

数字区调新技术新方法--遥感图像地质解译三维可视化及影像动态分析

杨武年¹ 廖崇高¹ 濮国梁¹ 徐强² 于庆文³ 徐凌¹

(1. 成都理工大学国土资源信息技术与应用国土资源部重点实验室遥感与GIS研究所 四川 成都 610059;

2. 中国地质调查局成都地质矿产研究所 四川 成都 610082; 3. 中国地质调查局 北京 100035)

摘要: 提出遥感图像地质解译三维可视化及影像动态分析新方法, 综合利用3S技术、遥感图像数字处理技术、虚拟现实和全数字摄影测量等高科技, 通过遥感图像的正射影像处理、多类型遥感图像数据融合、高精度DEM生成和影像复合等工序, 按照一定比例尺和飞行路线生成测区的虚拟三维影像动画系列图, 以解决高原区数字区调工作者面临的实际问题, 弥补其不足。

关键词: 3S技术; 地质解译三维可视化; 三维影像动态分析; 区域地质调查; 数字区调

中图分类号: P623.1; P627 **文献标识码:** A **文章编号:** 1671-2552 (2003) 01-0060-05

A new method for digital regional geological survey: 3D visualization of geological interpretation of remote sensing images and image dynamical analysis

YANG Wu-nian¹, LIAO Chong-gao¹, PU Guo-liang¹, XU Qiang², YU Qing-wen³, XU Ling¹

1 Ministerial Key Lab of Information Technology & Application of Land and Resources / Institute of Remote sensing & GIS, Chengdu University of Technology, Chengdu 610059, China

2 Chengdu Institut of Geology and Mineral Resources, Chengdu 610082, China

3 China Geological Survey, Beijing 100083, China

Abstract: The paper brings forward a new method-3D visualization of geological interpretation of remote sensing images and image dynamical analysis for the regional geological survey, which integrates the roles of advanced technologies including "3S" (RS, GIS and GPS) techniques, remote sensing image digital processing, virtual reality and digital photographic measurement technique and so on. Based on this method, 3D virtual images are created according to certain scales and flight routes. The method commendably solves practical problems for digital regional geological survey in altiplano and makes up for some deficiency in the traditional regional geo-survey by a series of working procedures such as RS orthophoto processing, data fusion of multi-types RS images, high precision DEM building and image synthesizing.

Key words: "3S" technology; geological interpretation 3D-visualization of remote sensing images; imaging dynamical analysis; virtual reality, digital photographic measurement; regional geological survey