

THE SUBSTANTIATION OF GROUND SAMPLING INTERVAL AND COMPRESSION OPTIONS OF AERIAL AND SPACE IMAGERY, OBTAINED FOR MAPPING PURPOSES

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The problem of requirement's normative regulation absence for aerial and space images, obtained for the mapping purposes, is raised. The problems of substantiation the permissible ground sampling interval of aerial and space images and the possibilities of image's lossy compression algorithm's application and its acceptable level for increasing the performance of photogrammetric processing are considered. In order to substantiate the permissible ground sampling interval of aerial and space images the results of plan coordinate's accuracy studies for control points, measured on orthophoto mosaics of various ground sampling interval, the results of various ground sampling interval orthophoto mosaic's transfer properties in terms of estimation the actual resolution are given, the linear size of the terrain object's image, transmitted by an out-of-scale conventional sign is calculated for various mapping scales, the analytical assessment of aerial and space images with various ground sampling interval application possibility for various mapping scales is carried out. In order to determine the application possibility of lossy compression algorithms and it's acceptable level to aerial and space images obtained for mapping purposes, the estimation of the compression ratio effect on the plan coordinates accuracy of control points measured on orthophoto mosaics, the estimation of the image's effective information degree loss depending on the compression ratio, the estimation of the compression ratio effect on the actual resolution of the image are carried out, the substantiation of the application possibility of lossy compression algorithms and it's acceptable level to aerial and space images is given.

Key words: ground sampling interval, image compression, plan coordinates accuracy, actual resolution, aerial and space images, loss of information in image, control points, orthophoto mosaic, mapping scale.

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