

Abstract

Treeline is a gradual transition from closed forest to treeless areas at a certain elevation above the sea. According to its forms, we distinguish diffuse, abrupt, island treelines and krummholz. Depending on the form we can assume the main factors affecting its occurrence and possible response to climatical changes. Generally, the position of the treeline in various latitudes relates to the thermal characteristics, mainly to the temperatures of the growing season, limiting tree growth, the availability of necessary nutrients and seedling survival. Limitation by an insufficient carbon balance as a cause of the ecotone, is not considered as a major or decisive factor by many authors. In most cases they proved a sufficient carbon balance at the treelines and fixed an increasing amount of non-structural carbohydrates, needed for trees to activate their growth after a period of dormancy. This work was focused primarily on identifying the positions of the treeline in the mountains of High Asia, and determining the basic thermal characteristics relating to these sites. The best indicator, connected to the position of the treeline in this region was founded. The results were compared with global research.

Key words: treeline; diffuse, abrupt and island treelines, krummholz, sink limitation hypothesis, source limitation hypothesis, nutrient limit hypothesis, insufficient carbon uptake, non-structural carbohydrates, regeneration.

