RESEARCH ARTICLE

Application and Optimization of New Mapping Technology in Engineering Surveying

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Abstract: At present, the application of surveying and mapping technology in the construction industry plays an important advantage, the application of new surveying and mapping technology to promote the development of the construction industry, the article mainly analyzes the application and optimization of new surveying and mapping technology in engineering surveying.
Keywords: new technology of surveying and mapping; engineering surveying; optimization

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1. Introduction

In the process of engineering survey in Our country, the traditional surveying and mapping technology presents the characteristics of long consumption time, large workload and high cost of measurement, which makes the investment of surveying funds of enterprises increase continuously, and brings serious waste of enterprise resources. With the rapid improvement of the level of science and technology, many new surveying and mapping technologies have been effectively applied in engineering surveying, but surveying and mapping personnel encounter certain difficulties in the application of new surveying and mapping technologies, and the application process is relatively slow. The surveying and mapping industry still needs to further study the application of new surveying and mapping technologies [1]. Based on this, the paper introduces the application advantages of new surveying and mapping technology, and analyzes the application and optimization of new surveying and mapping technology in engineering survey.

2. Application advantages of new surveying and mapping technology

In the process of modern construction engineering survey, the application of surveying and mapping new technology in engineering survey has great advantages, mainly reflected in the following aspects: First, convenient operation. Compared with the traditional manual measurement technology, the application of the new technology makes the building of surveying and mapping engineering surveying work more convenient, surveying and mapping technicians can according to the actual characteristics and demands of construction projects, reasonably choose new technology of surveying and mapping, in the short term to perform effective measurements, improve the whole quality of construction engineering surveying [2]. Therefore, the new surveying and mapping technology has the advantage of convenient operation, can shorten the measurement time, improve the overall efficiency of the measurement work, improve the traditional basic measurement, data analysis and other methods. Second, the measurement results are more accurate. In the traditional manual measurement work, there are problems such as unreasonable use of measuring tools and operation errors of surveying and mapping personnel, which can easily affect the accuracy of measurement data. However, the application of surveying and mapping new technology plays an important role in the measurement of construction engineering, which can reduce the error of measurement

data and provide guarantee for the subsequent construction of construction engineering.

3. Application and optimization of new surveying and mapping technology in engineering survey

3.1 Application of GPS mapping technology

GPS surveying and mapping technology as satellite positioning refers to the support of new high-tech surveying and mapping technology, this technology can be admitted to the latitude of each measurement point, and high precision three-dimensional coordinate information, such as in computer software guides in solid form, obtained the effective application in engineering surveying, surveying and mapping personnel without greater human surveying and mapping work pressure. At present, GPS surveying and mapping technology have got improved, which has been in the field of surveying and mapping has been effectively in various engineering applications, but the single point of GPS surveying and mapping technology need further ascension, related technical personnel need to phase difference of the principle of surveying and mapping technology and GPS RTK technology to integrate, to enhance the overall level of the engineering surveying accuracy, In particular, it plays an important role in high-precision surveying and mapping engineering. In addition, GPS mapping technology adjusts carrier phase observation and reference station in fixed GPS receiver into the same form, which can accept the signal transmitted by reference station and obtain accurate position.

3.2 Application of geographic information technology

Geographic information technology can collect, store and manage various technologies, and it has the functions of spatial reminder, prediction and prediction, auxiliary decision making, etc., which makes geographic information technology become a huge database, which can display and output graphics. Geographic information technology database can analyze and process the stored data and information in the database according to the contents of engineering survey, improve the overall efficiency of engineering survey drawing and save a lot of engineering design time. In addition, the application of geographic information technology is more extensive, such as in the field measurement work has been effectively applied, can reduce the overall intensity and difficulty of the measurement work, obtain more accurate measurement data, in the engineering construction work has been effectively applied.

3.3 Photogrammetric technology

In modern digital surveying and mapping technology, photogrammetry technology is a necessary new surveying and mapping technology, and plays an important role in engineering surveying and mapping. Photogrammetry technology is mainly the use of photography, for the engineering measurement object of basic information measurement, the use of computer technology to timely process the data obtained by photography, so that the operation difficulty of surveying and mapping engineering is reduced, to a large extent, improve the overall quality and efficiency of surveying and mapping work. In the new era of engineering surveying, photogrammetry technology is suitable for large population flow, density of large area, the main reason is the area to large-scale surveying and mapping work, and the application of the photogrammetry technology can effectively topography measurement, on the basis of city scale is updated and optimization, to a great extent, improve the overall level of the engineering survey.

3.4 UAV mapping technology

Uav surveying and mapping technology is an emerging surveying and mapping technology, which has the advantages of flexibility, high efficiency and so on. It has been effectively applied in engineering surveying, which is embodied in the following aspects: First of all, according to the accuracy requirements of geographic mapping, the aerial scale of UAV should be reasonably adjusted to complete the aerial photography of the field. After the completion of aerial photography, the initial data should be reviewed, and the image control point and the image should be connected by professionals. Secondly, mapping technicians can use relevant software to accurately process the interior of aerial photography, so that the image image will be output, and the geosurvey information in the image map will be judged and checked. Finally, in the process of digital mapping, surveying and mapping technicians need to carry out according to the image images and data obtained in the early stage to improve the accuracy of engineering survey results.

3.5 Remote Sensing Technology

At present, remote sensing technology has been applied effectively in engineering survey and is one of the important contents in engineering survey. Among them, the aerial photography technology is the foundation of the application of remote sensing technology, in the process of engineering surveying, measuring technical personnel need to give full play to the remote sensing technology

application in the engineering survey advantage, to determine the scope and proportion of measurement, collection of small scale and medium scale topographic map data, to analyze the basic topographic map measurement data, To provide support for the smooth implementation of engineering survey work and complete delivery and use within the specified time [3]. Therefore, in the process of engineering measurement, the application of remote sensing technology provides support for the effective development of engineering construction, which is conducive to improving the overall quality of engineering construction.

4. Conclusion

To sum up, in the modern surveying and mapping engineering survey, the new measurement technology plays an important role, provides a new development direction for the engineering survey work, and improves the comprehensive benefits of the construction enterprise to a large extent. In the process of construction engineering project construction, surveying and mapping technical personnel need to introduce new technology, give full play to its role in engineering measurement, obtain more accurate measurement results, improve the overall efficiency of engineering surveying and mapping, save more costs for construction enterprises, ensure that the project is delivered on schedule. Therefore, in the modern engineering survey, the new technology of surveying and mapping plays an important role in promoting the overall quality of engineering project construction.

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