

STAFF/SC Calibration & Cross-Calibration activities

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- 1) State of Calibrated WaveForm product
 - nothing new...
- 2) FGM comparisons
 - nothing new...
- 3) STAFF-EFW timing
 - problem of different time tag on L2 data
- 4) STAFF staff
 - Corinne Burlaud leaved the team at the end of September
- 5) Conclusions

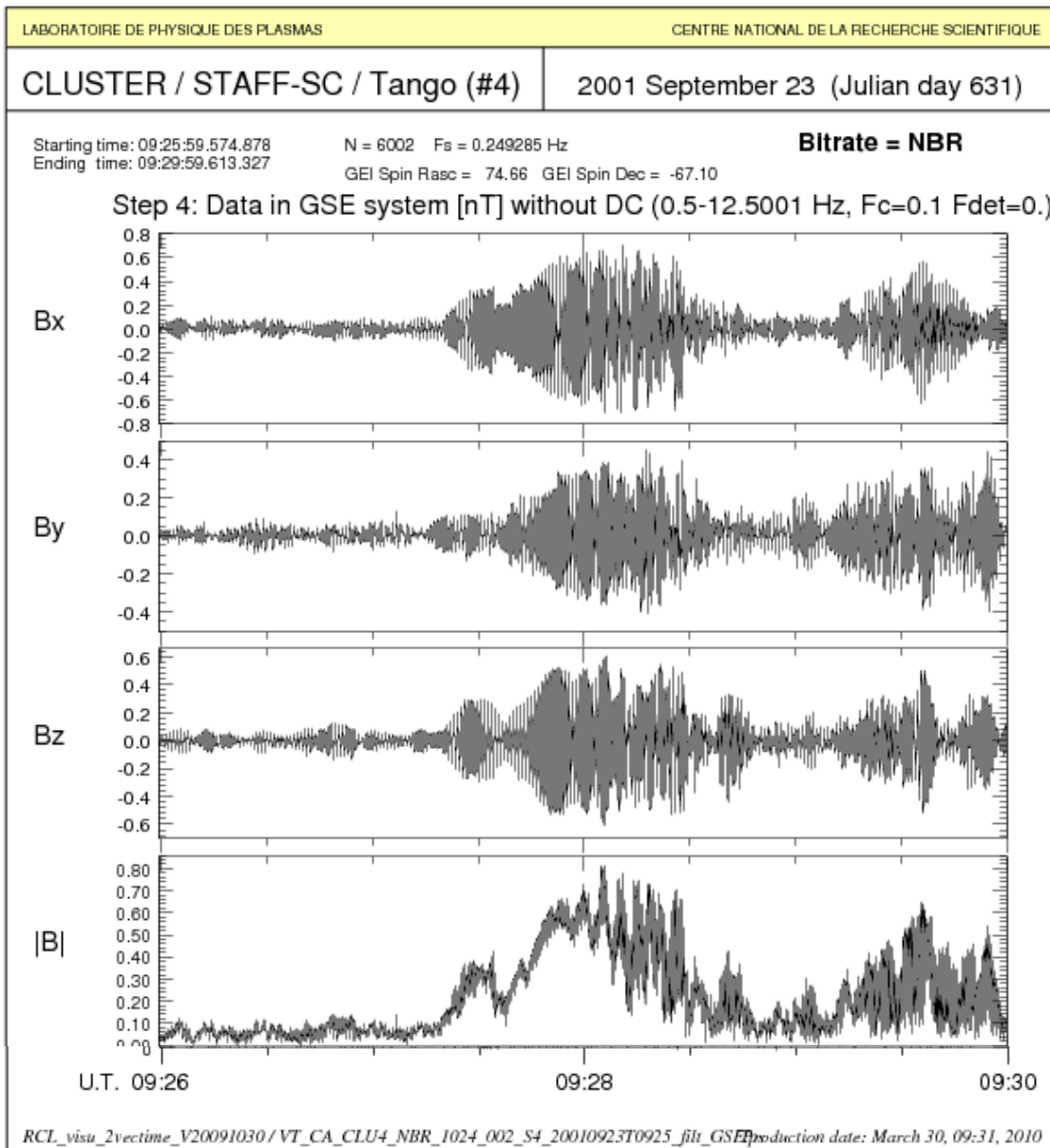
1) State of Calibrated WaveForm product

⇒ **CCM program is running within a β version.**

- Some details remain to be done before mass processing.
(saturation checks, data gaps management....)
- Optimization of the code is requested before exploitation.

End of operational code and exploitation is delayed
due to the leaving of C. Burlaud...

1- Example of CWF product, GSE coordinates, filtered > 0.5 Hz



→ This is the future CWF product

- Filtered above 0.5 Hz
- GSE coordinates

→ Possibility, after that, to deliver the 2 DC spin plane components (after transfer function corrections...)

2) STAFF/FGM comparisons

⇒ Reminders :

- Bx and By DC field and low frequencies could be compared in SR2 coordinates, but theoretically only for DC or left-handed polarized wave (see 10th meeting).
- Only fluctuations above ~ 0.5 Hz could be fully compared with FGM data, in SR2 or GSE coordinates.
- As CWF product will be filtered data > 0.5 Hz in GSE coordinate system, final check with FGM could be done in this system.
(action required after last meeting).

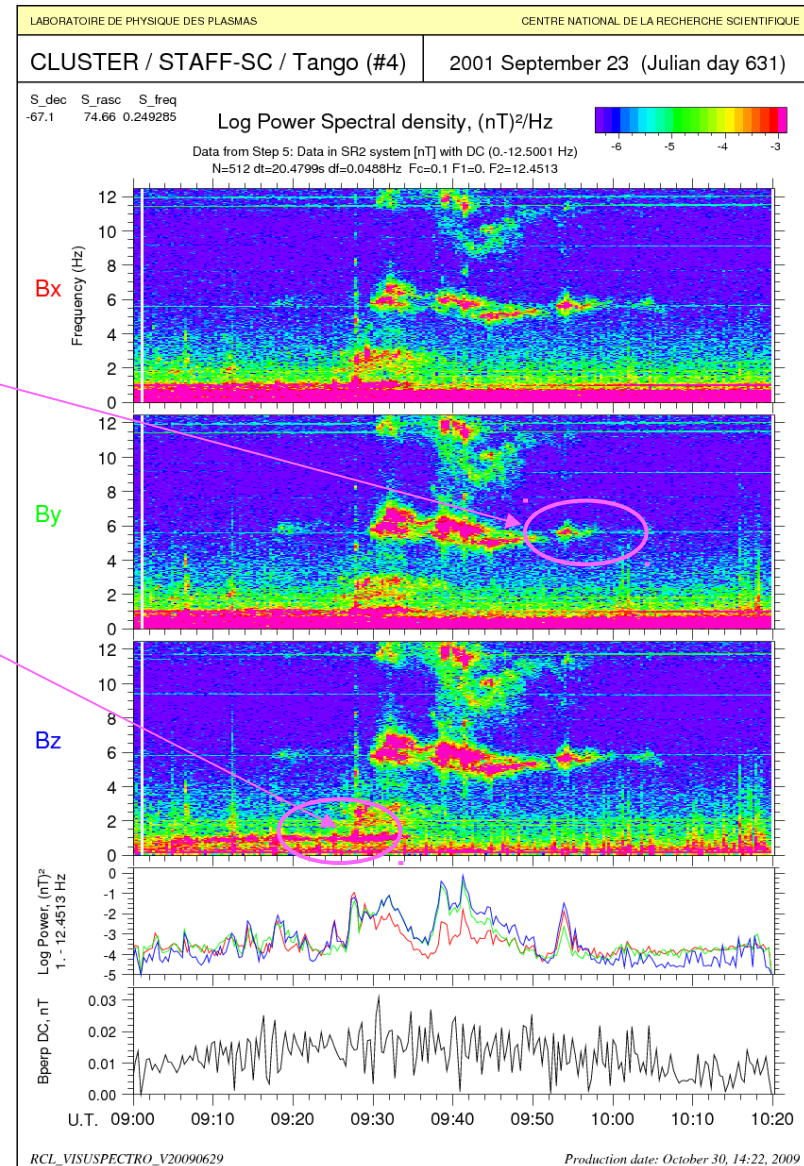
⇒ Nothing new since last previous cross-calibration meeting
Main results are summarized hereafter

Comparison between STAFF-SC CWF & FGM HR waveforms (suite)

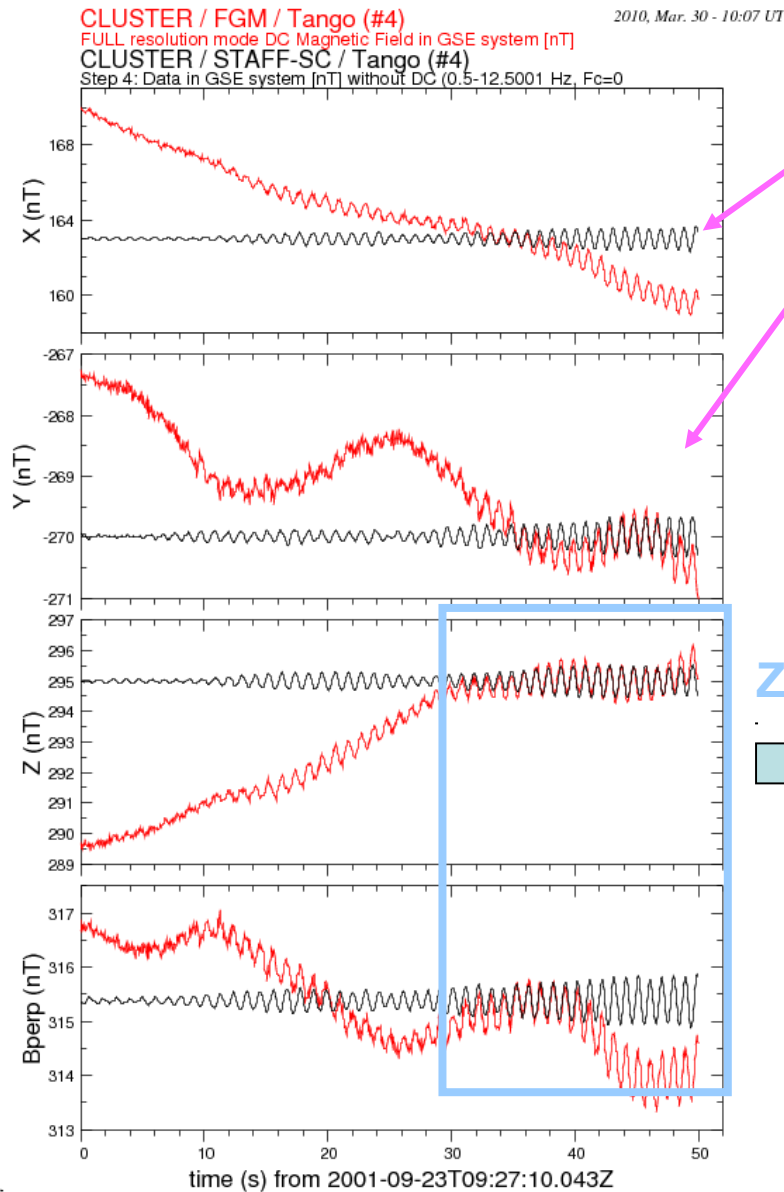
➡ Two significant events:

1- Monochromatic wave at ~ 6 Hz

2- Monochromatic wave at ~ 1 Hz



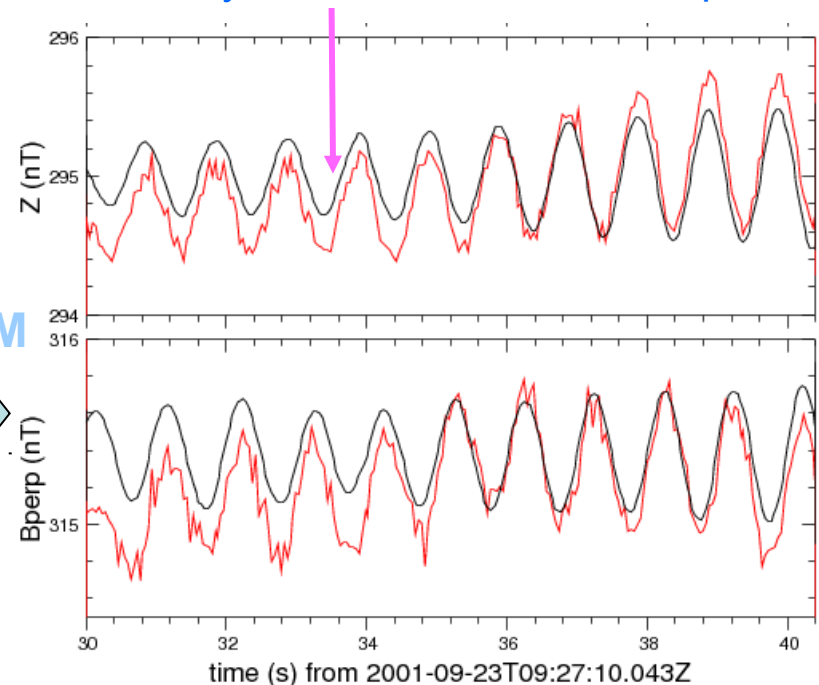
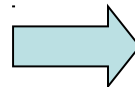
2- Monochromatic wave at ~ 1 Hz / GSE coordinates : FGM comparisons



CWF product : STAFF filtered data > 0.5 Hz

- Spin harmonics disappeared
- Well agreement with FGM wave components
- Very good phase agreement
- Always 10% difference on amplitude

ZOOM



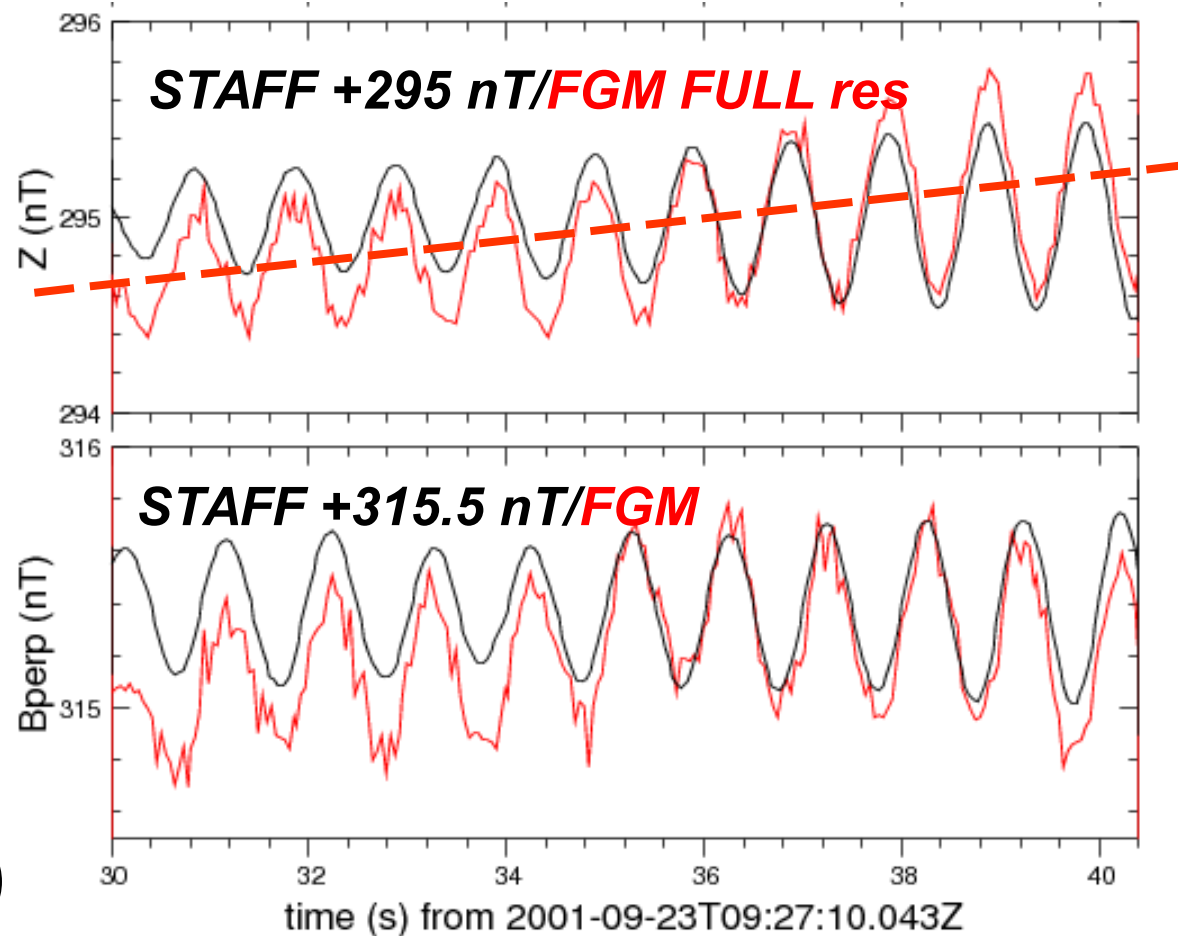
2) STAFF/FGM comparisons (suite)

REMINDER : Example of $\parallel$ and $\perp$ component to the spin axis
For a $\sim$ monochromatic wave at ~ 1 . Hz

→ Very good phase agreement.
 $\sim 10\%$ difference on amplitude,
constant with time.

→ Wave amplitude ~ 0.25 nT
DC field ~ 300 nT
Ratio: 1/1200

→ DC until ~ 1 Hz : FGM
 ~ 1 Hz and above : STAFF



3) STAFF-EFW timing

⇒ Reminders :

- STAFF calibration leads to correct the amplitude and phase of L1 data according the transfer function
- EFW calibration correct the phase by a time-shift of the data
- consequence is a no simultaneous time tags on the L2 data between STAFF and EFW although L1 are the same.

⇒ This problem must be solved to easily combine the two data sets
For instance for Poynting vector computation

4) STAFF staff

⇒ Corinne Burlaud leaved the team at the end of september

- L3 STAFF-SA data chain is almost finished.
Some detail must be completed.

C.B. will continue at half time during November, by network, to finish chain and corresponding documentation (STAFF funding).

- Test and optimization of code for production of CWF
is **unfortunately delayed**
- New problem about STAFF and EFW time tags.

5) Conclusions

CWF

- Some details remain to be done to finish CWF software before mass processing (saturation checks, data gaps management....) unfortunately again delayed due to the leaving of C. Burlaud
- CCM software is high CPU time consuming (20 mn for 3h in NBR, ~ 3h/days.) Code optimization is possible, but require manpower.

FGM comparisons

- Comparison of filtered CWF product with FGM data is always satisfactory. Even if transfer function correction remains to be done, CWF production could start.

STAFF-EFW timing

- Problem to be solved

Manpower

- Sudden leaving of C. Burlaud disorganize the team and will lead to some delay on the planning. Team is in search of a new CDD.

5) Conclusions (suite)

➡ Don't forget: many things remain to be done:

- Sensitivity, noise instrument, minimum signal recordable versus frequency etc... have to be defined accurately (already planned action).
- Cross calibration between STAFF-SC/HBR and STAFF-SA must be refreshed after STAFF-SC **transfer function correction**.
- Continuity of measurement level must be checked between STAFF-SC and STAFF-SA.

Hope available manpower...

