

Improvements in TAI computation...
Data collection and checking

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I. Improvements already made

1) LABS' contribution to data collection

➔ Upload of data before the 4th day of the month

➔ Daily data submission on the BIPM's ftp server

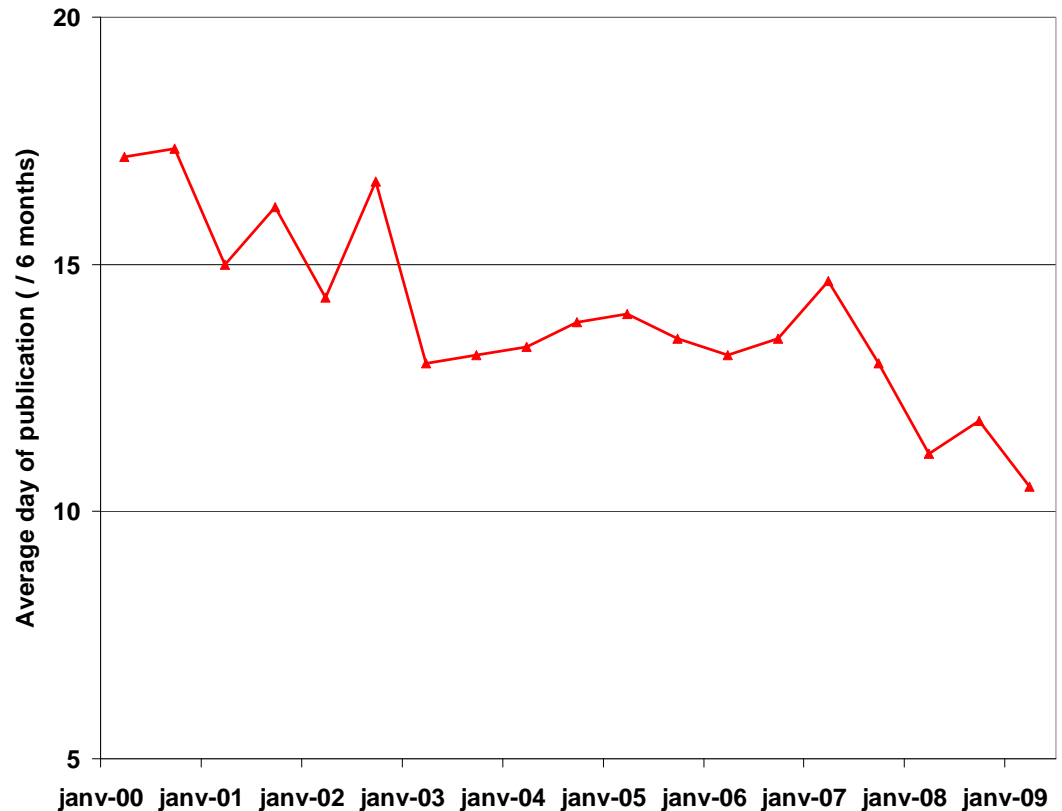
➤ *Thanks to these new rules, Circular T computation beginning and publication are made earlier. (8th-12th of the month, since January)*

I. Improvements already made

1) LABS' contribution to data collection

Plot of *Circular T*
publication's date evolution
(average on 6 months period)

➤ About **5 days** saved in
9 years...



I. Improvements already made

2) *BIPM contribution to optimise the use of data:*

New outlier detection technique for Two Way time transfer :

Combined methods :

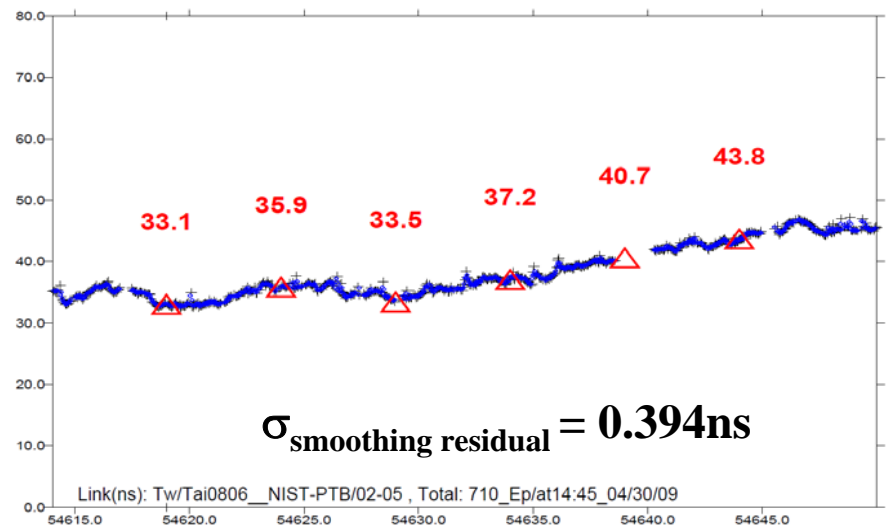
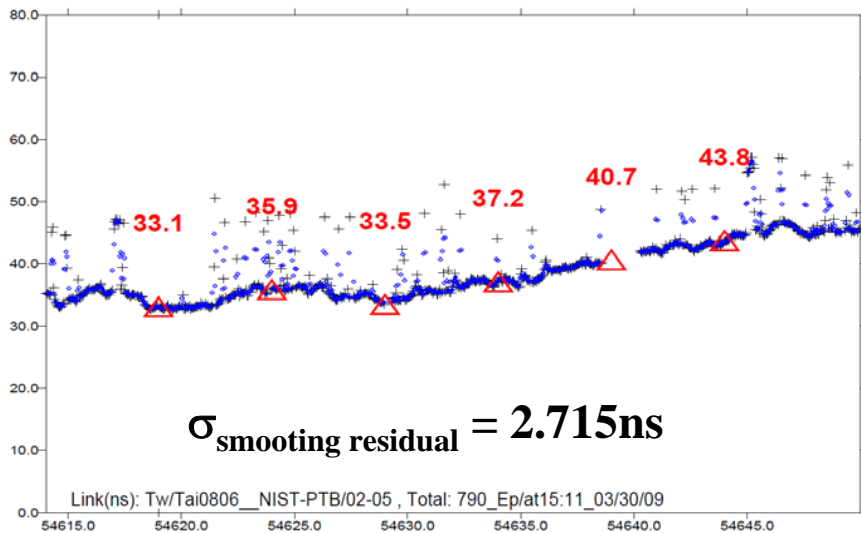
- in **phase** (Moving Average Smoothing)
- in **frequency** (Median Absolute Deviation)

References:

« TW cleaning.pdf » available on ftp website...

I. Improvements already made

2) BIPM contribution to optimise the use of data:



Link NIST-PTB (June 2006)

➤ *Thanks to this new technique, reliability of TAI is increased.*

II. Current Problems

1) One header is used for the whole month (from first data file of the month):

If calibrations, changes in coordinates or references are performed **without being declared**, data after the changes are not consistent with the header.

There is a risk that TAI is deteriorated if no correction is applied but the real situation is that the BIPM searches for explanation from the labs' side.

2) Headers are not always in CGGTTS format:

Wrong headers must be corrected manually each month... (loss of time)

Ex: GGTTS GPS DATA FORMAT VERSION = 01
CGGTTS GPS/**GLONASS** DATA FORMAT VERSION = **02**

... and others...

➤ *New improvement needed : Checking of collected data at the BIPM*

III. Future improvement

Daily checking of collected data:

a) Header informations, to detect undeclared...

- Calibrations
- Changes of coordinates
- Changes of references

b) Header corrections (automatic)

c) Data

- Anomalous behaviour in data
- Undeclared holes

➤ *Then the BIPM would contact immediatly labs, without waiting for the end of the month... → Shorter time of publication*

Conclusion

Thanks to ameliorations already made mainly in data collection, it is now possible to think about a new data checking...

The new proposal for daily checking of data would:

- Increase of BIPM efficiency by:
 - saving time for *Circular T* publication
 - increasing reliability of TAI

- Gain of reactivity for laboratories if incidents occur.

To be more efficient, both parts have to work in the good direction: we try to make our best and we rely on you to make easier our work...