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SENSING of the structure of the radio wave refractivity in the troposphere by a network of satellite navigation system receivers in the city of Kazan

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Abstract

We present the results of an experimental study of the structure of the radio-wave refractivity and its dynamics by a network of seven ground-based GPS and GLONASS receivers in Kazan, Russia. It is shown that the remote sensing results agree well with the data of weather stations, radio sounding, and reanalysis. The standard deviation of the refractivity value, which are obtained using the sensing results from the radio sounding data amounts to 2% of the average value at altitudes of up to 500 m. It is found that the refractivity structure has overnight variations, as well as and mesoscale spatial and temporal variability. ©2011 Springer Science+Business Media, Inc.

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