

The vector data model uses the geometric objects of point, line, and polygon to represent spatial features. Section 4.1 covers the basic elements of raster data including cell value, cell size, cell depth, bands, and spatial reference. Although ideal for discrete features with well-defined locations and shapes, the vector data model does not work well with spatial phenomena that vary continuously over the space such as precipitation, elevation, and soil erosion. They include digital elevation data, satellite images, digital orthophotos, scanned maps, and graphic files. Commercial GIS packages can display raster and vector data simultaneously, and can easily convert between these two types of data. The value in each grid cell corresponds to the characteristic of a spatial phenomenon at the cell location. A wide variety of data used in GIS are encoded in raster format. And Section 4.6 discusses data conversion and integration of raster and vector data. In many ways, raster and vector data complement each other.