Beyond the usual mapping functions in GPS, VLBI and Deep Space tracking.

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We describe here a new algorithm to model the water contents of the atmosphere (including ZWD) from GPS slant wet delays relative to a single receiver. We first make the assumption that the water vapor contents are mainly governed by a scale height (exponential law), and secondly that the departures from this decaying exponential can be mapped as a set of low degree 3D Zernike functions (w.r.t. space) and Tchebyshev polynomials (w.r.t. time.) We compare this new algorithm with previous algorithms known as mapping functions in GPS, VLBI and Deep Space tracking and give an example with data acquired over a one day time span at the Geodesy Observatory of Tahiti.