

SGD021-P06

Room:Convention Hall

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Numerical simulation of positioning errors using high-resolution numerical weather prediction model

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We observed characteristic positioning errors at GPS stations around Sakura-jima in Kagoshima Prefecture, Japan. The directions of these errors are usually same and observed in summer. In this research, we try to clarify that the source of these errors is tropospheric delay or not by comparing observed positioning errors with those simulated using high-resolution numerical weather prediction model. For this purpose, we used the numerical weather model with 1km horizontal resolution and 1-hour temporal resolution computed by Cloud Resolving Storm Simulator (CReSS) developed by Nagoya University while assimilating JMA meso-scale analysis data and SST data. We produced simulated GPS observation datasets using Satellite Positioning System Simulator (SPSS) developed by GSI with the numerical weather model data. Then, we analyzed simulated GPS data by the PPP method using GIPSY ver.5.0 to estimate positioning errors due to tropospheric delay.

We found that the simulated positioning errors are correlated with the observed ones, which suggests that the errors of GPS observation around Sakura-jima are caused by tropospheric noise. In presentation, we will report on these results and the relation between positioning errors and weather condition.