Geophysical Research Abstracts, Vol. 9, 06675, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06675

The use of GNSS real-time data streams for geodetic applications - first results and perspectives

D. Dettmering, **W. Soehne**, P. Franke, G. Weber
Bundesamt für Kartographie und Geodaesie, Frankfurt am Main, Germany

Applications that transfer continuous data streams by Internet Protocol (IP)-packages, such as Internet Radio, are well-established services for many years. Since 2004, an international RTCM standard for the transport of GNSS data via Internet exists, called NTRIP (Networked Transport of RTCM via Internet Protocol). This protocol has been developed in the framework of EUREF (http://www.euref.eu) and enables the GNSS community to send and receive all kind of GNSS data streams via the open Internet. EUREF is the only organization in Europe in a position to maintain a European-wide real-time GNSS network following an open data policy. Today about 50 stations of the EUREF Permanent Network (EPN) participate in EUREF-IP by streaming their GNSS data (in several formats) over the Internet using NTRIP.

Within the framework of EUREF-IP (http://www.epncb.oma.be/euref_IP) and the Real-Time IGS Working Group (RTIGS, http://igscb.jpl.nasa.gov/projects/rtwg) the Federal Agency for Cartography and Geodesy (BKG) has been developed the BKG Ntrip Client (BNC), a program for simultaneously retrieving real-time GNSS data streams from NTRIP broadcasters like http://www.euref-ip.net/home or http://www.igs-ip.net/home. BNC is written under GNU General Public License (GPL). It is available for Windows, Linux, and Solaris systems. The purpose of BNC is to retrieve real-time GNSS data streams available through NTRIP transport protocol, to generate high-rate RINEX files and/or to output synchronized observations through an IP port to support real-time GNSS engines. BNC decodes and converts GNSS data streams carrying phase data coming in RTCM Version 2.x and 3.0 as well as RTIGS.

In the past, the demand for data with 1 Hz sampling rate grew for a number of geodetic applications. This applies to, for example, the Low Earth Orbiter missions CHAMP and GRACE or to deformation analyses following earthquakes. One application of

BNC is the generation of small high-rate (1 Hz) data files to reduce the latency of near real-time product computation, e.g. the estimation of so-called near real-time (NRT) tropospheric signal delays as it carried out in, e.g., the EUMETNET GPS Water Vapour Programme (E-GVAP, http://egvap.dmi.dk). Today, this analyses are mainly based on hourly data files which are a standard product of the GNSS data centres for several years. The use of smaller data packages will reduce the delay of delivering the results and may increase the acceptance in the meteorological community.

After a short review of NTRIP the presentation introduces in the use of BNC and summarizes its features. Results of NRT and daily processing based on BNC data streams are shown and compared to other (post-processing) results. Potential applications for the future are outlined.