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Investigation of long-term behavior of the zenith path delay obtained from VLBI observations

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Space geodesy observations allows us, between other results, to estimate with high accuracy some tropospheric parameters, such as zenith path delay. Corresponding time series along with meteorological observations nowadays play more and more important role in atmosphere studies and researches on climate change including prediction. Such time series are most valuable when have a long time span. VLBI technique provides the most long time series of the tropospheric parameters for several tens stations. For some stations the time series is longer than two decades. In this paper we analyze zenith path delay estimates obtained from daily VLBI sessions observed since early 1980th, which are provided by the IVS Special Analysis Center at the Institute of Geodesy and Geophysics, Vienna University of Technology, Austria. Accuracy of daily zenith path delay estimates is at a level of few millimeters. IVS provides both hydrostatic and wet path delay, which are analyzed using various statistical tools. Both trend parameters and periodical variations have been investigated, along with some other statistical features.