



An observation operator for ground-based GPS slant delays

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An observation operator for Slant Total Delay (STD) observations from ground based GPS receivers has been developed and implemented in HIRLAM 3D-Var at the Finnish Meteorological Institute. The observation operator is based on the Line of Sight -approximation and it is computationally efficient. Modelling of an STD observation is complicated by geometrical aspects as the model gridpoint values need to be interpolated to the slanted signal path, which is usually not a vertical column above the receiver location. There is a generally close fit of the modelled STD to observed STD. Preliminary single observation and single receiver assimilation experiments give a physically realistic analysis impact.