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Turbulent structures at the atmosphere-forest interface at mountainous site Bily Kriz

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Turbulence measurements were collected over an even-aged Norway spruce forest at the Experimental Ecological Study Site Bily Kriz (800-900 m a.s.l.) Bily Kriz is a CarboEurope site located in the Moravian-Silesian Beskydy Mts., the Czech Republic. It is situated on a steep SSW slope (inclination 13°). To the north of the site, there is a W-E oriented mountain ridge line with a shallow saddle. Recent research using the eddy correlation method showed a strong effect of low-frequency oscillations on the turbulent fluxes over the forest at Bily Kriz.

The aim of the present study is to assess and describe low-frequency oscillations and coherent structures in temporal series of temperature and wind velocity components sampled above the canopy with a three-dimensional sonic anemometer. The wavelet transform is used as a basic tool for our analysis. Links between the occurrence and character of coherent structures and the temperature stability of the atmospheric surface layer are discussed. For this purpose supporting standard meteorological data and tower-based measurements including radiation are used.