Terrain Mapping

Satellite/Aerial Imagery

Satellite/Aerial Imagery

- Very first satellite images of Earth came from Sputnik during 1950's
- Further development came in 1970's, when color satellite images became available
- Satellite imagery became widely used during the 1990's.

Advantages of Satellite Mapping

- Satellite mapping provides detail that was previously not possible
- Exact detail allows great view of terrain, architecture, landmarks, etc.
- Can be used for military (surveillance systems), or for convenience and leisure
- A “live” map, in which images are constantly updating

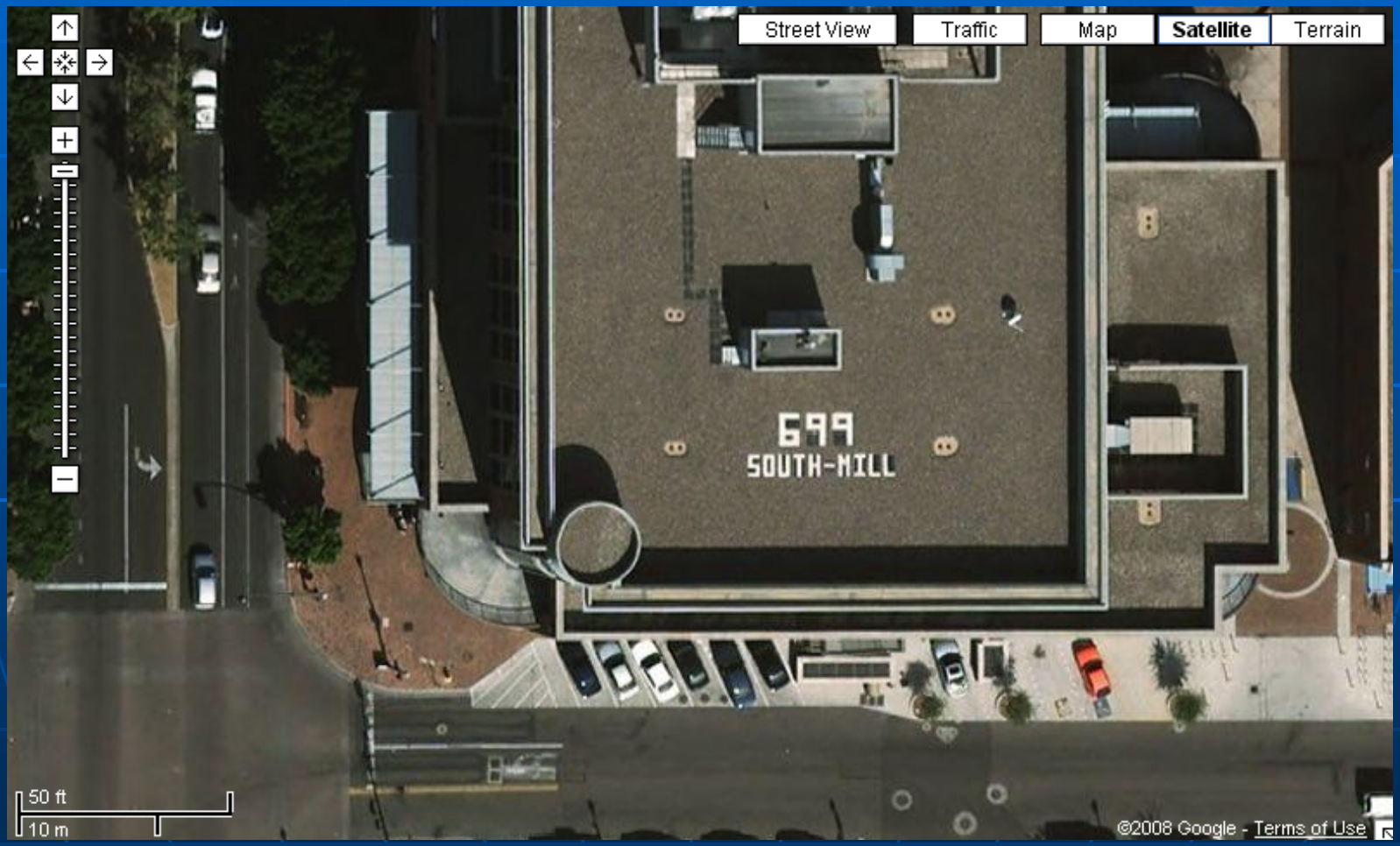
Google Maps

- The most popular source of satellite imagery is Google Maps, which allows near complete viewing of urban areas in the United States and Canada, as well as many other countries in the world such as New Zealand, Great Britain, Egypt, Iran, Germany, and France

Google Maps

- Google Map's use of satellite and aerial imagery has allowed for an interactive experience in which anyone with an internet connection could essentially explore much of the globe, even on street level for many cities

Aerial View of Brickyard



Ground View of Brickyard

Google Space?

- Google has also created Google Moon and Google Mars, the latter being created through a partnership with NASA scientists at Arizona State University

Endless Uses

- There are countless uses of satellite imagery, a few unique examples-

Water Quality Studies

- Satellite imagery has been used in New York Harbor to keep track of the water quality. Images were compared to previous ground data, and it was found that light reflectivity correlates with water sediments, such as Chlorophyll

Human Rights in Burma

- The American Association for the Advancement of Science has was able to document human rights abuse by the Burmese government using satellite imagery. It is evident that government has displaced civilian villages by comparing images from 2000 containing a village and then 2007 with the village gone

Land Development

- Satellite Imagery can be used to survey land, looking at soil types, current urbanization and wildlife to determine future development sites.

Weather Prediction

- Just like radar, satellite mapping assists greatly in looking at live weather patterns and allows for weather predictions

Military

- Allows for observation of threatening parts of the world and assists in devising plans for attacks
- Used to guide missiles to specific destinations

Issues With Satellite Mapping

- Most common complaint about satellite mapping is privacy
- This especially common with the easily accessible Google Maps, including the ground shots in which people can be seen
- Fear of enemy use of targeting important buildings (as a result many buildings, such as government buildings

Sources

- http://maps.google.com/
- http://www.ogleearth.com/2007/09/aaas_burma_sate.html
- http://www.cababstractsplus.org/google/abstract.asp?AcNo=20043206024
- http://en.wikipedia.org/wiki/Satellite

Topographic Mapping

History

Since the mid 16th century there has been a need to map out the world staring in England. Early maps where made up of pictures that depicted hills, mountains, forest and urban areas, the information that would only be needed for military strategic planning. As time moved these maps gained information of ownership of land and boundaries, elevation, detailed stream and body of water, roads, rail roads until in the 18th Century produced the first multi-sheet map of Paris.

Information Gather

- Latitude and longitude
- Railroads, highways, roads, hiking trails
- Streams, rivers, body of water, erosion
- Landscape type, forest, desert, urban, etc.
- Elevation shown as contour lines
- Ownership of private property, country, state, county, city, national park boundary's
- Location of mines, caves, camping sites, historical landmarks, other places of interest
- Scaled shown by miles or kilometers

Who Uses These Maps?

- Military
- Government
- Urban planers
- Land owners
- Geographic planers
- Large-scale architectures
- Earth scientist
- Miners
- Hikers
- Orienteer's