

FRACTAL ISLANDS

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CATEGORY: Computer Graphics and Fractals

APPLICATION:

The Fractal Island Application uses the method of midpoint displacement along both the x and z axes to determine a height (value on the y axis) and then draws those values which lie above a certain value (sea-level).

Midpoint displacement along a line calculates the midpoint of that line and assigns a random value to y at that point. The value is scaled so that the displacement will be smaller if the line is shorter. A ruggedness factor is also multiplied in to change the form of the landscape.

In this case it is done along all four sides of the original square and uses the average of the four new values to assign a value to the midpoint of the square.

This continues recursively to the desired depth.

A wire-frame is then drawn if that is desired or the painter's algorithm is used to remove the hidden surfaces. Transformation is also possible in the form of rotations about any of the three axes.

USES: Graphics classes.

DEVELOPMENT :NeXTSTEP 2.0