GPS-derived precipitable water vapour over Antarctica

A. Combrink[1] and L. Combrinck[1]

[1]*HartRAO Space Geodesy Programme*

Water vapour is a major greenhouse gas and is as such of great importance in numerical weather predictions and studies of climate and climate change. Space geodetic techniques, such as the Global Positioning System (GPS), can be used to measure atmospheric precipitable water vapour based on the delay experienced by electromagnetic signals traversing Earth's atmosphere. However, these measurements are extremely sensitive to the measurement accuracy of the vertical coordinate of a GPS station, such as the station operated at Vesleskarvet. This talk will (a.) highlight the geodetic activities of the Hartebeesthoek Radio Astronomy Observatory (HartRAO) within SANAP, (b.) describe surveys to be conducted at SANAE IV during the 2007/08 summer expedition to compare gravimetric measurements with suspected vertical crustal motion at the station which influences water vapour measurements, and (c.) outline the intended data analyses in order to interpret the results.