DETERMINING AND CONSIDERING A REFRACTIVE INDEX ON CONSTRUCTION SITE

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Taking into account the refraction in modern total station is performed by inputting the refraction coefficient into the memory of the device. The article develops a formula to determine the refraction coefficient based on geodetic surveys (zenith distances, horizontal positions, elevations) and provides field survey results. The article proposes the method for creation of the vertical basis (a geodetic structure consisting of the points fixed on a vertical plane on one vertical line and ground points with highly accurate differences in elevations determined between them).The article provides experimental survey results in determining the diurnal variation of the refraction coefficient which showed that in the morning and at night the refraction coefficient values are positive, and in the day and in the evening they are negative. There is a recommendation for the construction site to determine the refraction coefficient every half hour to increase the accuracy of the results. The variation of the coefficient within half hour shall not exceed 0.2. If the refraction coefficient exceeds this value, then refraction corrections shall be introduced in the measurement results.

Keywords: vertical refraction, refractive index, trigonometric levelling, electronic total station

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