Slant Path Water Vapor Measurement Using GPS (1995)

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Ground-based GPS receivers can have 8 to 12 GPS satellites in view at any given time. We demonstrate here the capability of measuring the water vapor along each of the propagation paths from each of the GPS satellites to the ground-based receiver (called slant-path water vapor, or SWV). These measurements are deemed valuable as input to forecast models.

GPS SWV measurements with concurrent pointed water vapor radiometer (WVR) measurements over a 4 hour period are presented below. The residual noise in the measurements are dominated by GPS antenna multipath. We are currently developing techniques to diminish this noise source. Satellite transects down to an elevation of 20 degrees are shown. Observations down to or slightly below the horizon are possible, extending the areal coverage to several hundred kilometers.

[See attached .pdf file for more.]

Online URL: https://kb.unavco.org/article/slant-path-water-vapor-measurement-using-gps-1995-184.html