ITRS Center Views on Combination Issues

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Abstract: This is a short memo presenting our views on the topic: "Introduction and motivation".

1 The ITRS Center mission and organization

The ITRS Center is a component of IERS. Its Mission is to produce ITRF products consistent with IERS standards, under the supervision of the IERS Analysis Coordinator.

The ITRS Center is presently supported by various groups for its work:

- the ITRF Combination Centers (IGN, DGFI, NRC)
- the Working Group on ITRF datum, presently chaired by Kristine Larson
- the CSTG WG on local ties, chaired by Jim Long

2 Combination issues

The general methodology applied up to now in the ITRS Center activities uses a combination of results provided by individual Analysis Centers (ACs). In the current situation, ACs process data from a single technique, in the frame of a Technique Center. In the future, we can consider multi-technique processings (some Combination Research Centers (CRCs) are already investigating this approach).

Three categories of models can be considered for these combinations:

- Position-velocity model
  - Current operational model in ITRS Center
  - See Altamimi et al., this volume, for details
- Extended model including additional parameters such as EOP, tropo factor,
  - Under investigation, ITRS Center has contributed in these researches (see Altamimi and Boucher, this volume)
  - See Ray and Zhu, this volume
- Time series model
  - Also under investigation (Pilot experiments)

3 Additional comments

- About stochastic model for combination

  Need to reflect various aspects:
  - Modelling errors in ACs
  - Measurements processed by several ACs
  - Constraints
  - Helmert scaling, correlation factors
  - Critical for time series approach

- About Multiplicity of ACs in one technique
  - Two step processing versus global combination
  - Needed for Quality check
  - Needed for Detection of modeling discrepancies
- Need of a strong cooperation in IERS and with Technique services (IGS, …)
  - To be solved by IAG? IGGOS?
  - Specific task of co-location (instrument setting, local surveys…)
- Need of reference documents for better combinations
  - We must increase the role of IERS Conventions
  - We need additional documents for each AC describing in detail its processing strategy