

**INTERNATIONAL CONFERENCE
ON DENDROCHRONOLOGY
FOR THE THIRD MILLENIUM**

MENDOZA, ARGENTINA

2-7 april, 2000



**Laboratorio de Dendrocronología
IANIGLA - CONICET**

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Tree-Ring Society

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Climate dependent dynamics of the upper treeline and forest-tundra ecosystems during the last 1350 years in the Polar Ural Mountains, Russia

Shiyatov, S.G.

Institute of Plant and Animal Ecology, 8 Marta Street, Ekaterinburg, 620144, Russia. E-mail: stepan@ipae.uran.ru

Direct and indirect evidences (mapped and dated wood remnants of *Larix sibirica* Ledeb., longevity and calendar life span of dead and living trees, density and age structure of stands, variability of ring-widths and ring-width indices, old photographs, geobotanical maps and descriptions) were used to carry out a detailed reconstruction of climate dependent changes of the upper treeline and forest-tundra ecosystems on the eastern macroslope of the Polar Ural Mountains (66°45'-66°60'N, 65°30'-65°50'E). Significant shifts of the upper treeline (up to 60-80 m up or down and 0.5-2.0 km along the slopes) and changes in structure and productivity of larch stands took place during the last 1350 years. Intensive trees mortality and treeline retreating occur in cold periods of more than 15-20 years long. Formation of a new generation of trees and treeline raising coincide with periods of warming not less than 40-60 years long. The highest position of treeline has been observed at the middle of the thirteenth century and the lowest position at the end of the nineteenth century. Climate favorable for tree growth and regeneration is marked from 1920ties up to the present. During this period the younger larch generation formed, the density and biomass of stands increased 2-3 times, the upper treeline shifted 20-30 m upwards and 100-500 m along the slopes. Climatic information obtained from treeline shifts and larch stands dynamics can be united with tree-ring climatic data. Such procedure gives a chance to make a more reliable reconstruction of past climate changes.



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Morales and Silvia Delgado
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