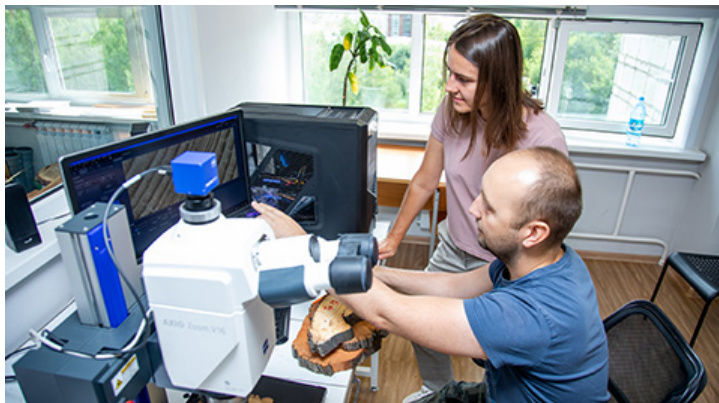


Scientists from Russia and Bulgaria Devised a New Method of Forest Protection

A method of remote monitoring of the state of forests has been developed and tested by an international team which includes scientists of Siberian Federal University. According to its designers, the method proposed by them will make it possible to manage forests much more efficiently. The research results are [published](#) in Drones journal.



Remote forest survey methods have enormous advantages over the traditional ones: quick and extensive analysis of the situation in vast areas, including remote and isolated, and a rapid response to combat forest degradation.

The method proposed by SibFU scientists is based on the use of unmanned aerial vehicles (UAVs) with special cameras. This helps achieve a higher spatial resolution than satellite monitoring systems. The accuracy of contouring the crowns, that is, recognizing individual trees, using the new system, according to the inventors, has reached 95 per cent.

“Contouring allows to accurately count the number of trees of a particular species in forests and natural sanctuaries remotely. The method makes it possible to highlight the affected trees on the map, taking into account the degree of their damage; and the results obtained can be used to study the dynamics of the spread of pests. In the future, our method can be adapted to solve other important tasks, for example, to detect unauthorized logging. Such a system is vital for the sustainable development of modern forestry,” said **Anastasia Safonova**, head of the SibFU Deep Learning Laboratory.



For monitoring, the team used a special four-channel camera that is sensitive to radiation in the near-infrared range. Filming must be carried out from a height of at least 120 meters, the scientists explained. For a half-hour session, one UAV is capable of photographing about 11 thousand trees. Data processing is carried out using special software created at SibFU. An important advantage of the system is that it can use relatively inexpensive civilian UAVs.

The system is focused on improving the methods of environmental services. The scientists are sure that its implementation will increase both the environmental and economic efficiency of forest management.

The Project also involves experts from the Institute of Computational Mathematics of the Russian Academy of Sciences and the Institute of Forest Research of the Bulgarian Academy of Sciences. In the future, the research team plans to develop the proposed method and integrate it into the global system for monitoring of forests.

The work of scientists was first reported by [Россия сегодня](#).

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