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## **A study over indirect ocean tide effect on the GRACE observables**

**H. Hashemi, A. A. Ardalan**

Department of Surveying and Geomatics Engineering, Center of Excellence in Surveying Engineering and Disaster Prevention, Faculty of Engineering, University of Tehran, P. O. Box: 11155-4563, Tehran-Iran, Tel: 0098-21-82084383, Fax: 0098-21-88337642 (ardalan@ut.ac.ir)

In this contribution, the indirect ocean tide effect on the GRACE observables, namely, (i) kinetic energy at the position of GRACE-1 and GRACE-2 satellites, i.e., summation of the gravitational potential and the unknown energy constant, (ii) gravitational acceleration at the position of the satellites, (iii) kinetic energy difference between the satellites, i.e., summation of the gravitational potential difference and energy constant difference, (iv) Line Of Sight (LOS) gravitational difference, and (v) gradiometry observations, is studied based on FES2004 global ocean tide model. For this purpose S<sub>2</sub>, M<sub>2</sub>, N<sub>2</sub>, K<sub>2</sub>, K<sub>1</sub>, P<sub>1</sub>, O<sub>1</sub>, Q<sub>1</sub>, M<sub>m</sub>, M<sub>f</sub>, and M<sub>t</sub> tidal constituents are considered. The indirect effects of the aforementioned tidal constituents are presented in terms of correction maps.