In-Flight Alignment Algorithm Using Uplinked Radar Data Including Time Delay
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Initial attitude error is one of the large error sources in the navigation errors of SDINS. And it is important to decide the initial attitude of SDINS. The method, like a self-alignment or a transfer alignment method, is required to a precise INS. If we do not have a precise INS, we should get large attitude error. After performing the initial alignment, a vehicle has the initial attitude error. Therefore, it results in navigation error due to the initial attitude error. But, if we use position information during flight, we could estimate and compensate a vehicle attitude error. So, we can maintain a precise attitude inspite of existing the initial attitude error. Using the uplinked position information from a land-based radar system, the new algorithm estimates the attitude of the SDINS during flight…

A Study on The Jump Error Smoothing Scheme by Fuzzy Logic
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This study describes the jump error smoothing scheme with fuzzy logic based on the scalar adaptive filter. The scalar adaptive filter is an useful algorithm for smoothing abrupt jump errors. However, the performances of scalar adaptive algorithm depend on the variance of real signal. So to design an effective algorithm, many informations of real and jump signal are required. In this paper, the fuzzy rules are designed by the analysis of scalar adaptive filter, and then the improved and simplified scheme is developed for smoothing the jump error. Simulations to INS/GPS integrated system show that the proposed method is effective.

A Study on the Attitude Stabilization Techniques of Leo Satellites
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In the three axis control of satellite by using reaction wheel and gyro, a reaction wheel produces the control torque by the wheel speed or momentum, and a gyro carries out measuring of the attitude angle and the attitude angular velocity. In this study, dynamic modelling of the Low Earth Orbit (LEO) is consisted of the one from the rotational motion of the satellite with the basic rigid body and a flexible body model, and the gyro in addition to the reaction wheel model. The results obtained by the robust controller are compared with those of the PI (Proportional and Integration) controller which is commonly used for the stabilizing satellite.