


Improved model by the Russian dendrologists was tested on the trees of the Tibetan Plateau

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The simulation model of growth and tree-ring formation was proposed by the scientists Evgeny Vaganov and Alexander Shashkin (Sukachev Institute of Forest, Krasnoyarsk) in the mid-1980s. To date, this model is considered one of the best in the world in the field of tree ecology. Researchers of the Siberian Federal University proposed a visual parameterization of the model, which greatly simplified the use of this model for the most diverse forest ecosystems of the planet. Chinese colleagues from the Northwest Institute of Environmental Studies and the Chinese Academy of Sciences addressed a proposal to the Krasnoyarsk scientists to analyze the formation of annual rings on the Tibetan plateau under the influence of climatic factors. The results of the research are published in the article "Simulation modeling of the formation of annual rings and its correlation with the climate on the Tibetan plateau" in the "Dendrochronology" Journal of the "Elsevier" publishing house in March 2017.

One of the authors of the paper, Doctor of Technical Sciences, Professor, Head of the Department of Mathematical Methods and Information Technologies of the Siberian Federal University Vladimir Shishov commented on the results of the research: *"During the analysis, the results of our modeling for verification were compared with direct four-year field observations of the growth of woody plants in the region. It showed similar results and made it possible to draw conclusions on the process of growth of woody plants for several decades on the basis of conventional modeling, avoiding lengthy field experiments."* 

In previous published works on the Tibetan Plateau, it was believed that the main driver of tree growth is the spring and summer temperatures. We have identified additional sustainable effects of the influence of moist soil regimes on the formation of annual rings, especially in the middle of the growth season, even in the cold sharp continental climate of the Tibetan plateau. Changes in this influence after 1985, caused by an increase in precipitation in the region due to the so-called global warming of the planet's climate are also shown".

Research in this area is highly relevant and of great practical importance because of the growing environmental problem in China. The team of scientists included representatives from China, Germany and Russia. The work was carried out as part of the project of the Russian Science Foundation (No. 14-14-00219).

Maya Smolina, Press Office of SibFU, 31 march 2017

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