CORRECTION OF FOREST RESOURCE MANAGEMENT MAPS WITH THE HELP OF REMOTE SENSING FOR THE PURPOSES OF THE FORESTRY REGULATIONS

A. Krenke[1], Yu.G.Puzachenko[2]
[1]Institute of Geography RAS, 119017, Moscow, Starmonetniy str. 29, Russia
[2]A.N. Severtsov Institute of Ecology and Evolution RAS, 119071, Moscow, Leninsky prospect 33, Russia
e-mail: By-His-divine-grace@yandex.ru, puzak@orc.ru

Traditional forest management relies on the idea of the existence of territories with homogeneous vegetation (stratum) with objectively existing borders. Stratums can be typed, and accepted that all allocated stratums of one type have the same site conditions. The task of a forester is unambiguous allocation of boundaries, the assessment of forest characteristics within the allocated stratums and the allocation of their types as a basis for extrapolation of site conditions and patterns of forests growth. Borders are determined with aid of airphoto (scale 1: 7000 - 1:15000). Assessment of forest characteristics is made through quantitative methods or visually for some samples and than visually interpolate on the basis of similarity on the basis of the aerial images.

In line with the existing rules of secrecy all the maps belong to the category of schemes and compiled on the basis of distorted topographical projection M 1:100 000. With such a basis hypothesized minimum stratum of 0.1 hectares is not ensured cartographically, nor can the desired error be achieved on the basis of aerial photographs. The modern theory and practice has shown that clear boundaries separating different vegetation condition on the surface is a very special case. Vegetation and its forestry's characteristics are both continuous and discrete (fractal). As a consequence an unambiguous definition of boundaries is impossible and two foresters will make different forest charts for a single territory, which will differ significantly in details and concurring only in general terms. In doing so, to determine the errors is theoretically impossible. For the overall regional assessment of tree resources, this technology has provided an acceptable accuracy, as a synthesis of large data sets automatically reduces the influence of private mistakes with different place. With planned economics mistakes of forestry data did not have much significance, because the plans built on the basis, primarily, of the technical capabilities and large stocks of ripe and overripe woods in major forest regions ensured their implementation. In terms of market use of forest resources with a very small stock of ripe forests and their territorial fragmentation, demands to quality of forestry data inevitably increase.

It should be noted that along with the method described above, also statistical method was applied in the USSR in the U.S., Canada and other countries in which the quadrat on a regular pattern was laid and data received from them was interpolated throgh using quantitative methods, or by aerial estimation of certain square - taken as the minimum grid cell (in the U.S. 40 acres). These methods, with their not so high accuracy are very expensive and their implementation for large areas of Russia is unrealistic.

As part of the overall objectives of the evaluation and mapping of ecosystem services as an integral part of landscape planning and landscape science, technology was developed, which combines the standard data and the remote sensing multispectral information and digital elevation models.

The method assumes that:

1. Multispectral remote sensing gives vital information on ecosystem functions: the use of solar energy for the formation of biological production, self-evolution and maintenance of its structure. In doing so, the spectral characteristics of energy absorption is very sensitive as to the current state of vegetation, and to soil moisture and trophicity.

2. The relief model allows through special variables and especially the slope and shape of the surface for micro, meso, makrorelief reflect the redistribution of moisture, as the most important factor determining the composition and productivity of vegetation.

Thus, remote sensing information and different three-dimensional terrain models provide a good basis for the application of statistical methods to interpolation of measurement results at the test sites to the entire territory or correction of initial maps. Interpolation is based on multidimensional statistical methods and primarily on the basis of discriminant and multiregression analysis. On this basis, for each point of grid, can be obtained evaluation of necessary forestry variables, and related errors. The latter have a direct link with the economic evaluation of the effectiveness of the use of specific resources in specific locations.

Research performed with financial support RFBR – projects № 06-05-64937, № 07-05-12021, as well as in the program of fundamental research, Russian Academy of Sciences "Biodiversity and the dynamics of gene pools", subprogram "Biodiversity "(№ 5.1.2).

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Forestry applications of remote sensing include the following: â€¢ reconnaissance mapping: Objectives to be met by national forest/environment agencies include forest cover updating, depletion monitoring, and measuring biophysical properties of forest stands. â€¢ Commercial forestry: Of importance to commercial forestry companies and to resource management agencies are inventory and mapping applications: collecting harvest information, updating of inventory information for timber supply, broad forest type, vegetation density, and biomass measurements. â€¢ Environmental monitoring: Conservation autho... Study on mapping and sustainable forest management in Rewari district was carried out to map the forest cover areas, crown density analysis of reserved forests and potential afforestation sites. IRS 1B LISS II data was used and visual image analysis techniques were employed. The study area covers 1559 sq. km and consists of tropical thorn forest with some tropical dry deciduous species. Forests covers 3587 ha. area of the district.Â With the advent of remote sensing, the scope of effective planning and management of natural resources has considerably widened. The use of satellite data permits timely and accurate information on very short repetitive cycles needed for monitoring. Recent papers in Remote Sensing and GIS applications in Forestry. Papers. People. A Model for Geodatabase Organization for Purposes of Large-scale Mapping of Land-Use Conflicts. Save to Library. Download.Â Deforestation and forest degradation are still major problems in Indonesia, even though the magnitude has been decreasing recently. In order to overcome these problems, an immediate action with accurate and up-to-date information is essensial. Expired information, due to out of date is usually hamper the immediate response. Remote sensing technology seems to be a powerful tool to monitor the change of forest cover. However, an availability of cloud free satellite images in tropical region is another of obstacle.