CORS for Atmospheric Studies and Disaster Mitigation

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SUMMARY

It is well known fact that water vapour is one of the most variable characteristics of the atmosphere. It is an important factor in climate and weather: it is the ultimate source of all forms of condensation and precipitation and its latent energy, which is the driving source of formation of cyclones/storms and tornadoes etc needs to be measured quantitatively. Apart from the above-mentioned fact, it is also known that water vapour is a green house gas that plays a critical role in the global climate system.

The water vapour in the atmosphere varies spatially with time. The now-casting capability is improved with the availability of data on water vapour profile/ total column water more frequently. The long term & high accuracy monitoring of atmospheric water mean is an important measure for study of the weather changing.

With GNSS Continuously operating Reference Stations (CORS) infrastructure in the Country, the GNSS based estimation of Total Precipitable Water Vapour Content and Total Electron Count Measurement in the Atmosphere in one of the important parameter which can be derived in Near Real Time and can help in understand climate and its impact on human life.

The IPWV and TEC can be computed using a Network of CORS Stations and a High precision Scientific GNSS Data Processing Software such Bernese or GAMIT .

Trimble provides the Real Time Solution of Computing TEC and IPWV which consists of high performance and highly scalable solution based on Trimble PIVOT Platform with Trimble RTX Net Processor and application specific Apps such as Trimble Atmosphere App together with latest high accuracy Trimble Alloy GNSS CORS receiver.