

# The Use of Automated Data Interpretation of Sentinel-2 to Updated Stratum Maps of SFI in Remote Areas of the Russian Federation

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The technological scheme of work within the State Forest Inventory (SFI) in terms of determining the quantitative and qualitative characteristics of forests implies at the first stage obtaining initial data on the object of work (materials of the last forest inventory, materials of the state forest registry, etc.) and the subsequent creation of a digital cartographic basis due to the updating and generalization of the received maps. In the case of hard-to-reach territories, this technology has a number of significant drawbacks, the most serious of which is stratification based on irrelevant forest inventory materials on the territory of hard-to-reach areas.

The technology of creating updated maps of stratum based on the use of Sentinel-2 free medium resolution and its classification is proposed. It has several advantages: based on the methods of mathematical statistics; there is no need to update the data, because use of the current year; The final stage of the proposed technology is the reclassification of multispectral satellite images based on the field data obtained from the test plots.

Automated thematic interpretation was performed using the object-oriented method using ScanEx IMAGE Processor v5.0. Processing and visualization of the results of the work was carried out in an environment of freely distributed geographic information system QGIS, the calculation of accuracy (the creation of an error matrix) was performed using MS Excel.

Analysis of the classification results showed its high accuracy (total accuracy was 80.4%, kappa ratio - 0.77), which indicates good prospects for the application of the proposed technology during the SFI on the territory of hard-to-reach areas.