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Journal of Forest Science

**Variability in swelling of spruce (*Picea abies* [L.] Karst.) wood with
the presence of compression wood**

J. For. Sci., 53 (2007): 243-252

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Wood is a hygroscopic material that is affected by shape changes. The aim of this study was to analyse the variability of wood swelling in the individual anatomic directions. Wood swelling was examined on a sample tree containing compression wood. With regard to the presence of compression wood, the sample tree was divided into the following three zones: the compression wood zone (CW), the opposite wood zone (OW), and two side wood zones (SWL and SWR). The results show that the wood containing compression wood swells less at the transverse plane (in the radial and tangential direction). Conversely, the swelling of compression wood in the longitudinal direction is higher. The same proportion was established in the swelling coefficient that grew proportionally to the increasing wood density in all anatomic directions. The proportion of compression wood manifested its effects in different ways. Transversely (in the radial and tangential direction) the swelling

coefficient decreased proportionally to the increasing percentage of compression wood, longitudinally, however, the opposite was the case.

Keywords:

spruce; swelling; compression wood

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