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APPLICATION OF REMOTE SENSING TECHNOLOGIES FOR FOREST COVER MONITORING

Alexander Agoltsov, Oleg Sizov, and Natalia Rubtsova
JSC SOVZOND, Russian Federation (natasha.rubtsova@gmail.com)

Today we don't have full and reliable information about forests in Russia, so it is impossible to make any well-timed decision for forest management. Update of all this information by means of traditional methods (fieldwork) is a time-consuming and in fact impossible task. Also we do not think that using of the reports without objective information for cameral data actualization is an appropriate method in such situation. So our company uses remote sensing data and technologies to resolve this problem.
Nowadays numerous satellites record numerous images every day. Remote sensing data are widespread and accessible, so we can use them as the source of actual and reliable information about current status of the Forest Fund. Furthermore regular monitoring allows extracting the information about the location and intensity of forests' changes like degradation and destruction.
First of all we create a georeferenced data set to cover the area of interest with orthomosaic in targeting scale depending on the goals of the project (1:25 000 – 1:10 000). For example, we can do a mosaic from RapidEye (Germany) imagery with GSD = 6.5 m or from WorldView-2 (USA) imagery with GSD = 0.5 m. The next step is to create vector layers to describe the content of images. We use visual and contemporary automatic interpretation techniques.
The benefit of such approach that we can extract not only information about forests (like boundary) but also the information about roads, hydrographic objects, power lines and so on.
During vectorization except relevant orthomosaic we can use multi-temporal composites of images based on archive of satellite imagery. This helps us not only to detect general changes but detect illegal logging, areas affected by fires, windfalls.
Then this information can be used for different products e.g. forest cover statistics, forest cover change statistics, maps of forest management and also we can analyze transport accessibility and economic assessment of forests.