



Results of airborne gravity survey in Taiwan

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From May 2004 to May 2005, an airborne gravity survey project was sponsored by Ministry of the Interior, Taiwan and carried out by a joint team from National Chiao Tung University and National Survey and Cadastre (KMS). An L&R Air-Sea Gravity System II gravimeter (Serial number: S-130) onboard a King-Air Beechcraft 200 aircraft were used to collect the gravity data. This gravimeter is owned by Ministry of the Interior, Taiwan. The flight altitude is approximately 5150 m above sea level and the speed of flight is 300 km/hour. The survey area covers the entire Taiwan Island, the waters west of Taiwan and 50 km offshore to the Pacific Ocean. Gravity values along 64 north-south going survey lines and 22 west-east-going survey lines were collected at a one-second interval. The cross-track distances of north-south lines and west-east lines are 5 km and 20 km, respectively. A GPS tracking network, together with the IGS GPS precise orbits, were used in an optimum way to determine the aircraft positions, velocities and accelerations. The RMS crossover discrepancy of gravity values at all intersecting survey lines is about 4 mgal. Crossover adjustment further reduces the discrepancy. This paper will report the results of the applications of the airborne gravity data to geoid modeling and determinations of gravity anomalies and deflection of the vertical.