

Variability of GPS precipitable water vapor over the northeast Bangladesh

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Precipitable water vapor (PWV) derived from Global Positioning System (GPS) which were installed in the northeast Bangladesh was analyzed for different seasons. A GPS utilized for the analysis of pre-monsoon (May 2011) was installed at Sylhet. Two GPS utilized for the analysis of monsoon (July 2007) and winter seasons(December 2007) were installed by UNAVCO at Jamalpur and Jaflong. The simultaneous observation with GPS and radiosondes were conducted in May 2011. The PWV derived from GPS was well corresponded with that derived from radiosondes. A sharp PWV increase frequently observed during the passage of severe storms during the pre-monsoon season. The active and break monsoon periods in July 2007 showed average PWV of 67 mm and 62 mm, respectively. Severe flood occurred over Sylhet area during the active period. The PWV in the winter season showed 10-15-day periodicity in PWV between 15 mm in minimum and 25 mm in maximum. The amplitude of diurnal variation was larger in the break monsoon period than the active monsoon period. The nocturnal maximum and early afternoon minimum were remarkable in the diurnal variation of PWV in the monsoon period. The amplitude of diurnal variation was also large in winter. The phase in the diurnal variation was different in the two GPS stations. The PWV was increase on 12-18 LT at Jaflong, but the PWV had minimum on the same period of time at Jamalpur.

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