



Comparison of global trends of integrated water vapour observed by VLBI, GPS, and ECMWF

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Atmospheric water vapour is one of the most important greenhouse gases. Its amount and distribution in the atmosphere is difficult to determine due to its high temporal variability. Space geodetic techniques such as VLBI and GNSS are able to determine wet zenith delays, which can be transformed into integrated water vapour (IWP). Regarding the length of VLBI observational history, long time series of zenith delays already allow to perform climate studies. To provide a reliable basis for climate studies long-term series of tropospheric parameters from five analysis centers (AC) of the International VLBI Service for Geodesy and Astrometry (IVS) have been recently combined. In the presentation the combined time series observed by VLBI are analysed on a global scale regarding their temporal resolution and their spatial distribution. The time series of total zenith delays are compared with those of GPS at co-located sites. Furthermore the long time series of wet zenith delays are used to determine the integrated water vapour (IWP), which is an equivalent to the water vapour content above the individual sites. The time series of IWP are compared with series obtained from the European Center for Medium-Range Weather Forecast (ECMWF).