# Space-time change of precipitable water vapor in the Chinese continent derived from GPS observations

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Under the project 'GPS meteorology', we have established four GPS sites in China since the end of 1997; Tianjin, Changchun, Qingdao and Taiyuan. In this report, we used, not only the four sites, 48 permanent GPS sites in Asia and western Pacific region to examine space-time change of precipitable water vapor. Since the data other than Chinese four sites had been analyzed separately since July 1995, resultant output files of Bernese software were arranged to extract total zenith delay for each station. The data of Chinese sites have been analyzed since the end of 1997. Brief examination of these results suggest that, generally speaking, total delay in the northern sites such as Irkutsk is smaller than the southern sites such as in Thailand. In the summer time, short term fluctuation in the south is much bigger compared with northern sites. In order to convert the zenith delay data to precipitable water vapor, we have collected altitude data of GPS sites through NIMA EGS96 homepage to get geoidal heights at the sites. They were subtracted from ellipsoidal heights at the site to estimate altitude of GPS sites. In addition, we have obtained atmospheric pressure data for this conversion. Estimation of precipitable water vapor in the region of Asia and the western Pacific will provide an important database for further research of meteorology and hydrology.