

MODELLING THE CLIMATOLOGICAL PARAMETERS USED FOR LINKE'S TURBIDITY FACTOR CALCULUS

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Abstract: The design of an energy system for the conversion of solar energy in thermal or electrical energy is based on the accurate evaluation of the solar radiation on the given site and on the knowledge concerning the solar radiation characteristics. In a direct relationship with the direct solar radiation variation is the Linke's turbidity factor. In this way, the paper presents a series of theoretical considerations in regard to the models offered by the technical literature for this factor calculation (there are comparatively analysed the relations for the air mass and optical air depth).

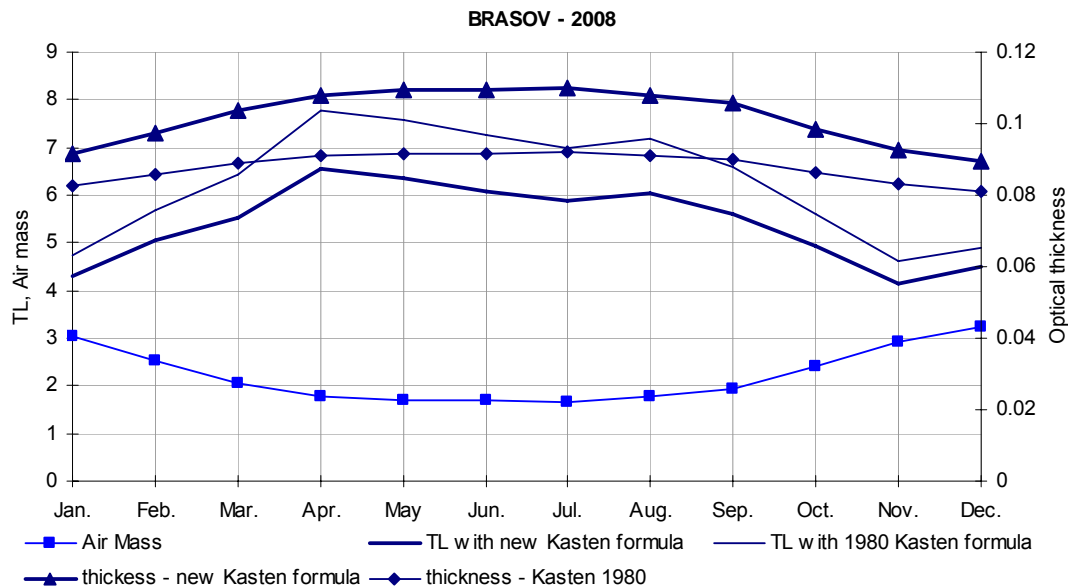


Fig. 6. The optical depth and turbidity factor calculated with Kasten formulas

CONCLUSIONS

Knowledge of the solar radiation available on the earth's surface is essential for the development of solar energy devices and for estimating of their performance efficiencies. For this purpose it is helpful to study the attenuation of direct normal irradiance by the atmosphere, in terms of fundamental quantities, including optical thickness, relative optical air mass and water vapour content.

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