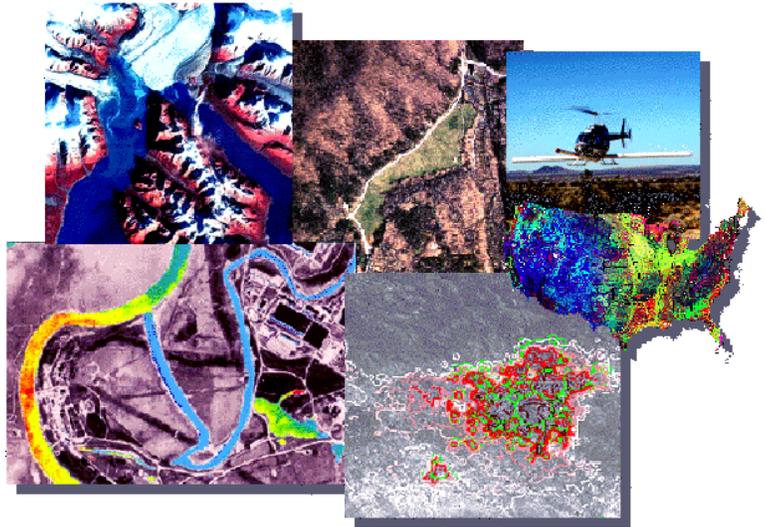


## Geographic Information Systems and Remote Sensing

The Geographic Information Science and Technology (GIST) Group at the ORNL has been a leader in the development, implementation, and application of systems, science, and technology for geographic information since 1969—well before the advent of commercial GIS. ORNL has developed a unique geographic information science and technology center, complete with state-of-the-art equipment to computerize, analyze, and display spatial information in 2D or 3D forms. Regional, national, and global databases have been implemented for a wide range of geographic applications and spatial modeling activities. The mission of GIST is to support national energy, environmental, and security programs through research, development, and application of geographic information and analysis systems. The GIST group offers a full suite of expertise in geographic information system and remote-sensing technologies to solve multidisciplinary and complex problems with advanced spatial modeling and simulation. Existing capabilities of the GIST group include 3D terrain analysis and visualization, 3D urban model development and visualization, feature extraction from imagery, transportation routing, hydrologic modeling, population-at-risk studies, assessment of air training routes, studies of coastal habitat change from satellite imagery, environmental impact analysis, and emergency management.

Current GIST capabilities include

- Advanced digital remote sensing
- Development of advanced GIS algorithms
- Designing and implementation of decision support systems
- Advanced image analysis and interpretation
- Automation of imagery-processing and feature-extraction techniques
- Computer cartography and thematic mapping
- 3D visualization and animation
- Digital terrain modeling
- Demographic modeling
- Global positioning systems



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