

Measuring Atmospheric Stability with GPS

S. de Haan

KNMI

Nowcasting of convective systems plays a crucial role in weather forecasting. The strength of convection depends on the (in)stability of the air column. The stability can be detected by radiosonde observations. However, these observations are not frequent (typically 2 times a day) and expensive to deploy. In this poster a method is presented to detect the stability of the atmosphere based on high frequency Global Positioning System (GPS) path delay observations. The convection parameter derived from these observations is the power of the non-isotropic GPS path delay signal. Comparisons with the Convective Available Potential Energy (CAPE) obtained from radiosonde observations shows a correlation with the convection parameter obtained from GPS. This implies that, because of the continuous availability of GPS estimates and the good land coverage, this method of detecting atmospheric stability may be beneficial to forecasters.