

Formal international recognition of the International Terrestrial Reference System (ITRS)

Claude Boucher
Pascal Willis

Context

- ITRS was defined in 1988 within the IERS community and made available through its primary realizations (ITRF solutions)
- The geoscience international scientific community formally adopted it (IUGG resolution, Perugia 2007)
- The IAG services, in particular IGS, express their products in ITRS by using directly ITRF solutions.
- Regional networks (CORS, EUREF, AFREF...) are also realizations of ITRS for a geographical area.

- The GNSS community provides more and more services also directly expressed in ITRS. GPS and Galileo standard services are in such a case (US-EU agreement)
- This implies that TRF information for WGS84 is recognized as a particular realization of ITRS
- Nevertheless, for a variety of reasons, several other system designations are adopted in regulations or standards, in various communities:
 - WGS84 for ICAO, IAC, IHO
 - ETRS89 for EUREF, EuroGeographics and INSPIRE

Findings

- Up to now, ITRS is formally adopted only by the geoscience community
- Among several communities of practice (navigation, hydrography, geo-information...), various texts, recommendations or standards refer to multiple TRS designations in addition to ITRS, such as WGS84, ETRS89..which creates potential confusions
- The existence, quality, perenity or reliability of ITRS realizations are presently ensured by various scientific groups or even individuals, without unified and inter-governmental guarantee

Proposals

- 1: To establish a new ISO standard which will endorse the ITRS as the unique preferred terrestrial reference system for all domains of activity
- 2: To establish an international and inter-governmental governing structure which ensures the existence, quality, consistency and perenity of the various realizations of ITRS
- 3: To ensure the proper clarifications in terminology and explanations of ITRS with regard to other terms such as WGS84, ETRS89

Proposal 1 ISO Standard

- Content of the standard
 - Proper level of detail
 - Compatible with current activities (ITRF, regional networks, GNSS, WGS...)
- Procedure of establishment
 - Link with existing ISO TCs
 - ISO member country to act as secretary (France possible candidate)
 - International support (GGOS, BIPM...)

Proposal 2 Governance

- Three tracks:
 - a) to create a body related to an existing UN organization
 - b) to create a body related to an inter-governmental agreement, such as the General Conference on Weights and Measures (CGPM), with potential involvement of BIPM
 - c) to create a new body through an ad hoc international agreement, possibly in the frame of GEO

Proposal 3 Interoperability

- WGS84: To view WGS84 as the cover name of a specific realization of ITRS. This should be accepted by the satellite navigation community (the ICG mentioned before should play the leading role), civil aviation (ICAO), hydrography (IHO), cartography and geo-information (ICA), and ultimately the military community (USA or NATO).
- ETRS89. As this system is defined precisely with regards to ITRS by EUREF, this should raise no problem if the issue is clearly documented