Special Issue

The Impact of Climate Change on Alpine Treelines and Vegetation Dynamics

Message from the Guest Editor

The average surface temperature of the Earth has increased appreciably. Because thermal gradient is short in the highlands, mountain ecosystems are very sensitive to temperature variation. The most noticeable objects in the mountain landscapes are treelines and their position shifted upwards significantly in many regions of the world over recent decades. It can have both negative or positive feedbacks by affecting local and regional climate, radiative balance, hydrological processes, carbon pools, mineral substance cycling, and biodiversity. Thus, the rate and pattern of treeline shifts, as well as their drivers and consequences, need to be well quantified and understood. Given the fast ongoing warming, it is expected the rate of structural changes at the upper forests limit will increase at a rapid pace, but will depend on the interplay amongst regional climate, landscape features, local site conditions and trees species composition. We encourage treeline studies from all aspects and approaches, including experiments, remote sensing, monitoring and modelling to promote knowledge and adaptation strategies for the preservation and management of mountain ecosystems in future.

Guest Editor

Dr. Pavel A. Moiseev

Laboratory of GIS technologies, Institute of Plant and Animal Ecology, Ural Branch of Russian Academy of Sciences, 8 Marta St., 202, 620144 Ekaterinburg, Russia

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Forests
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
forests@mdpi.com

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Editor-in-Chief

Prof. Dr. Giacomo Alessandro Gerosa
Department of Mathematics and Physics, Catholic University of Brescia, I-25121 Brescia, Italy

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