



Monitoring of PWV over South Africa using GPS

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We present results of trends of integrated precipitable water vapour (PWV) over South Africa, using data from two South African permanent networks of dual-frequency Global Positioning System (GPS) receivers. Most of the stations started to operate in 2001-2002, with few extending back to the 1990s. To estimate trends in PWV, a four-parameter model, consisting of an initial offset, a linear trend and an annual cosine signal described by amplitude and phase, was fitted to the PWV time series. This model should be independent of any constant biases. Power spectra of the residuals were investigated in order to select an appropriate noise model for the estimation of trend uncertainties. In particular, results obtained by employing white noise and ARMA(1,1) noise models are compared. Lastly, the obtained trends are compared to meteorological data for the same period, in particular temperature and precipitation data, to evaluate its usefulness in meteorological studies.