Forestry: From Rough to Precise Mode

Geomatics technology can be used in many practical fields as a means of observation and analysis. One of these fields is forestry; a discipline approaching a golden age of information wherein geomatics can be used in a wide range of applications and can solve almost all geo-related problems. Geomatics was first used in the practice and application of forestry as data-collecting tool, and later as an information-management one. Today the application of geomatics in forestry has reached a new phase: knowledge discovery. So that the evolution is away from the provision of simple, skin-deep information used for managing forest resources to providing advanced functions, such as forecasting, control, and policy-making. Geomatics technology as applied in forestry has thus been promoted to the knowledge phase; its role has changed from tool to that of complex system science made up of practical mechanisms, technologies and methods.

Four Phases

To describe the evolution more concretely, the contribution of geomatics to the move made by forestry into the era of information may be subdivided into four phases. The first concerns data collection; here geomatics is applied as a survey tool to manage forest resources. In the second phase geomatics is used as information-management tool to set up a spatial and property database of forest resources for dynamically monitoring the quantity, quality and distribution of such. The third phase concerns knowledge discovery: here one wants to discover the unknown and less visible pattern of knowledge which has potential value for the management of forest resources. This involves exploring huge sets of information and setting up the knowledge base to help build new models and modify old ones. The fourth phase concerns planning, our arrival at optimal planning with the help of expert and decision-supporting systems, on the basis of our knowledge base. Such output provides the manager of forest resources with suggestions on issues including controlling forest pest and forecasting forest fire.

Sustainable Development

The manager of forest resources can make clear his target through the use of geomatics for knowledge discovery and planning. Geomatics helps the manager to establish the most practical scheme for forest resource management, influenced by the combined effect of climate, terrain and society. He can also set up and modify models aimed at forecasting certain problems in the interests of promoting policy-making and enhancing its benefits. Forest management can thus move on more swiftly from old, simple, rough mode to systematic, precise mode, and achieve the target of managing forest resources scientifically and intensively. At the same time, the sustainable development of forests may be more easily achieved.