14. Conclusion

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Site selection projects like the ones discussed in this chapter require the integration of diverse geographic data. The ability to integrate and analyze data organized in multiple thematic layers is a hallmark of geographic information systems. To contribute to GIS analyses like these, you need to be both a knowledgeable and skillful GIS user. The objective of this text, and the associated Penn State course, has been to help you become more knowledgeable about geographic data.

Knowledgeable users are well versed in the properties of geographic data that need to be taken into account to make data integration possible. Knowledgeable users understand the distinction between vector and raster data, and know something about how features, topological relationships among features, attributes, and time can be represented within the two approaches. Knowledgeable users understand that in order for geographic data to be organized and analyzed as layers, the data must be both orthorectified and georegistered. Knowledgeable users look out for differences in coordinate systems, map projections, and datums that can confound efforts to georegister data layers. Knowledgeable users know that the information needed to register data layers is found in metadata.

Knowledgeable users understand that all geographic data are generalized, and that the level of detail preserved depends upon the scale and resolution at which the data were originally produced. Knowledgeable users are prepared to convince their bosses that small-scale, low resolution data should not be used for large-scale analyses that require high resolution results. Knowledgeable users never forget that the composition of the Earth's surface is constantly changing, and that unlike fine wine, the quality of geographic data does not improve over time.

Knowledgeable users are familiar with the characteristics of the "framework" data that make up the U.S. National Spatial Data Infrastructure, and are able to determine whether these data are available for a particular location. Knowledgeable users recognize situations in which existing data are inadequate, and when new data must be produced. They are familiar enough with geographic information technologies such as GPS, aerial imaging, and satellite remote sensing that they can judge which technology is best suited to a particular mapping problem.

And knowledgeable users know what kinds of questions GIS is, and is not, suited to answer.

Navigation

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