

ABSTRACT

The topographic map of the Republic of China can reflect the surveying and mapping level and technical characteristics of the society at that time, and has rich scientific research value and art appreciation value. However, the low-precision topographic map cannot be used in scientific research, so it is essential to carry out geometric correction and accuracy analysis and evaluation of topographic map. This study collected the topographic maps of the Republic of China in Yuhang District, and analyzed the history of surveying and mapping and the technical characteristics of compilation. The topographic map is geometrically corrected, and the accuracy of control points and non-control points are analyzed and evaluated. Based on the topographic map, the potential analysis is carried out, including land use reconstruction, topographic analysis and place name change analysis. The research results are as follows: (1) The topographic map of the Republic of China was mainly used for the needs of military activities at that time, the surveying and mapping methods were mainly combined with realistic and freehand, the map information layout and arrangement were unified, and the landmark ICONS were unified, realistic and regional; (2) The accuracy of control points and non-control points of topographic map after geometric

correction is high, and the error is small; (3) The land use type of the Republic of China was single, with cultivated land as the main type and emphasis on agriculture; (4) The surveying and mapping level of the mountain area is relatively impressive on the whole, and the details are slightly rough, which fails to provide sufficient geographic information; (5) During the Republic of China, most of the village names in Yuhang County were influenced by the surrounding natural features and local ideology and culture, and by 2020, most of them have completely changed, which may be due to the change of natural environment, the adjustment of administrative divisions, the influence of historical events and people, and the transformation of social industry.

Keywords: topographic map of the Republic of China; surveying and mapping background; compilation techniques and characteristics; precision analysis; potential analysis