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Dissertations Defended in the Scientific Council of the Institute of Physics of the Earth, Institute of Physics of the Atmosphere and Institute of Applied Geophysics, Ac.Sc. USSR during the First Semester of 1957.

Ye.V. Pyaskovskaya-Fesenkova - Investigation of the Scattering of Light in the Earth's Atmosphere (Issledovaniye rasseyaniya sveta v zemnoy atmosfere) - Doctor dissertation. Opponents: Doctor of Physico-Mathematical Sciences Ye.S. Kuznetsov, Doctor of Physico-Mathematical Sciences S.M. Polozkov, Doctor of Physico-Mathematical Sciences G.B. Rozenberg, Doctor of Physico-Mathematical Sciences I.S. Shklovskiy. March 23, 1957.

The dissertation represents the result of many years of study of the clear, daytime sky. The observations were carried out in twelve locations at various altitudes above the sea, various climatic, meteorological and synoptic conditions. The observations were carried out mainly during high-transparency of the atmosphere in the visual range of the spectrum in the absence of a snow cover. In the investigations two instruments, designed by V.G. Fesenkov were used; one of these was a visual photometer of the daytime sky intended for measuring the brightness of the firmament; the other was a photo-electric halo photometer for determining the brightness from

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near-sun halo and also from the sun on a surface perpendicular to these rays. The dissertation contains a **certain formula** of the brightness of the sky, taking into consideration only the brightness of the first order and derived on the assumption of a "flat" Earth and giving some conclusions derived on the basis of this formula. For a certain coefficient of transparency of the atmosphere, the brightness of the sky at any point is represented by derivation of two functions of which one is the function of the **diffusion of light** and the other is a function of the zenith distances of the sun and of the observed point of the sky. On changing of the zenith distances of the sun  $z$  from  $90$  to  $0^\circ$ , the brightness of the sky on the almucantar of the sun increases first, reaching a maximum for a certain value of  $z$ , and then decreases. A method is also proposed of determining the brightness of the clear daylight sky at any point based on measuring the brightness along the almucantar of the sun and of 5-6 points of the firmament located at various zenith distances. This method permits determination

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