Casting Shadows on Digital Elevation Models Using Ray Tracing

# Overview

## Introduction

Digital Elevation Models (alternately “Digital Terrain Model”) are computer generated two or three dimensional models of an area of terrain found on a planet, asteroid, or other terrestrial body. They are generated via complex algorithms using elevation data generated via remote satellite sensing or direct manual surveying.

## Source Data

Data can alternately represent surface elevation, such as the top of trees or buildings, or bare surface terrain elevation. Raw data is generally organized into a gridded format, with each data point containing the elevation of the geographic location it represents. There is any number of resolutions used in the preparation of the data.

## Uses

## Types of Models

Models are generated using a large variety of techniques involving coloring, projections, and shading.

# Basic Model Creation

*Note: Generating the model can require a set of complex algorithms, most of which are beyond the scope of this document. A basic overview of the process will be presented.*

# Hillshading

# Ray Tracing