

# **Study on Application of Aero-photography and Remote Sensing Systems by Unmanned Aerial Vehicle in Mapping of Gansu West Plateau Mining Area**

**Wei Hao and Ya-han Zhang (China, PR)**

**Key words:** GNSS/GPS; Mine surveying; Young surveyor; unmanned aerial vehicle (UAV), plateau mining area, image-control point, topography

## **SUMMARY**

The purpose of the study is to map of Gansu West Plateau Mining Area with the high efficiency by the aero-photography and remote sensing systems of unmanned aerial vehicle (UAV).

The main research way is 1) to overcome the precipitous geography, scarcity of image features, and hard access, which is practical that setting the image-control points and measuring the co-ordinates and height, then carrying on the flight in the west plateau mining area. 2) The explored zones lack of the highly precision image-control points, so it is provided that the technology of precise point position (PPP) and rapid static GPS to set on the co-ordinates.

The results indicate that 1) compared with the digital surveying and mapping (DSM), the remote sensing and mapping of UAV can not only greatly increase the measuring efficiency, but also save 1/3 measurement cost with the data collection from the outdoor to the indoor. 2) The image-control points are clearly marked and accurately measured, which makes 1:2000 topographic map accuracy to meet specification requirements.

The conclusion: the aero-photography and remote sensing technology of UAV has the obvious advantage in the west plateau mining area that can ensure the job security and improve the measure accuracy to meet regulatory requirement, besides of reducing the workload of field measurements and saving cost. It's worth promotion in the unmanned areas, desert area, and the zones with particular difficulties.

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