



Using GPS water vapour observations to estimate vertical velocity

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Condensation of water vapour can inhibit vertical motion and thus convection. In this poster the relation between water vapour and vertical velocity is explained. This relation is rather straight forward when the temperature and humidity profile is known. Vertical information on temperature can be obtained, besides radiosonde observations, from commercial aircraft observations (AMDAR), however these are restricted to airports and not present at night. Upper air humidity observations are even more sparse; only radiosondes measure this parameter. Using the Global Positioning System (GPS) a continuous monitoring of the amount of integrated water vapour (IWV) is possible. Using observations of the temperature lapse rate from AMDAR, the IWV from GPS and the surface evaporation an estimate of the vertical velocity can be made. Note that these observations are operationally available. The estimation of vertical velocity are compared to the vertical velocity as observed by the 35GHz cloud radar in Cabauw, The Netherlands.