IPWV estimation and data quality analysis from different GNSS antenna

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ABSTRACT. Global Navigation Satellite System (GNSS) is widely used now days in variety of applications. The observation file for the near realtime estimation of Integrated Precipitable Water Vapour (IPWV) received at the ground-based receiver is mixed with ambiguities. Multi-path effects affect the positional accuracy as well as range from satellite to ground based receiver of the system. The designing of the antenna suppress the effect of multi-path, cycle slips, number of observations, and signal strength and data gaps within the data streams. This paper presents the preliminary data quality control findings of the Patch antenna (LeicaX1202), 3D Choke ring antenna (LeicaAR25 GNSS) and Trimble Zephyr antenna (TRM 39105.00). The results shows that choke ring antenna have least gaps in the data, cycle slips and multi-path effects along with improvement in IPWV. The signal strength and the number of observations are more in case of 3D choke ring antenna.

Key words – GNSS, Cycle slip, Signal to noise ratio (SNR), Choke ring antenna and Multi-path.