

Monitoring Cambium Activity and Simulation Modeling for Growth Response to Global Warming of *Larix leptolepis* and *Pinus rigida*

Won-Kyu Park¹, Maria Arbatskaya, Dmitri Ovtchinnikov, Eugene
Chungbuk National Univ.¹,

Institute of Forest, Siberian Branch of Russian Academy of Sciences Soil moisture and air temperature, and cambium activity of *Larix leptolepis* and *Pinus rigida* trees growing at a plantation plot in Worak National Park in central Korea were examined by a phytogram system equipped with band dendrometers as well as cambial block sampling during two years (1996 and 1997).

The optimal climatic conditions for the growth of sampled species in the studied area occurred in a short period of the end of April to the end of June. Growth season has been divided more or less by two sub-periods: pre- and post-summer monsoon periods. First subperiod is more important because about 65-70% of annual ring forms during this period, but only 30-35% in the second sub-period. Seasonal growth is under control of soil moisture content and precipitation income during April-May in the first period and is directly suppressed by high temperature in the second sub-period. The April-May temperature also indirectly influences to growth in the first sub-period by increasing of water losses from soil.

Therefore, every scenario of climatic changes which include the regional warming (increasing the temperature in spring-summer periods) seems to decrease the duration of optimal growths. Simulation modeling for tracheid growth predicts that *Larix leptolepis* and *Pinus rigida* trees will lose the total production of xylem by 25% and 12%, respectively.