

Review of the Earth gravity field measurement by the inter-satellite tracking

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In Japan, gravity measurement has been performed mainly by the gravity meter on the ground, while technology for global, dynamic and highly resolved gravity measurement from space has been studied in the US and in Europe. Finally, the importance of CHAMP, GRACE satellites are strongly recognized. To accomplish the technology, they had a long history of technical development. The methods are: (1) satellite laser ranging, (2) satellite to satellite tracking, and (3) gravity gradiometry. Since the precise and high resolution data from (2) and (3) will enable the study of mass transfer of solid Earth, ocean and atmosphere, it is attractive also for Japan. The study of this technique started in 1960s in NASA. Review will be carried out for the progress of this technique. And idea of inter-satellite tracking by laser technique will be reviewed taking the technical level of Japan into account.