

## 利用重力測量估算曾文水庫淤砂量之變化

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**摘要** 本研究目的為結合實地重力測量與地形改正方法估算曾文水庫因大雨所造成的土砂淤積變化量。地形改正程式已發展完成，本團隊預計半年內將完成數次的實地重力測量來進行相關結果估算。外在環境引起的重力誤差，包括日月引力、海潮、大氣壓力、極移、地下水位等將嚴密的計算並去除，重力儀本身之系統誤差亦會精確的估算並消除。未來重力測量結果將與傳統船載量測水庫斷面淤積方法進行比較分析，並探討其優缺點。利用本團隊發展之模擬程式計算發現，假設曾文水庫集水區發生豪雨後有 3~9 公尺的泥沙淤積量，對壩口周圍產生的重力變化為 0.01~0.20mgal，故未來實地重力測量將採用絕對重力儀為主。

**關鍵詞：**重力測量、淤積、曾文水庫。

## Prediction of Sediment Variation in Tseng Wen Reservoir by Gravimetry Technique

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**ABSTRACT** This study aimed at combining gravimetry technique and terrain correction method to estimate deposit variation in Tseng Wen reservoir caused by heavy rainfalls. The software of terrain correction is developed and several practical gravity surveys will be carried out in half a year. Gravity values affected by external environment, including lunisolar gravitational force, ocean tide, atmospheric pressure, polar motion, underground water table, will be precisely predicted and removed. Gravity systematic errors from gravimeter will also be carefully computed and eliminated. The results from gravimetry technique will be compared with those from shipborne method. The advantages and disadvantages of the new and traditional methods for estimating deposit variation will be discussed in detail. Based on the simulated experiments, if there are additional 3 to 9meter sedimentations in Tseng Wen Reservoir after heavy rainfalls, the changes of gravity surrounding the dam are approximately 0.01 ~ 0.20mgal. Therefore, an absolute gravimeter is more recommended.

**Key Words :** Gravimetry, deposit, Tseng Wen Reservoir.

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