

# Computer Science 805

## Spring 2002

### Project 3 – Mountain Terrain Generator

**Due:** Thursday, 4/18/2002

#### **Overview**

For this project, you will implement a program to generate fractal terrain modeling.

#### **Description**

This project examines stochastic procedural object modeling; that is, surface subdivision based on fractional Brownian motion.

Write a program to implement a “fractal mountain” modeler:

- manually create an object consisting of triangles or some other type of polygons which will serve as the fractal mountain base
- recursively subdivide the polygons to an appropriate level
- use OpenGL, your ray tracer, or any other renderer to shade objects in the scene; you may provide faceted (flat) or smooth shading of explicitly defined polygonal objects

Suggestions:

- You need only write the code for the polygonal subdivision. Use whatever renderer you like to get the best final effect.
- Your code need not be robust enough to handle a variety of cases – you can hard-code the scenes if you like.
- You may want to place a simple body of water or ice around your mountain range.

#### **Submission Requirements**

You should create a web page with the following:

- your name, the date, and a title/description of this project
- two or three nice mountain images – provide an image of the range that shows the polygons you generated (flat-shaded) for each mountain range; try to produce an additional image with textures to show a more realistic terrain effect
- instructions on how to compile and run your code
- any interesting problems you encountered and how you resolved them

You should e-mail the source code along with instructions for compiling and running it.

Additionally, you will give a short presentation in class showing some of the images you produced and discussing any interesting problems you uncovered and how you resolved them.

You will be graded on the source code you submit, the images your code produces, the web page presenting your results, and your presentation.