



## **Different behaviour of short-wave bands of solar radiation in relation to photosynthetically active radiation in dependence on weather and solar elevation angle**

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Short-wave bands of solar radiation (UVB, 280–315 nm; UVA, 315–400 nm; blue part of photosynthetically active radiation (PAR), 400–510 nm, so-called Blue) are crucial primarily for plant photosynthesis and/or photomorphogenesis. During long-term measurement of different spectral bands of solar radiation (UVB, UVA, global, PAR and its parts 510–700 nm and 600–700 nm, together with 660 nm and 730 nm) we focused on behaviour of the UVB/PAR, UVA/PAR and Blue/PAR ratios in dependence on weather (cloudy, partly cloudy and sunny sky) and solar elevation angle in all months of the 2014 and 2015. We expected that these spectral ratios should be higher during cloudy days than during sunny days and they should be more significantly dependent on solar elevation angle during sunny days (with a positive dependence on this angle caused by lower scattering of short wave bands; that is proportional to optical pathway through the atmosphere). The UVA/PAR ratio was always higher during cloudy days, but the UVB/PAR and Blue/PAR ratios did not show such trend being often higher during cloudy days, but not in all cases. Dependence of these ratios on solar elevation angle was different too, the UVB/PAR ratio showed strongly positive dependence, the UVA/PAR ratio was generally not dependent on this angle or it revealed weak negative dependence, especially on sunny days. The Blue/PAR ratio evinced negative dependence on solar elevation angle (with low correlation coefficients). Such behaviour of these ratios was rather surprising and against expectations. It seems that there are additional factors which can distort expected diurnal variations of spectral composition in UV and PAR regions during sunny days.