CASE STUDY

Product solution for: Moscow Vegetation Survey

DigitalGlobe™

DigitalGlobe imagery central to Moscow green space planning

Europe's largest city and the world's sixth largest metropolis with nearly twelve million people, Moscow is also one of the world's greenest cities. In addition to landmark Gorky Park, Moscow is home to nearly 100 additional significant parks, numerous botanical gardens, 450 square kilometers of green zones and 100 square kilometers of forest. Green space monitoring and planning has become a priority for civil government as the city continues to experience rapid growth.

Determining the economic opportunity

With the arrival of the free market economy in the early 1990s, Moscow became one of the world's fastest growing cities, quickly adding western amenities like new office towers, roadways, retail centers, and thousands of housing units. Now, realizing the need to preserve its green heritage, the city set out to create its first vegetation geo-database as a reference for urban planning and an environmental impact assessment tool as new development projects arise.

"The city had no clear methodology to track the health and locations of its vegetation," says Olga Kolesnikova, head of the complex project department for DigitalGlobe partner Sovzond JSC. "With all the building projects and new roadways, the city sought a solution to help protect existing vegetation as well as identify opportunities to add new environmentally protected spaces."

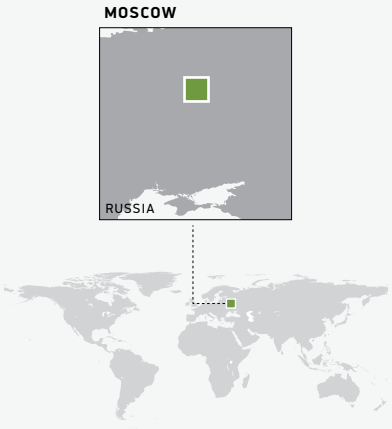
A city-wide survey

Using DigitalGlobe multispectral 8-band high-resolution satellite imagery, Sovzond vectorized nearly 400,000 polygons throughout the city, about half related to grass and vegetation, the remainder to trees and shrubs from 2009 through 2011.

"We created a methodology to distinguish grassy vegetation from trees and shrubs based on high spatial resolution data," Kolesnikova explains. "We began with a small sampling and verification test project in the city's Central and Northeastern administrative districts, and once we demonstrated the credibility of the data, replicated the methodology citywide."

Company information

Sovzond JSC is a private sector enterprise founded in 1992 specializing in satellite imagery distribution, software distribution and technical support, consultation services, imagery processing, creation of value-added products and more.



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Ranking system developed

With the ability to combine and process DigitalGlobe high-resolution satellite imagery with indexes like the Normalized Difference Vegetation Index (NDVI), which determines if the target area contains live green vegetation, Sovzond was able to create a rating system to measure vegetative health.

"By creating a vector layer of vegetation cover and processing the contours, we were able to assign status category attributes ranging from perfect to unsatisfactory," Kolesnikova says. "With this level of detail urban planners and other administrative officials finally have the data they need to make informed decisions concerning preservation and planning."

A repeatable, cost-effective approach

The completion of the city's first vegetative database is only the beginning for Moscow city planners. The availability of DigitalGlobe archived imagery combined with new imagery being tasked on a regular basis, gives city officials a "living" vegetative map from which to compare how the city is managing its green space on a regular basis, while having an accurate and current dataset to make future planning decisions.

"The Ministry considers analysis of green space in Moscow a core project that will have a wide impact on quality of life moving forward. With the combination of high-resolution satellite imagery, processing and analysis capabilities, and the ability to monitor change over time, planners now have the historical and comparative tools they need to monitor how the city is managing its current vegetation resources, and identify opportunities for new green spaces."

OLGA KOLESNIKOVA, DIRECTOR-COMPLEX PROJECT DEPARTMENT
SOVZOND JSC

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Challenge	Create a vegetation geo-database for Moscow to inventory existing green assets and their health, and develop a tool to make sound environmental and urban planning decisions moving forward.
Solution	Using WorldView-2 imagery, vegetation indexes, and image processing and analysis, efficiently created the green space database and a ranking system that measures vegetative health.
Results	The City of Moscow, now has both the tools and methodology in place to make the most informed planning decisions regarding economic and environmental impact moving forward.

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