

# Application of Ground Based GPS Technology in Rainstorm Detection

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## SUMMARY

Heavy rain causes great loss to the whole world every year and therefore the forecast of precipitation is very important to reduce the loss of property. In recent years, the use of ground-based GPS Technology to detect water vapor has become an important approach of precipitation forecasting. This paper focuses on the study of water vapor before and after the heavy rainstorm on July 21, 2012 in Beijing area, which caused significant casualties and property damage, by using GPS water vapor detection technology. The comparison was carried out between two simulated water vapor results obtained from GPS technology (GPS/PWV) and from radio method (RADIO/PWV). The two results were then compared with the actual precipitation. The research (1) verified that GPS/PWV has the reliability and sensitivity to detect water vapor in heavy rain, and (2) worked out the wet delay conversion factor in Beijing area. This study provides the technical support of using GPS technology for forecasting rainstorm in the area of Beijing in future as well as for detecting water vapor in other areas, which have effective influences on reducing the loss caused by rainstorm.