PROPOSED RECOMMENDATION CCTF (2006)
Concerning the use of GNSS carrier phase techniques for time and frequency transfer in TAI

The Consultative Committee for Time and Frequency,

realizing that

- atomic frequency standards have achieved unprecedented precision and accuracy, and that further rapid advances in this field are underway,
- the ability to compare these standards for the realization of UTC is already limited by the accuracy and precision of current time transfer systems;

understanding the complementary nature of different time and frequency transfer techniques, and of different available manifestations of each technique;

noting that

- GNSS carrier phase techniques have been developed, which are used to routinely generate time and frequency transfer with a sub-daily precision unattained by any other long-distance technology,
- the costs associated with equipment acquisition, installation, operation, and maintenance are less than the purchase price of a single cesium frequency standard,
- several institutions have manifested their willingness to reduce the data,
- many promising software algorithms are either available or under active development;

and considering that instabilities of existing time transfer equipment remain a matter of concern at the nanosecond level;

recommends that

- the laboratories participating in TAI consider acquiring state-of-the-art geodetic GNSS receivers,
- the several institutions currently generating routine solutions institute policies to reduce data from every timing laboratory that is willing to participate and can meet the documentation requirements,
- the BIPM, in a highly cooperative manner, generate its own solutions, make them freely available to others, and add them to its time transfer comparison database.
- the BIPM begin preparing software and techniques for introduction of the data into the computation of the Circular T,
- the BIPM institute the operational collection of calibration information from the geodetic receivers of participating laboratories,
- and that the CIPM provide the required resources to carry out these recommendations.