Geophysical Research Abstracts
Vol. 21, EGU2019-18796, 2019
EGU General Assembly 2019

Monitoring changes of the forested areas in New Moscow by remote sensing

Irina Veretelnikova and Viacheslav Vasenev

Agrarian-Technological Institute, Peoples' Friendship University of Russia Soil science, agricultural chemistry and ecology faculty, Russian State Agrarian University Moscow Timiryazev Agricultural Academy, Moscow, Russia

The process of urbanization is the cause of many changes in different environments - it concerns the resettlement of the population, the locations of manufactures, the redistribution of economic power. One of the most important consequences of urbanization is conversion of natural landscapes (i.e. crops, grasslands and forested areas) into urban. Forests can act as city green belt, which separates residential zones from industries and traffic Also forests can maintain ecological balance in big cities, like Moscow.
Our research aimed to monitor changes of New Moscow's forest areas from 1989 to 2016. In this research we used Landsat 5 images with spectral resolution 30 m per pixel and Sentinel – 2 image with spectral resolution 10 m per pixel for period since July till August. In this period vegetation productivity is quite high and we can identify crops and forest and over objects.
Images were classified using Semi-Automatic Classification Plugin in open source geographic information system QGIS and land cover maps were derived. The purpose of the classification was to identify the following land cover classes: water, built-up, bare soil, vegetation (crops) and forest. Next step was to calculate each class area in square meters. It was established that there was no definite d decreasing trend in the total forest area of New Moscow. In the first period (from 1989 to 1998) forest area reduced by 2.5 %, it is about 2000 ha. From 2007 to 2010 years we observed general increase, this effect be connected with overgrowing cutting areas and fallow lands used in agriculture. Forest area increasing from 1998 to 2007-2010 is about 1. 6 % or 1250 ha. In 2014-2016 a part of territory of New Moscow was changed its land use type: was built several roads and big buildings. The reduction of forest area in period from 2010 to 2016 is 3,3% or 2571 ha.
Further research will be built on the analysis of the results of classification of images of the other years. Our next purpose – is to get more detailed information about territories covered with forest.