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Application of Accurate Inspection of CQG2000 Quasi-Geoid Model to Regional Gravity Survey in Qinghai-Tibet Plateau

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Abstract: During regional gravity survey, accuracy of orthometric height may affect the accuracy of gravity survey directly. With CQG2000 quasi-geoid model, orthometric height with higher accuracy can be acquired through calibrating geodetic altitude measured by GPS. However, the accuracy and resolution of CQG2000 quasi-geoid model are different in different areas and become worse in Qinghai-Tibet plateau. The field test in Qinghai-Tibet plateau show that the accuracy of CQG2000 quasi-geoid model can satisfy the accuracy of orthometric height during the the 1∶200000 regional gravity survey. Based on the test, we summarize the method how the accuracy of height measurement can be improved by GPS with CQG2000 quasi-geoid model during the regional gravity survey, which may be helpful to regional gravity survey.

Key words: quasi-geoid model; Qinghai-Tibet plateau; GPS surveying; accuracy; inspection

电感耦合等离子体质谱分析仪简介

电感耦合等离子体质谱分析仪Inductively Coupled Plasma Mass Spectrometry (ICP-MS) 是西安地质调查中心实验测试中心于2006年引进的。电感耦合等离子体质谱分析仪能适用于广泛领域的各种样品的元素分析, 尤其适用于各类复杂基体的环境、食品、矿物、动植物、卫生防疫等样品中各种无机元素的分析。

仪器型号: 电感耦合等离子体质谱仪 Series II 型 (美国热电公司)。

特点: 分析元素Li (7) —U (238), 动态范围大于8个数量级; 灵敏度Be> 7×10^6 cps/mg/L, In> 60×10^6 cps/mg/L, U> 60×10^6 cps/mg/L; 背景噪声< 0.5 cps, 信噪比> 120×10^6, 氧化物离子 CeO^+/Ce^+ < 2%; 短期稳定性< 1.5% RSD, 长期稳定性< 3% RSD; 检出限(3σ, ng/L) Be< 3, Co, In, U < 0.5; 等离子体炬屏蔽技术; 第二代碰撞池技术模式。

应用范围: 用于水样、油气、生化样品、食品、岩石、矿物、土壤、水系沉积物、环境等样品的无机组成成分、微量、痕量、超痕量分析。

(西安地质调查中心　黎 卫亮)