Twenty Sixth Meeting of the Hipparcos Science Team

RGO Cambridge, 25-26 ~~November~~ October 1990

Attendance:

HST: Prof. P.L. Bernacca, Dr M. Crézé, Prof. F. Donati, Dr. M. Grenon, Prof. M. Grewing, Prof. E. Høg, Prof. J. Kovalevsky, Dr F. van Leeuwen, Dr L. Lindegren, Dr H. van der Marel, Mr C.A. Murray, Mr R.S. Le Poole, Dr H. Schrijver, Dr C. Turon.

ESTEC: M.A.C. Perryman

ESOC: O. Ojanguren, C. Sollazzo, A. Macdonald, R. Blake

Invited: M. Penston, D. Wyn-Evans, Ramamani, Prof. A. Blaauw

The agenda given in Annex I was adopted. Actions agreed at the meeting are included as Annex II.

1. Satellite Status

Ojanguren reported on the satellite status (Annex III), including the hardware status, expected lifetime (power and cold gas), and focus changes.

McDonald reported on the SM filtering improvements that had been achieved, and on the work that was ongoing to improve the time lost due to lunar occultations (and hence reduce the number of shutter actuations).

2. DDID status

Blake reported that all outstanding issues on the DDID had been answered. A new version would be available in mid-November. This would include updates of the ground station time offsets (discovered in the Goldstone data by ESOC and independently by TDAC). Desptach of data tapes was proceeding satisfactorily.

The future schedule for the production of data tapes was agreed:

(a) Tape 15, 3 weeks of data (defined after the meeting by RGO, in order to fill in many of the PT sky gaps) starting on 1990.240, to be distributed by mid-November.

(b) Tape 10 will consist of data until end 1989 (i.e. approx. 5 weeks). Unless ESOC reprocessing is needed, this provisional tape set should become the first real data set. It will be constructed and distributed by ESOC after tape 15, but it will not be processed by the DRC until the go-ahead for the mass processing start is agreed. This precise date depends on the successful closure of a number of outstanding actions, and is presently foreseen for mid-January 1991.

3. DRC Reports

Schrijver reported on the first-look task in Utrecht (Annex IV), showing the evolution of the basic angle, grid rotation, P2-P1, and M1.

Van Leeuwen summarised the RGO status, illustrating the SM catalogue updating sky plots, and differences between the SM positions and IC. Most aspects of the RGO analysis were now in a final state, although some tuning of the attitude software was still under consideration. New SM SSRF had been derived, based on all PT data (distributed subsequently by e-mail). Some further work remains to be done on the SM geometry (see below). Høg reported on the work at CUO: the GCR package was running well without major problems. Data management routines were now in preparation before all the outstanding GCR tapes are processed and sent to Lund.

Kovalevsky reported on the FAST status. Some important modifications had recently been made to the attitude s/w. Europa and Titan had not yet been successfully treated (work ongoing in BdL). The IDT photometry had been improved, giving new tests for duplicity (approx. 10-15 per cent of single INCA stars could be double). Plans were in hand for a full operational qualification of all 38 RGC's processed so far.

Høg reported on the TDAC analysis. Prediction/detection s/w is considered to be essentially ready, while there is still some work to be done on the photometry in Tübingen.

4. Comparisons

(a) IDT Comparisons: Perryman presented results of the IDT Comparisons for the bright star data set, and for comparison sets 1 and 2, and a report distributed. The POS differences have been reduced but some further differences remain to be investigated (Action 3: Kovalevsky; and Action 4: Schrijver). The FAST/NDAC differences on P1 and P2 are otherwise within 1/4 or so of the photon noise expectation. The question of the optimum weighting of P1 and P2 used by FAST would be further investigated (Action 2: Kovalevsky). Differences on I0 seem to exist (Action 5: Kovalevsky).

Schrijver presented the results of his MSI investigations (Annex V). It was concluded after some discussions that the baseline reductions will not include the MSI for the main field (but MSI terms will be corrected for the SM); this conclusion might be revisited in the event of better in-flight calibration data coming from the DRC in the future.

NDAC (Lindegren) had not yet completed their studies on the use of the first sample after repositioning, and its effect on the GCR abscissae: the baseline is to suppress this sample (Action 1: Lindegren).

(b) SSRF: a problem had been found in the FAST derivation from the SM transits, and this was being investigated by Schrijver, Kovalevsky and Donati (Action 6: Kovalesvky).

(c) SM geometry: Lindegren presented results of studies on the SM geometry. Certain inconsistencies were demonstrated, and plans for continued actions agreed (Actions 9,10, 11 on Kovalevsky, van Leeuwen and Lindegren). Kovalevsky presented the results of recent calibration work at Cerga (Annex VI).

(d) van Leeuwen reported on results of the SM comparisons. Data for comparison set 1 had been received from RGO, CNES, Utrecht and Tübingen, and from the first three groups for set 2. Differences between FAST and NDAC seem acceptable, apart from the systematic differences in the transit times (Action 7: Kovalevsky). TDAC results still show significant differences for certain stars for both the transit times and the transit velocities (Action 8: Grewing).

(e) Attitude: Donati presented the results of his latest comparisons (Annex VII), and future actions to improve the agreement were agreed upon. The time difference between the FAST/NDAC results were shown to be related to the use of on-board or TI by the two teams: a discontinuity in the times appeared to occur at a ground-station switch, and suggested an error in the implementation of the RGO ground-station propagation delays (Action 16: van Leeuwen). Further work on understanding of the times of the gas jet actuations was needed (Actions 13 and 14: Kovalevsky and Schrijver).

(f) GCR: Results of the most recent comparisons were presented by van der Marel, including the results of geometric/smoothed solutions from CUO, and the effects of using different starting catalogues and star subsets. The agreements were significantly better than those reported at the Delft comparison meeting, but questions remained to be answered. van der Marel would distribute a detailed report later the meeting (Action: van der Marel).

(g) IDT and SM Photometry: van Leeuwen reported that RGO were now ready with their IDT photometry package. No comparison results from the IDT had yet been foreseen, although it was proposed that Mignard coordinate such an exercise (Action 18: Kovalevsky/Mignard). No results from the SM magnitude comparisons being performed by Snijders were available (see the procedures agreed in the minutes of the 25th HST Meeting). Perryman would coordinate some progress in these areas.

5. Global Solution

The intentions of the FAST (and possibly the NDAC) Consortia in persuing the alternative 'global approach' to the data reduction problem was supported by the HST members.

It was noted that the implementation by the FAST Consortium of the so-called GLOBUS approach to the Hipparcos sphere solution had not yet started, despite the very encouraging preliminary studies that had been reported by FAST. It is recalled that GLOBUS might increase the accuracy of the results with respect to current expectations from the baseline 3-step method in use in both consortia, and will provide a powerful tool for comparing the two independent FAST and NDAC Catalogues (the power of GLOBUS lies in solving simultaneously both satellite attitude and stellar unknowns). It could not be implemented prior to the origanlly foreseen launch date due to the large dimensions of the mathematical problem. However, with the widespread advent of vectorial and parallel computing facilities, GLOBUS is now feasible. Hence, the Hipparcos Science Team requests FAST to do its best to develop the GLOBUS software in a timely manner in order to meet the project plans of releasing to the sceintific community a unique ESA Hipparcos Catalogue of the highest possible quality.

6. INCA

(a) Crézé reported on the modulation strategy results from the data available from ESOC. There was room for the strategy to work, and results seemed acceptable so far.

(b) Turon reported on the schedule for IC8, which will include improved photometry, and J2000 CCDM numbers. The latter means that IC8 would not be available until mid-December. It was agreed that the DRC would wait for this for mass production to start: the schedule was consistent with the other actions to be completed (see also Annex VIII).

(c) Publication: a final publication format was distributed and presented by Turon. Publication was now foreseen for March 1991. Grenon presented the results of his work on the finding charts, and a proposed format was presented and discussed. His schedule was consistent with the INCA publication. A separate volume for the charts was considered desirable. Comments on the 'advertisement' for the INCA Catalogue publication (draft distributed by Perryman) were requested (Action 19: HST).

7. Miscellaneous

Publications: Perryman and Murray would coordinate the set of Hipparcos papers to be submitted in early 1991 to A&A. The schedule for this was as follows: finalised title, authors and abstract to Perryman before Christmas; papers targetted for completion at end February 1991 (Action 20: HST).

Reference Catalogue Epoch: a suggestion by F. Mignard to define a provisional catalogue epoch for the sphere comparison was discussed. Lindegren did not consider this as too critical (as full covariances would be carried), but J1992.0 was considered as an acceptable baseline.

IAU JD 1991: Turon was Chairman of the Scientific Organising Committee. A proposed programme was distributed, and comments were invited from the HST (Action 21: HST).

Internal Proposals: the Agreement schedule was summarised by Perryman. This target would not be changed at present (Annex IX). Høg distributed some ideas on the distribution of early catalogues, which was not discussed at the meeting (Annex X).

Radial velocities: HST members approved that Perryman send a letter of support on behalf of HST members for the funding of R. Griffin's automated telescope.

Lunar Study: at the request of S. Volonte (ESA, Paris), a small study group would be set up to report on the importance of carrying out astrometric observations from the moon. The people who expressed an interest in participating were: Bernacca, Høg, Kovalevsky, Le Poole. The first meeting would be held at the end of November.

Double Stars: there was inadequate time to discuss this point. It would be on the agenda for the next HST meeting.

At the end of the meeting, the HST expressed their appreciation to Floor van Leeuwen and his colleagues at RGO for the excellent local organisation of the meeting, and for the very interesting tour of the RGO/Hipparcos data reduction facilities.

Next meetings:

Thursday/Friday 29/30 November (TBC), Sterrenwacht Leiden: data comparison meeting, hosted by Le Poole. Participants: Perryman, Schrijver, Donati, Kovalevsky, Le Poole, van Leeuwen, Lindegren, Høg, Petersen.

12-13 December: TDAC, Strasbourg

16 January 1991, Utrecht: data comparison meeting, to follow the next FAST meeting, if needed.

HST: 7-8 March 1991, CERGA, hosted by Kovalevsky.

M.A.C. Perryman

2 November 1990

Distribution: HST and ESOC Participants

ANNEX I

Twenty Sixth Meeting

of the

HIPPARCOS SCIENCE TEAM

RGO, Cambridge, 25-26 October 1990

Start of meeting: 09.30

AGENDA

1. Satellite status (Ojanguren/Perryman):
   - gyro 4/5, anomaly report processing
   - ACS improvemnts, consumables status, budget

2. DDID status and interfaces (Blake/McDonald)
   - open issues, comments on provisional tapes, finalisation of DDID
   - Perth/Goldstone/Odenwald telemetry datation

3. Calibration report (Schrijver):
   - basic angle, photometry, grid rotation, p1-p2

4. NDAC progress report (van Leeuwen/Lindegren)

5. FAST progress report (Kovalevsky)
   - abscissae results from RGC 751/752
   - comments on Europa/Titan processing

6. TDAC progress report (Hoeg/Grewing)

7. IDT comparisons (Perryman):
   - POS/MSI/first sample suppression/blemish implementation

8. Star mapper:
   - comparisons, including TDAC results (van Leeuwen)
   - use of updated positions for use in ESOC PSF
   - SSRF (Schrijver)
   - geometry investigations (Lindegren)

9. Attitude comparisons (Donati):
   - time difference
   - discontinuities at jet firing intervals

10. GCR comparisons (van der Marel): instrument and abscissae

11 INCA aspects:
   - PSF feedback to INCA (Creze)
   - IC7 and policy for star updating, schedule for IC8
   - Utrecht anomaly reports, and results from NDAC SM processing
   - finalisation of format for INCA printed catalogue (incl. charts)

12. Double star processing status (Lindegren/Bernacca); plans for validation

13. Miscellaneous:
   - review of criteria for proceeding to full mission analysis
   - publications in A&A; preparations for IAU General Assembly
   - baselining FAST analysis for IDT photometry
   - reference catalogue epoch for comparisons (via Mignard)
   - review of internal proposals and DRC processing schedule
   - radial velocities (Turon)
   - stars near the pole (Hoeg)
   - Hipparcos 2 (Hoeg) & lunar astrometry (Perryman)
   - next HST meeting: date and place

esa estec

HIPPARCOS

MEETING HIPPARCOS — ANNEX 2 — REF. HST26

DATE — PAGE

PLACE

	ACTION No	DESCRIPTION (not more than 4 lines)	CLOSING DATE	ACTIONNEE Person/firm	INITIATOR Person/firm
	1	Investigate 1st sample suppression from GCR NDAC results		LINDEGREN	
	2	Investigate weighting optimisation of P1 and P2		KOVALEVSKY	
	3	Produce note on POS phase determination. Check Cerga/Utrecht implementation		KOV/FROESCHLE/SCHRIJVER	
	4	Run GCR (if feasible) with/without POS		SCHRIJVER	
	5	Investigate Io inconsistency		PERRYMAN/KOVALEVSKY/VAN LEEUWEN	
	6	Update SSRF		KOVALEVSKY	
	7	Investigate Utrecht/CERGA SM timing differences		KOVALEVSKY/SCHRIJVER	
	8	Correct velocities and timing discrepancies in TDAC SM transits		GREWING	
	9	Provide SM details to LINDEGREN		KOVALEVSKY	
	10	" new SM calibration —" —		VAN LEEUWEN	
	11	Follow up SM geometry comparison		LINDEGREN	
	12	Check use of updated SM positions in ESOC PSF		PERRYMAN	
	13	Investigate gas-jet actuation timing		KOVALEVSKY	
	14	Send gas-jet pulse time plots to JK		SCHRIJVER	
	15	Provide new altitude data to Dorati after S/W updates		FAST/NDAC	
✓	16	Check Imsee dt for Perth/Oderwald switch in PTS		VAN LEEUWEN	
✓	17	Distribute new DDID		BLAKE	
	18	Coordinate IDT comparison photometry		KOVALEVSKY/MIGNARD	
✓	19	Comment on INCA Catalogue and advert for Publication		HST	
	20	Provide inputs on A&A papers on schedule given in minutes		HST	
✓	21	Provide comments on Turon's provisional IAU programme for JD		HST	
Signatures					

ANNEX II

HIPPARCOS
S/C STATUS REPORT

MAY - OCTOBER 1990

ANNEX III

SYSTEM STATUS (24/10/90)

✓ Science data collection has increased from an initial 60% and is now, on average, 76% of that expected from a geostationary orbit.

✓ 43 anomalies have been raised since launch. 31 have been closed, and 12 are still open pending further analysis and/or deeper investigation. Amongst the latter, SAS 3, BATTERY 1/2 EOC, GYRO 4 MALFUNCTION, P/L RTU 1 and MDE 1, are the most relevant.

✓ None of these anomalies are currently affecting the science data collection.

✓ The mission is controlled 24 hrs per day from ESOC OCC located in DARMSTADT GERMANY.
The supporting GROUND STATIONS are ODENWALD (FRG), PERTH (AUS) and GOLDSTONE (USA).

MAINTENANCE
&
OPERATIONS

ROUTINE HIPPARCOS MAINTENANCE

CHROMATICITY CAL.....	EVERY 3 MONTHS
REFOCUSSING CAL.....	MONTHLY
GYRO DESTORAGES.....	MONTHLY
ISPA [INTERNAL STAR PATTERN ASSEMBLY].....	EVERY 2 WEEKS
SOLAR PANELS DEGRADATION TESTS.....	WEEKLY
GRM [GRID REFERENCE MARK] CAL.....	DAILY

SPACECRAFT OPERATIONS

MAY 1990

DAY 142 Command sequence timing modified such that shutter open and close commands are at occultation start/end times and not 1 min before and after

JUNE 1990

DAY 170 CBS memory corruption. Memory reloaded.

DAY 173 Batteries 1 & 2 reconditioned between days 173 and 190, to face upcoming eclipse season.

DAY 177 GYRO 4 ANOMALY (AR. No. 35) Loss of RTAD (23:24z)

DAY 178 RTAD converged again (17:09z)

DAY 180 Gyro 5 switched on, tested and replaced gyro 4.

JULY 1990

DAY 187 New rejection criteria uplinked (lambda-min) for star magnitudes 5 to 7.5 to improve rejection of bright stars.

DAY 193 Start of Eclipse season (16:12z)

DAY 195 First B-T uplink after gyro 4 replacement by gyro 5 and subsequent calibration uplinks

DAY 196 End of KOUROU support

AUGUST 1990

DAY 214 Data switching between Perth and Goldstone to validate propagation delay figures.

Reducing thruster minimum on-time to 2 cycles (27 msecs).

DAY 240 Commanding problems during GOL pass. Commands are uplinked manually. An investigation is open on the subject.

DAY 243 CBS memory corruption. Memory reloaded.

Fluctuating S/C AGC is observed from all three supporting stations. Fluctuations are related with commands uplinks.

SEPTEMBER 1990

DAY 247 Battery 1 does not reach EOC after eclipse. EOC forced by manual commanding.[AR 40].

DAY 256 Goldstone changes intermittently defective Synthesizer in Exciter 1. Uplink problems with Goldstone disappear.

DAY 260 Test with Perth to investigate Spacecraft Receiver 1 AGC problem.(days 260 - 275). Final report says bad carrier suppression is the cause. No commanding problems are expected.

DAY 267 MDE1 Secondary voltage (J001) falls below normal operating range. Opening and closing of shutters still work under this red limits condition. Spacecraft reconfigured to use MDE2.

DAY 271 Battery No.2 fails to reach E.O.C. (AR. 42).

OCTOBER 1990

DAY 279 Payload Refocussing (2 steps).

DAY 282 Gyro 4 destorage during 2H 25M No problems.

DAY 291 Gyro 4 destorage during more than 6 days. No problems.

DAY 295 Gyro 5 presents noise bursts. (AR 43).

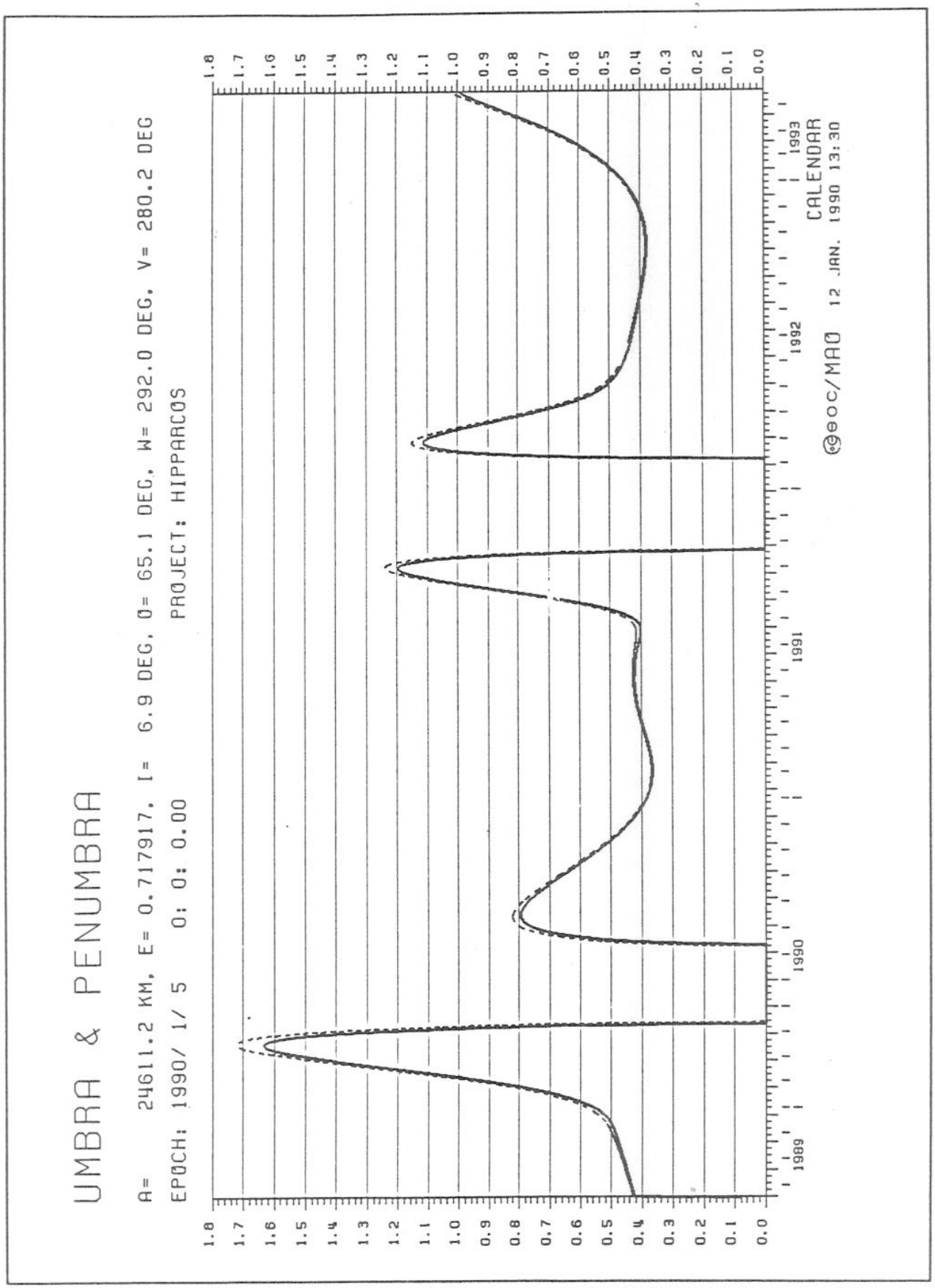


FIGURE 1. Eclipse (umbra and penumbra) duration

HIPPARCOS SPACECRAFT CONFIGURATION

at 24/10/90

TCMS (Telecommunications Subsystem)

Transmitter 1 ON
Transponder 1 ON during Ranging

EPSS (Electrical power subsystem)

Configuration of EPSS is Parallel Battery Charge Mode (PBCM)
and Trickle Charge during sunlight periods
Eclipses started on day 193
Solar Array degradation measurement once/week

THERMAL(STCS)

All S/C Heaters are OFF

DHSS (Data Handling Subsystem)

CBS configuration is IDT NOMINAL
FORMAT 3 selected
CBS VERSION 4.02 (Central on-board software)
(CBS patch: RTAD filter - star transit rejection on one
max. detection)

AOCS (Attitude and Orbit Control Subsystem)

S/W Normal Mode Selected
Nominal, with the exception of gyro 4 which needed to be replaced by gyro 5; gyros 1, 2 & 5 in use;
Gyro configuration since day 180 (1-2-5)
Control Parameter limit cycling within limits

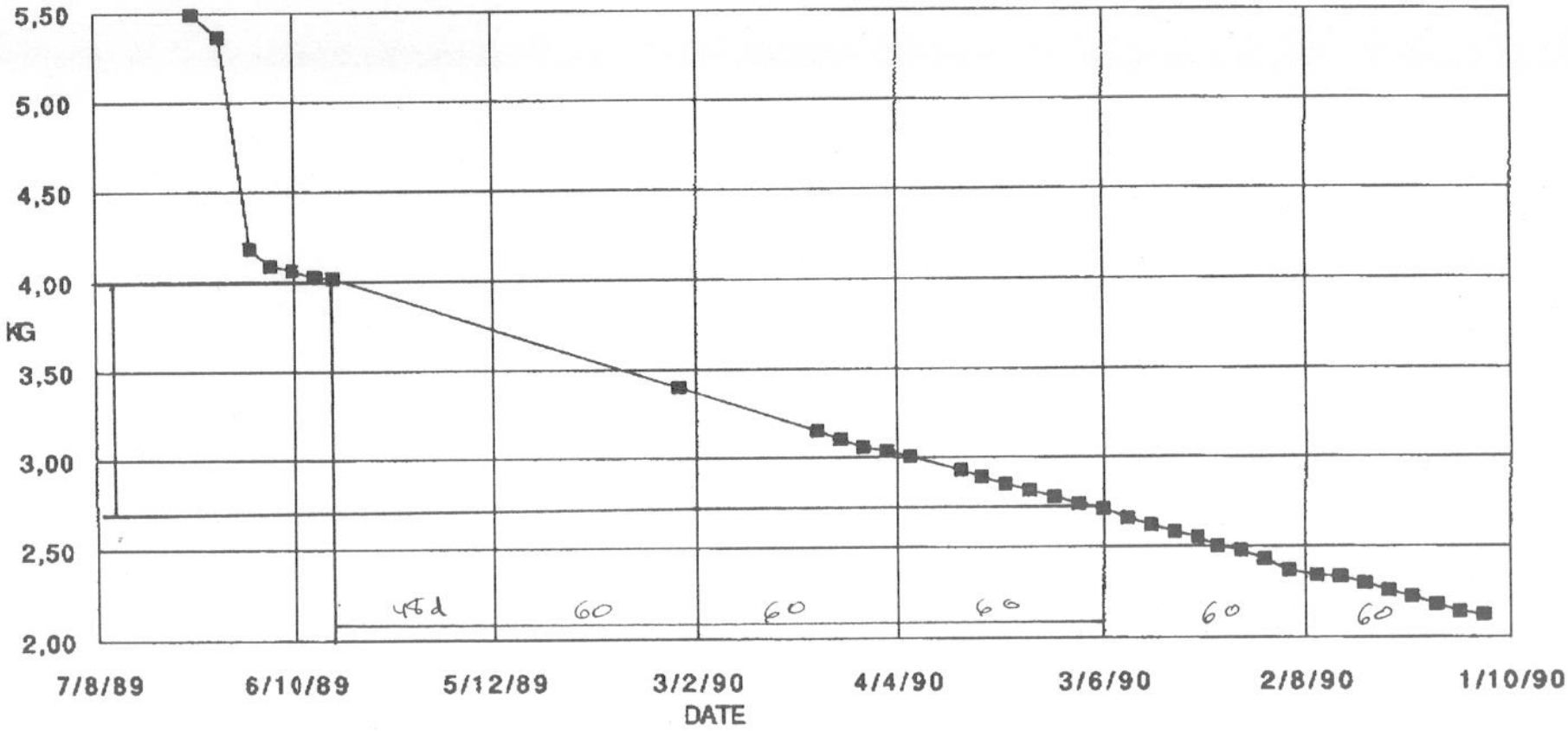
PAYLOAD

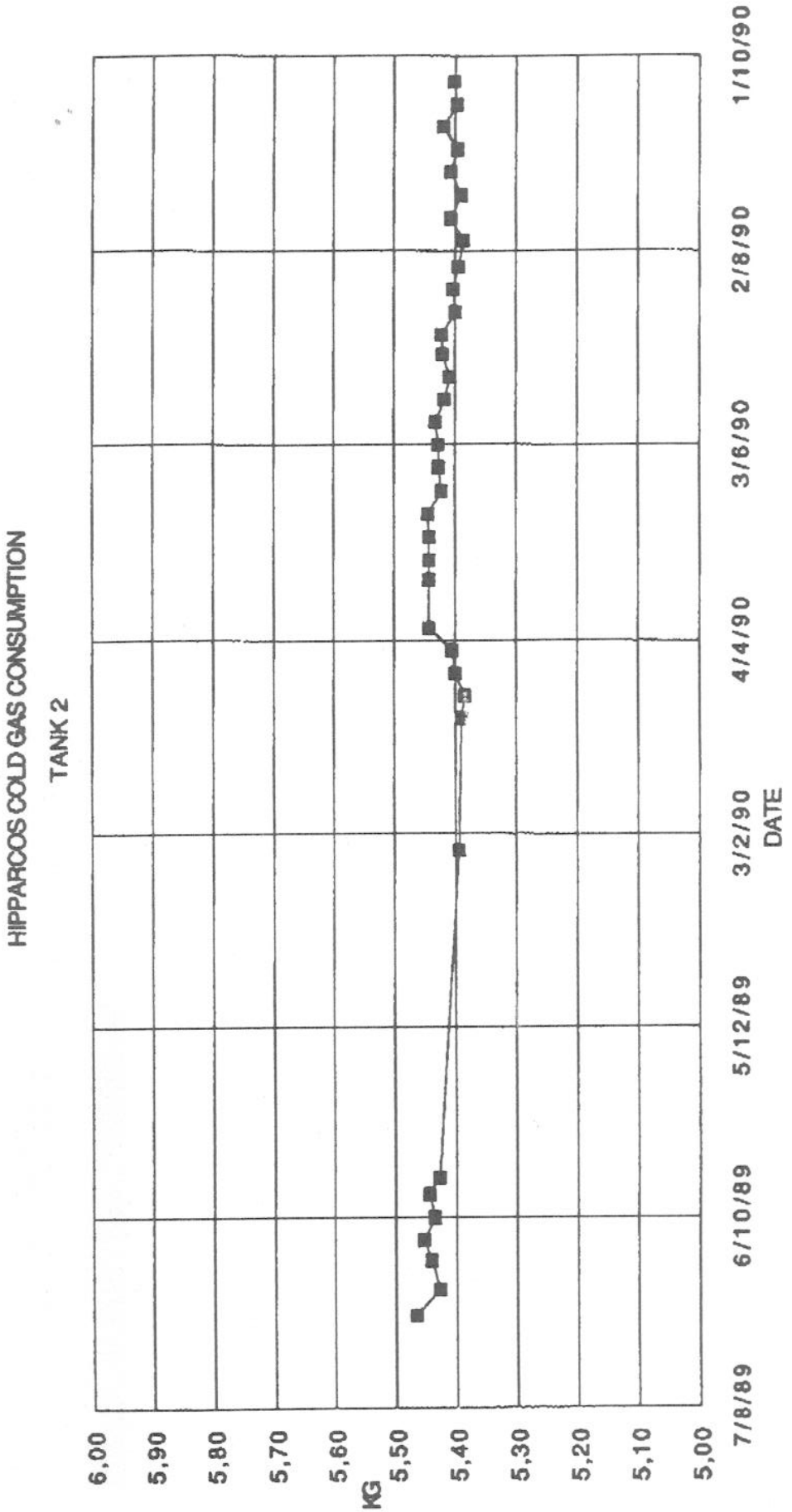
P/L SUBSYSTEM NOMINAL WITH FOLLOWING EXCEPTION:
- FAILURE OF MUX 8 OF IMX2 OF THE P/L RTU 1 (AR 17) and unexplained 'return to nominal' (AR 30)
- FAILURE IN THE P/L RTU 1 (AR 26)
- FAILURE IN MDE1 (AR 41)

P/L THERMAL CONTROL IS NOMINAL
IDT CHAIN 2 SELECTED
TYCHO CHAIN 2 SELECTED
MDE2, TCE1, AND INVERTER 1 ON

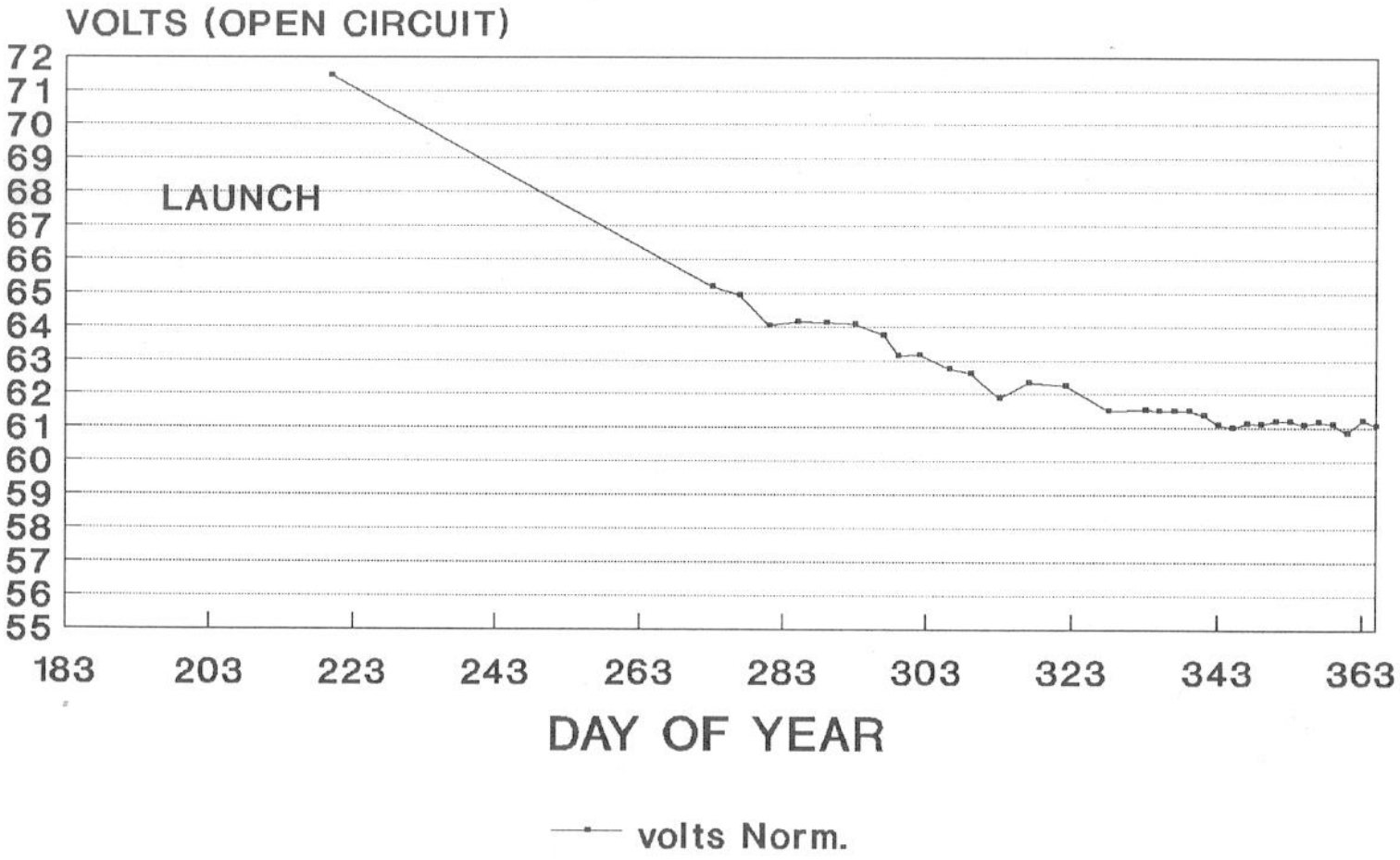
HIPPARCOS COLD GAS CONSUMPTION

TANK 1



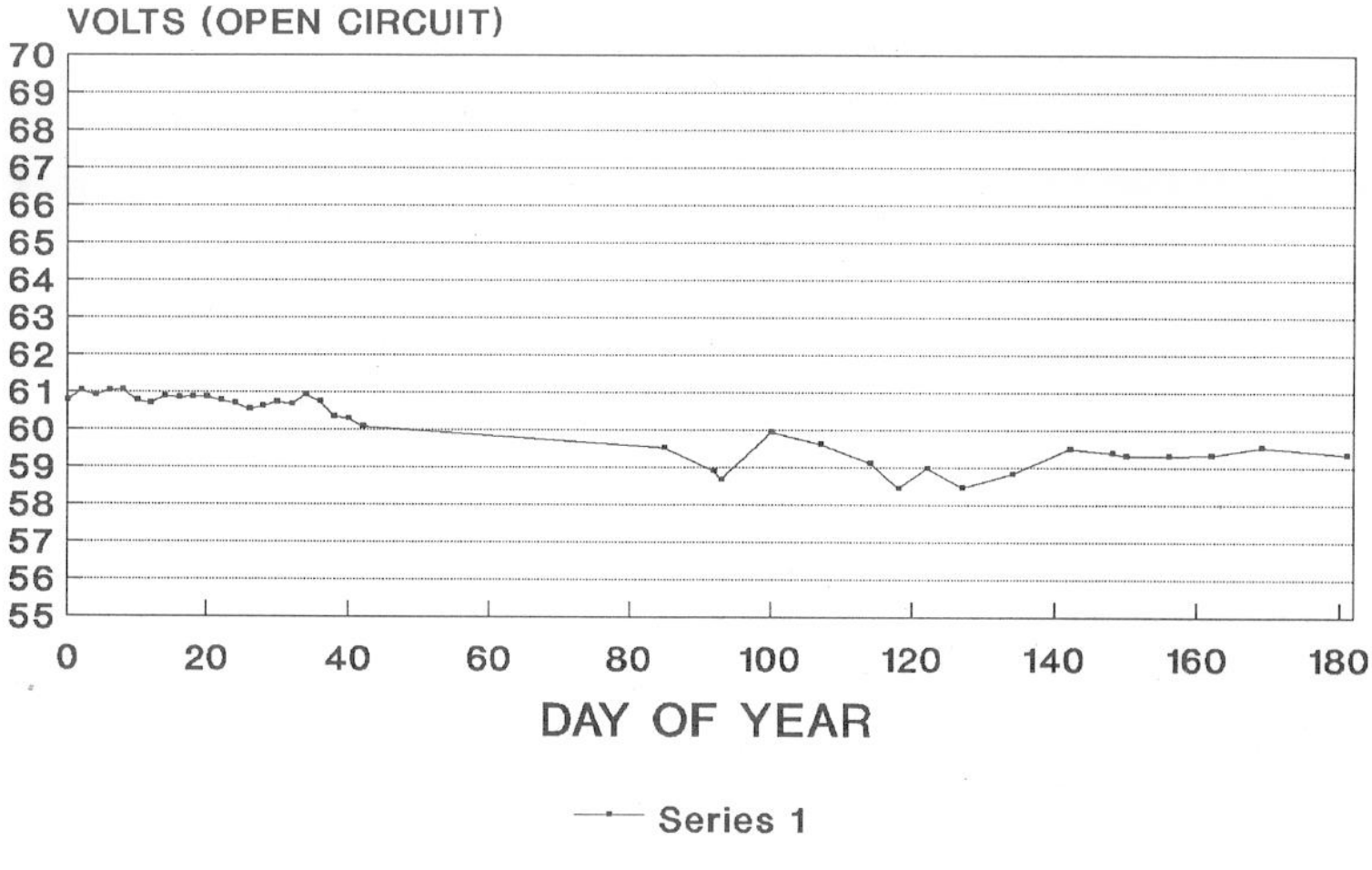

HIPPARCOS COLD GAS CONSUMPTION
TANK 2
KG
6,00
5,90
5,80
5,70
5,60
5,50
5,40
5,30
5,20
5,10
5,00
7/8/89
6/10/89
5/12/89
3/2/90
4/4/90
3/6/90
2/8/90
1/10/90
DATE

HIPPARCOS SOLAR ARRAY DEGRADATION.
LAST 6 MONTHS OF 1989

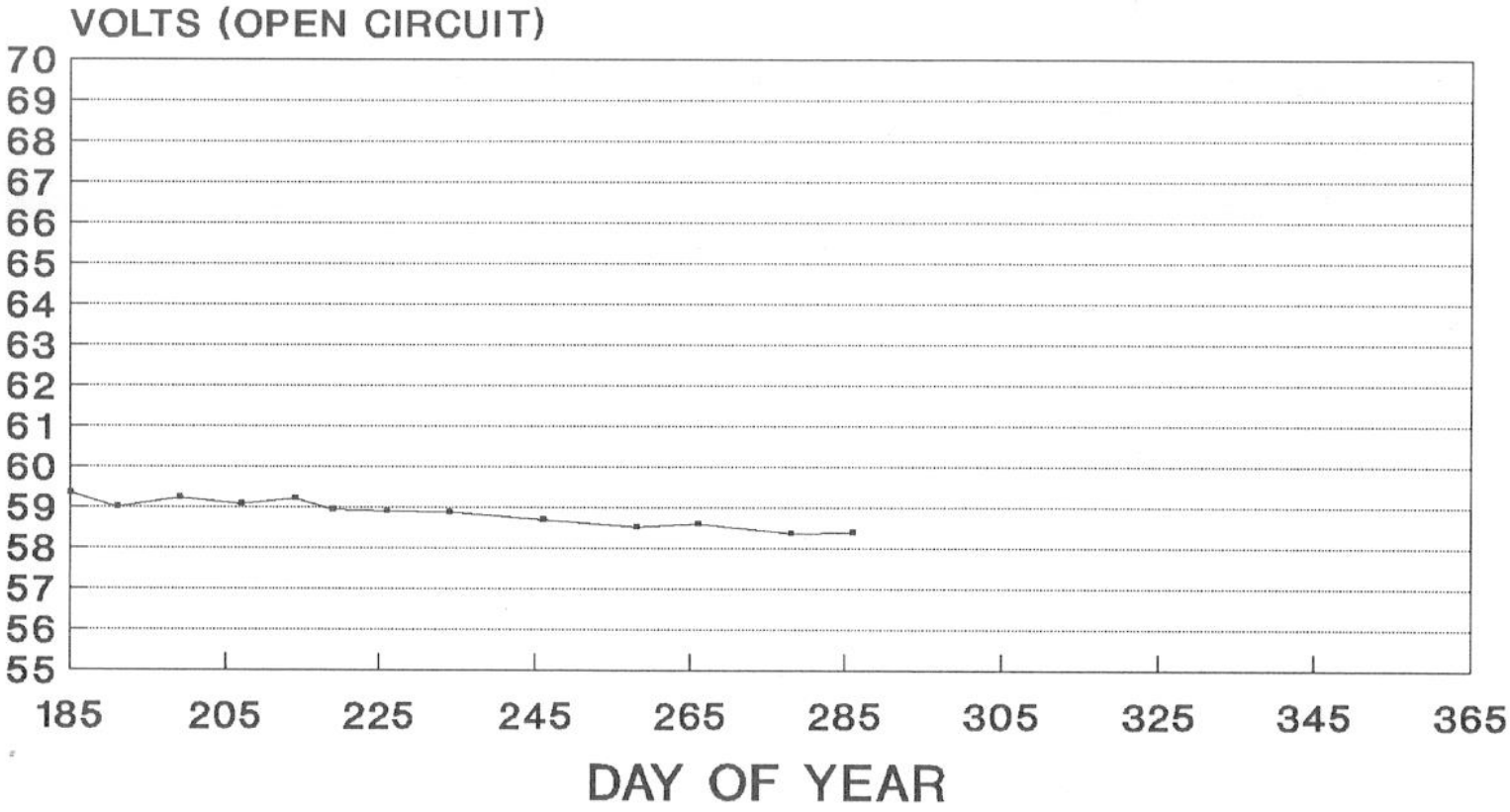


LAUNCH DATE 8/8/89 (DAY 220)

HIPPARCOS SOLAR ARRAY DEGRADATION FIRST 6 MONTHS OF 1990.

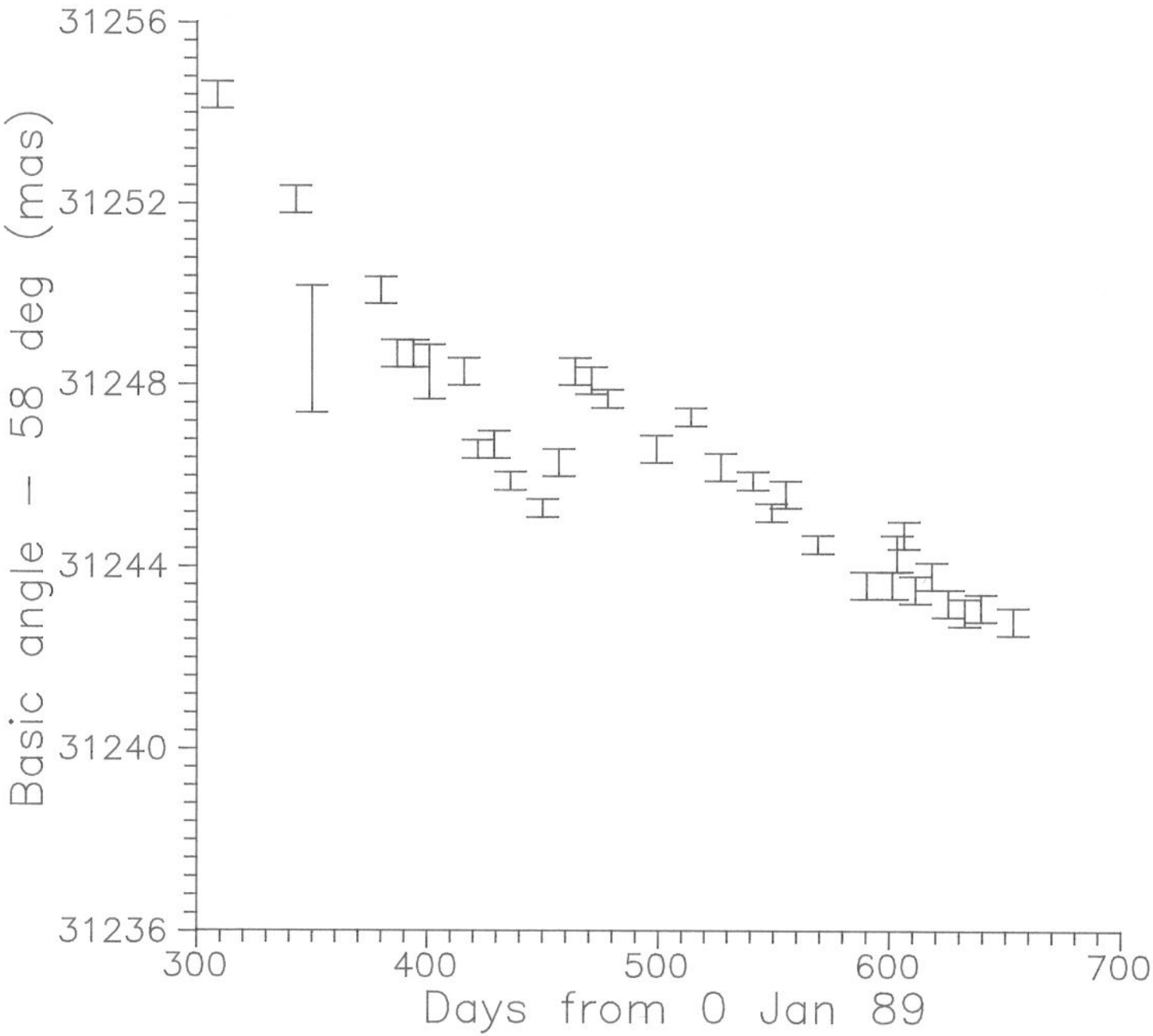


HIPPARCOS SOLAR ARRAY DEGRADATION
LAST 6 MONTHS OF 1990

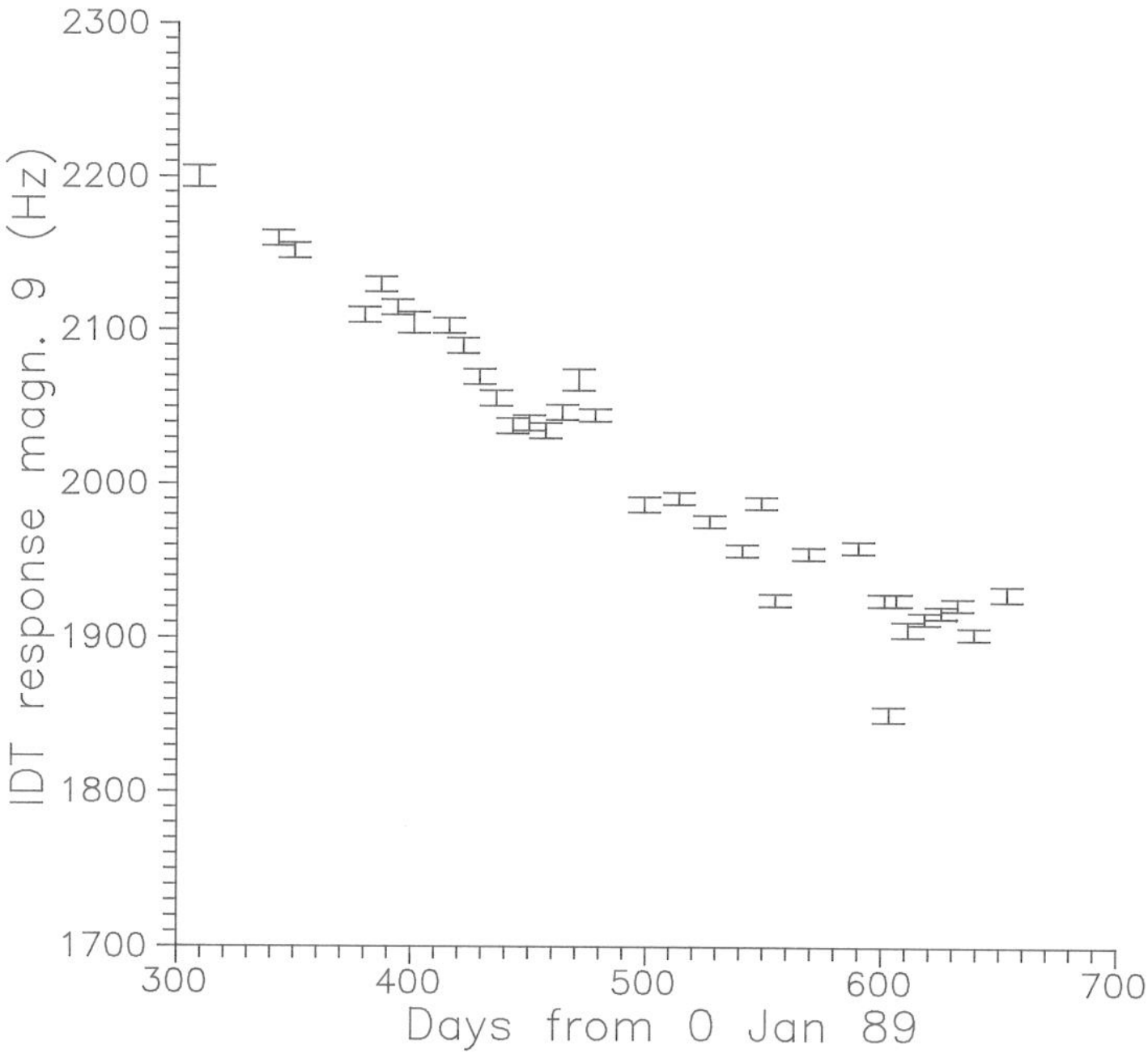


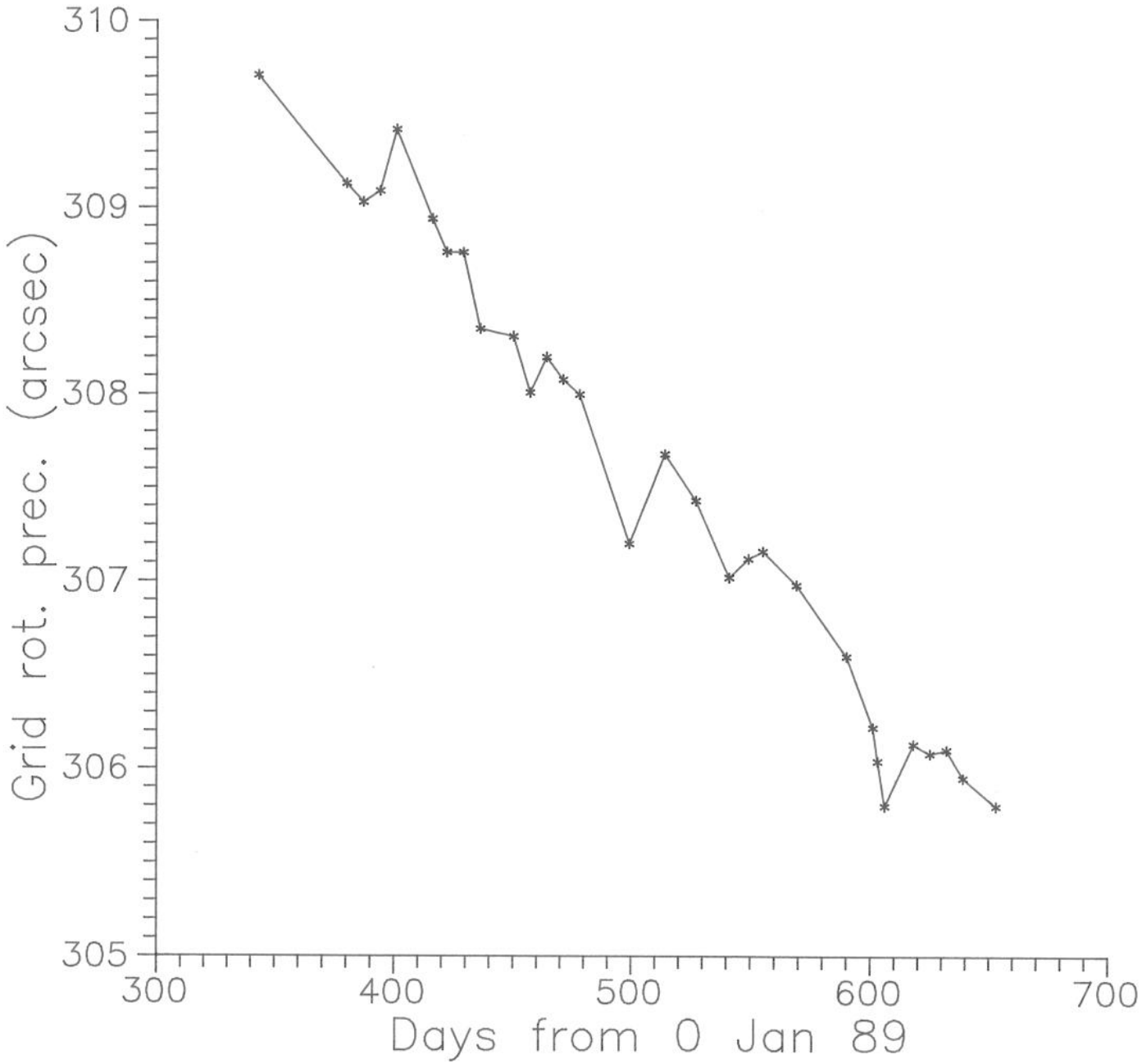
LIFETIME PREDICTION

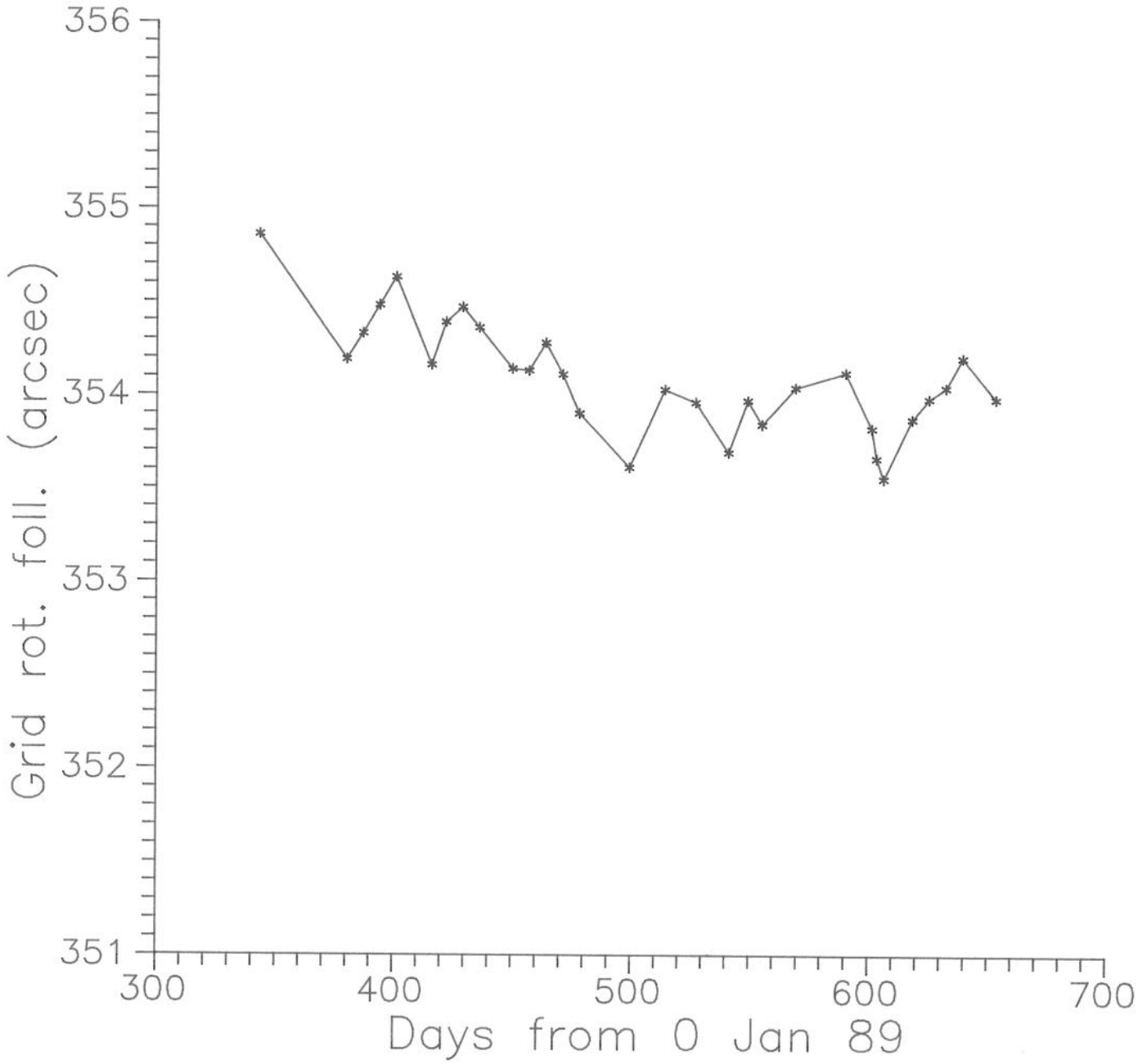
IN THE ABSENCE OF ANY
CATASTROPHIC FAILURE :
MID TO END 1994

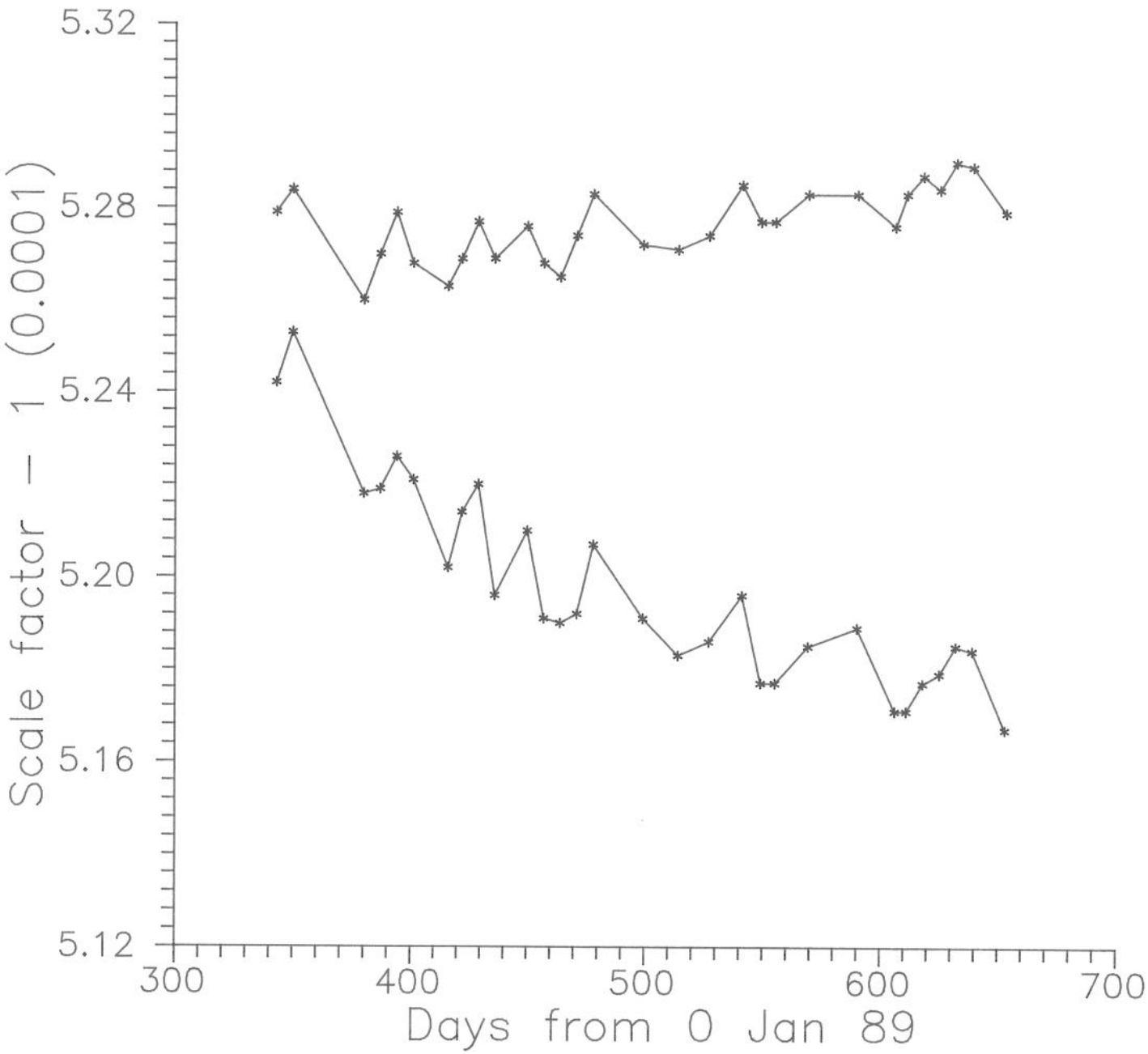

31256
31252
31248
31244
31240
31236
Basic angle - 58 deg (mas)
300
400
500
600
700
Days from 0 Jan 89

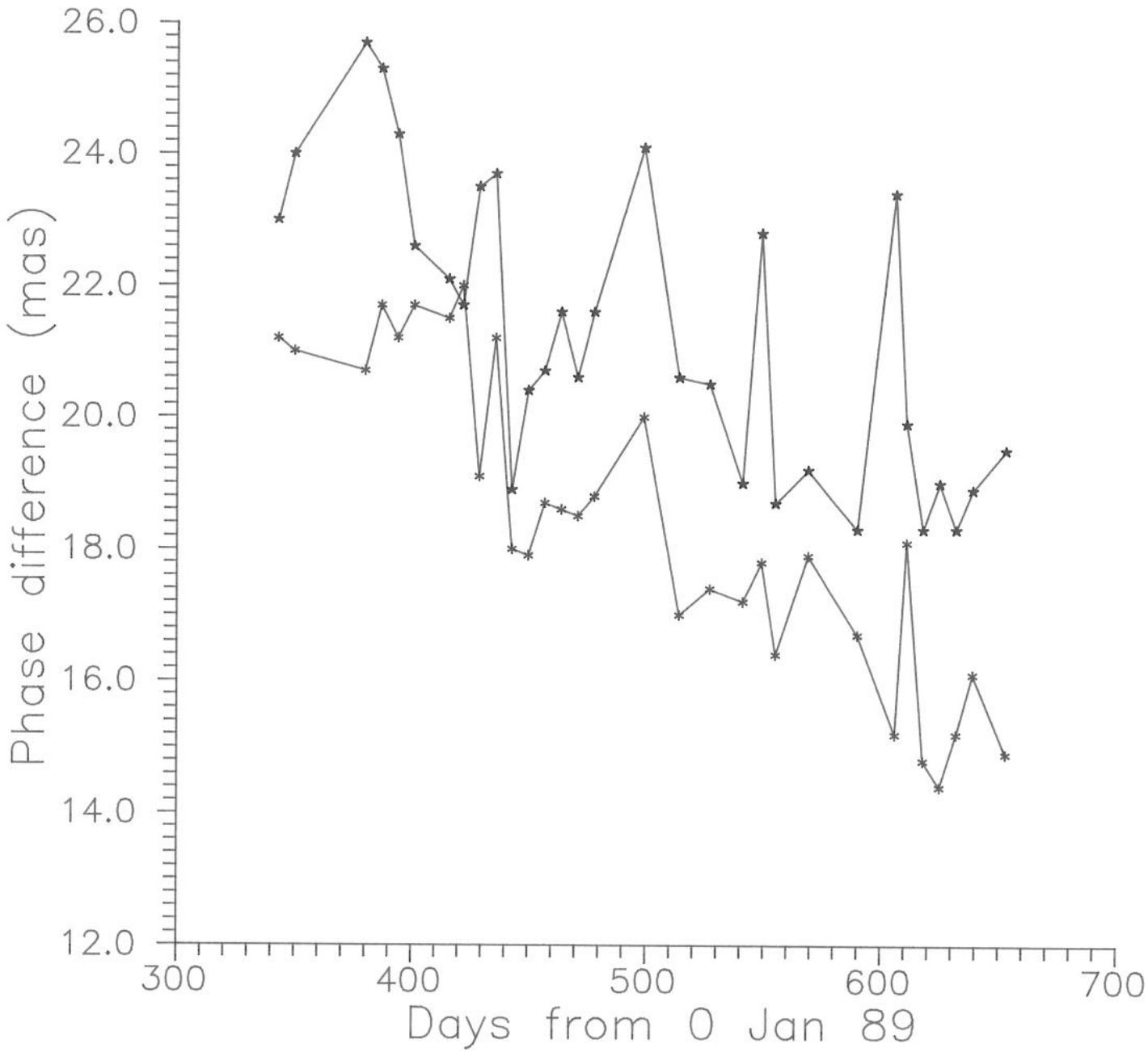
ANNEX
IV

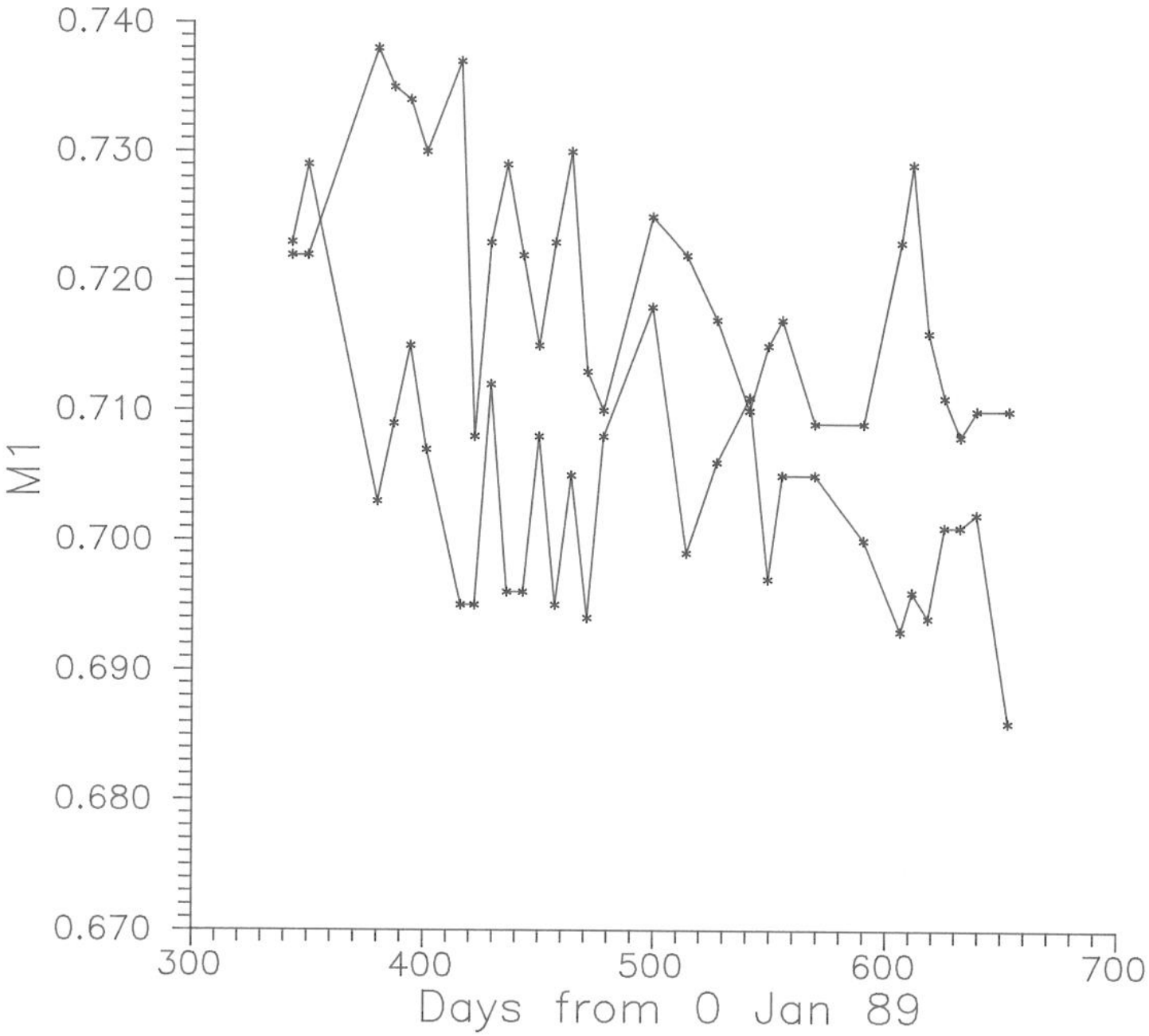

IDT response magn. 9 (Hz)
2300
2200
2100
2000
1900
1800
1700
300
400
500
600
700
Days from 0 Jan 89


310
309
308
307
306
305
Grid rot. prec. (arcsec)
300
400
500
600
700
Days from 0 Jan 89


356
355
354
353
352
351
Grid rot. foll. (arcsec)
300
400
500
600
700
Days from 0 Jan 89


5.32
5.28
5.24
5.20
5.16
5.12
Scale factor - 1 (0.0001)
300
400
500
600
700
Days from 0 Jan 89


26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
Phase difference (mas)
300
400
500
600
700
Days from 0 Jan 89


0.740
0.730
0.720
0.710
0.700
0.690
0.680
0.670
M1
300
400
500
600
700
Days from 0 Jan 89

ANNEX V

Table 1: Results of test statistics used for selection of the correct implementation of the medium-scale irregularity calibration. The nominal value for the Fisher test is 1; the mean (r.m.s.) residual is in mas. n = nominal case, i = inverted case.

RGC 277: 9 December 1989

Sign	G	H	Fisher test	Mean residual (mas)
n	n	n	1.094	11.77
n	i	n	1.095	11.76
n	n	i	1.086	11.74
n	i	i	1.096	11.76
i	n	n	1.103	11.79
i	i	n	1.103	11.80
i	n	i	1.101	11.79
i	i	i	1.100	11.80
No correction			1.094	11.77

RGC 856: 24 August 1990

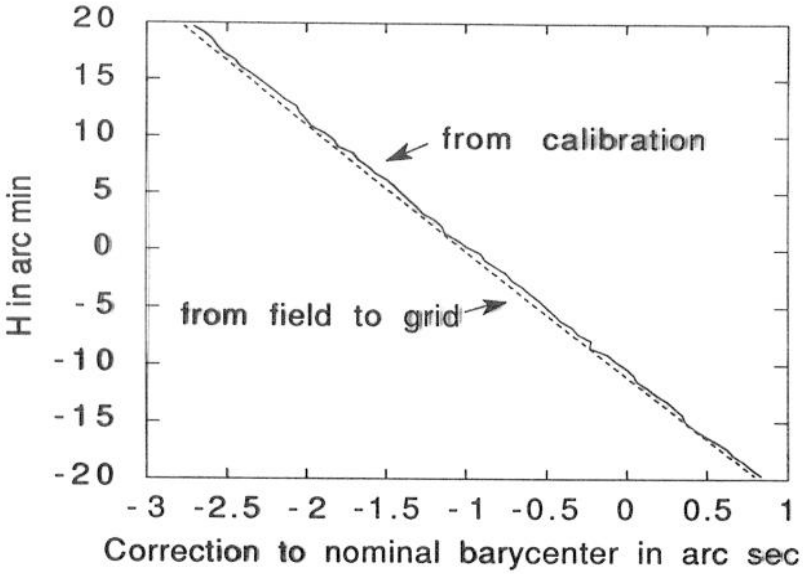
Sign	G	H	Fisher test	Mean residual (mas)
n	n	n	1.049	14.07
n	i	n	1.052	14.04
n	n	i	1.052	14.08
n	i	i	1.053	14.02
i	n	n	1.062	14.09
i	i	n	1.060	14.12
i	n	i	1.062	14.11
i	i	i	1.061	14.14
No correction			1.054	14.10

RGC 878: 3 September 1990

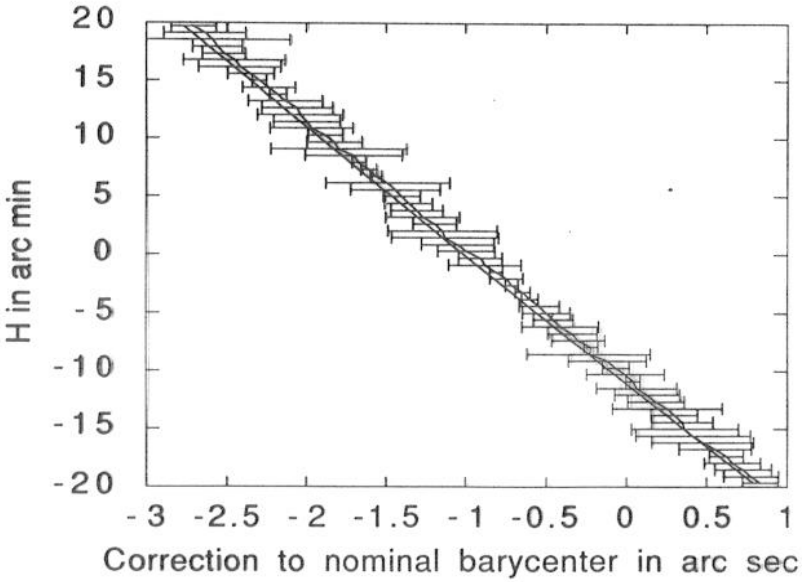
Sign	G	H	Fisher test	Mean residual (mas)
n	n	n	1.048	13.48
n	i	n	1.048	13.51
n	n	i	1.048	13.50
n	i	i	1.051	13.50
i	n	n	1.055	13.60
i	i	n	1.056	13.55
i	n	i	1.055	13.54
i	i	i	1.055	13.53
No correction			1.047	13.51

ANNEX
VI

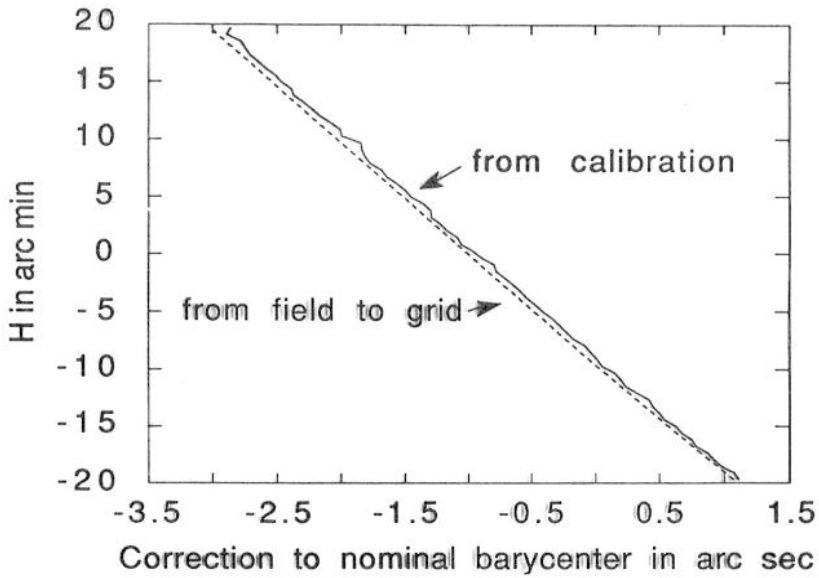
VERTICAL GROUP OF SLITS (preceding field)



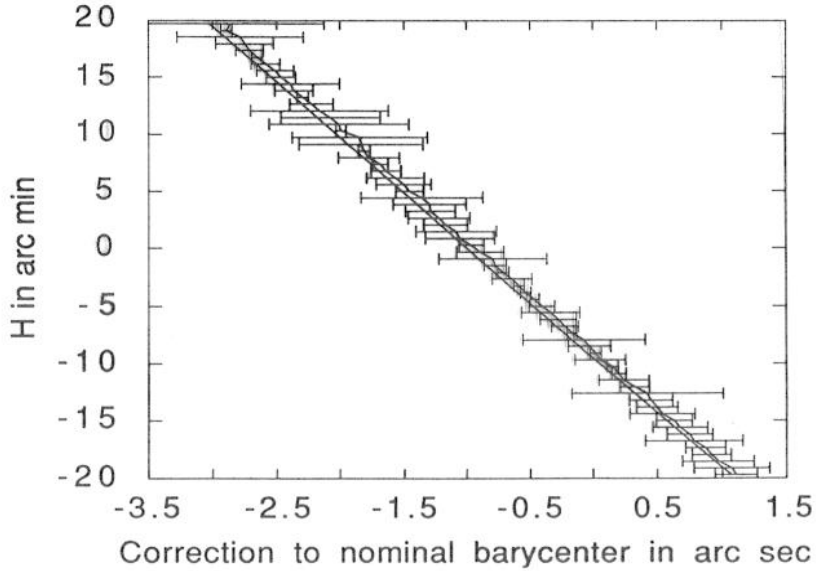
VERTICAL GROUP OF SLITS (preceding field)



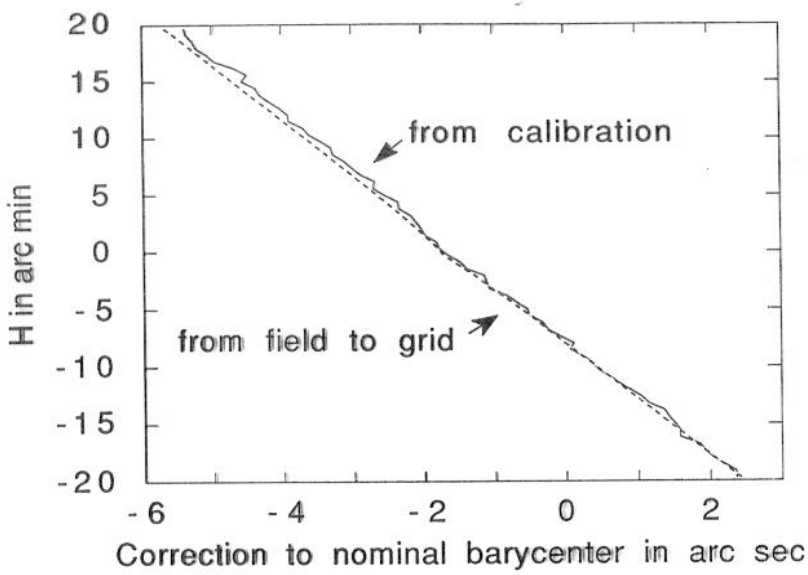
VERTICAL GROUP OF SLITS (following field)



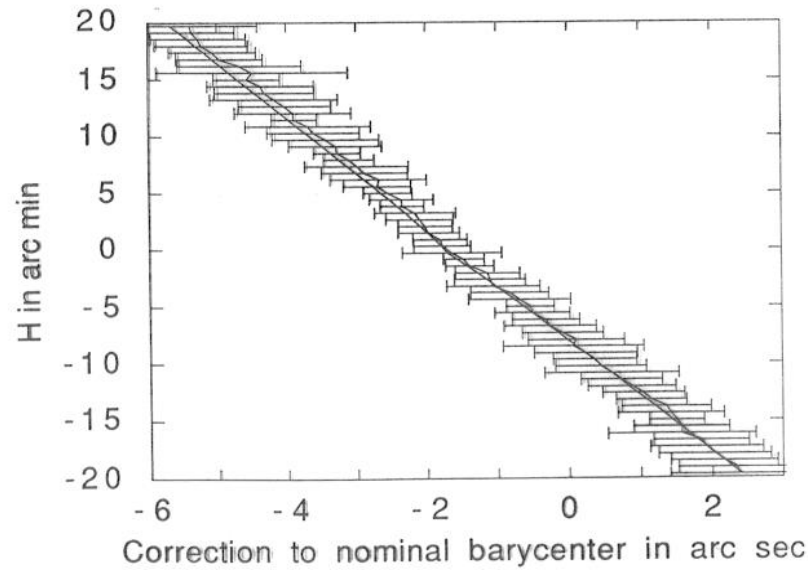
VERTICAL GROUP OF SLITS (following field)



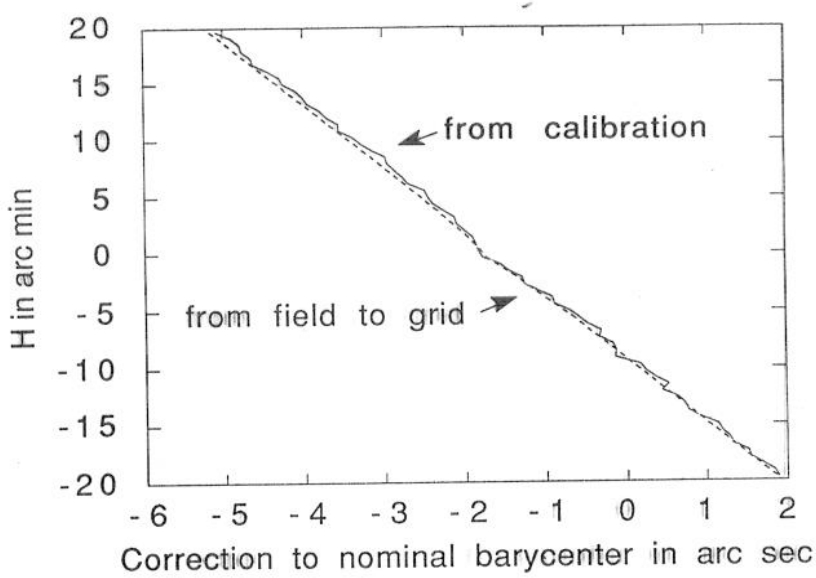
INCLINED GROUP OF SLITS (following field)



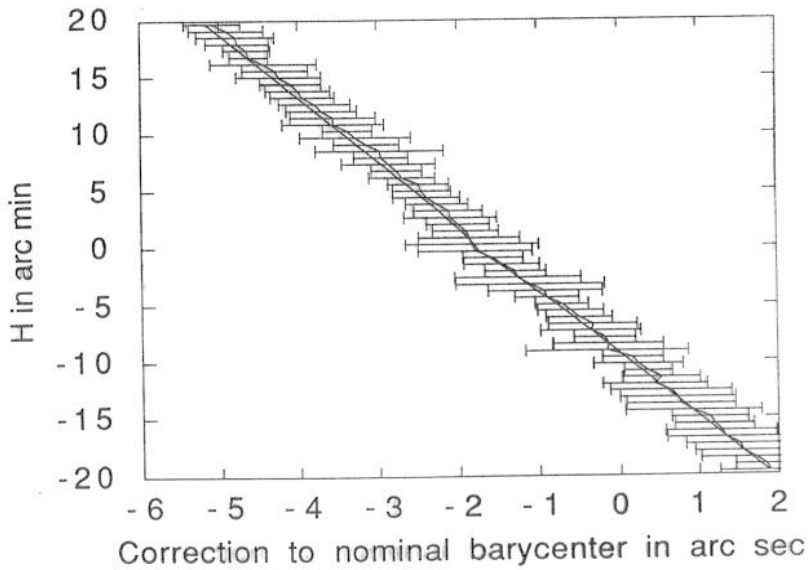
INCLINED GROUP OF SLITS (following field)



INCLINED GROUP OF SLITS (preceding field)



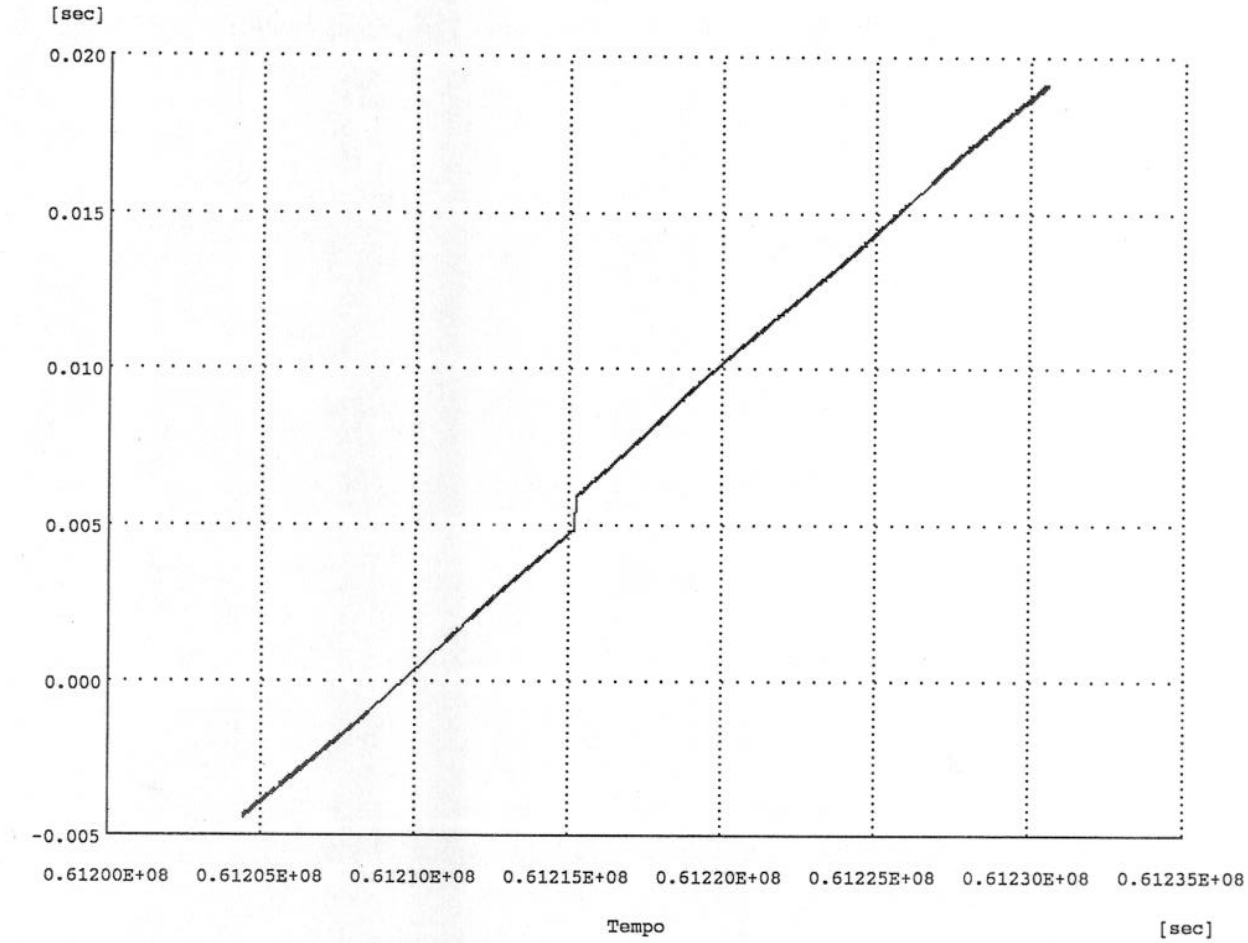
INCLINED GROUP OF SLITS (preceding field)



ANNEX VII

CSS - Centro di Studi sui Sistemi - Torino

Diff. di tempo: Tfast - Tndac

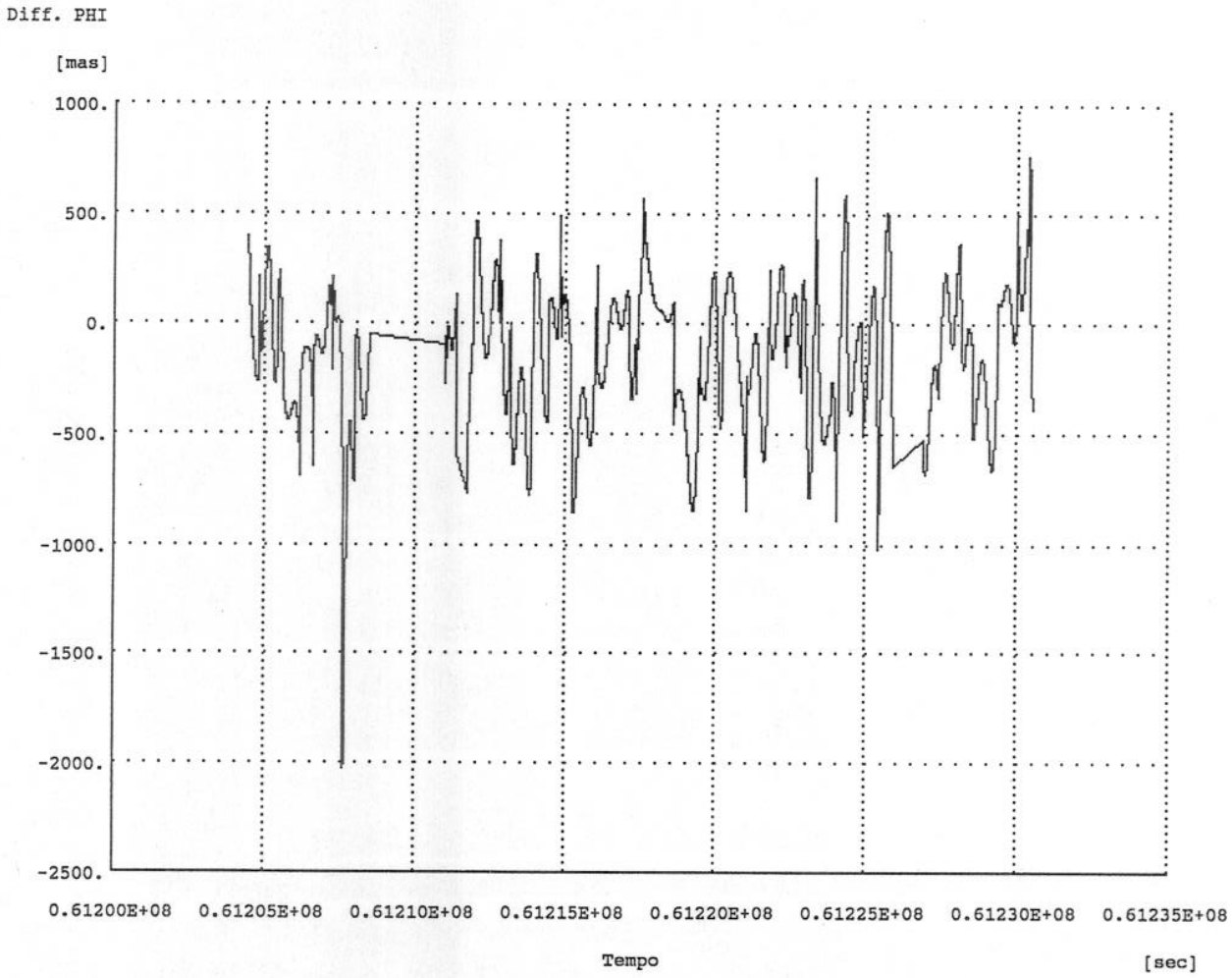


Analisi delle differenze tra i tempi riportati nei files.

Confronto FAST - NDAC

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

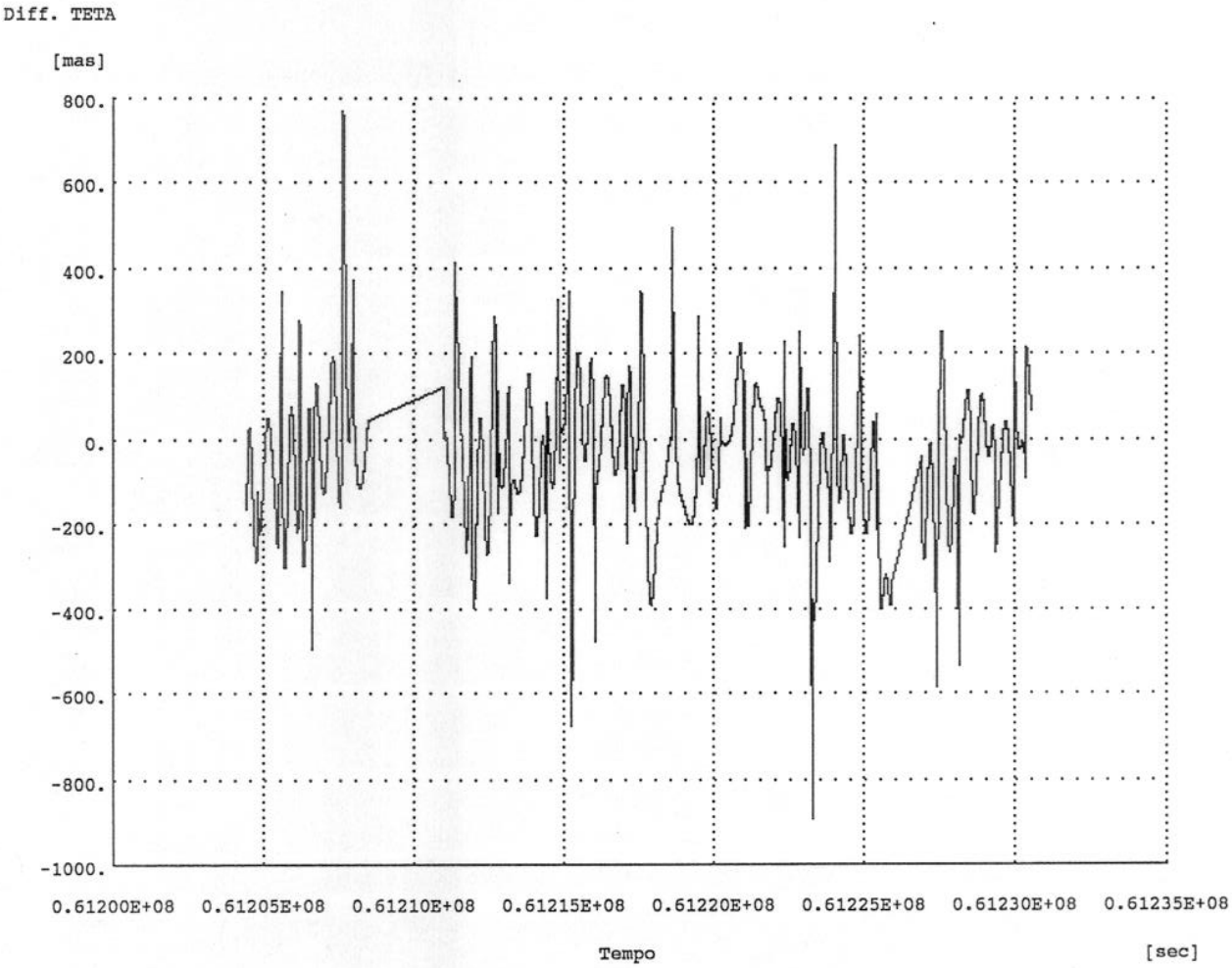


Differenza di assetto: componente PHI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

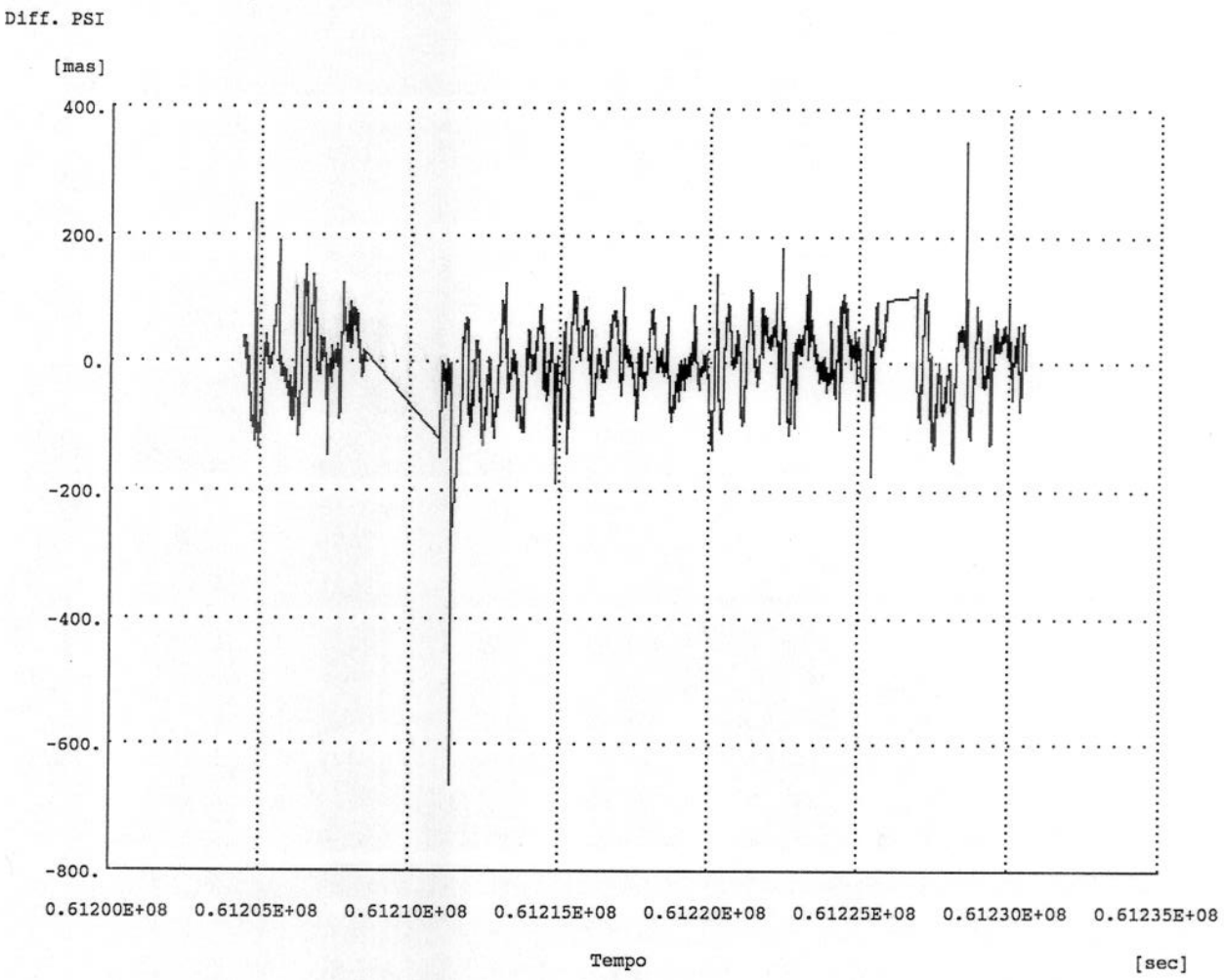


Differenza di assetto: componente TETA

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

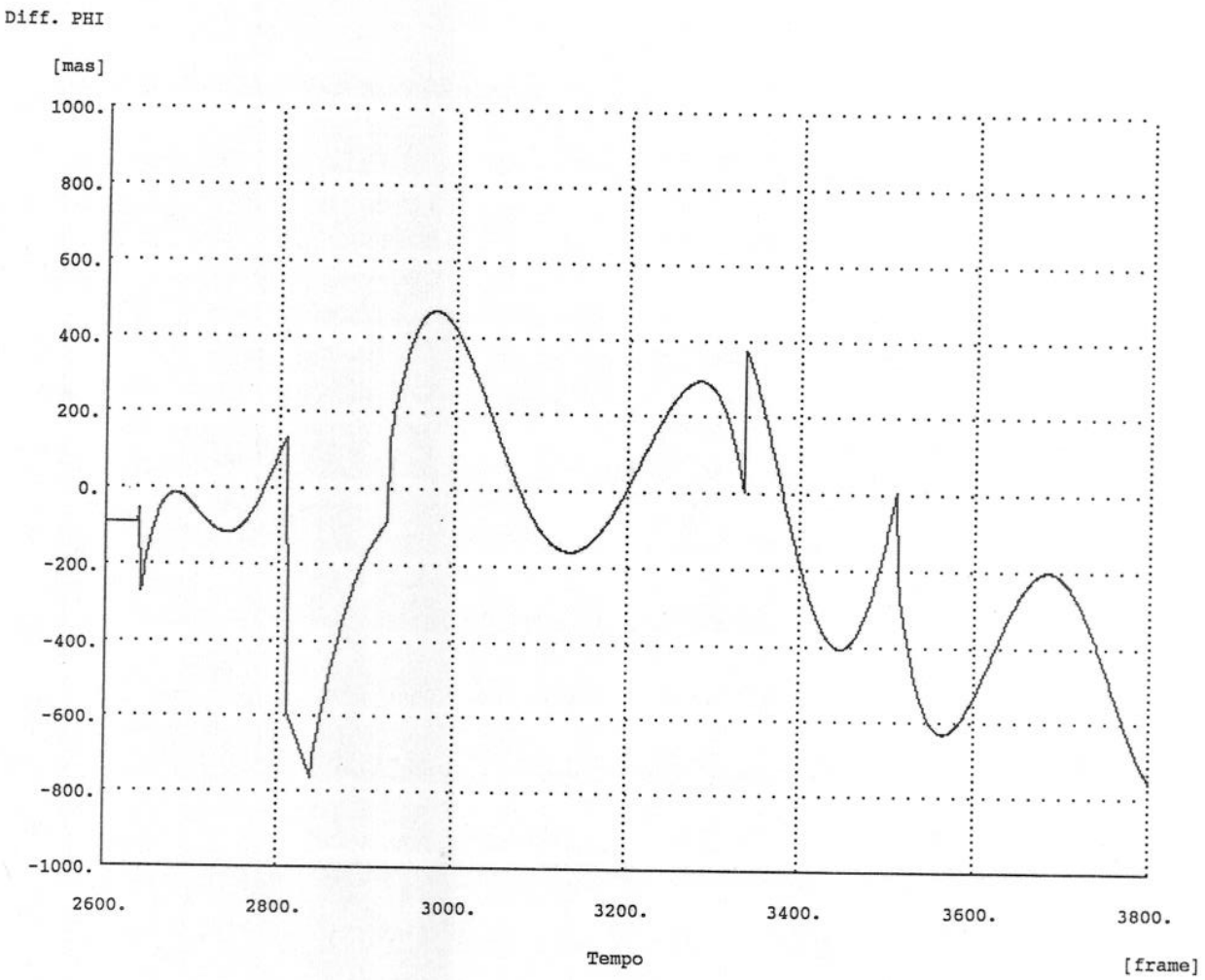


Differenza di assetto: componente PSI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

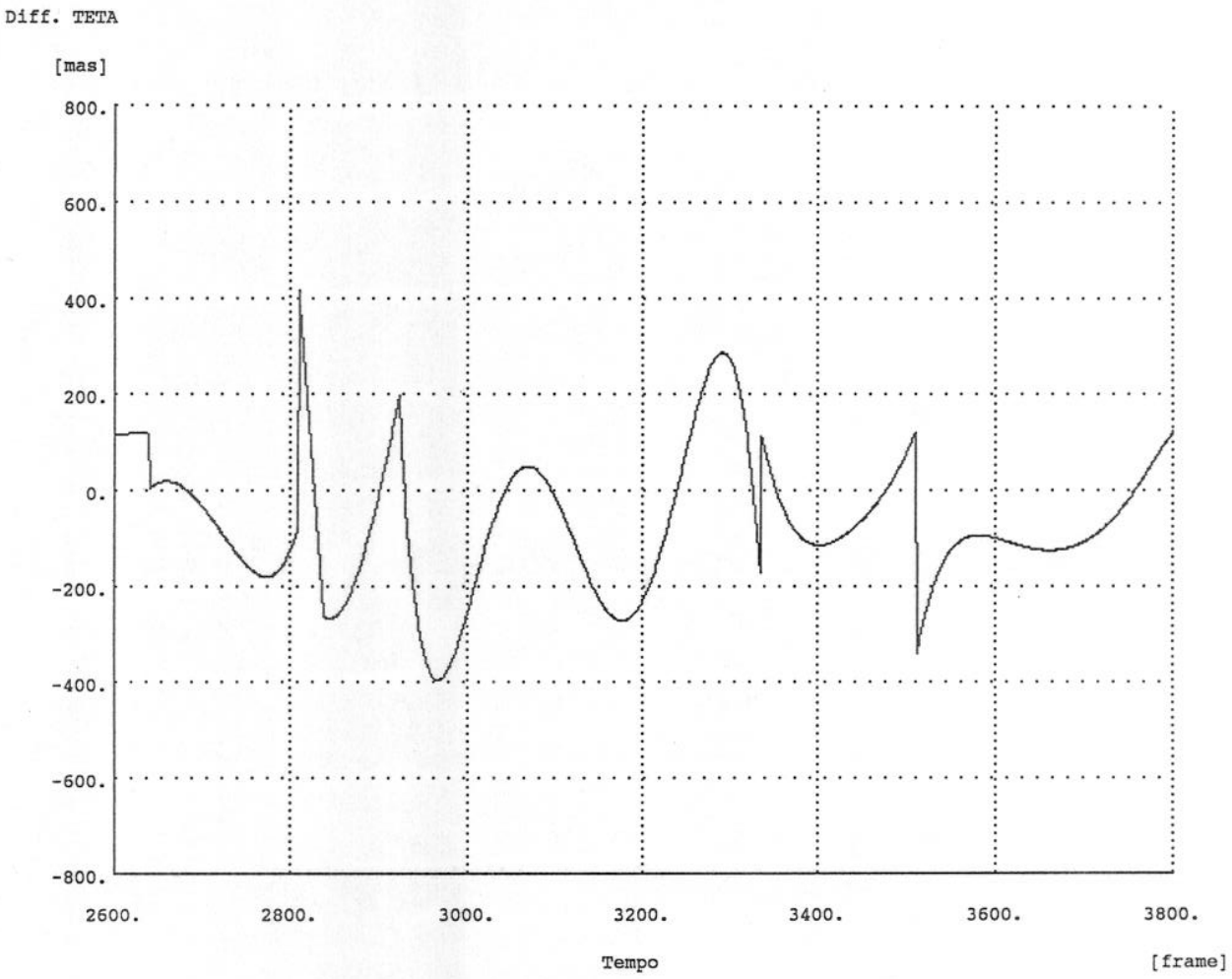


Differenza di assetto: componente PHI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 16-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

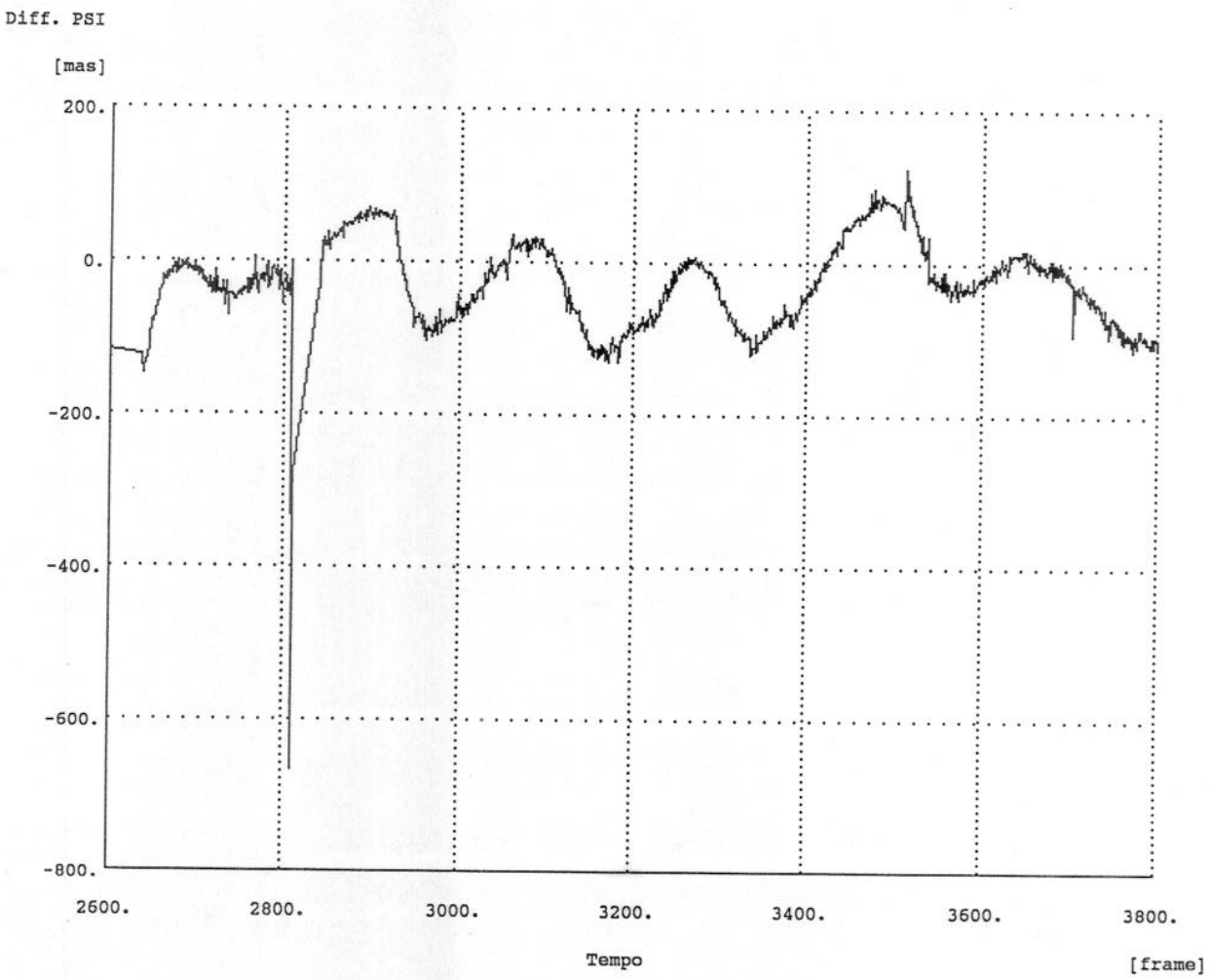


Differenza di assetto: componente TETA

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 16-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

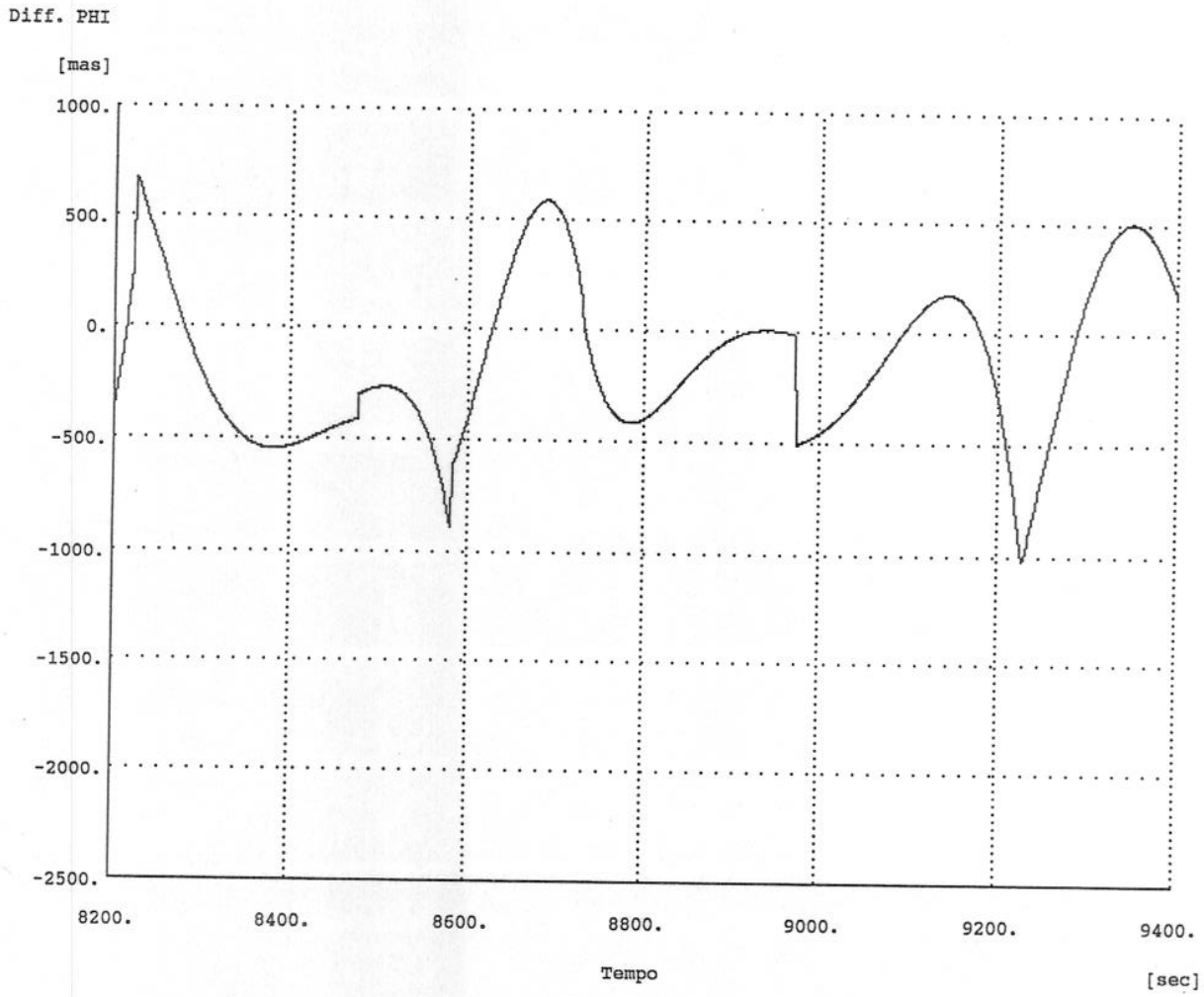


Differenza di assetto: componente PSI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 16-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

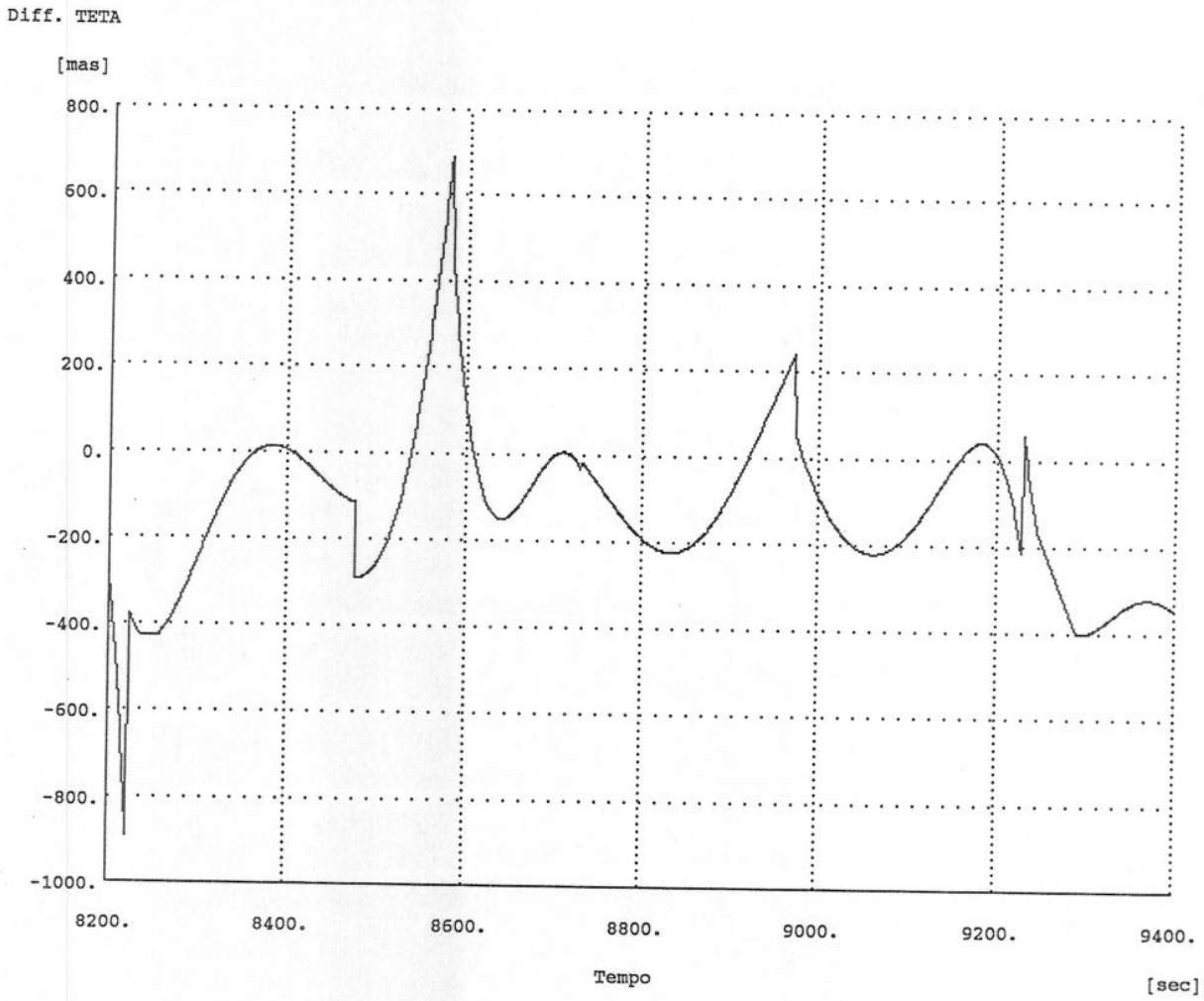


Differenza di assetto: componente PHI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

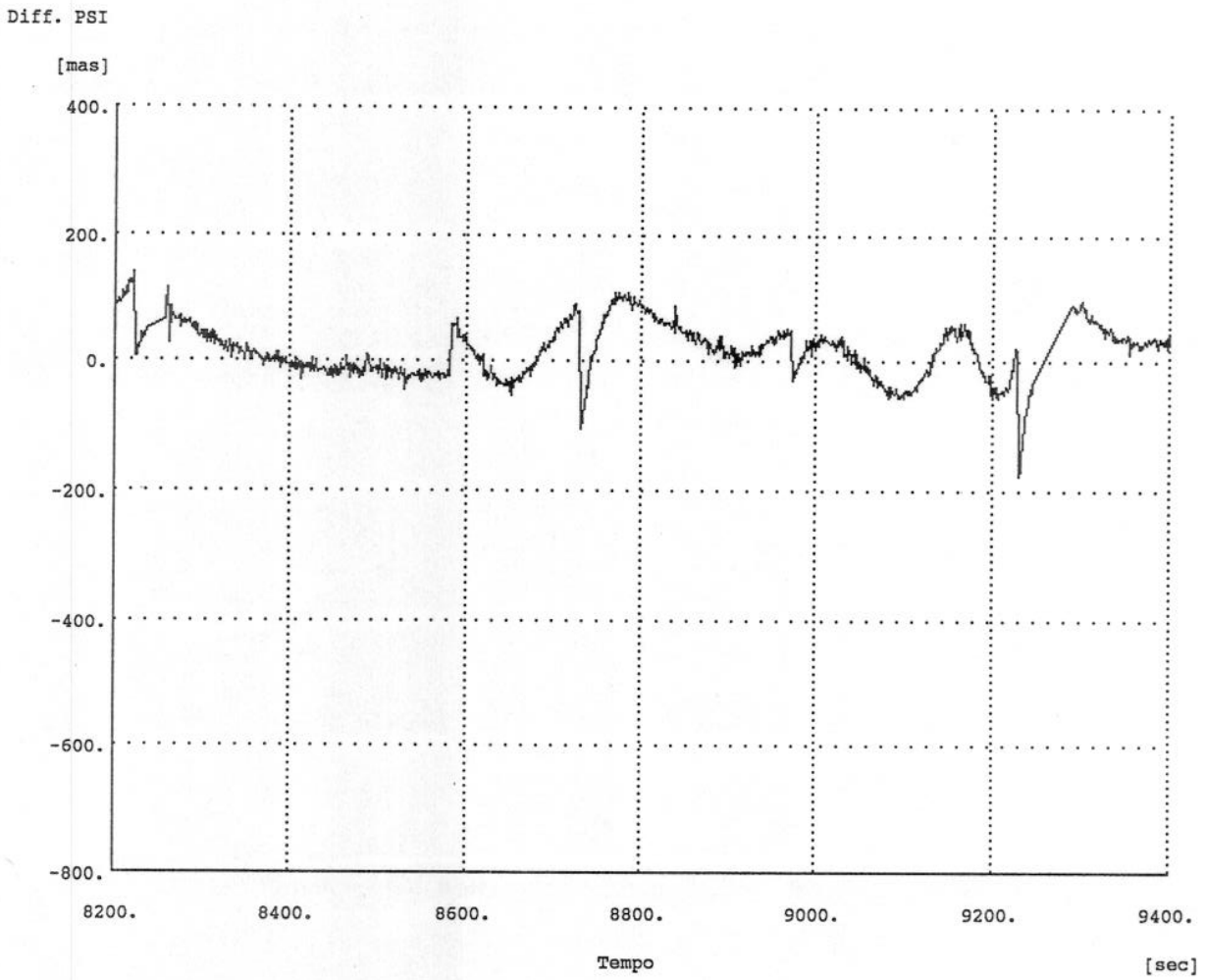


Differenza di assetto: componente TETA

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

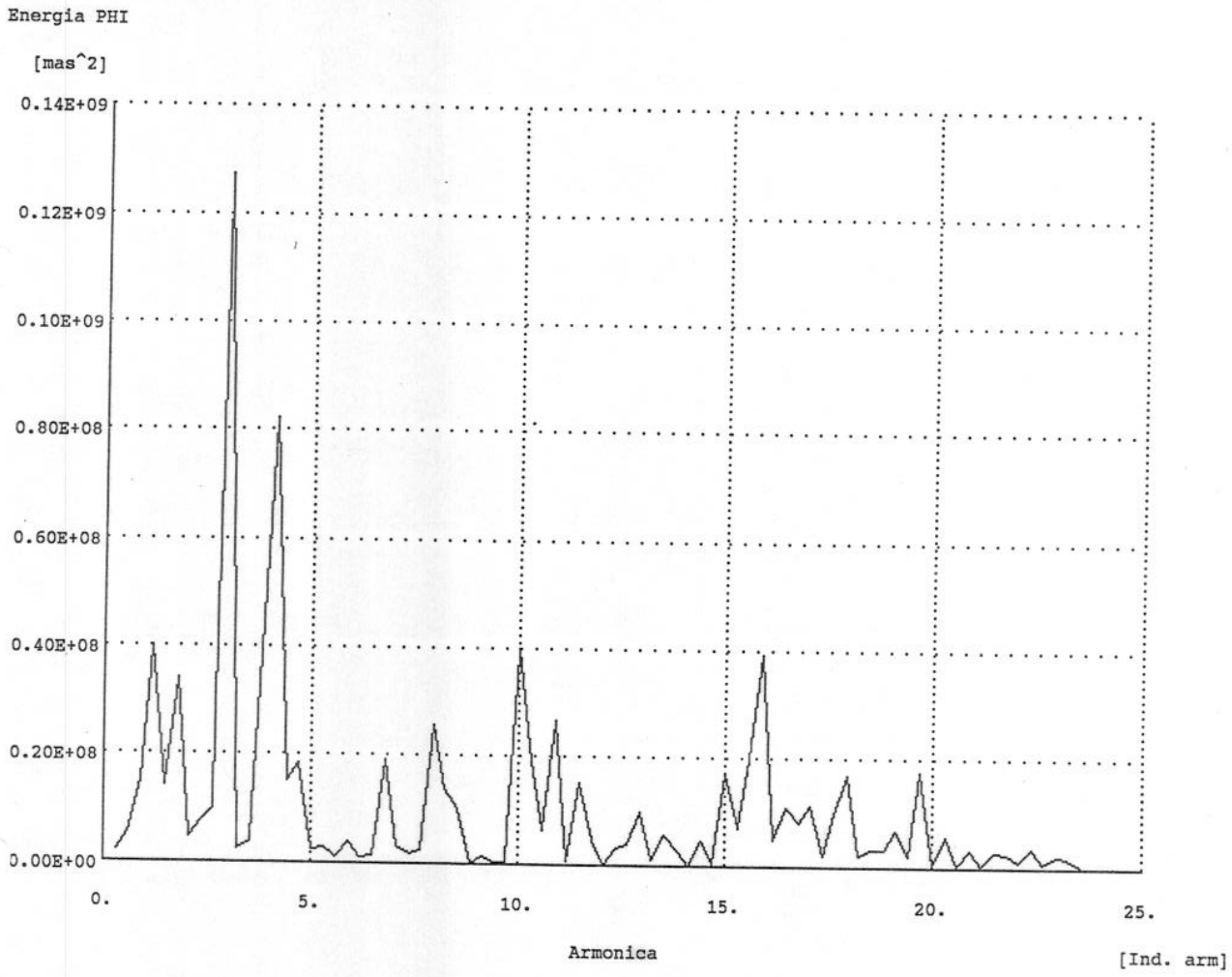


Differenza di assetto: componente PSI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

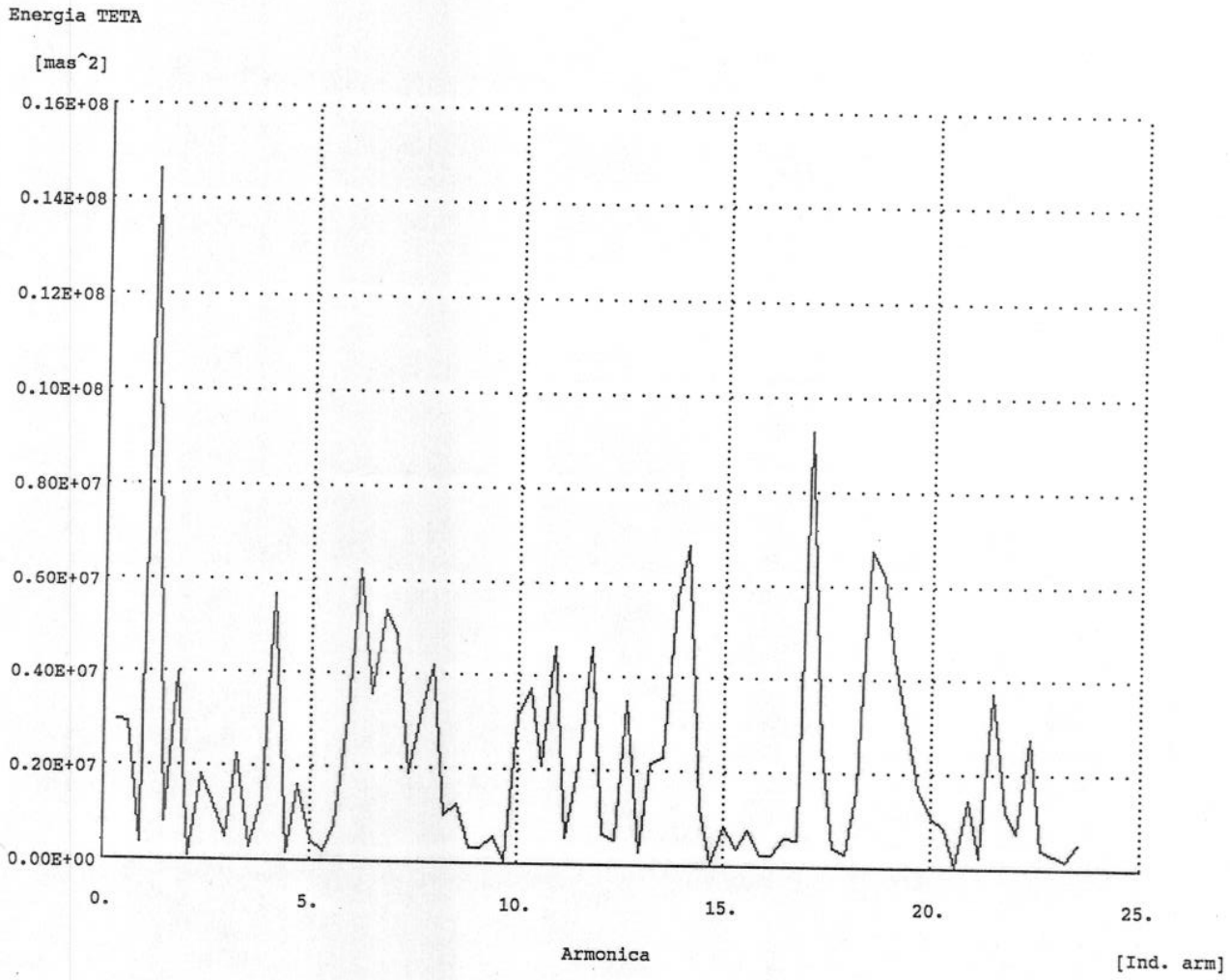


Spettro di energia: componente PHI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

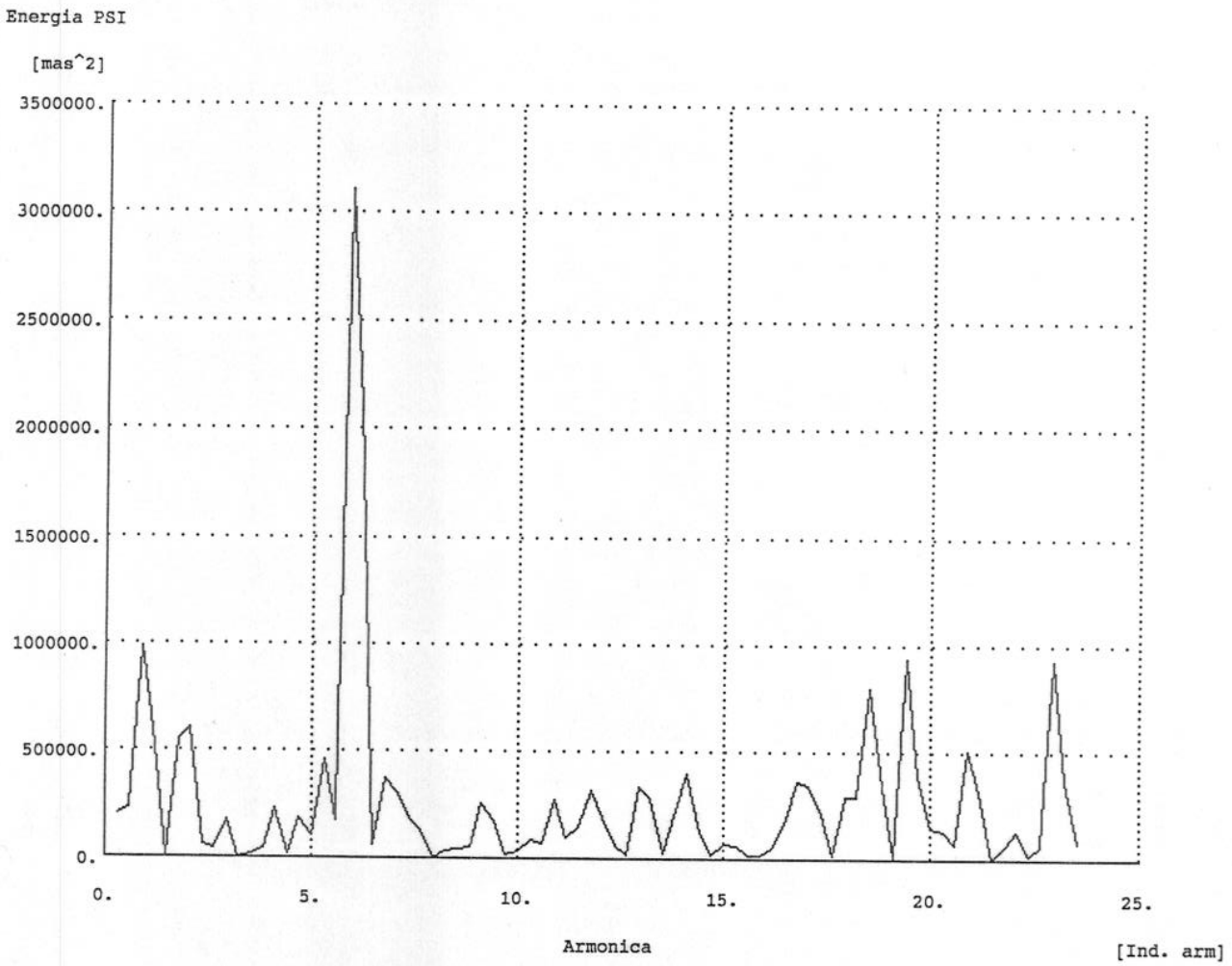


Spettro di energia: componente TETA

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

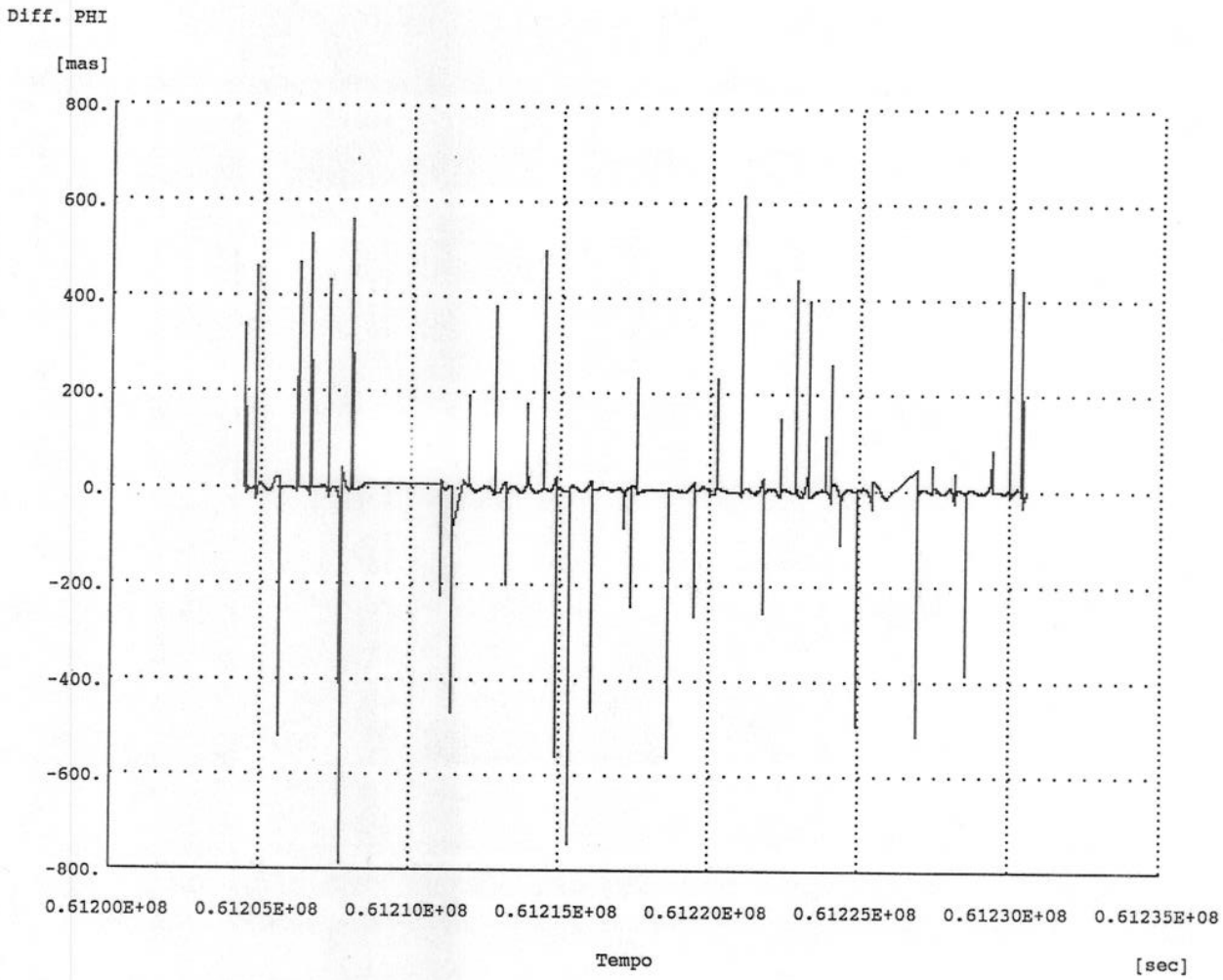


Spettro di energia: componente PSI

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 15-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

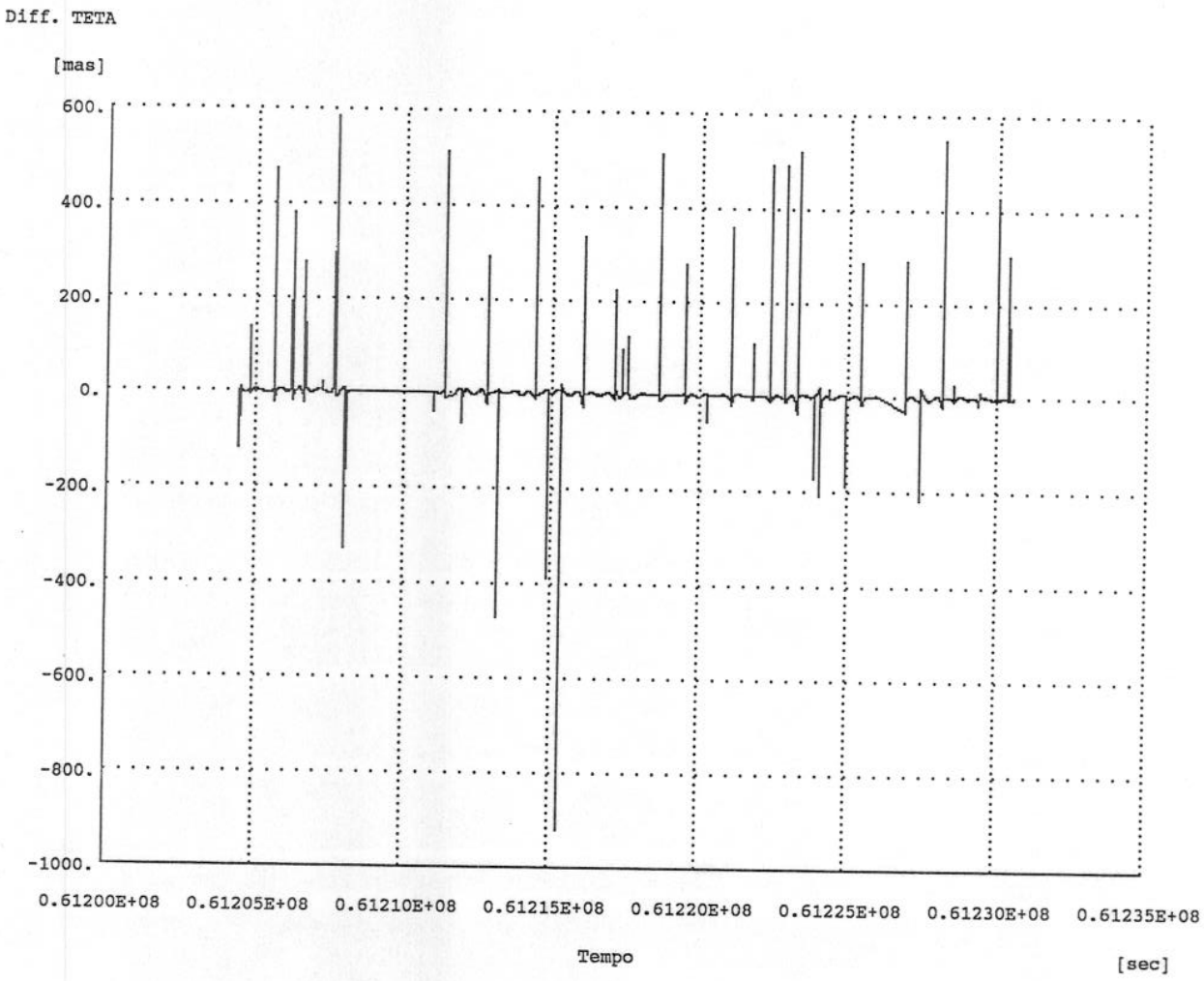


Differenza della componente PHI a seguito di attuazioni

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

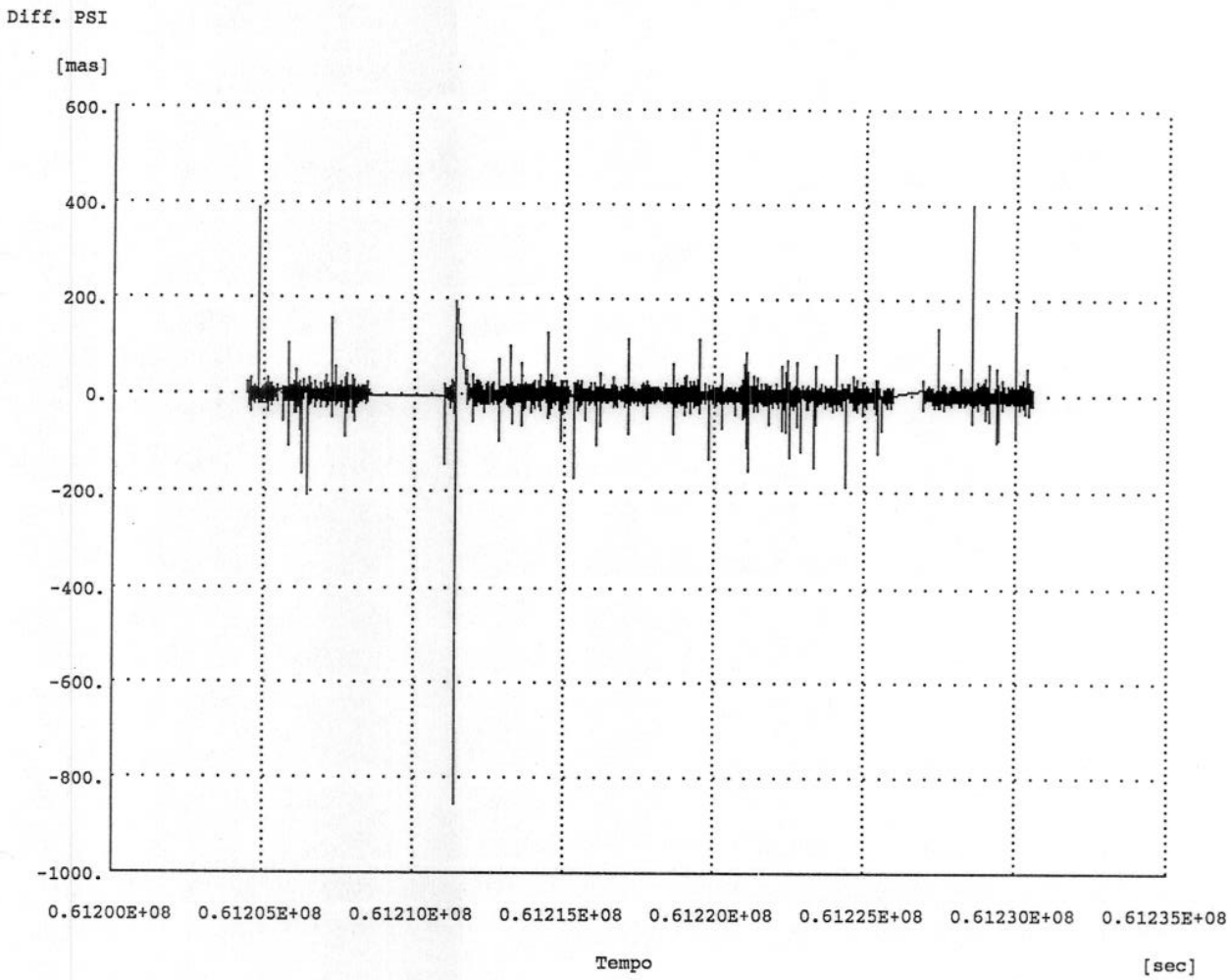


Differenza della componente TETA a seguito di attuazioni

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

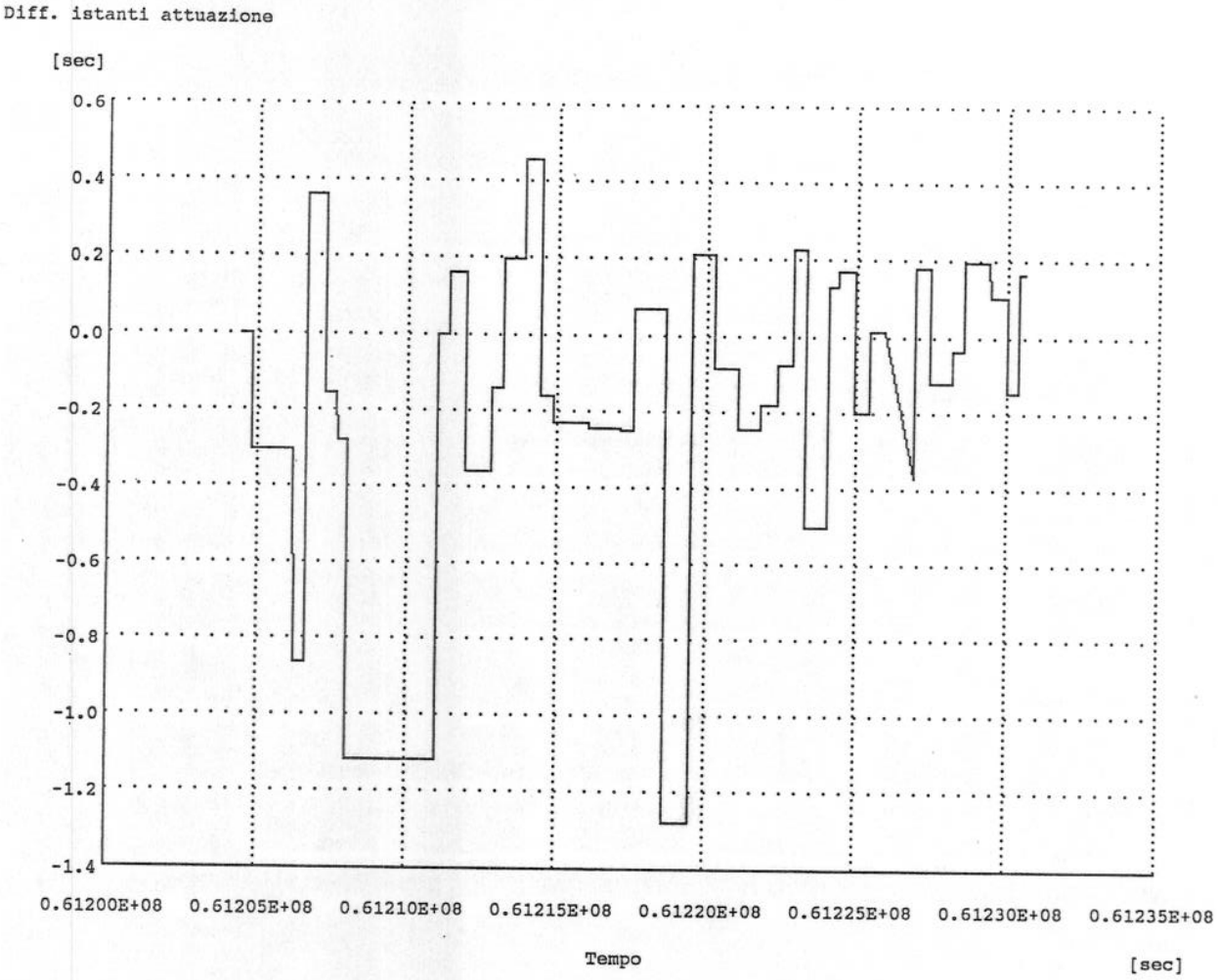


Differenza della componente PSI a seguito di attuazioni

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

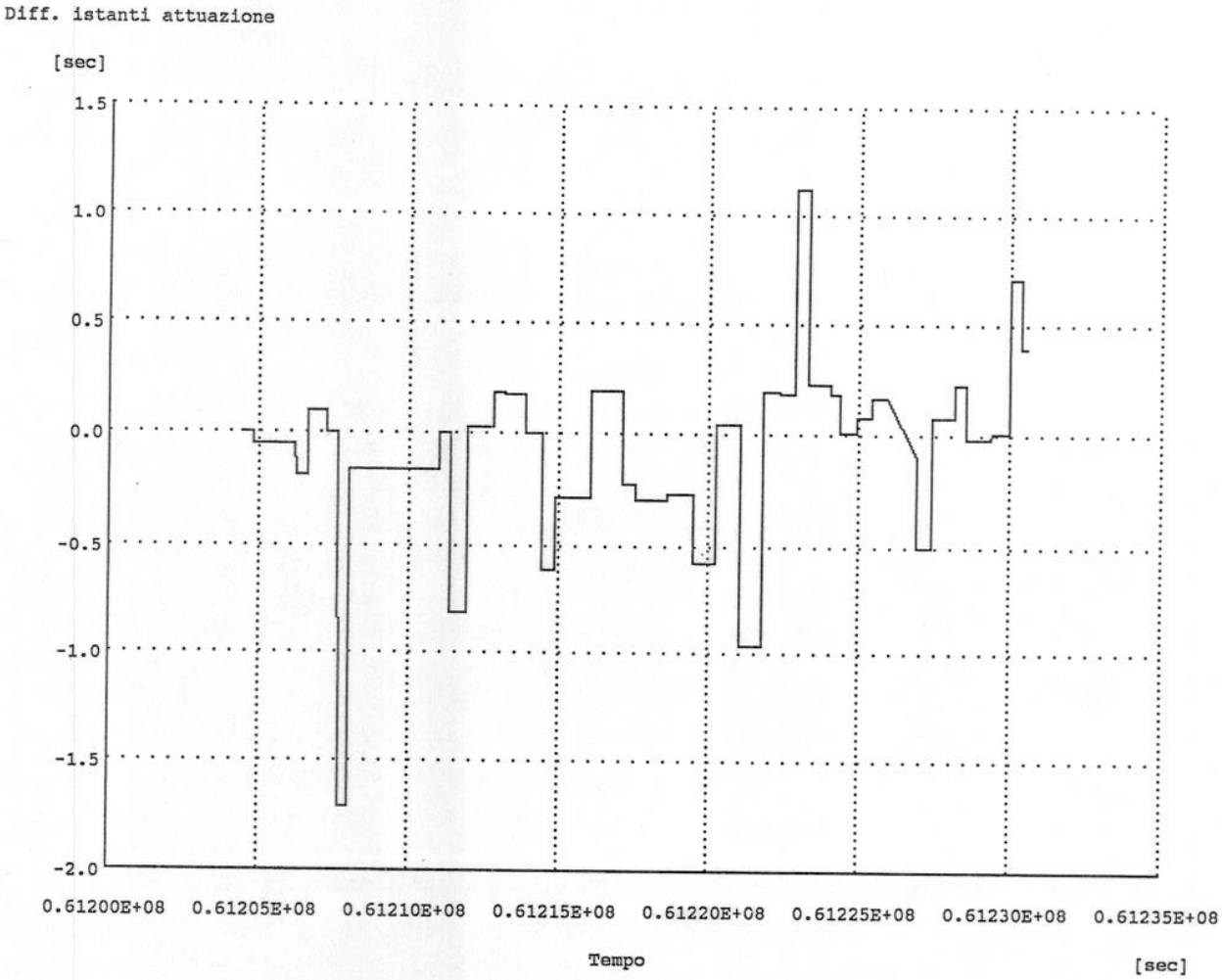


Differenza degli istanti di attuazione - asse corpo X

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino

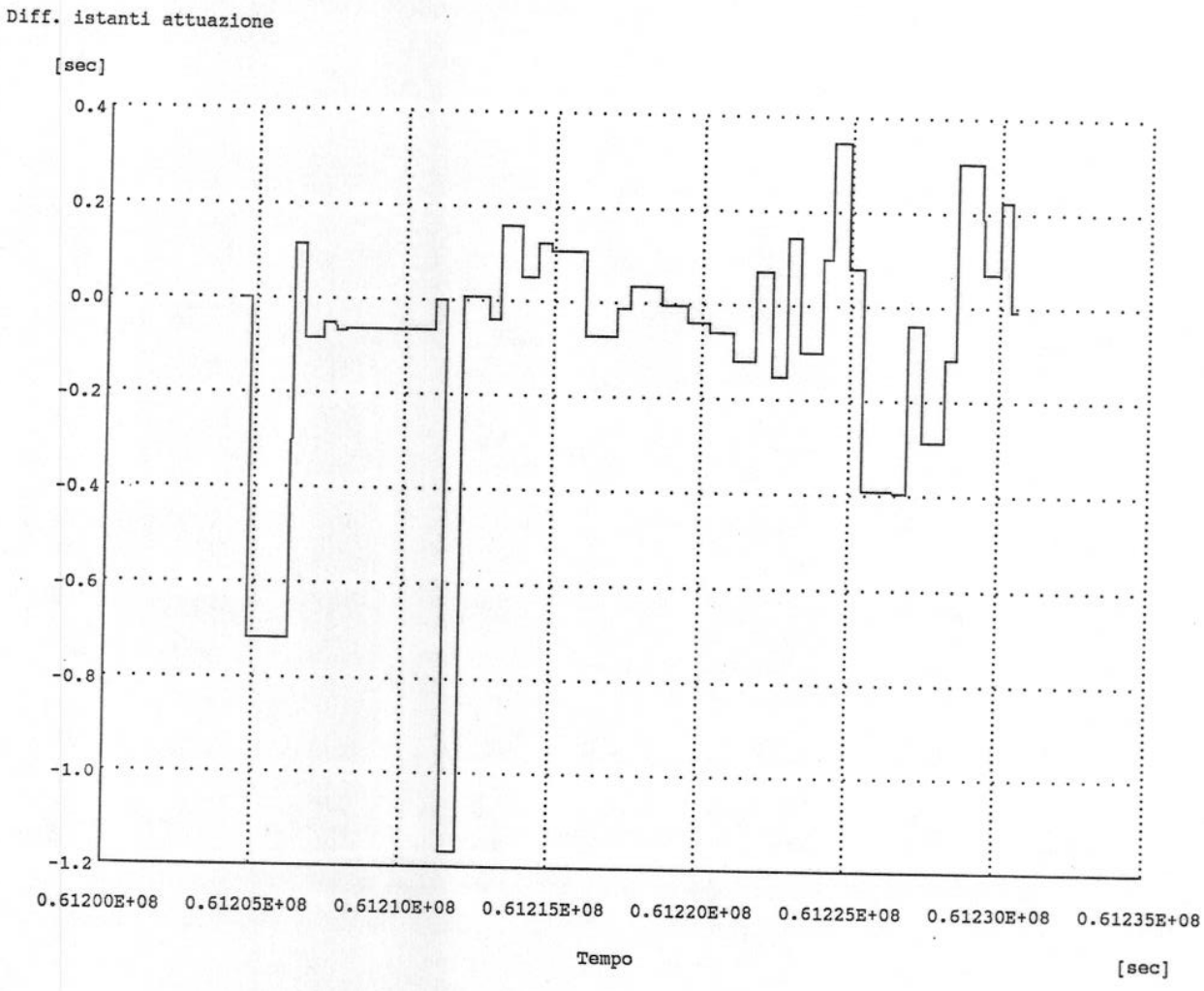


Differenza degli istanti di attuazione - asse corpo Y

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

CSS - Centro di Studi sui Sistemi - Torino



Differenza degli istanti di attuazione - asse corpo Z

Confronto ATTIF-3000-2 con NDACATTITCUO9003

Date: 22-OCT-90

ANNEX
~~X~~
VIII

Processing of double and multiple systems with only one entry in the INCA database

Systems with one entry.

- **Double systems** : only one entry is given to a double system if the separation between the two component is smaller than 10 arcseconds.

- **Multiple systems** : only one entry is given to any subset of components such that the distance of one component from at least one of the other components is smaller than 10 arcseconds. An additional entry is retained for any component at a distance larger than 10 arcseconds from each of the other components.

What is the unique entry ?

- if $\Delta m \geq 1.2$ **magnitude**, the data of **primary component** are retained.

- if $\Delta m < 1.2$ **magnitude**,
  - and **if** the system contains more than 2 "components" (*)
    or **if** individual positions are not available for each component,
    then the **photocentre** is taken.
  - else the **geometric centre** between the two components is taken.

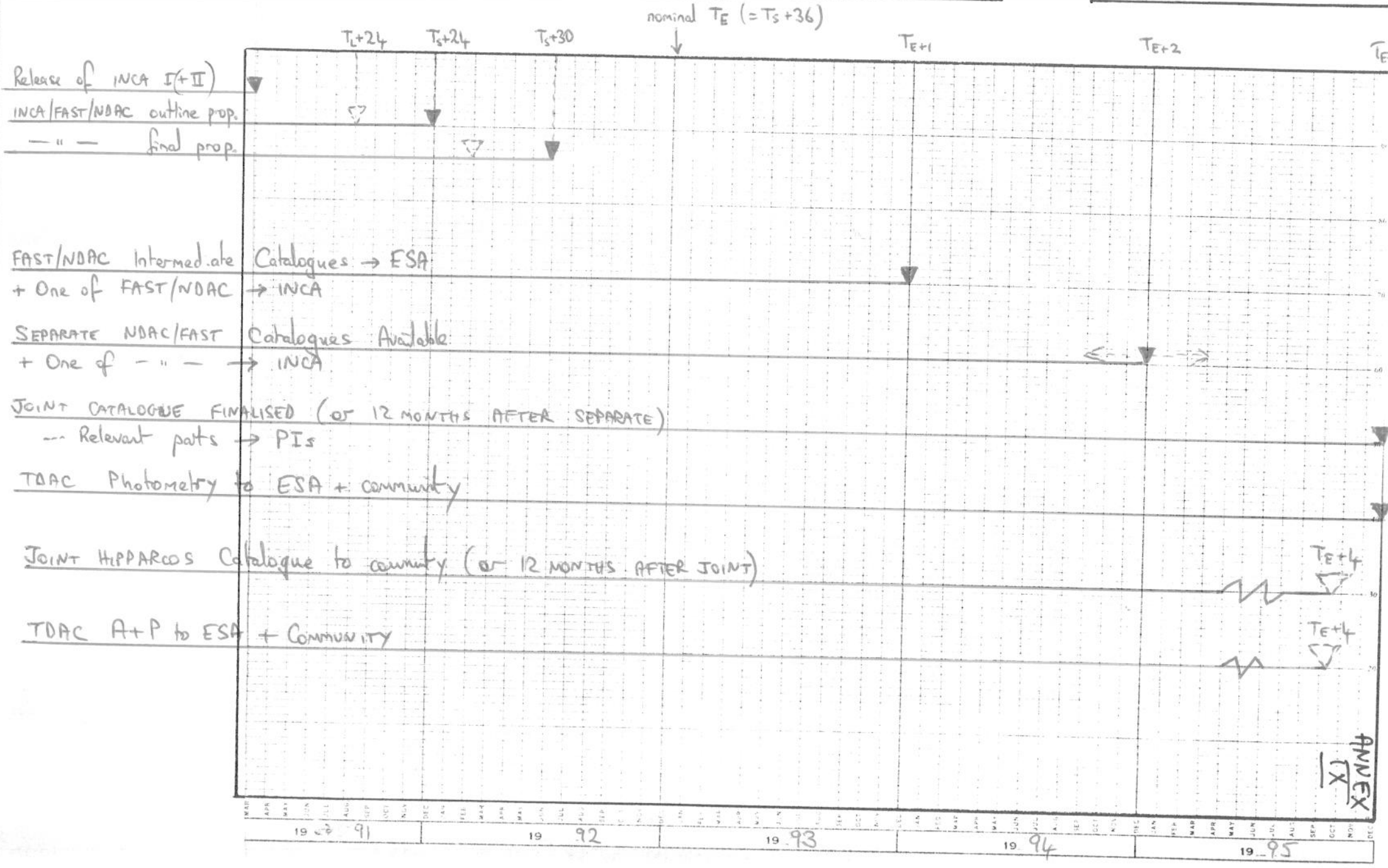
(*) one "component " = the primary component
or any other component with $\Delta m < 1.2$ mag. with respect to the primary. The other components are not considered.

Remark : for separations $\rho \leq 3$ **arcseconds**, the **photocentre** is systematically taken (no, or no valuable, individual positions generally available).

SUBJECT: AGREEMENT / DATA DISTRIBUTION

DATE: 19/10/90

AUTHOR: MACP



ANNEX IX

ANNEX X

Oct 19 11:38 1990 cats Page 1

Possible early catalogues

Based on the first 12 months of observations some catalogues should be published on magnetic tape.

Publication possible in 1992 would be:

1. RGO SM catalogue
positions +-100 mas, B, V 100 000 stars
=80000 Hip.st. + 20000 non-Hip.stars

2. TICR
positions +-100 mas, m (B,V?) 400 000 stars
(but >600 000 stars for TDAC)

3. Hip. main field, NDAC or FAST
positions +-10 mas, mH 100 000 stars

Question: Which catalogues - if any?

==========

Agreement says:

Intermediate cats. from NDAC and FAST to ESA:
1990.0 + <3,5 = <1993.5

Final Hip. cat. to ESA: 1990.0 + 3 + 2 = <1995.0
" " " public: 1996.0, if End of Mis = 1993.0

Tycho phot. cat. public: EofM + 3 yrs = 1996.0
Tycho astrom. cat. public: EofM + 4 yrs = 1997.0

EH 90.10.19