



Investigation of rotational motion in TAIPEI 101

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We investigate rotational motions in TAIPEI 101 building in Taipei from a commercial available eentecTM R-1TM rotational sensors and array-derived-rotation (ADR) during typhoon weather and earthquake. Our data set consists of translational accelerations and rotational velocities recorded by an array of KinometricsTM EpiSensorTM accelerometers and two R-1sTM rotational sensors at the TAIPEI 101. Our results indicate that 1) the typhoon weather can generate significant displacement in the skyscraper, 2) a good waveform agreement was observed between the measurements of the R-1sTM and those provided by ADRs, 3) the strength of wind speed is related to the vertical rotation of the building (torsion), and 4) the performance of R-1TM is adequate, at least above a frequency of 0.12 Hz (periods shorter than 8s).