

# **Potential use of GPS water vapour observations**

**S. de Haan**

KNMI, The Netherlands

Atmospheric humidity is generally measured using radiosondes which typically are launched every 2 or 4 times per day. The Global Positioning System (GPS) has the ability to observe atmospheric humidity at a sampling rate of hours or even every 15 minutes. The observed parameter, however, is the total amount of water vapour (Integrated Water Vapour or IWV) above the GPS receiver and thus contains no profile information. The benefit of GPS for meteorology lies in the fact that the observation frequency can be very high (in meteorological terms) and the coverage is good, albeit the observations are restricted to land.

GPS IWV can be used for nowcasting purposes as a monitoring tool by comparing the time series of GPS IWV to the forecasted time series of a numerical weather prediction model. Two dimensional IWV fields may reveal the location at which the onset of strong convection and may occur which may result in a heavy rain and lightning.

In this presentation the GPS system is explained and a few examples are given on the potential use of GPS water vapour observations.