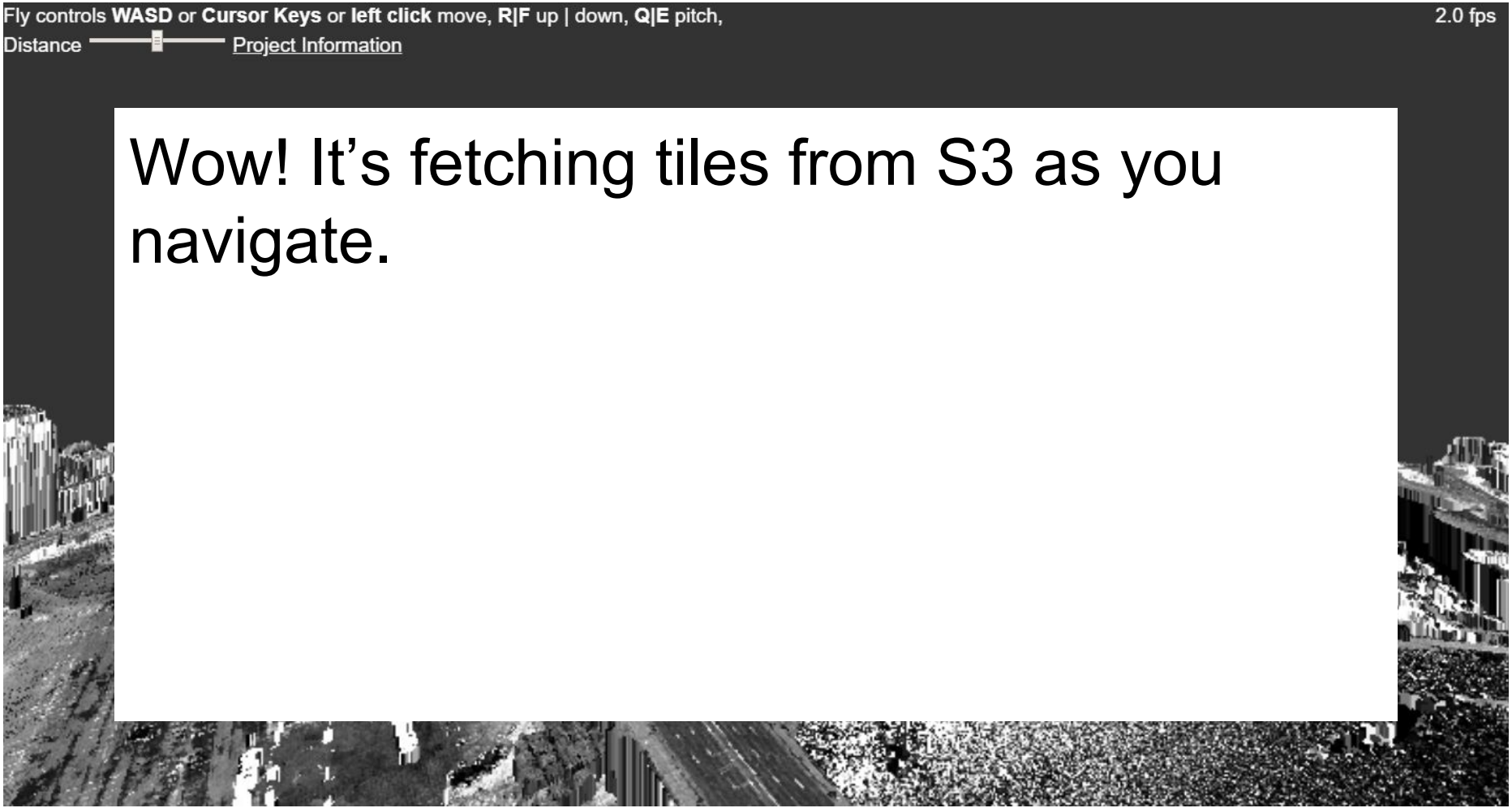
Hillshaded image for Color Map.

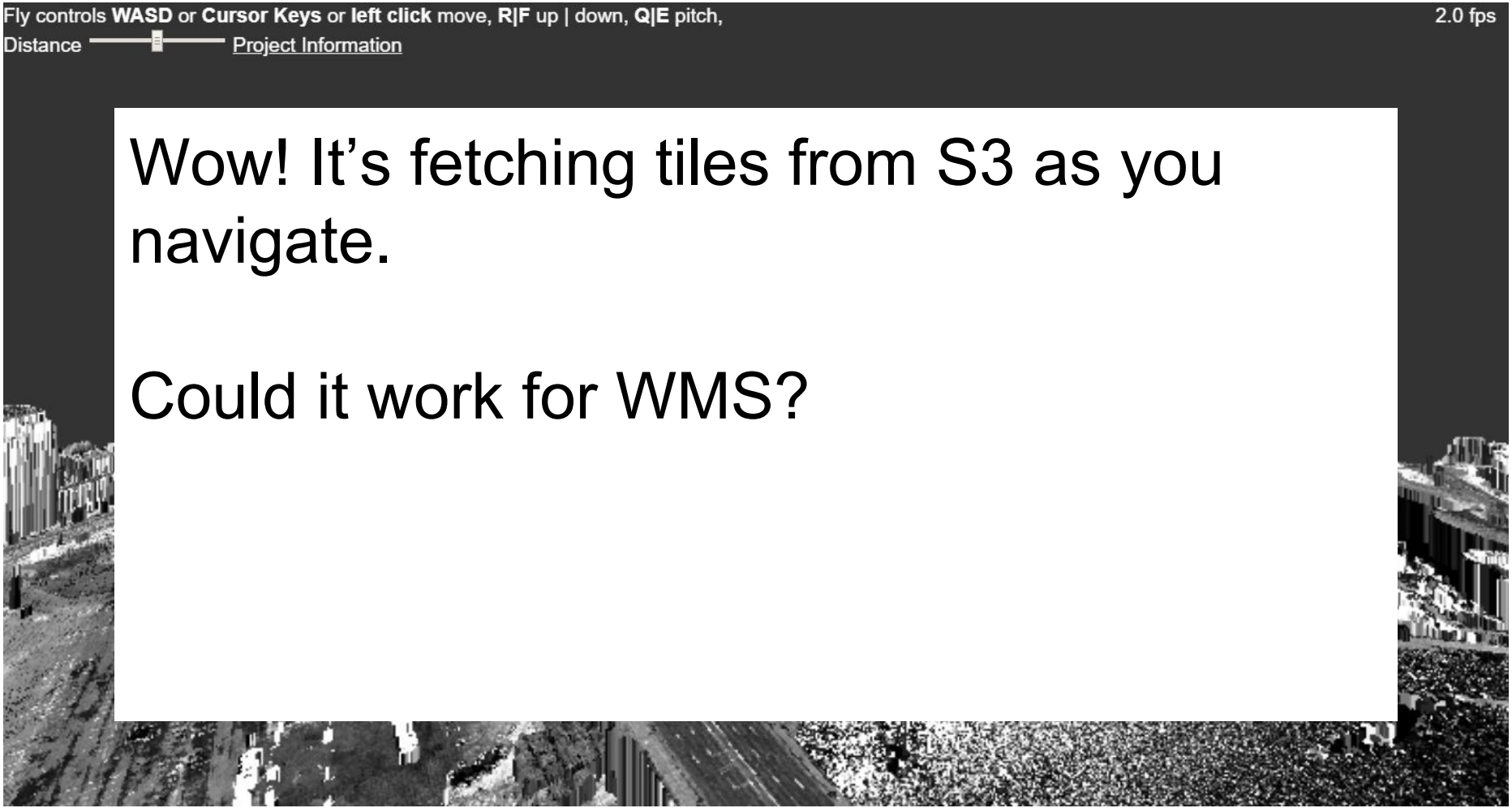


More Interesting. But inaccurate.


Fly controls **WASD** or **Cursor Keys** or **left click** move, **R|F** up | down, **Q|E** pitch,
2.0 fps
Distance
Project Information

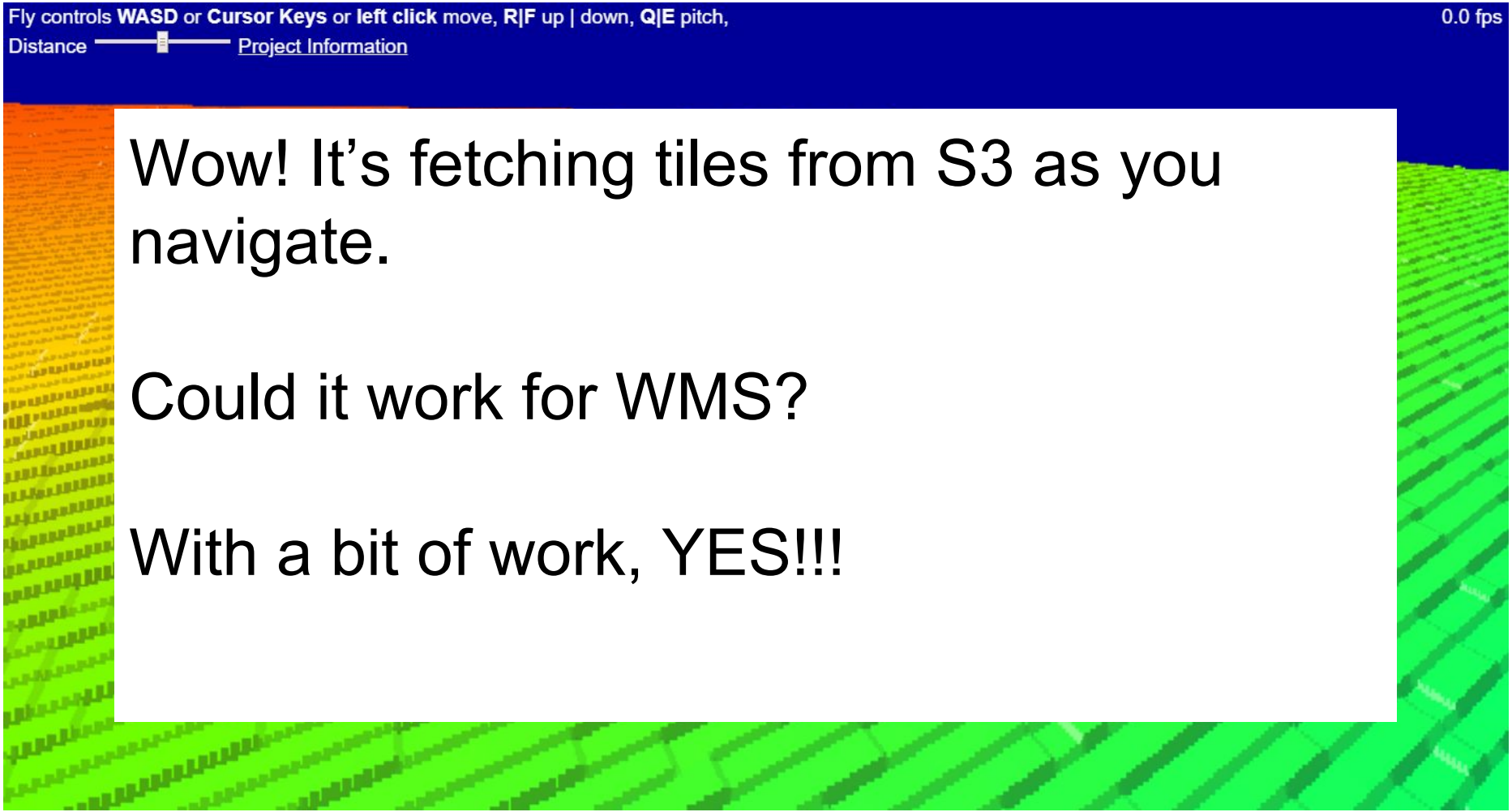

Fly controls WASD or Cursor Keys or left click move, R|F up | down, Q|E pitch,
Distance
Project Information
2.0 fps
jhawthorn / VoxelSpace
forked from s-macke/VoxelSpace
Code
Pull requests 1
Insights
Terrain rendering algorithm applied to Vancouver LIDAR data
89 commits
1 branch

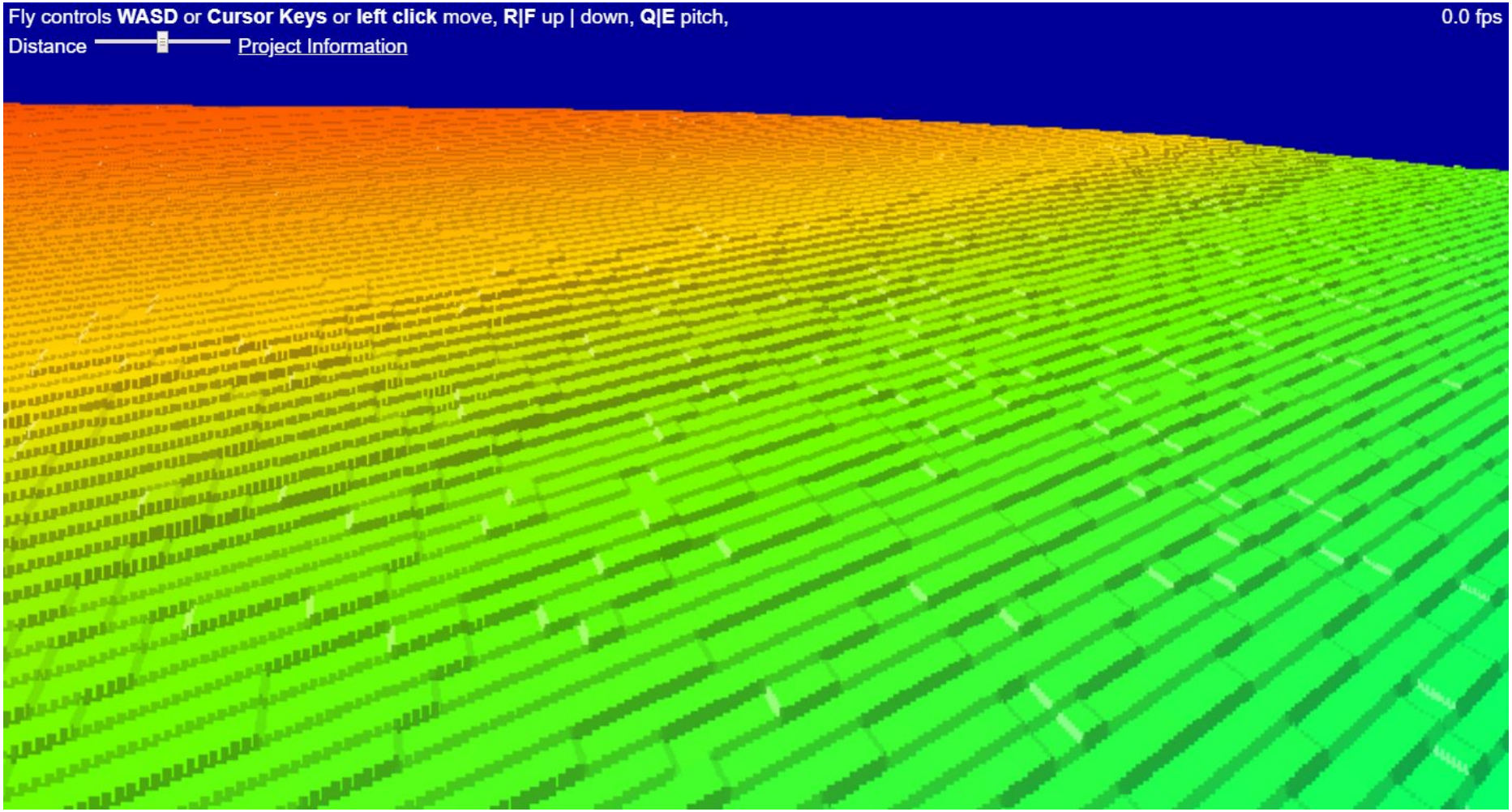

Fly controls **WASD** or **Cursor Keys** or **left click** move, **R|F** up | down, **Q|E** pitch,
2.0 fps
Distance
Project Information
Wow! It’s fetching tiles from S3 as you navigate.

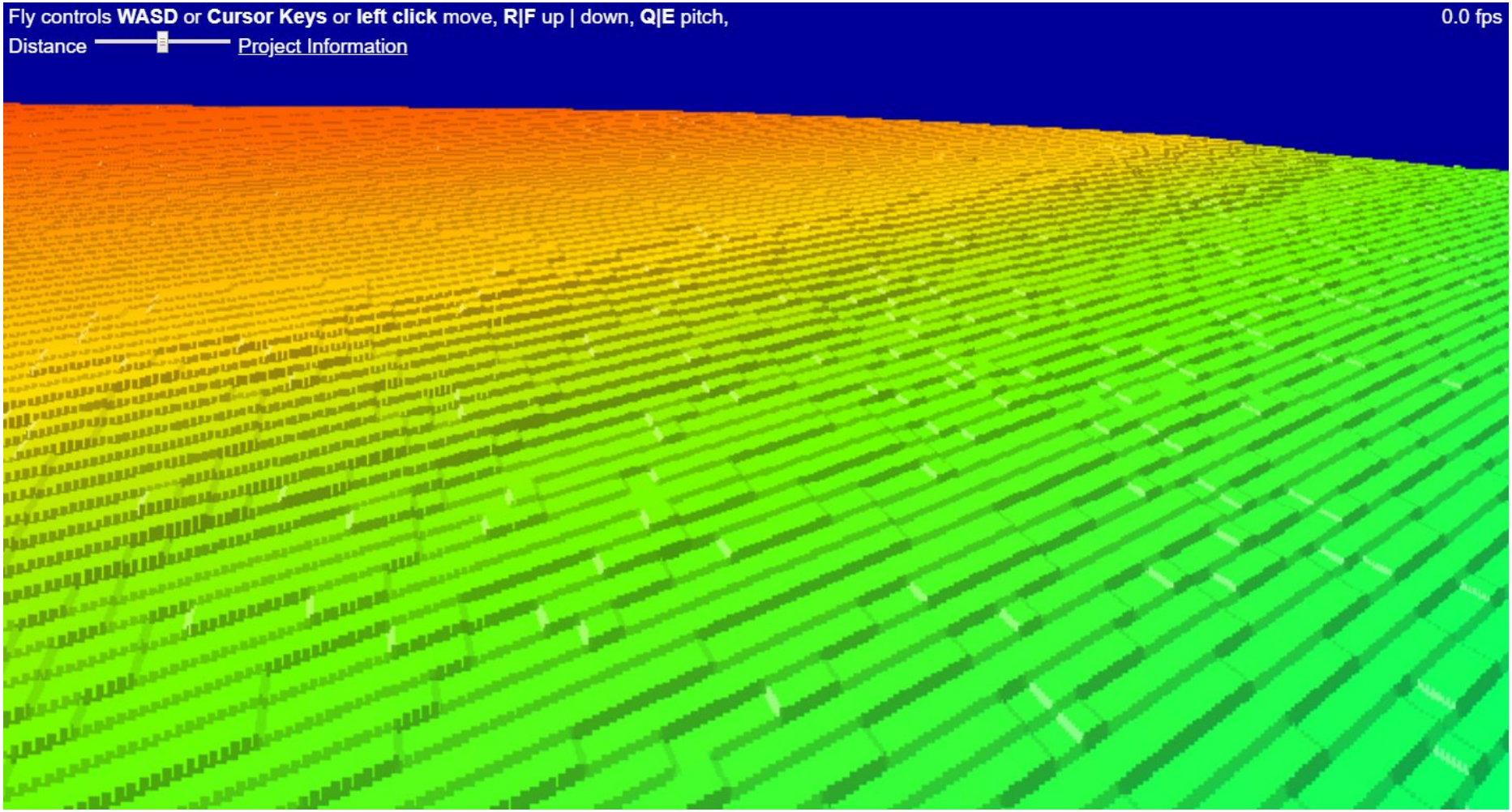


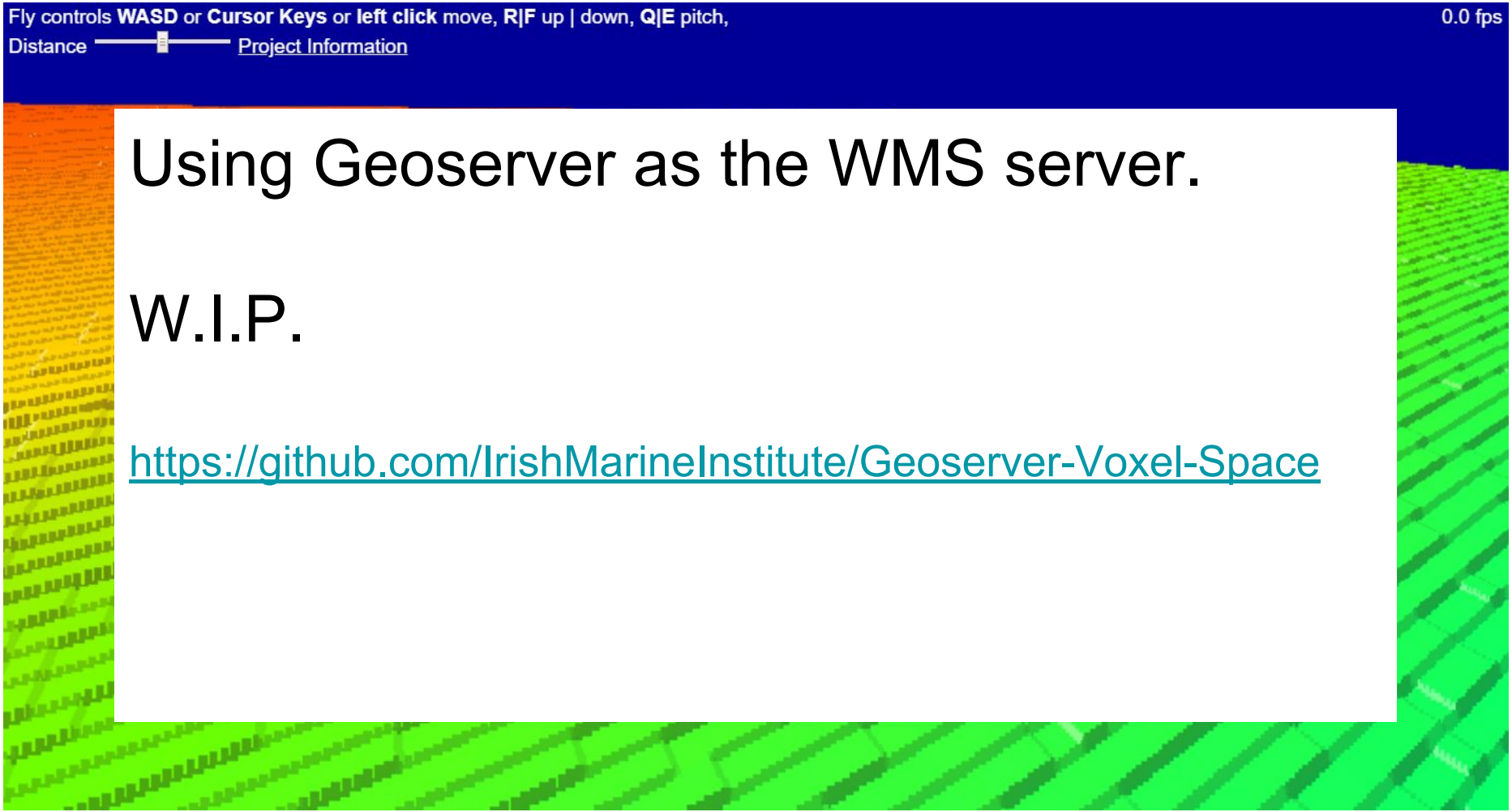
Wow! It’s fetching tiles from S3 as you navigate.

Could it work for WMS?


Fly controls WASD or Cursor Keys or left click move, R|F up | down, Q|E pitch,
Distance
Project Information
0.0 fps
Wow! It’s fetching tiles from S3 as you navigate.
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
0.0 fps


Fly controls **WASD** or **Cursor Keys** or **left click** move, **R|F** up | down, **Q|E** pitch,
Distance
Project Information
0.0 fps



Using Geoserver as the WMS server.

W.I.P.

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

Voxel Space Visualisations using Geoserver and Javascript

Rob Fuller

OSGeo

Marine Institute
Foras na Mara