G.A.T.E.S.

Julius Elias
Adrian Niewiadomski
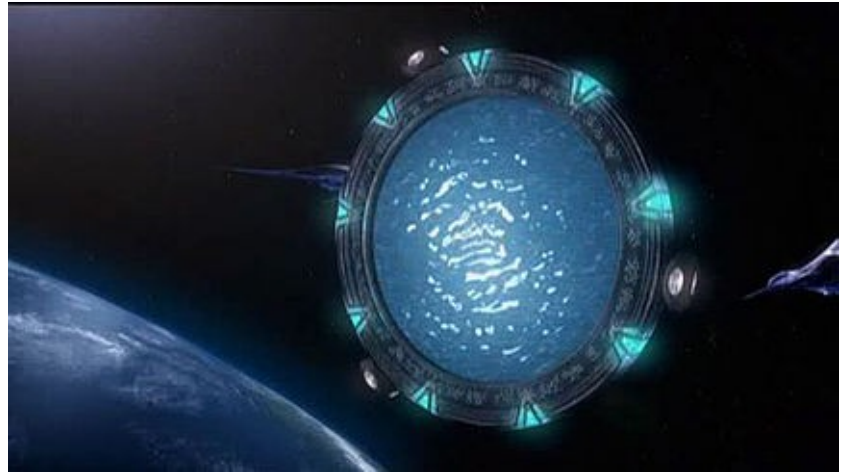
https://en.wikipedia.org/wiki/Stargate_(device)

World Features

- Procedural generated world

- Connected by portals

- Specific worlds (different gravities, surfaces…)

- Deformable terrain

Graphics Features

- Tesselation

- Clouds

- Vegetation

- Water

- Skybox

- Phong shading

- Normal mapping

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Techniques

- Terrain[1]
  - Use heightmaps
  - Generated either with perlin ot simplex noise

- Clouds[2]
  - Make use of worley noise to generate them

http://voxels.blogspot.de/2014/01/procedural-terrain-heightmap-generation.html

- Vegetation
  - Billboards for grass
  - If enough time also generation of trees

- Water
  - Noise functions for heightmap and textures
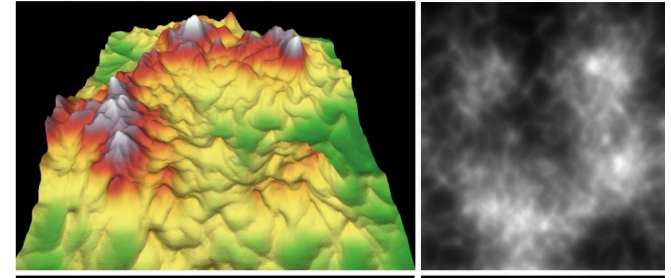
Worley noise
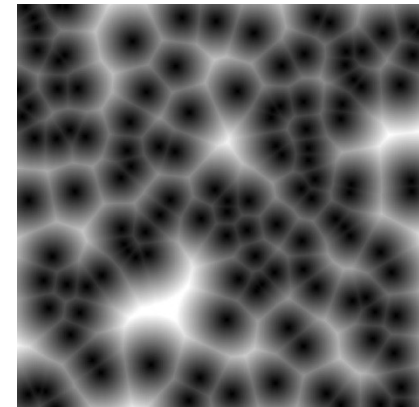
https://en.wikipedia.org/wiki/Worley_noise

References

- Texturing and Modeling, Third Edition: A Procedural Approach

- Additional papers, if implementation of techniques not too time consuming
  - The Real-time Volumetric Cloudscapes of Horizon - Zero Dawn – ARTR, Siggraph 2015[2]
    - http ://advances.realtimerendering.com/s2015/The%20Real-time%20Volumetric%20Cloudscapes%20of%20Horizon%20-%20Zero%20Dawn%20-%20ARTR.pdf

  - GPU Gems 3, Chapter 1. Generating Complex Procedural Terrains Using the GPU[1]
    - http://http.developer.nvidia.com/GPUGems3/gpugems3_ch01.html

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