Real-Time GNSS Data Transmission Standard RTCM 3.0

Wübbena, G.; Schmitz, M.; Bagge, A.

Geo++ GmbH, GERMANY

There is increasing demand for real-time GNSS data analysis and processing from a variety of different users with different applications worldwide. The exchange of GNSS data would benefit from a commonly accepted data format or standard.
The Radio Technical Commission for Maritime Services (RTCM) is an international non-profit scientific, professional and educational organization. RTCM members are organizations (not individuals) that are both non-government and government. Although started in 1947 as a U.S. government advisory committee, RTCM is now an independent organization supported by its members from all over the world.
RTCM Special Committees are chartered to address in-depth radio communication and radio navigation areas of concern to the RTCM membership. The output documents and reports prepared by these Committees are usually published as RTCM Recommended Standards.
The Special Committee (SC) 104 developed the RTCM Recommended Standards for Differential Global Navigation Satellite Systems (DGNSS). Version 2.x and the latest Version 3.0 provide broadcasted GNSS real-time differential corrections and raw data.
The RTCM standard supports the current GPS and GLONASS system and is also preparing the standard for the advent of Galileo. Service providers and vendors have worldwide adopted the standard and it is today the format used by GNSS receivers and by RTK network installations. Currently, new RTK network messages to support efficiently GNSS rovers are under discussion.
A comparison of the RTCM format Version 3.0 with other formats is presented focusing on raw data messages. Current properties of the messages, deficiencies and future extensions are discussed with respect to IGS applications.