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CODE's multi-GNSS orbit and clock solution - status 2016

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The Center for Orbit Determination in Europe (CODE) is contributing as a global analysis center to the International GNSS Service (IGS). Since 2012 CODE also contributes to the Multi-GNSS-EXperiment (MGEX) of the IGS. The list of satellite systems included in the CODE MGEX (COM) orbit and clock solution has been extended step-by-step in recent years. Today, it includes five satellite systems, namely GPS, GLONASS, Galileo, BeiDou, and QZSS. The COM orbit and clock products are regularly updated at the IGS MGEX products directory of the CDDIS data center and at the ftp server of the AIUB.

CODE's experimental MGEX solution is subject to frequent updates and improvements. The introduction of an improved solar radiation pressure (SRP) model in early 2015 significantly improved the orbits and clock corrections of satellites with elongated bodies (in particular GLONASS, Galileo, and QZSS) as long as the satellite's attitude is maintained by yaw-steering. Currently we focus on improving the orbits of QZSS and BeiDou satellites, while moving in the orbit normal mode.

The COM orbits are validated by computing orbit misclosures at the day boundaries and by SLR residuals. The COM clocks are validated using the Allan deviations and linear fits through the time series of epoch-wise clock corrections. We present the current status of the COM products and the validation results.