Current status of water vapor observation using digital terrestrial broadcasting waves

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We, National Institute of Information and Communications Technology, are developing a method to estimate water vapor (propagation delay due to water vapor) near ground surface using digital terrestrial broadcasting waves. Our target is to improve the accuracy of numerical weather forecast through data assimilation. Measuring water vapor, which is the origin of raindrops, enable us to predict severe weather phenomena such as localized heavy rainstorms in urban areas with a longer lead time. A method to estimate water vapor using reflected waves and its results are already reported [1].
In this presentation, we will report projects to deploy measurement systems around Tokyo area and their current status. A multi-parameter phased-array weather radar (MP-PAWR) was installed at Saitama University in Dec. 2017. We will deploy our water vapor measurement systems within the same target area as the MP-PAWR.

[1] Kawamura, S., et al. (2017), Water vapor estimation using digital terrestrial broadcasting waves, Radio Sci., vol.52, pp. 367-377, doi:10.1002/2016RS006191.

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