Cleaning magnetometer data using multi sensor configuration

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Measuring the in situ magnetic field using space borne instruments requires either a magnetically clean platform and/or a very long boom for accommodating magnetometers sensors at a large distance from the spacecraft body. This significantly drives up the costs and time for building the spacecraft. Here we present an alternative sensor configuration and an algorithm allowing for ulterior removing of the spacecraft generated disturbances from the magnetic field measurements, thus lessening the need for a magnetic cleanliness program.

The Service Oriented Spacecraft Magnetometer (SOSMAG) onboard the Korean Geostationary Satellite GEO-KOMPSAT-2A (GK-2A) uses for the first time a multi-sensor configuration for onboard data cleaning. To remove the AC disturbances, a combination of the measurements from sensors placed at different positions from the disturbance sources is processed onboard. Sensor biases due to daily temperature variations are also removed using the specific SOSMAG sensor arrangement.