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Diagnosis system of troposphere-induced positioning errors for GEONET

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In the routine analysis of GEONET, positioning errors caused by the meteorological disturbance have been occasionally observed, which make the crustal deformation monitoring a difficult task. We have been working on the development of the diagnosis system of the positioning errors induced by meteorological disturbance.

In the previous studies, we generated the high-resolution numerical weather model while assimilating JMA meso-scale analysis data and estimated positioning errors using this generated model. In the case study, we found that the estimated positioning errors reproduced the positioning errors in the routine analysis of GEONET and the induced mechanism of errors was reproduced. But the estimation using the above method is not always correct.

In this study, we investigated the conformity between the estimated positioning errors and the routine analysis data of GEONET with no significant crustal deformation. As a result, we found that the conformity become high on specific conditions and the results can be used as reliability of the estimated positioning errors. Using these results in the event of earthquakes, we could diagnose positioning errors induced by meteorological disturbance properly.

In presentation, we will report on these results and the diagnosis system of the positioning errors induced by meteorological disturbance for GEONET.