presence of a yellow brim from the side of big scattering angles that is explained by the effect studied. We also analyzed in the paper a possibility to observe the rainbow $p = 7$.

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Variability of the UV and shortwave broadband transparency coefficients at the ARG station, Kishinev (Moldova)

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Data from measurements of direct shortwave (SW) solar radiation and UV_b solar radiation (onto the perpendicular plane) are used to compute respective broadband transparency coefficients. Radiometric sensor CH-1 (250–3000 nm) was used to measure the direct SW solar radiation. Two sensors of UV-S-B-C type were used to measure the global and diffuse UV_b solar radiation in spectral band from 280 nm to 315 nm. All measurements were performed at the ground-based solar radiation monitoring station at the Institute of Applied Physics (IAP) of ASM, Kishinev (Moldova). More detail information about the ground station, the instrumentation used, measurement procedures and time series of measured parameters in graphical form is presented at the Atmospheric Research Group (ARG) site: http://arg.phys.asm.md.

Procedure for determining the multiyear (MY) means of broadband transparency coefficients $\langle P(\mathrm{UVB},m)\rangle_{my}$ and $\langle P(\mathrm{SW},m)\rangle_{my}$ is based on using of the Bouguer-Lambert law. Procedure takes into account measurements of direct SW and UV_b solar radiation at airmasses $m = 2$ and $m = 3$ for AM&PM hours. Sun-Earth mean distance factor was applied for correction. The following values of the solar irradiance at the top of atmosphere I_o were chosen for determining of the transparency coefficients: $I_o = 1367\ \mathrm{Wm}^{-2}$ for SW radiation and $I_o = 16.92\ \mathrm{Wm}^{-2}$ for UV_b radiation [1]. Measurements fullfilled only under the cloud-free (CF) atmosphere conditions were used. Timeseries of data was composed from observations for the period from 2003 to 2014.

Following broadband transparency coefficients $\langle P(\mathrm{UVB},m)\rangle_{my}$ and $\langle P(\mathrm{SW},m)\rangle_{my}$ at airmasses $m = 2$ and $m = 3$ were obtained: $\langle P(\mathrm{UVB},2)\rangle_{my} = 0.13$ and $\langle P(\mathrm{UVB},3)\rangle_{my}=0.19$ for UV_b radiation, $\langle P(\mathrm{SW},2)\rangle_{my}=0.73$ and $\langle P(\mathrm{SW},3)\rangle_{my}=0.76$ for SW radiation. Looking at the transparency coefficients for SW radiation at m = 2, we draw a conclusion that the tranparency can be characterized as normal. Some differences between broadband transparency coefficients for AM and PM hours were also observed. For example, the following coefficients were obtained in the cases of UV_b and SW solar radiation at $m = 2$:

UVB radiation $\langle P(\mathrm{UVB},2)\rangle_{my} = 0.13$ for AM and $\langle P(\mathrm{UVB},2)\rangle_{my}= 0.12$ for PM,

SW radiation $\langle P(\mathrm{SW},2)\rangle_{my}= 0.74$ for AM and $\langle P(\mathrm{SW},2)\rangle_{my}=0.72$ for PM.

For the cases of UV_b and SW solar radiation at $m = 2$ and $m = 3$, it was observed a distinctly pronounced seasonal variation of broadband transparency coefficients with respective minimum and maximum values typical for late spring-summer and, respectively, for late fall-winter months. For example, the minimum and maximum of multi-year monthly means of transparency coefficients $\langle P(\mathrm{UVB},2)\rangle_m$ and $\langle P(\mathrm{SW},2)\rangle_m$ at $m=2$ were the following:

UVB radiation min $\langle P(\mathrm{UVB},2)\rangle_m=0.11$ (Apr.-Aug.) and max $\langle P(\mathrm{UVB},2)\rangle_m=0.15$ (Oct.);

SW radiation min $\langle P(\mathrm{SW},2)\rangle_m=0.69$ (May-Aug.) and max $\langle P(\mathrm{SW},2)\rangle_m=0.82$ (Feb.) .

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