The Power Line Height Analysis Chart Drawing Base On MapMatrix

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二. 成果简介：

This research uses remote sensing data of unmanned aerial vehicle to carry out aerial triangulation, stereo model establishment and binocular stereo vision height extraction base on MapMatrix software, then obtains the power line height analysis chart. Then LiDAR point cloud data is used to verify the accuracy of the power line height analysis chart. The results show that this method not only meets the standard of power line patrol, but also improves the efficiency and quality of power line patrol.

三. 主要研究内容及创新点：

In this study, MapMatrix software platform was used to preprocess high-resolution uav remote sensing images, and the height of power lines and ground objects in the power corridor was extracted using the dual-image stereoscopic mapping principle. The main flow chart is shown in Figure 1. Through internal orientation, relative orientation, automatic generation of connection points, adjustment calculation, and finally recovery of its stereo model. The height of power lines and ground objects in the power corridor was extracted by using the results of three-dimensional model, and the results were shown in Figure 2 and 3. The accuracy of the research results is verified by combining with the lidar data. The results show that the measurement accuracy of this section of the line can reach sub-meter level, which meets the requirements of power line patrol. The power line height results extracted in this study were used to draw the power line net height analysis diagram for dangerous points in the power corridor, and the results were shown in Figure 4.

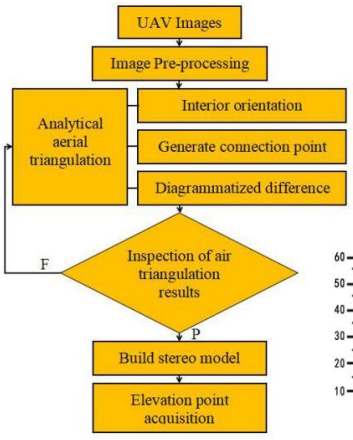


Fig 1 Height extraction flow chart

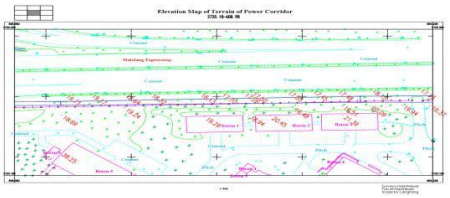


Fig 2 Elevation map of terrain of power corridor

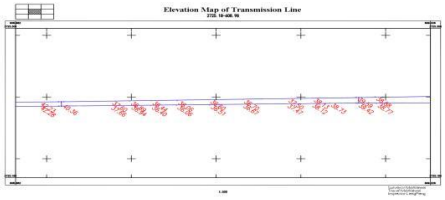
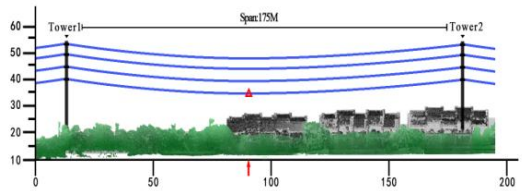
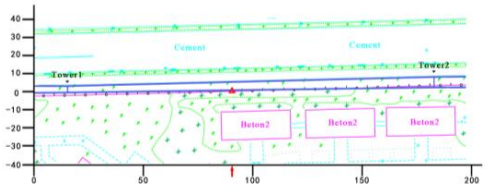


Fig 3 Elevation map of transmission line



(a) Front view



(b) Vertical view

Fig 4 Net height analysis chart of power line

四. 主要研究成果及应用情况

1.在“International Conference on Geomatics in the Big Data Era”EI 会议发表文章 1 篇。

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