

PROPOSED RECOMMENDATION CCTF # (2009)

Alignment of Geodetic References and synchronization of Time References to international standards

The Consultative Committee for Time and Frequency,

considering that

- the International Terrestrial Reference System (ITRS) has been recommended by the IAU and the IUGG for applications in space and Earth sciences,
- access to the ITRS is primarily achieved through the International Terrestrial Reference Frame (ITRF), and with an approximation ranging between 3 and 40 cm by WGS84, PZ-90, the Galileo Terrestrial Reference Frame (GTRF), the China Geodetic System 2000 (CGS'2000), and regional densifications,
- the time scale endorsed by the 15th General Conference of Weights and Measures (1971) for worldwide time coordination and dissemination is the Coordinated Universal Time (UTC),
- the BIPM provides coordination for the maintenance and dissemination of UTC,
- GPS time is steered to UTC (USNO) (modulo 1 s), GLONASS time is steered to UTC (SU). Galileo time will be steered to an ensemble of European realizations of UTC, keeping the seconds of the GPS time,
- the BIPM participates to the International Committee on GNSS (ICG) as observer;

aware that

- new satellite navigation systems are being designed and developed,
- interoperability of the various GNSS would be facilitated by the adoption of international geodetic and time references in the various GNSS,
- civil and scientific activities worldwide need to refer to common internationally recognized geodetic and time references;

recognizes that

- the ICG is a unique structure to enable GNSS Service Providers to align their Geodetic and Time References to the ITRS and UTC for the operation of their systems;

recommends that

- the geodetic references for GNSSs be aligned as closely as possible to the ITRF,
- the internal System Times (ST) of GNSSs be synchronized as closely as possible to UTC (modulo 1 s),
- the GNSSs broadcast, in addition to their own ST:
 - the time difference between ST and a real-time realization of UTC,
 - the time differences between various STs;

and

requests

- the BIPM to coordinate actions within the ICG for the accomplishment of this recommendation.