STUDY OF THE ACCURACY OF MODEL CONSTRUCTION BY SIFT ALGORYITHM FOR LARGE SPAN STRUCTURES

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The article considers the accuracy of floor models creation in large span structures with the use of unmanned aerial vehicles for the purpose of determining their deformations. There were performed 4 aero shootings of Water Sports Palace in Dushambe, which were processed by SIFT algorithm. Synchronically with the UAV shooting there was performed the measurements on deformation marks within the frames of geodetic monitoring. There was performed the statistical analysis of models accuracy by method of interpolation of spherical function, which showed that 80% of points has deviations less than 30 mm, and the rest 20% has deviations up to 80 mm. The use of collocation method for smoothing optimal filtering allowed to decrease the differences between settlement surfaces obtained by geodetic measurement and UAV shooting up to 26mm., which is 10 % of acceptable deviations of this object. It was found out that there is a necessity of further investigations of SIFT algorithm and filtering its results for the purpose of increasing the accuracy of object's models.

Keywords: geodetic monitoring, deformations, settlements, accuracy, SIFT algorithm, aero-shooting, UAV, reference grid error, digital camera, interpolation, filtering

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Received 26.02.2021